President Clinton:
Improving the Civilian Global Positioning System (GPS)
May 1, 2000

"The decision to discontinue Selective Availability is the latest measure in an ongoing effort to make GPS more responsive to civil and commercial users worldwide…This increase in accuracy will allow new GPS applications to emerge and continue to enhance the lives of people around the world."

President Bill Clinton
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As part of his on going effort to bring the benefits of government investments in science and technology to the civilian and commercial sectors, President Clinton ordered that the intentional degrading of the civilian Global Positioning System (GPS) signal be discontinued at midnight tonight. Without any additional costs to users or the government, the President's actions will bring tangible benefits to millions of individuals and business around the world that use GPS. The increased performance is also expected to accelerate its acceptance and use by businesses, governments, and private individuals in the U.S. and around the world that will enjoy increases in productivity, efficiency, safety, scientific knowledge and quality of life.

GPS IS A CRITICAL TECHNOLOGY FOR INDIVIDUALS AND BUSINESSES AROUND THE GLOBE. GPS is a dual-use system, providing highly accurate positioning and timing data for both military and civilian users. There are more than 4 million GPS users world wide, and the market for GPS applications is expected to double in the next three years, from $8 billion to over $16 billion. Some of these applications include: air, road, rail, and marine navigation, precision agriculture and mining, oil exploration, environmental research and management, telecommunications, electronic data transfer, construction, recreation and emergency response.

GPS IS THE GLOBAL STANDARD. GPS has always been the dominant standard satellite navigation thanks to the U.S. policy of making both the signal and the receiver design specification available to the public completely free of charge.

NEW TECHNOLOGIES ENHANCE AMERICA'S NATIONAL SECURITY. The U.S. previously employed a technique called Selective Availability (SA) to globally degrade the civilian GPS signal. New technologies demonstrated by the military enable the U.S. to degrade the GPS signal on a regional basis. GPS users worldwide would not be affected by regional, security-motivated, GPS degradations, and businesses reliant on GPS could continue to operate at peak efficiency.

GPS IMPROVED SIGNAL WILL BRING INSTANT BENEFITS TO MILLIONS OF GPS USERS. The improved, non-degraded signal will increase civilian accuracy by an order of magnitude, and have immediate implications in areas such as:

- *Car Navigation:* Previously, a GPS-based car navigation could give the location of the vehicle to within a hundred meters. This was a problem, for example in areas where multiple highways run in parallel, because the degraded signal made it difficult to determine which one the car was on. Terminating SA will eliminate such problems, leading to greater consumer confidence in the technology and higher adoption rates. It will also simplify the design of many systems (e.g., eliminate certain map matching software), thereby lowering their retail cost.

- *Enhanced-911:* The FCC will soon require that all new cellular phones be equipped with more accurate location determination technology to improve responses to emergency 911 calls. Removing SA will boost the

accuracy of GPS to such a degree that it could become the method of choice for implementing the 911 requirement. A GPS-based solution might be simpler and more economical than alternative techniques such as radio tower triangulation, leading to lower consumer costs.

- *Hiking, Camping, and Hunting:* GPS is already popular among outdoorsmen, but the degraded accuracy has not allowed them to precisely pin-point their location or the location of items (such as game) left behind for later recovery. With 20 meter accuracy or better, hikers, campers, and hunters should be able to navigate their way through unmarked wilderness terrain with increased confidence and safety. Moreover, users will find that the accuracy of GPS exceeds the resolution of U.S. Geological Survey (USGS) topographical quad maps.

- *Boating and Fishing:* Recreational boaters will enjoy safer, more accurate navigation around sandbars, rocks, and other obstacles. Fishermen will be able to more precisely locate their favorite spot on a lake or river. Lobster fishermen will be able to find and recover their traps more quickly and efficiently.

- *Increased Adoption of GPS Time:* In addition to more accurate position information, the accuracy of the time data broadcast by GPS will improve to within 40 billionths of a second. Such precision may encourage adoption of GPS as a preferred means of acquiring Universal Coordinated Time (UTC) and for synchronizing everything from electrical power grids and cellular phone towers to telecommunications networks and the Internet. For example, with higher precision timing, a company can stream more data through a fiber optic cable by tightening the space between data packets. Using GPS to accomplish this is far less costly than maintaining private atomic clock equipment.

Additional information about GPS and the Selective Availability decision is available online at the Interagency GPS Executive Board web site: http://www.igeb.gov