Position Paper for FGDC Theme on Addresses

Background

The 2012 National Geospatial Advisory Committee (NGAC) report titled *The Need for a National Address Database*[1] set forth the overarching vision that: "*The National Address Database is an authoritative and publicly available resource that provides accurate address location information to save lives, reduce costs, and improve service provision for public and private interests*".

To further that vision, The National Address Database (NAD) Summit was held in April 2015, sponsored by the United States Department of Transportation (USDOT). The Summit was attended by representatives from 34 state and local governments with active address collection/maintenance programs, 9 federal agencies with a need for addresses, and various private sector and non-profit stakeholders. The Summit provided a specialized forum for generating ideas and gathering input on the feasibility and format of an open, shared address database for the nation. The stated objective of the summit was to "identify and discuss possible options for developing a National Address Database (NAD) and to discuss feasibility, possible approach, and next steps."

Summit participants came to broad agreement on four key points that can help guide the direction a NAD initiative may take:
1. Local authorities are the authoritative source for address assignment and are data set originators.
2. State authorities should be statewide aggregators of county and local data sets.
3. Given the vast and complex nature of the United States it is critical to recognize the role of non-state governmental entities such as Tribal Nations, US Territories and the District of Columbia play in an NAD.
4. Federal leadership and support is needed for there to be a sustainable national approach.

The key outcome of the summit was that action and activity are required to move the NAD forward. To that end, the participants agreed that a priority next step would be to pursue pilot projects as quickly as possible to both tackle unresolved issues and demonstrate feasibility of the NAD database, and USDOT took action to lead and initiate a pilot[2].

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[1] The NGAC report *The Need for a National Address Database* can be found at
https://www.fgdc.gov/ngac/meetings/december-2012/NGAC%20National%20Address%20Database%20Paper.pdf
[2] The National Address Database Summit Report can be found at
https://www.transportation.gov/mission/open/national-address-database-summit-report

The Role of the Federal Government in the Development and Management of a National Address Database

The federal government has the responsibility to assume the leadership role in the compilation and hosting of the open NAD. In support of many national programs, the federal government has extensive relationships with state, local, and tribal governments that can contribute to a large, national effort to compile and distribute the NAD on a regular basis. This includes taking the lead role in identifying stakeholders and partners, initial compilation of the NAD, managing the infrastructure upon which it is hosted, and determining the appropriate roles of partner federal agencies, other levels of government organizations, the commercial sector and academia. The NAD will be populated from authoritative sources (states, counties, tribal) to create an authoritative national source. The federal government must provide a strong feedback loop to the data owners so that they are aware of and can fix problems or errors found by customers of the NAD.

In October 2015, USDOT, in partnership with the Department of Commerce (USDOC), initiated the NAD Pilot. Two sets of parallel activities are being pursued with one set aimed at states, districts or tribal entities that have mature, statewide addressing initiatives in place (i.e., "the haves"), and the other set aimed at states, districts, tribal entities or regions where address point data is not widely available (i.e., "the have nots"). Two states, Arkansas and Arizona, are participating in the pilot.   A dozen or more jurisdictions, including volunteers that participated in the National Address Database Summit in April 2015, are willing to support the pilot and/or participate. The team worked with representatives of the National Tribal Geographic Information Support Center (NTGISC) and identified two tribal entities for potential participation: the Gila River Indian Tribe and the Navajo Addressing Authority.

The first critical task of the pilot determined the NAD Minimum Content Standard, and in February 2016, a draft National Address Database Minimum Content Standard was distributed to key stakeholders for comment.   The document outlines the content standard and approach to gather input and feedback from stakeholders. Once this first critical step is completed, the other key pilot objectives (workflows for address creation, best practices for address roll-up, etc.) will follow.

The NAD Minimum Content Standard will be used to compile a version 1 of the NAD. A 2013 survey conducted by the National States Geographic Information Council (NSGIC) revealed that, of the States that responded, 29 had statewide addressing programs. Of those 29 States, 7 reported complete coverage. Although additional resources are needed to create the ETLs (Extract, Transfer, Load) that will be needed to convert the various State and local schemas to the NAD minimum content standard, it is feasible to produce a version 1 of the NAD before the end of calendar year 2016.

Work still needs to be done to determine where and how the NAD will be hosted. The Geospatial Platform would be an ideal host for such an open, national geospatial resource. Various database platforms could be utilized for storage of the data and are under consideration.

The Appropriate Roles of Federal Agencies

The role of the federal government is to recognize the importance of addresses as a critical data layer of the NSDI. This entails creating a new data theme that would include both mailing and location (e.g. C&O Canal mile marker, bridges) addresses as well as longitude/latitude/elevation (x,y,z) and national grid coordinates. It is also the role of the federal government to appoint a federal agency that has a proven history of compiling and distributing large, complex geospatial datasets as data steward. Although the Census Bureau is one logical alternative to serve as Theme Lead, more research needs to be done to ensure that a Census led NAD would not fall under the restrictions of Title 13. DOT, as co-champion of this effort, could also serve as Theme Lead. Other federal agencies could that are major stakeholders in the NAD could also be candidates for Theme Lead, including Department of Interior.

Federal agencies will be data users and/or data providers. Federal agency data users need addresses to conduct their missions which could range from mailing information to knowing the location of an address to support public safety. Federal agency data providers offer authoritative address data either through the coordination of national partnership programs with tribal, state and local governments.

Federal Agency Leadership

The National Geospatial Data Act, Senate Bill 740 (SB740), provides the legal framework for the National Geographic Advisory Committee (NGAC) and the National Spatial Data Infrastructure (NSDI). With the call to include address data in the NSDI, a national address database would be stewarded under the overarching national geospatial data governance and management framework proposed in the legislation.

The USDOT and US Census Bureau are identified as the high-level Federal champions to spearhead messaging and advocacy for moving the NAD forward. Many other federal agencies are also stakeholders in the NAD.

USDOT has a variety clear business needs for national addressing information and fulfillment of federal responsibilities. Specific drivers and considerations include the following:

- Roads and addresses are closely related: In general, all addresses include a street name as part of the address.

- There are different address use cases for various DOT Divisions and Administrations: For example, addresses are often used to identify to location of accidents.

- US DOT has a major role in Next Generation 9-1-1 (NG911): The National Highway Traffic Safety Administration (NHTSA) is the lead federal participant in NG911 planning.

The US Census Bureau needs addresses to conduct the Decennial Census of Population and Housing, which is mandated by Article I, Section 2 of the Constitution. The decennial census tells us who we are and where we are going as a nation. States use the census to redraw their congressional districts. Communities use it to plan where to build schools, roads, and hospitals. Governments use it to allot funds and support.

Leadership is required at the federal level to proceed with a nationally coordinated, multi-sectoral, multi-discipline approach for implementing NAD. A sustainable and nationally-embraced NAD requires collaboration between multiple sectors and a coalition of subject matter experts (SMEs) and stakeholders. An understanding of stakeholder needs, application requirements, and platform alternatives is important for leaders to make well-informed decisions.

Local governments provide the best source of accurate and current address data and have a significant role as "data providers". While many municipalities and counties are actively investing in the creation and maintenance of address data for local purposes, the success of a NAD depends on their support and participation in a "rolled-up" national resource. Many local governments recognize that the local benefits are real and compelling -- saved lives through improved multi-jurisdictional public safety response, expedited disaster recovery dollars, support for economic development -- but others will view this initiative as an unwelcome burden that potentially exposes sensitive citizen information. A key element in a successful NAD will be addressing these concerns and making the business case relevant and meaningful to all involved.

USDOT has a major role in Next Generation 9-1-1 (NG911): The National Highway Traffic Safety Administration (NHTSA) is the lead the federal participant in NG911 planning. From the April 2015 Summit, NG911 emerged as the most prevalent and compelling driver, especially among local government participants. Numerous states, often catalyzed by NG911, have embarked on statewide addressing initiatives and the first generation of statewide addressing databases are beginning to come on-line. These efforts represent important trailblazing and will serve to establish best practices and lessons learned for other states to follow.

The Potential Benefit of Creating a National Geospatial Data Asset Data Theme for Addresses

The NGAC Address Subcommittee is supporting actions taken on the recommendation to add addresses as a new theme. This is necessary because address locations may be the single most important data resource for spatially enabling programmatic data and do not fit into any of the existing list of NGDA framework themes (geodetic control, orthoimagery, elevation and bathymetry, transportation, hydrography, cadastral, and governmental units).

An address is unique and distinct in purpose and function that provides locations of human, physical, environmental and political activity. Because addresses are relevant to each of the existing data themes, the benefits of establishing a new theme will be to eliminate duplication of effort, facilitate production and use of address data, reduce operating costs, and improve services and enable decision-making. Addresses are used or produced by most agencies and organizations and form a critical and useful base for the NSDI.

A myriad of agencies involved in Federal Disaster Declarations also have a need for immediate access to a NAD. FEMA requires highly detailed, site-specific address information in the preparation/creation of accurate exposure and impact assessments. Further, the primary goal of the emergency response community is to deliver services at the scene of an incident as quickly as possible. Faster response and initiation of mitigating action lessens the potential negative outcome which initiated the call for help.

Well defined and known incident location data are critical to mitigating loss. Because incidents do not respect man-made boundaries, the need for a NAD that can be shared across jurisdictional boundaries is critical for success. A NAD would provide responders from other jurisdictions standardized critical local information and an improved framework for Federal reporting. A NAD would potentially save lives in small-scale multi-jurisdictional incident, as well as larger scale incidents involving multiple jurisdictions.

Address data is one of the most prominent examples of a spatial data database that crosses all branches of government and levels of society. Because of the proliferation of mapping applications, it can be argued that address data is perhaps the most widely used piece of geographic information in society. And yet, as Apple, and the ill-fated initial release of its mapping application can attest, we do not have a single reliable source for national address information. As presented in the preceding use cases, it is only logical that the Nation should move forward with the creation of a National Address Database.

Supporting Subcommittee and Working Groups

The NAD Pilot Project Advisory Group, comprised of NSGIC and other key stakeholders, are actively engaged as the NAD pilot moves forward towards completion of version 1 prior to Dec 2016.

The Theme Lead, once designated, will establish supporting subcommittees and working groups as part of the scope of the theme's responsibilities and activities, and overall program maturity.