NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

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FOR IMMEDIATE RELEASE
June 15, 2009

Study: Economic Value of NOAA's Geodetic Services at $2.4 Billion
Proposed Modernization Program to Net Additional $522 Million

The NOAA-managed National Spatial Reference System (NSRS), the official U.S. government source for precise latitude, longitude and elevation measurements, provides more than $2.4 billion in potential annual benefits to the U.S. economy, according to a new independent study. Refining and modernizing the system for measuring elevation has the potential to net an additional $522 million in annual economic benefits.

Conducted by Leveson Consulting, Jackson, N.J., the study analyzed the total economic value of all revenue generated from private surveying and mapping as well as from related services in the government and nonprofit sectors. It also assessed the potential cost savings due to improved accuracy of position and elevation data.

"For more than 200 years, surveyors, mapping professionals, engineers and many others have used the NSRS as the foundation for establishing property boundaries, constructing buildings, roads, bridges and levees, creating accurate maps and charts, and much more," said John H. Dunnigan, NOAA's assistant administrator for the National Ocean Service. "The nation is literally built on this framework."

The study finds that NOAA's Continuously Operating Reference Stations (CORS) network – part of NSRS – provides an estimated $758 million per year in benefits. This advanced system marries the concept of reference stations on the ground with GPS technology to provide more precise positioning delivered via the Internet. Scientific, military, and engineering activities usually require accuracy of a few inches versus typical commercial GPS users requiring accuracy of a few yards.

GPS will also soon supplant passive markers on the ground, which currently determine precise elevations under the North American Vertical Datum (NAVD88). The initiative, "Gravity for the Redefinition of the American Vertical Datum" (GRAV-D), will reduce elevation measurement errors from a range of 16 inches to six feet, to under an inch.

Improving vertical data will reduce elevation errors in floodplain mapping. This could affect the placement of building structures, highways, and public safety requirements, including levee construction and evacuation routes and subsequently impact insurance rates. GRAV-D will also help users anticipate the potential damage associated with coastal storms, river flooding, sea level rise, and climate change that a home, road, or other structure might incur. Approximately $240 million in costs could be saved annually through improved floodplain management.

"GRAV-D is the future foundation of all height-related activities in the United States ranging from determining where water will flow for irrigation purposes to identifying potential floodplains," notes Juliana Blackwell, director of NOAA's National Geodetic Survey. "The

findings of this study, combined with the potential impacts of a modern GRAV-D system, show the significant impact on public safety and economy that NOAA's national spatial reference services provide."

President Barack Obama has requested $4 million in the FY2010 budget to begin collecting data to improve elevation information as a foundation for better commerce, economic efficiencies, and to better protect the public from coastal hazards and flooding. This funding, if approved by Congress, will support the development of GRAV-D.

Since 1807, NOAA's National Geodetic Survey and its predecessor agencies have partnered with surveyors in both the public and private sectors to place hundreds of thousands of survey marks throughout the United States, determining positional information for each mark. Each survey mark is published with accurate horizontal and/or vertical information such as latitude, longitude, and/or height. The National Geodetic Survey coordinates and enhances the NSRS comprised of this collection of more than 1.5 million survey points along with 1,300 CORS.

NOAA understands and predicts changes in the Earth's environment, from the depths of the ocean to the surface of the sun, and conserves and manages our coastal and marine resources. Visit http://www.noaa.gov.

On the Web:
NOAA National Geodetic Survey: http://www.ngs.noaa.gov
NOAA Geodetic Survey History: http://celebrating200years.noaa.gov/transformations/spatial/

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