MAF / TIGER Modernization

CBD Announcement of a Request for Information (RFI)

CBD Announcement

Class: Improving the Accuracy of the TIGER Data Base

SOL:

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Desc: Announcement of a Request for Information

1.	This RFI is focused on the realignment of the MAF/TIGER data base and does not deal with aspects such as software, database engines, and hardware. When realignment is completed the TIGER data base must be free of any restrictions on distribution. The purpose of this notice is to identify and establish initial interest and points of contact from private industry**.**

2.	The Geography Division of the U.S. Census Bureau is responsible for developing geographic applications and executing the geographic and cartographic activities needed to support the Census Bureau in collecting and disseminating data from its censuses and

household surveys. As part of the Census Bureau's effort to modernize the Master Address File / Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) system, the Geography Division is proposing an effort to enhance the process for collecting and disseminating the geographic and cartographic information in its database and modernizing the corresponding processing technology.

3.   In the early 1980s, the Geography Division created the TIGER data base to manage all relevant geographic features (roads, railroads, water), boundaries, and area identifiers needed to support the programs of the Census Bureau. In addition to feature type and location information, attributes of the features are collected (e.g., feature names and street address ranges). The database contains codes for every geographic area used for Census Bureau data tabulation. Additionally, TIGER data base contains some housing unit location information for non-city-style addresses (digitized housing unit map spots), but does not contain specific addresses. The TIGER data base is used extensively within the Census Bureau. The TIGER/Line files, extracts of selected information from the TIGER data base, are released to the public and used extensively by state, local and tribal governments, other federal agencies and private industry.

4.   The MAF, a permanent electronic list of residential and non-residential addresses, was developed following the 1990 decennial census. The MAF includes addresses that allow most census forms to be mailed, provides descriptions of living quarter locations enabling census enumerators to deliver forms and make follow-up visits to nonresponding addresses, and provides a mechanism to keep track of overall progress in completing each census and household survey. The MAF is linked to the TIGER data base. The MAF is restricted from public use by Title 13 of the *U. S. Code*.

5.   The use of the MAF/TIGER system has greatly improved the accuracy of addresses, geographic features, and boundaries and improved the efficiency of Census Bureau operations. Today, however, the functional processes that MAF/TIGER were designed to support have expanded significantly and the technology available to support these processes has improved dramatically. Preparations for Census 2000 highlighted the need for this aging national resource to be updated to successfully execute the activities up to and including the 2010 decennial census.

6.   One of the goals of the MAF/TIGER Modernization initiative is to improve the accuracy of the TIGER data base by correctly locating every street and other map feature within the database and each MAF address. In recent interviews with both internal and external census data users, more than 50 organizations have stated their need for more accurate locations of TIGER data. Improving the accuracy of feature coordinates will facilitate the gathering of accurate housing unit location information in relation to the accurate base map, thereby enabling enumerators to relocate those structures in the field for follow-up operations. In addition, a more accurate TIGER will facilitate digital data exchange with federal, tribal, state, local, and private partners, avoiding duplication of effort and expense among those organizations.

7.   A study recently commissioned by the Census Bureau concludes that satellite and aerial imagery, Global Positioning System (GPS), and other technical capabilities will be

valuable in helping to spatially enhance the coordinates of TIGER data. The primary objective of this RFI is to locate capabilities that will either realign the current features in the TIGER data base to achieve a greater absolute positional accuracy for roads and other map features or provide an equivalent spatial and attribute data set. Potential sources include extracting features from imagery, GPSed data, or from data collected using other technical methodologies and then provide the extracted features for realignment of the features in the TIGER data base. The absolute positional accuracy of a feature is considered to be relative to its position on the earth's surface.

8.   Realignment or development capabilities are being sought to correctly locate every street, structure, and other map feature in the TIGER data base. In addition to improving the positional accuracy of the existing features, there is a need to identify and add new features to the database, identify and remove features from the database that do not exist on the ground, and implement an effective automated feature change detection methodology to continually maintain the temporal accuracy (currentness) of the database. The objective is to have an accurate TIGER data base by the end of FY 2006.

9.   Specifically, this RFI is distributed to determine interest and capability for improving and maintaining the positional and temporal accuracy of the information in the TIGER data base.   Interest and capability could be in any of the following forms. Innovative solutions to satisfying items from the list below are encouraged.

a.   Feature identification and extraction from imagery (quarter meter, 1 meter, and 5 meter spatial resolution) of all streets (to include all roads), structures (homes, businesses, buildings, etc.), railroads, and major waterways/bodies of water within the United States and all its associated Island Areas.

b.   Feasibility of using only GPS data to obtain all streets (to include all roads), structures (homes, businesses, buildings, etc.), railroads, and major waterways/bodies of water within the United States and all its associated Island Areas.

c.   Proposals for alternate technical methodologies of data collection (excluding use of imagery or GPS) to obtain all streets (to include all roads), structures (homes, businesses, buildings, etc.), railroads, and major waterways/bodies of water within the United States and all its associated Island Areas.

d.   Proposals for alternative approaches, other than those described in items 1, 2, and 3 above to replace all or some of the information in the TIGER data base.

e.   Potential for using combined imagery and GPS data or alternate technical methodologies of data collection to obtain more accurate results. Would the use of multiple collection technologies be cost effective?

f.   Geographic feature alignment capabilities for realigning the information in the TIGER data base using either the feature extracted from imagery, GPS data, or other technical collection methodologies for improved positional accuracy.

g. If an imagery solution is envisioned, availability of off-the-shelf satellite and/or aerial imagery that is less than three year old in 2003. What percentage of coverage for the United States and all its associated Island Areas could be successfully obtained? (Note: initial studies suggest that urban areas will require 1 meter or greater resolution imagery but that using imagery with a spatial resolution between 2 and 10 meters can potentially satisfy the accuracy needs in rural areas.)

h. If an imagery solution is envisioned, collection of new satellite and aerial imagery. Collection needs would be that percentage remaining after purchasing off-the-shelf imagery. Approaches to collection must support, at a minimum, 100% coverage within three years.

i. Implementing an effective feature change detection methodology to maintain the integrity of the information in the TIGER data base once it is completed.

j. Require initial change detection at the geographic area targeting level for identifying areas with extensive change in the inventory of map features (growth areas) in the U.S. between the year 2000 and 2003.

k. Data storage solutions. If imagery is a viable option what opportunities are available for its access?

l. Require business models and policy options suggesting alternate licensing of imagery, GPS data, or other data provided.

m. Innovative solutions to improving the accuracy of the feature locations in the TIGER data base are encouraged and expected.

10.   Comments on this announcement should be submitted no later than close of business on February 28, 2001. Any response to this notice must also include the following: company name, company web site, contact person, address, telephone and fax numbers, and e-mail address. Company information will be posted on the web site for this project. Input on these important issues is greatly appreciated, but responses will not be acknowledged. All questions related to this RFI will be publicly responded to within 72 hours on a Census Bureau web site, http://www.census.gov/geo/mod/maftiger.html. It is the responsibility of interested parties to monitor this web site periodically to receive answers to questions asked about the RFI and keep abreast of the milestones of the project.

11.   Limit responses to 10 pages or less. Input should be emailed to tigermodernization@geo.census.gov using a PDF format. This is not a request for proposal or invitation for bids, but is to be considered as a market research tool that will assist in the development of the RFP. Participation in this effort is strictly voluntary with no cost or obligation to be incurred by the U.S. Government.

12.   Additional information on TIGER can be obtained on the U.S. Census Bureau website at http://www.census.gov/geo/mod/maftiger.html, specifically TIGER/Line documents and a recently completed Booz, Allen, and Hamilton MAF/TIGER Modernization Study.

13.   If you have any questions contact Leslie Godwin or Mike Keister at (301) 785-6483 or email tigermodernization@geo.census.gov.