Counting Kansas: GIS in Local 2020 Census Planning

GIS Day @ KU
November 13, 2019

Kansas
State Data Center

Credit: James Watkins - Flickr.
What is the Census?

Mandated by the U.S. Constitution, the census is a count of everyone residing in the United States: in all 50 states, Washington, D.C., Puerto Rico, U.S. Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa.
What is the Census?

The Census has been conducted starting in 1790 and every 10 years thereafter.
"Besides being indicative of economic trends, population data provide an excellent indicator of the relative strength of these economic factors which tend to expand or to contract the community's economy."

"Actually, Kansas achieved its maximum percentage of the population of the United States in the 1890 census, when roughly 2.25% of the United States population lived within the State."

excerpt from "Some Controlling Forces in Kansas Population Movements", J.D. Morgan, Bureau of Business Research, School of Business, University of Kansas (1953).
In the late 1800's Kansas, especially the western part of the state, was known for the cattle drives bringing livestock up from Texas to "cow towns" with railheads.
Even in the prosperous westward movement years, the population in Northeast Kansas far exceeded the population in the western half of the state.

Viewed here as a cartogram, where county boundaries are stretched to represent the population in 1890, Wyandotte County is the most populous in the state with 54,407 inhabitants.
The 1930's brought clouds of dust and devastated the Kansas farm economy.

Sixty-eight of Kansas's 105 counties peaked in population BEFORE the dust bowl.
The dust bowl resulted in many people leaving the state or moving to larger cities for employment. The two largest counties are Wyandotte with 145,071 and Sedgwick with 143,311 people.
War Boom

World War II brings a boom to the aviation industry. Firms such as Boeing, Beech, and Cessna employed more than 25,000 aircraft workers in Kansas plants, most of them in Wichita.

Photo Credit: Boeing B-29 assembly line in Wichita, Kansas (1944) by United States Army Air Forces - United States Air Force Historical Research Agency.
Sedgwick County sees a 55% increase in population from 1940-1950. Fostered by the booming aviation industry, it surpasses Wyandotte and becomes the largest county in the state with 222,290 people.
The 1950s Suburban Migration

Two crucial events led to significant migration in the 1950s. In 1954, the landmark Supreme Court case, Brown v. Board of Education of Topeka ruled that separate public schools for white and black students was unconstitutional.

In 1956, President Dwight D. Eisenhower signed into law the Federal-Aid Highway Act of 1956. Better known as the National Interstate and Defense Highways Act, it enabled the construction of 41,000 miles of highway.
Fueled by fears of racial integration and the ease of commuting provided by the Interstate Highway System, the 1950s saw significant numbers of people moving to the suburbs.

From 1950-1960, Johnson County, Kansas more than doubles in population from 62,783 to 143,792. At the same time, Sedgwick County sees an increase of more than 120,000 people. The once thriving Wyandotte County has a modest gain of 20,000 people.

72 Kansas counties peak in population BEFORE 1960.
Urban Migration Continues

The Kansas population grows at an average of 5% per decade from 1970-2010. The shift from rural to urban continues with rural populations declining.
By 2010, 52% of the state's 2.8 million people live in five counties:

- Johnson 544,179
- Sedgwick 498,365
- Shawnee 177,934
- Wyandotte 157,505
- Douglas 110,826
Changing Demographics

While the State has a modest overall population growth of 20% over the 30 years from 1980-2010, the minority population in the state grows at a considerably faster rate. All minority groups grow faster than the overall population.

Increases from 1980-2010:

- Hispanic: 374%
- Asian and Pacific Islander: 364%
- "Other" Race: 183%
- American Indian or Alaska Native: 83%
- Black or African-American: 33%
- White: 10%
Changing Housing Patterns

While new houses are larger, they are being built on smaller lots leading to denser neighborhoods.

New single-family homes completed in 2015 in the U.S. are on average 50% larger than in 1978 while the average lot size was 13% smaller.

With changes in demographics and housing patterns, what picture will the 2020 Census paint for Kansas?
2020 Census data will be used to determine the number of seats each state has in the U.S. House (and local representation in the statehouse) and used to distribute billions in federal funds.
In FY2016, Kansas received over $6 billion from the 55 largest programs that distribute funds based on data derived from the 2010 Census.

<table>
<thead>
<tr>
<th>Program</th>
<th>Dept.</th>
<th>Obligations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Assistance Program (Medicaid)</td>
<td>HHS</td>
<td>$1,942,405,000</td>
</tr>
<tr>
<td>Federal Direct Student Loans</td>
<td>ED</td>
<td>$898,447,689</td>
</tr>
<tr>
<td>Supplemental Nutrition Assistance Program</td>
<td>USDA</td>
<td>$342,124,968</td>
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<tr>
<td>Medicaid Suppl. Medical Insurance (Part B)</td>
<td>HHS</td>
<td>$506,190,002</td>
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<tr>
<td>Highway Planning and Construction</td>
<td>DOT</td>
<td>$397,153,908</td>
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<tr>
<td>Federal Pell Grant Program</td>
<td>ED</td>
<td>$221,500,000</td>
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<tr>
<td>Section 8 Housing Choice Vouchers</td>
<td>HUD</td>
<td>$65,279,000</td>
</tr>
<tr>
<td>Temporary Assistance for Needy Families</td>
<td>HHS</td>
<td>$101,931,681</td>
</tr>
<tr>
<td>Very Low to Moderate Income Housing Loans</td>
<td>USDA</td>
<td>$124,715,928</td>
</tr>
<tr>
<td>Title I Grants to LEAs</td>
<td>ED</td>
<td>$109,134,862</td>
</tr>
<tr>
<td>State Children’s Health Insurance Program</td>
<td>HHS</td>
<td>$112,201,000</td>
</tr>
<tr>
<td>National School Lunch Program</td>
<td>USDA</td>
<td>$106,497,000</td>
</tr>
<tr>
<td>Special Education Grants</td>
<td>ED</td>
<td>$109,746,957</td>
</tr>
</tbody>
</table>

Total Program Obligations: **$6,054,507,586**
The decennial census is used to derive annual population estimates which are used as the population controls for the American Community Survey (ACS).

The 2020 Census is a once in a decade opportunity to make sure everyone living in Kansas is counted.
Local input on various programs including:
- Local Update of Census Address (LUCA)
- Boundary and Annexation Survey (BAS)
- New Construction
- Participant Statistical Areas Program (PSAP)
- Count Review
Participant Statistical Areas Program (PSAP)
Participants review and update selected statistical area boundaries for 2020 Census data tabulation following U.S. Census Bureau guidelines and criteria.

Standard statistical geographies include:
• Census tracts.
• Block groups.
• Census designated places (CDPs).
• Census county divisions (CCDs), in selected states.
Census Tract Guidelines

Census Bureau criteria specify that census tracts must:

• Nest within county boundaries.
• Cover the entire land and water area of the county.
• Be reasonably compact and contiguous.

<table>
<thead>
<tr>
<th>Census Tract Type</th>
<th>Threshold Type</th>
<th>Optimum</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Census Tracts</td>
<td>Population</td>
<td>4,000</td>
<td>1,200</td>
<td>8,000</td>
</tr>
<tr>
<td></td>
<td>Housing Unit</td>
<td>1,600</td>
<td>480</td>
<td>3,200</td>
</tr>
</tbody>
</table>
Census Block Group Guidelines

Census Bureau criteria specify that census block groups must:

- Nest within census tract boundaries.
- Cover the entire land and water area of each census tract.
- Be reasonably compact and contiguous.
- Have no more than nine block groups (excluding water blocks) contained within a single census tract.

<table>
<thead>
<tr>
<th>Block Group Type</th>
<th>Population Threshold</th>
<th>Housing Unit Threshold</th>
<th>Area Measurement Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Block Groups</td>
<td>Min.: 600</td>
<td>Min.: 240</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Max.: 3,000</td>
<td>Max.: 1,200</td>
<td>None</td>
</tr>
</tbody>
</table>
2020 Census
2020 Census
2020 Census
Haskell County, Kansas
Population
2010: 4,256
2018: 3,997
Count Review Operation (CRO)

- Filtered data to remove obvious non-residential properties.
- Researched group quarters to assign a name and type.
  - State prisons/Local jails
  - Nursing homes and assisted living facilities
  - College/University student housing
  - Hotels/Motels
  - Campgrounds/RV Parks
Count Review Operation (CRO)

Submitted 1,009,643 residential addresses
Whether you are from Cairo, Canada, or Cuba, keep your community on the map and make the 2020 Census count for Kansas.