National Geospatial Advisory Committee

Geospatial Technology and Infrastructure Use Case:

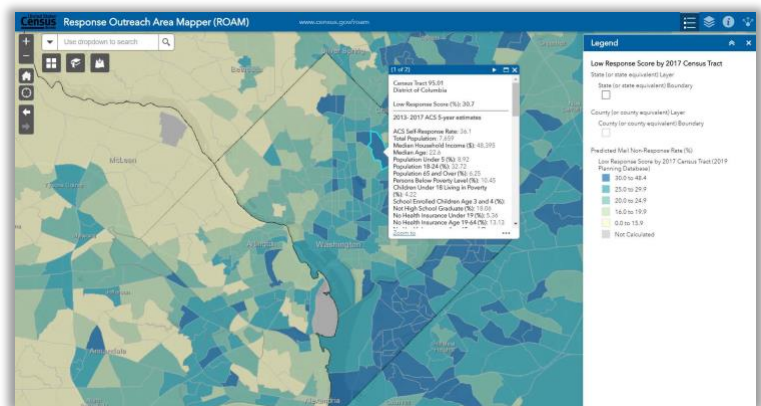## Successful 2020 Census Enabled with Geospatial Tools

The importance of a complete and accurate 2020 Census count cannot be understated. The use of geospatial data and technology to visualize the most hard-to-count areas in the United States has enabled targeted outreach and mitigation strategies during the most challenging decennial census in recent history. The U.S. Census Bureau's (Census Bureau) partnership specialists rely upon the **Response Outreach Area Mapper (ROAM)** web application to both identify the hardest to count populations across the nation and allocate community resources using geospatial data. Stakeholders from tribal, state, and local governments, as well as businesses and community groups have rallied around creative outreach efforts (i.e., marketing campaigns and promotional events) to make it easier to connect with populations that have historically low self-response rates. ROAM is a geographic information system (GIS) that has enabled users to see geographic patterns for the U.S. population, as never before, resulting from an analysis of 25 data variables at the neighborhood or census tract level. In record time, ROAM empowered Census Bureau staff and external stakeholders to plan and mobilize a neighborhood-based network of community resources needed to conduct a census with an uncompromising mission: *Count everyone once, only once, and in the right place.*

Benefits of Geospatial Technology

Every 10 years, as mandated by Article I, Section 2 of the U.S. Constitution, the Census Bureau conducts a full count of America's population. Geospatial technology has assisted the Census Bureau's processes of collection, tabulation, and dissemination since the 1990 Census aided by the development of the Topologically Integrated Geographic Encoding and Referencing (TIGER) System—a massive geographic framework used for data tabulation and mapping. Since then, the Census Bureau has adopted technology at a rapid pace to improve the quality and geospatial accuracy of their population counts.

ROAM's user-friendly display of ACS statistics

ROAM was developed to make it easier to identify hard-to-count areas, and to provide a socioeconomic and demographic profile for these areas using American Community Survey (ACS) data from the Census Bureau's online Planning Database (PDB). The PDB is the source for a metric known as the Low Response Score (LRS), which is the predicted mail non-response rate expressed as a percentage of households for the 2020 Census. With this information visualized using ROAM, communities can plan outreach activities to boost self-response to the 2020 Census (see map at right).

The Census Bureau relies on partnership specialists to engage with civic leaders to get the word out about the importance of an accurate count. ROAM helps partnership specialists identify census tracts with large concentrations of young children, people who have recently moved, non-English speaking households, persons of color, and other minority groups – populations predicted to have lower self-response rates – so they can tailor their outreach accordingly.

In 2010, the Census Bureau hired 800 partnership specialists to spread the message about the decennial census. They relied largely on their personal networks and familiarity with their neighborhoods to conduct outreach and invite people to self-respond. Today, the number of partnership specialists conducting outreach for the 2020 Census has increased to 1,500, reflecting the growing and diverse populations with persistent needs for census data.

Ideally, households will respond online, by phone, or by mail using a printed census form sent to their address for the 2020 Census. When no one from a household responds, the Census Bureau must conduct costly operations to obtain a response through follow-up mailings and on-site visits from an enumerator. The Census Bureau now offers ROAM as a geospatial solution to increase self-response rates for the 2020 Census. ROAM combines statistics and geography to mobilize the outreach efforts of partnership specialists and civic leaders within communities by enabling users to see – at a glance – the hard-to-count areas where they can direct their resources (areas of low predicted self-response shown as increasingly darker shades on the map above).

Description of the Problem

Counting approximately 330 million people is challenging. The LRS metric is the quickest way for users to pinpoint locations for additional outreach in hard-to-count areas. The amount of data used to derive the LRS is unwieldy however, because the LRS uses 25 data variables collected by census tract. The need to link data from the PDB to a GIS that visualizes the LRS for 74,000 census tracts in the U.S. and Puerto Rico was the impetus for development of the ROAM application. During its development in 2017, the Census Bureau immediately saw an opportunity to extend the operability of ROAM beyond the creation of a static choropleth map to an interactive web map prototype that could recalibrate the LRS in future iterations. In addition, extending the utility of this tool for community planning and outreach meant that it needed to be adaptable for multiple users with different levels of geospatial and technical expertise.
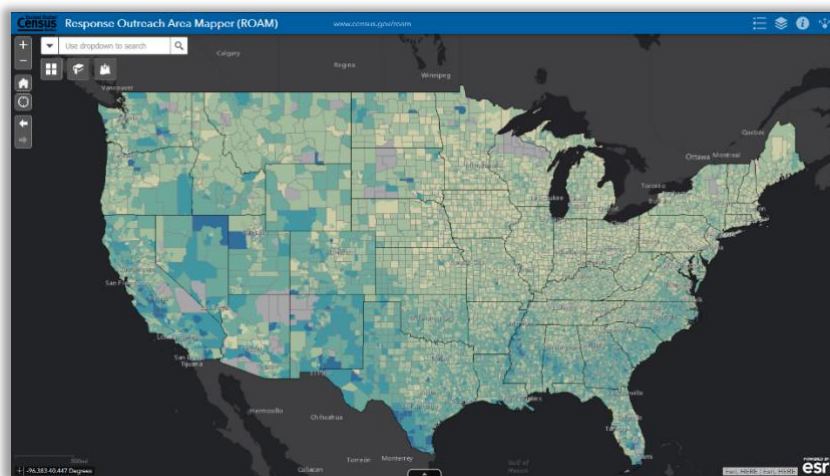
Challenges

Various federal laws prohibit the use of individual household data collected during the census. This makes it difficult to identify a centralized data point or establishment to plan events and community outreach efforts during critical census operations. ROAM allows for the import of open data from other sources, including state and local governments, to provide points of interest that can help users to identify gathering places (i.e., church, school, and library locations). During the 2020 coronavirus pandemic, many of these gathering places were closed or inaccessible during census operations. The functionality of the ROAM tool, originally designed to mobilize communities and create face-to-face opportunities for individuals to respond to the Census, has shifted to a mitigation tool for planners to develop alternative strategies to reach hard-to-count populations.

Tips

The 2020 Census features multiple modes of self-response, including online and by phone, and future data deliveries may look very different for the 2030 Census. ROAM and its companion tool, the 2020 Census Response Rate Map, have contributed to the success of the 2020 Census in ways that were unimaginable without the recent developments in geospatial technology. For 2030, the combination of insights and lessons learned from geospatial tools that link response rates to mission success will form the next generation of Census products.

View of census tracts for the contiguous U.S. in ROAM

For more information on how to use the ROAM tool, please see the extensive documentation at <www.census.gov/roam>. For up-to-the-minute information about the status of Census responses, see the 2020 Census Response Rate Map at <https://2020census.gov/en/response-rates.html>.