Hacking Subcounty Population Estimates:

Results of the 2019 FSCPE Housing Unit Review Pilot

TNSDC
Tennessee State Data Center

Goals of this presentation

- Understand why you might consider providing municipal level “scrubbed” building permit data to the Housing Unit Review Program
  1. Review Population and Housing Unit Estimates Program
  2. Dive into Subcounty Estimate procedures and data inputs
  3. Show results for 2019 Housing Unit Review in three counties

2018 Sub-county Population Estimates

- City of Alcoa was 8th fastest-growing municipality in Tennessee between 2014-2018

Name	2014 Pop.	2018 Pop.	Annual Growth Rate	Tennessee Rank
Thompson's Station	3,169	6,114	17.9%	1
Nolensville	6,525	9,012	8.4%	2
Hartsville/Trousdale County	7,997	11,012	8.3%	3
Rossville	703	913	6.8%	4
Algood	3,619	4,419	5.1%	5
Gallatin	33,192	40,457	5.1%	6
Mount Juliet	29,360	35,725	5.0%	7
Alcoa	8,645	10,499	5.0%	8
Spring Hill	34,322	41,464	4.8%	9
Lebanon	29,358	35,050	4.5%	10

Source: US Census Bureau, 2018 Vintage Population and Housing Unit Estimates

2019 Sub-county Population Estimates

- City of Alcoa fell to a 2% annual growth rate and ranked #27 in the state for 2015-2019 period

Name	2015 Pop.	2019 Pop.	Annual Growth Rate	Tennessee Rank
Thompson's Station	3,775	6,567	14.8%	1
Nolensville	7,008	10,062	9.5%	2
Hartsville/Trousdale County	8,051	11,284	8.8%	3
Gallatin	34,233	42,918	5.8%	4
Rossville	768	962	5.8%	5
Piperton	1,618	1,986	5.3%	6
Spring Hill	36,052	43,769	5.0%	7
Lebanon	30,174	36,479	4.9%	8
Algood	3,735	4,463	4.6%	9
Mount Juliet	31,391	37,029	4.2%	10
Alcoa	**9,221**	**9,980**	**2.0%**	**27**

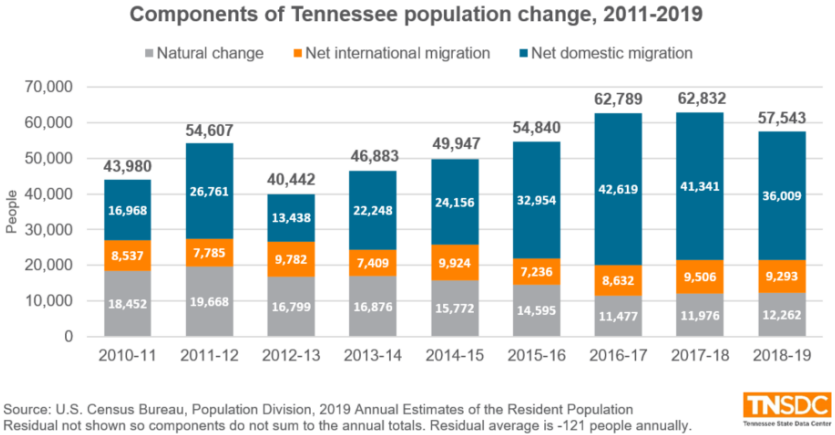
Source: US Census Bureau, 2019 Vintage Population and Housing Unit Estimates

What happened? First some background...

US CENSUS BUREAU POPULATION ESTIMATE PROGRAM OVERVIEW

Population Estimates Overview

- Two types of estimates
  - **Intercensal**: annual population between official census dates
  - **Postcensal**: annual population estimate since last census
- July 1 resident population
- Annual vintages revise estimate series back to census



Source: U.S. Census Bureau, Population Division, 2019 Annual Estimates of the Resident Population
Residual not shown so components do not sum to the annual totals. Residual average is -121 people annually.

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https://www.census.gov/programs-surveys/popest/data/tables.html

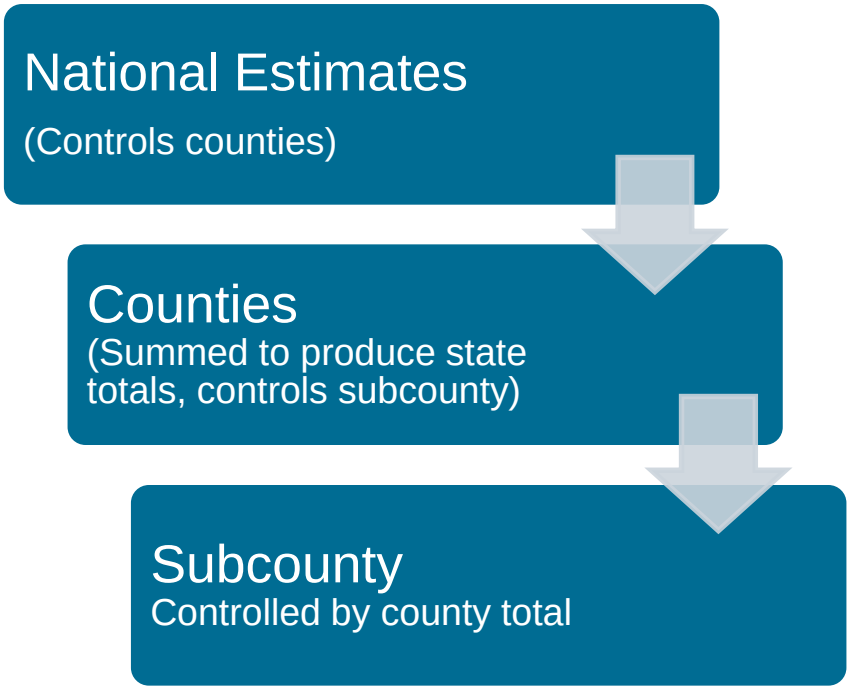
Population Estimate Geography and Data

- Data availability by geographic area

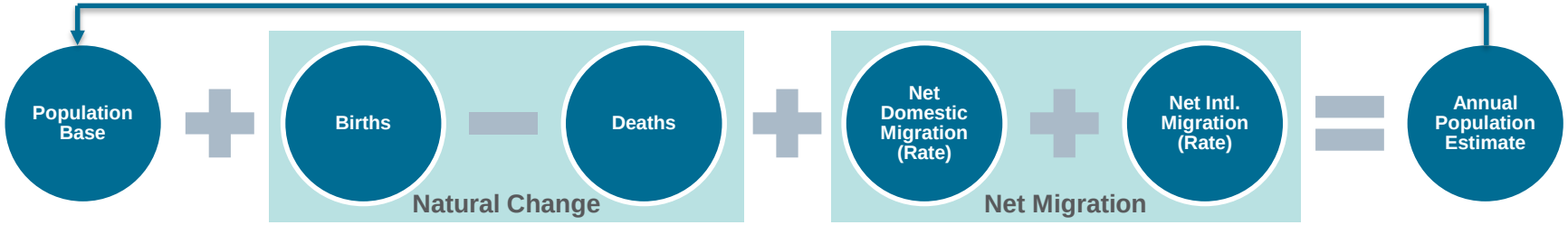
Name	Nation	State	Metro/Micro Area	County	Sub-County
Population	✓	✓	✓	✓	✓
Demographic Characteristics	✓	✓		✓	
Components of Population Change	✓	✓	✓	✓	
Housing Units	✓	✓		✓	

Population Estimate Concepts

- “Top-down” approach
- Smaller geographies and characteristics sum to the whole



Population Estimates Formula



2010 Census Boundary changes CQR Group Quarters (**FSCPE**, military, Veterans)	National Center for Health Statistics **FSCPE**	National Center for Health Statistics **FSCPE**	IRS SOI Migration Medicare Enrollment Social Security Admin.	American Comm. Survey

FSCPE Roles in Pop. Estimate Program

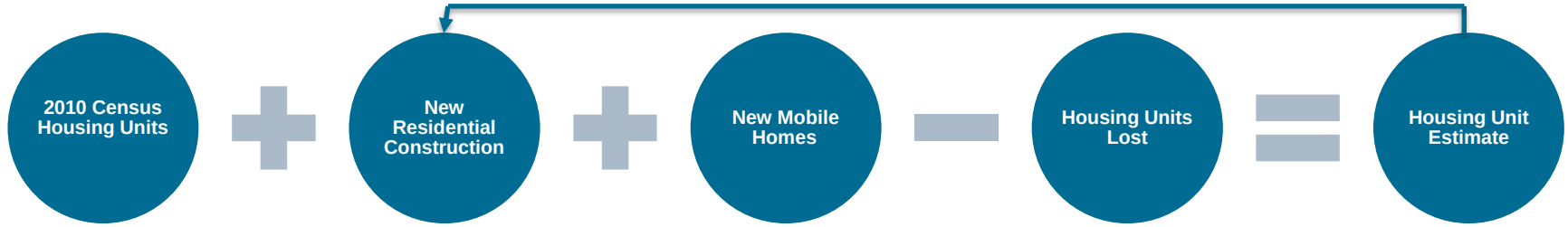
- Four annual input events

Group Quarters	Submit GQ counts for prisons, jails and college dormitories
Vital Statistics	Collect data on births and deaths fro the
Housing Unit Review	Review BPS and override with local data for permits, mobile home and housing loss
Estimate Review	County and subcounty estimate review and comment

Overview of Census Bureau procedures for deriving annual estimates of resident population in municipalities

SUBCOUNTY POPULATION ESTIMATE PROCESS

Housing Unit Estimates Formula



2010 Census Housing Units	New Residential Construction	New Mobile Homes	Housing Units Lost
2010 Census Boundary changes (BAS) CQR	Building Permit Survey (Calendar year) **FSCPE**	Mfd. Homes Survey 2000 Census "Type of structure **FSCPE**	Assumed Loss Rate FEMA Disasters **FSCPE**

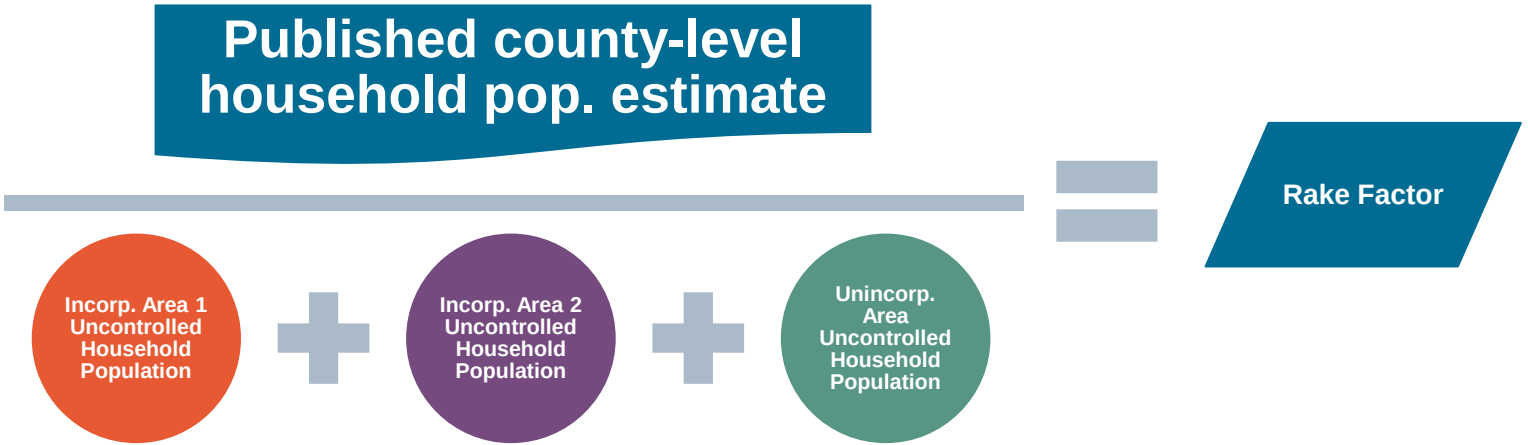
Subcounty Estimate Process

- Step 1: Uncontrolled Household Population Estimate

Note: Estimate created for each municipality in the county and the unincorporated area and for each estimate year

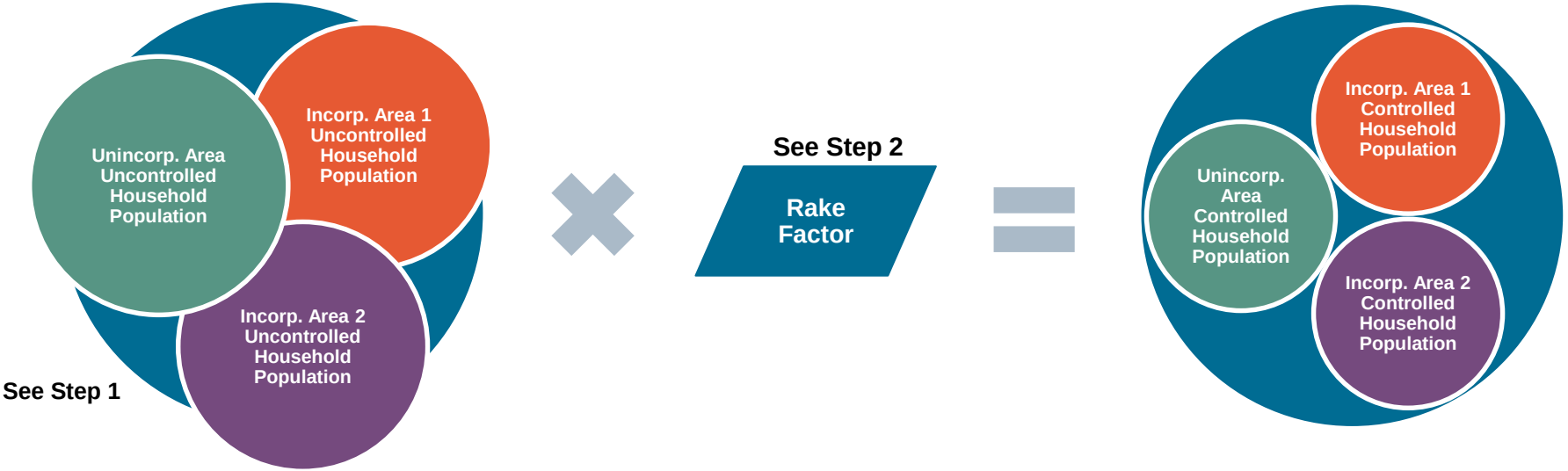
Subcounty Estimate Process

- Step 2: Calculate factor to control Subcounty Household Population Estimate to published county total



Subcounty Estimate Process

- Step 3: Derive controlled household population which sum to published county total



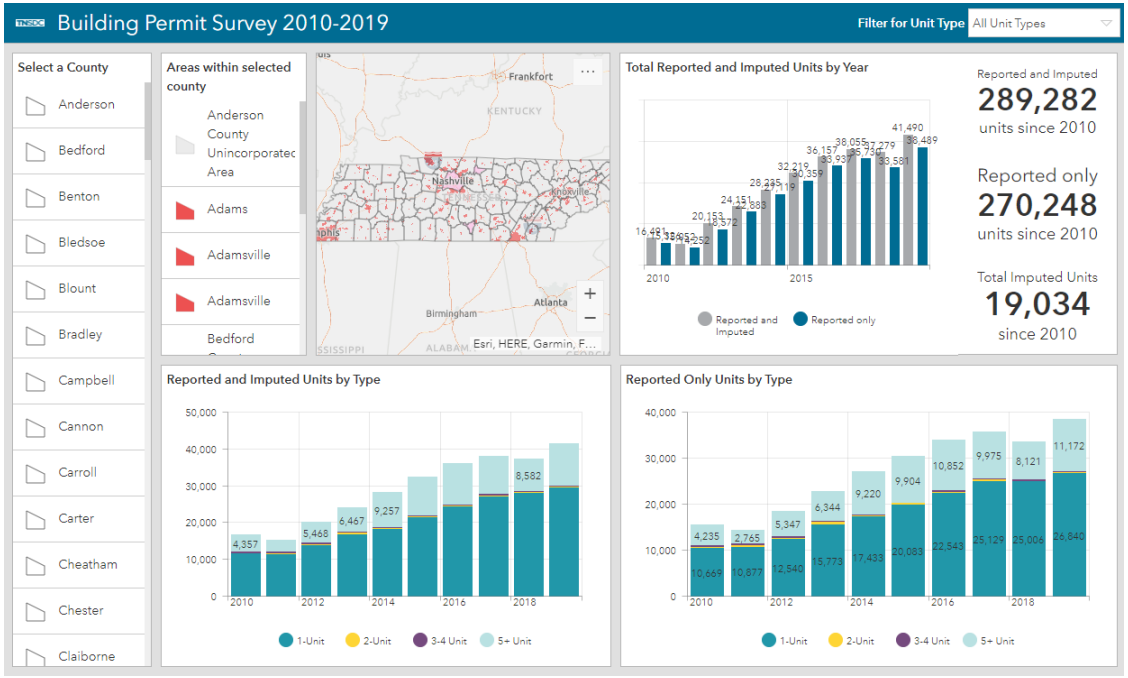
Subcounty Estimate Key Concepts

- Proportion of housing units in each subcounty geography drives population estimate
- A change to the number of dwellings will change a subcountys areas household population estimate

Building Permit Survey and Housing Unit Review process outcomes in Aloca, Knox and Hamilton counties

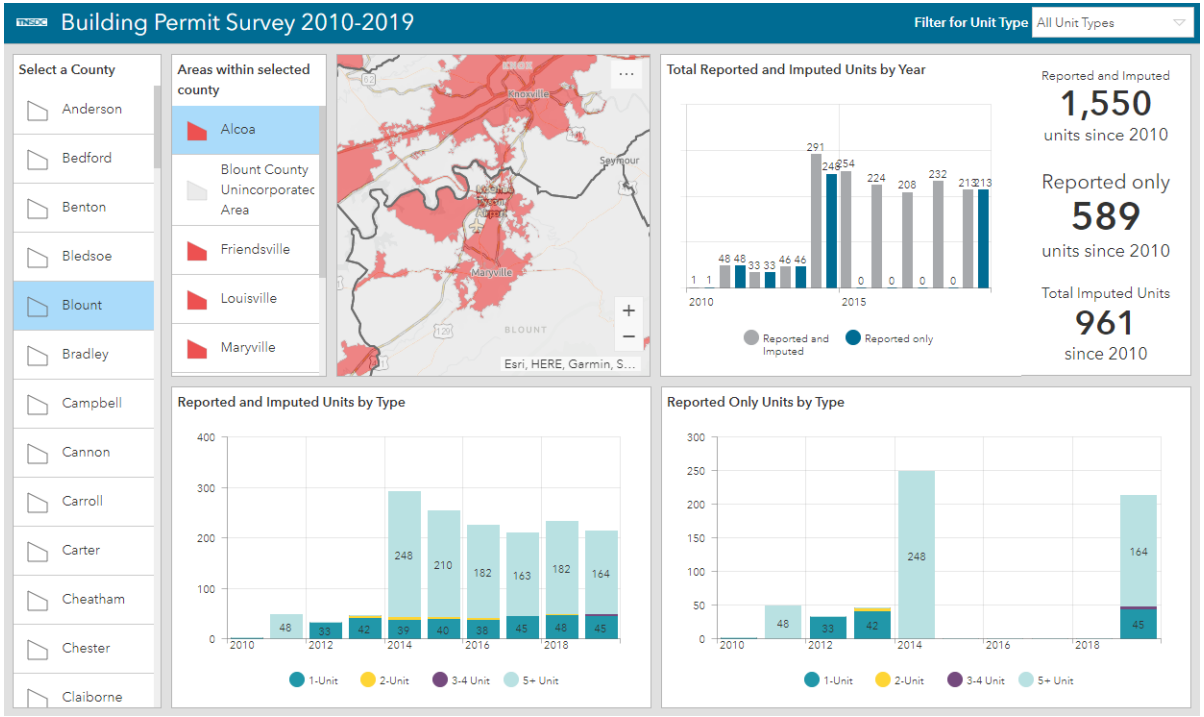
SO WHAT HAPPENED IN ALCOA?

Building Permit Survey Dashboard



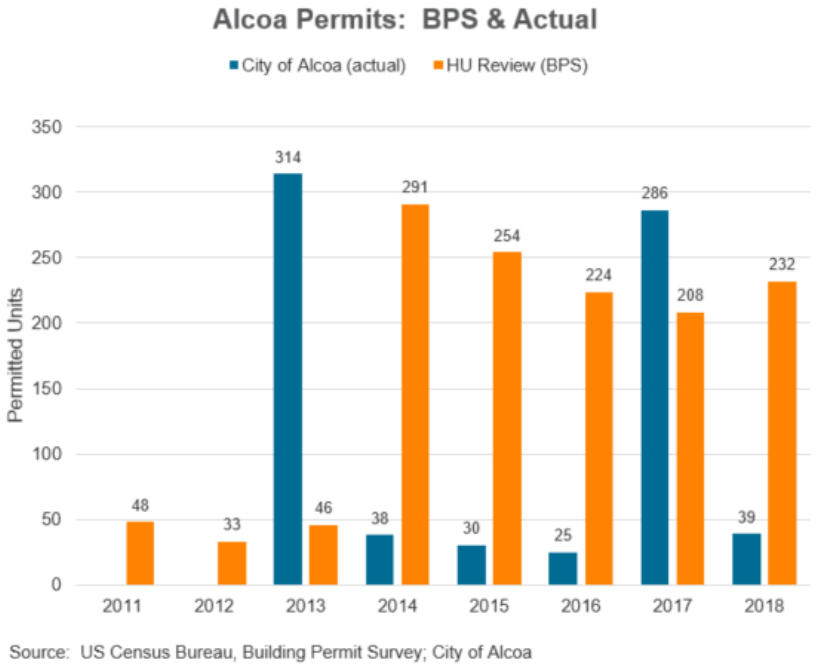
https://myutk.maps.arcgis.com/apps/opsdashboard/index.html#/bb07704f8d2543b5b0ac01542297fbcd

City of Alcoa Imputed Permits



City of Alcoa Imputed Permits

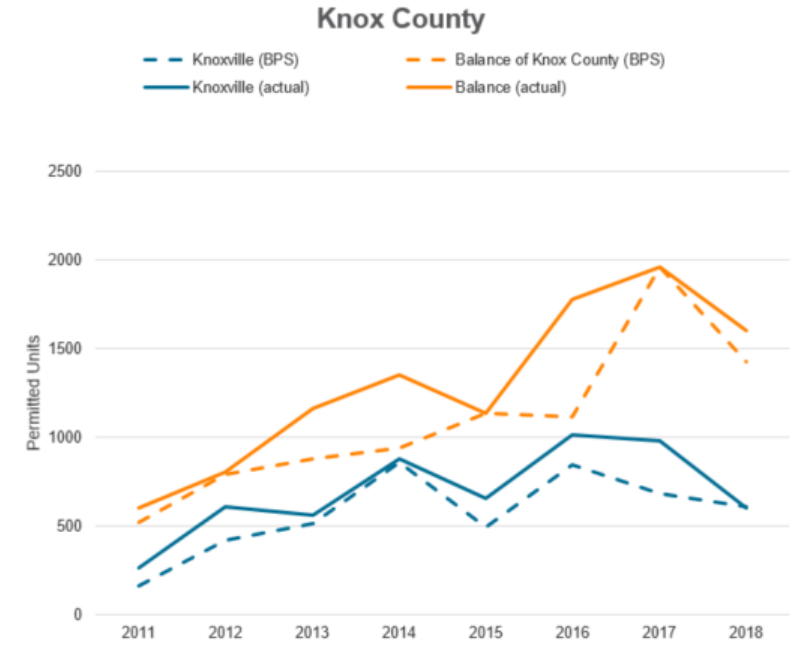
- No BPS reports in 2014-2018
- ~800 excess imputed units in BPS
- Inflated Alcoa's proportion of total Blount County permits



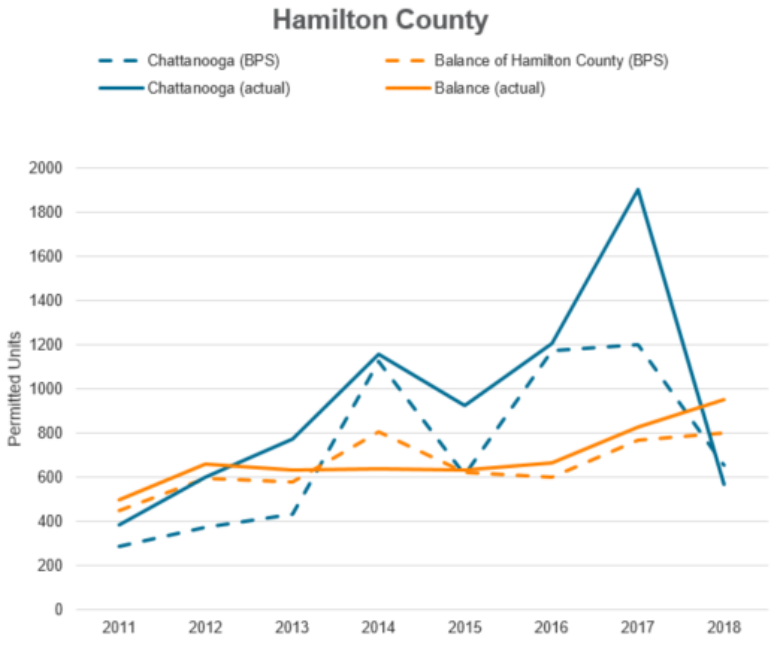
Sources of BPS Inaccuracies

- Imputed results when missing data
- Errors in reporting data
- No local permit authority

BPS and Local Permit Statistics

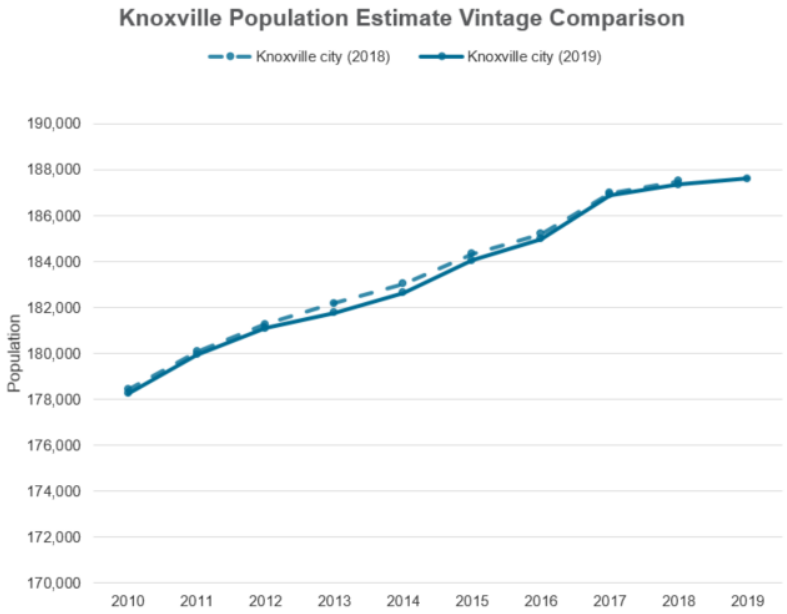


Source: US Census Bureau, Building Permit Survey; Knoxville-Knox County Planning

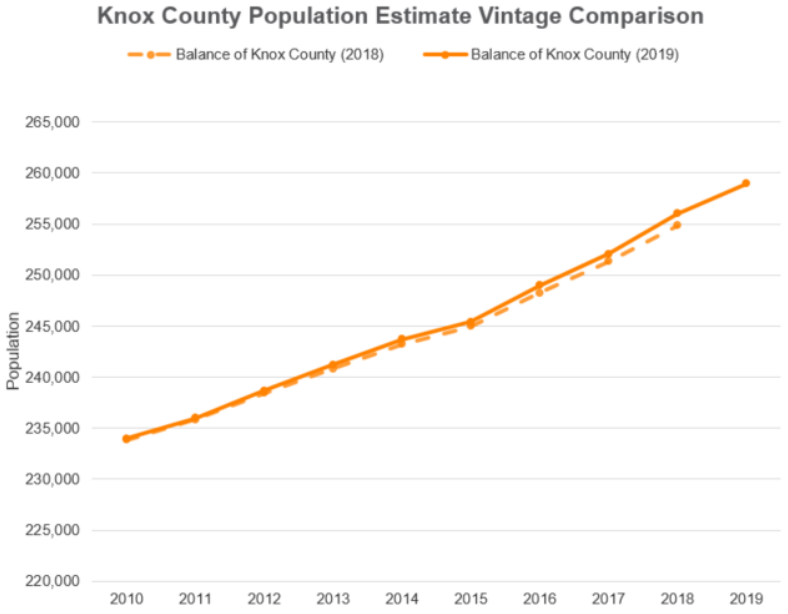


Source: US Census Bureau, Building Permit Survey; Chattanooga-Hamilton County Regional Planning Agency

Knox County 2018 and 2019 Vintage Comparison

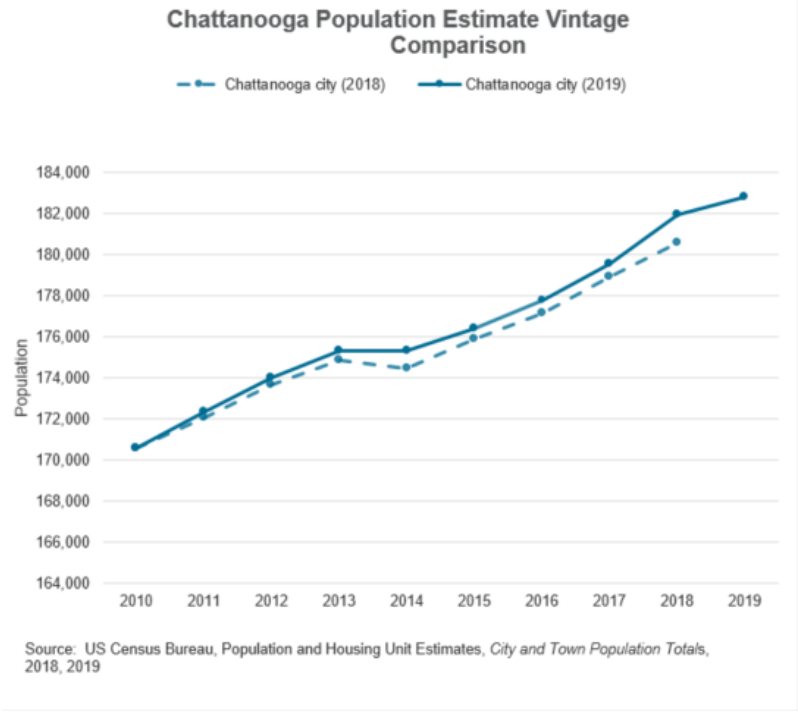


Source: US Census Bureau, Population and Housing Unit Estimates, *City and Town Population Totals*, 2018, 2019

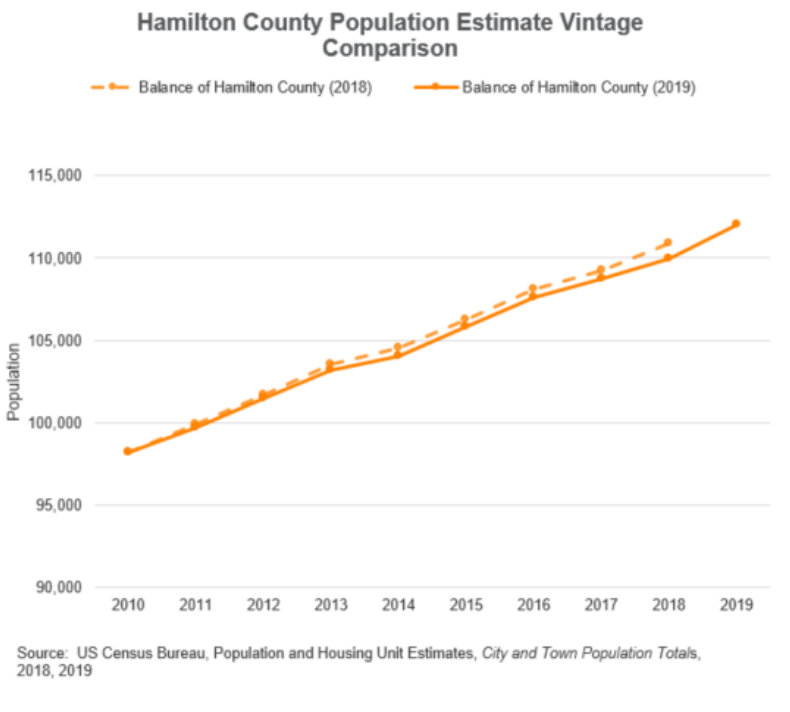


Source: US Census Bureau, Population and Housing Unit Estimates, *City and Town Population Totals*, 2018, 2019

Hamilton County 2018 and 2019 Vintage Comparison



Source: US Census Bureau, Population and Housing Unit Estimates, *City and Town Population Totals*, 2018, 2019



Source: US Census Bureau, Population and Housing Unit Estimates, *City and Town Population Totals*, 2018, 2019

Why are accurate estimates important?

- Generally
  - Official estimates for US
  - Demographic and population trend
  - Disease and vital rates
- Subcounty
  - Noteworthy statistics
  - 2020 Census expectations
  - American Community Survey control

Conclusion

- Jan. 8, 2021 deadline for inclusion in Intercensal estimates
- Eligible data
  - Permitted units (calendar year)
  - Mobile homes (July 1 – June 30)
  - Housing loss (July 1 – June 30)
- Questions

Contact Us

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