Testimony of Jack Dangermond

President, ESRI

Before the U.S. House Committee on Government Reform

Subcommittee on Technology, Information Policy, Intergovernmental Relations, and the Census

June 10, 2003

Chairman Putnam, Ranking Member Clay, distinguished members of the subcommittee, it is my privilege to share my thoughts on the mission-critical nature of the use of geographic information system GIS (technology) and digital geographic data in creating a safe, secure, and sustainable nation; in improving federal government effectiveness; and in facilitating vertical government information integration between local, state, tribal, and federal agencies.

I commend Chairman Putnam for demonstrating insightful leadership in holding this hearing at such a critical juncture in the evolution of GIS usage in the United States.

Government is inherently geographic. The relationship between government and geography is so strong that much of the business of government is often described as geopolitical.

From the beginnings of the Republic, geographic intelligence was acknowledged by the Constitution itself.

Through the evolution, for example, of our nation's geodetic control, public land survey system, and authoritative nautical charts that were the responsibility of the "big four" civilian mapping agencies (Bureau of Land Management, National Ocean Service, U.S. Forest Service and U.S. Geological Survey) to the adoption of geographic information systems in the day-to-day work of practically every federal department and agency in the last decade of the 20th century, the American people and economy have been well-served by sound geographic knowledge.

For example

- The U.S. Census Bureau has relied increasingly on mailed questionnaires in recent decades. Therefore, it had a need for an accurate address list for every household in the United States. These address lists were automated and tied to digitized street maps for the 1980 and 1990

censuses. The 1990 census TIGER files (containing all the streets and address ranges associated with them) were made readily available on CD–ROM. The full economic impact of this *one* program has not been fully studied. Local governments, planners, insurance companies, the U.S. Postal Service, and first responders use this fundamental geographic data. It is critical to the electric and gas utilities, overnight delivery, and the logistics industries. It also gave birth to private sector, value-added data businesses, which improve on this government-created data.

- The Department of Defense's global information infrastructure utilizes GIS as a key component in providing timely and accurate coordination between the war fighter and command. GIS use has been an important part of the wars in Afghanistan and Iraq as well as the continuing war on terrorism.

- The $600 billion construction, home building, and public works sectors rely on accurate demographic, land use, infrastructure, and property ownership records that are created and managed by GIS.

- The $300 billion per year timber, recreation, and agriculture sectors rely on geological maps, public land survey, ecosystem management data sets, and soil maps.

In the 1960s and 1970s, private sector software companies, such as my own, brought to market GIS tools, which along with sister technologies of GPS and remote sensing, are an estimated $5 billion a year business. Innovations in GIS have been led primarily by US based technology companies. Today thousands of GIS implementation companies are found in every state. Universities and colleges have successful GIS programs training a new generation for this emerging technology sector.

At the same time, the integrating nature of GIS impelled the federal government to begin to improve coordination between itself and other government entities. Hence, the Federal Geographic Data Committee was authorized by Executive Order 12906 in 1994. Today, GeoSpatial One-Stop is one of a handful of e-government initiatives of the president's Management Council.

With the continued technical innovation of commercial GIS companies, coupled with the increasing use of the Internet to deliver both geographic data and services, the federal geospatial community has reached a critical juncture.

The major challenges now facing the federal government in effectively using GIS include

- Building enterprise-wide GISs stems within agencies.

- Building interdepartmental data-sharing architecture.

- Building the National Spatial Data Infrastructure, via GeoSpatial One-Stop, to knit together a national GIS for vertical integration of state, local, and federal assets.

- Protecting citizen access to data, which they have paid to create, while at the same time keeping the most sensitive geographic data out of the hands of those who would do us harm; in other words, instituting a homeland security GIS.

- Recognizing the value of GIS assets and implementing the role of geographic information officers who work with department and agency CIOs.

- Taking the next step in the evolution of the Federal Geographic Data Committee through increased participation and oversight by the Office of Management and Budget.

- Coordinating data buys between agencies, where feasible.

- Continued reliance on the private sector to deliver interoperable and modern geographic information systems.

- Recognizing that spending efficiencies can be had through coordination, but that fundamentally, the use of GIS has begun to enter the work flow processes of government agencies. As with word processing or e-mail, one cannot simply "centralize" the use of GIS—it is increasingly integrated into the day-to-day operations of effective governance.

Thank you for the opportunity to participate in this hearing, and on behalf of the more than one million users of commercially off-the-shelf (COTS) GIS, we wish you well in your deliberations on this important topic.

I will be happy to answer any questions now or in the future.

(Relationship between geographic information and economic sectors: National Academy of Public Administration, *"Geographic Information for the 21st Century"*, p. 13)