



Know Your Boundaries

Discussion of the Census Bureau's Proposed Urban Area Delineation Changes and Potential Implications

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Speakers



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- 13 years executive and leadership experience in public transit



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Agenda

- Overview of the Census urban area boundary process
- Summary of the proposed changes
- Discussion of potential impacts and uncertainties
- Summary and resources
- Questions & answers

Disclaimers

- We are not the U.S. Census Bureau
- We are not U.S. DOT or FTA or TxDOT
- No extensive quantitative analysis or modeling was done
- All contents herein are *professional opinions and perspectives* based on some very basic quantitative analysis combined with industry knowledge

...a grain of salt

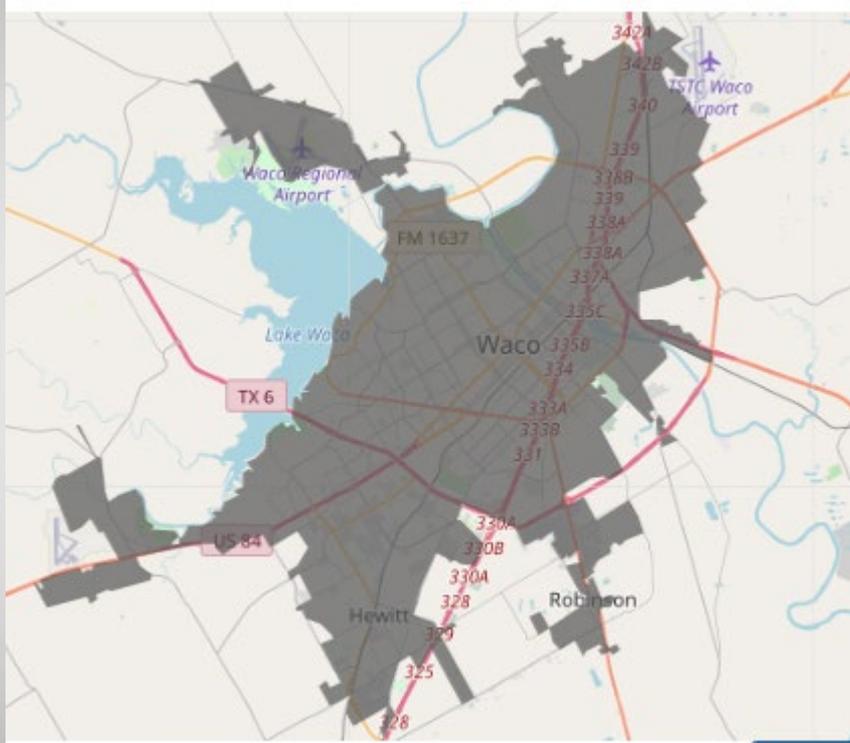




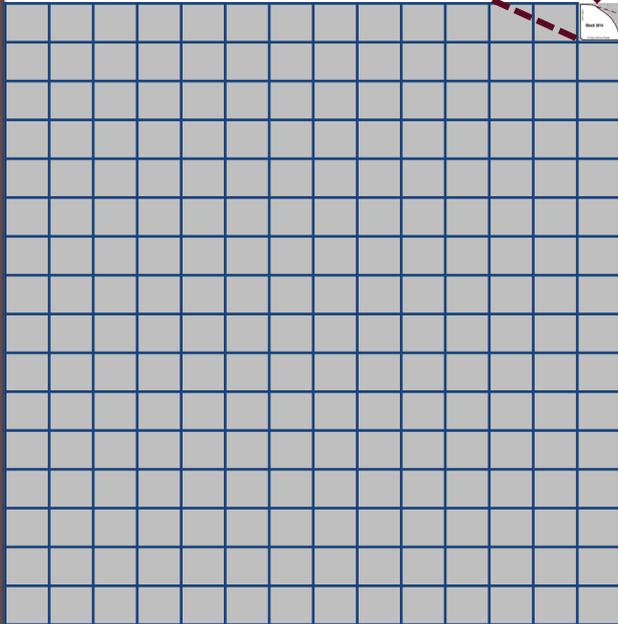
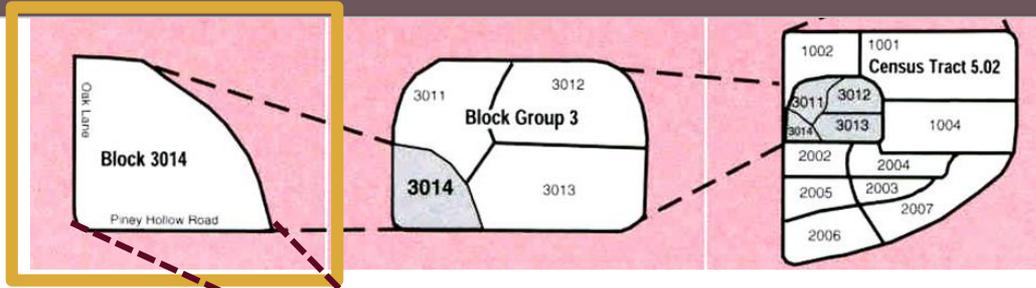
Urban Area Boundary Process

An oversimplification

What is an urban area?



- Densely developed territory encompassing residential, commercial, and other non-residential urban land uses
- Does **not** regard other legal boundaries, e.g.:
 - States
 - Counties
 - Cities
- Made up of a collection of urban-qualified census blocks



Urban area

What's a Census block?

- Blocks are the smallest geographical and analytical unit used by the Census Bureau
- Similar to a city or neighborhood block in size and delineation

Who draws and uses urban areas?

U.S. Census Bureau

- Delineates (draws the boundaries) of urban areas and therefore rural areas
- For statistical purposes ONLY
- Produces data sets for these areas (e.g., population and demographic characteristics)

Federal agencies (e.g., FTA)

- Use urban area boundaries and data sets for transportation planning and funding

States and local governments

- Use urban area boundaries and data sets for transportation planning and funding

Urban area boundary delineation process *oversimplified*

- Step 1: Identify urban-qualified blocks
 - If a block meets a threshold (in terms of people/housing) the block is urban-qualified
- Step 2: Identify urban areas
 - Find “urban cores,” clusters of contiguous urban-qualified blocks
 - If the core meets a threshold (in terms people/housing) the core becomes an urban area
- Step 3: Hops and jumps
 - Add non-contiguous urban-qualified blocks to the urban area searching outward from the urban area, allowing for
 - Hops (.5 mile or less) along a roadway (multiple hops allowed)
 - Jumps (more than .5 miles) along a roadway (one jump allowed)
 - Add enclaves
- Step 4: Split or merge urban areas

Urban area delineation steps visualized*

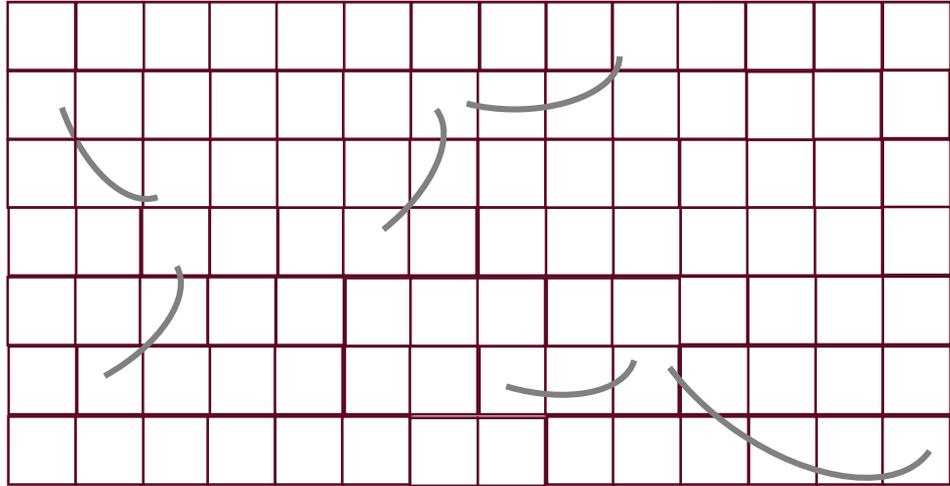
Step 1: Urban-qualified blocks

Step 2: Urban areas

Step 3a: Hops and jumps

Step 3b: Enclaves

Step 4: Split or merge



Block with 500+
people per square
mile

Group of blocks
with 2,500+
people

Use legacy method (prior urban area
boundaries are main consideration)

Include enclaves

*The steps shown here are simplified and may not match exactly to those used by the Census Bureau



Proposed Changes

7 proposed changes

- 1 Qualify census blocks as urban if they have ≥ 385 housing units per sq. mi.
- 2 Qualify urban areas if they have $\geq 4,000$ housing units OR $\geq 10,000$ persons
- 3 Cease distinguishing between types of urban areas
- 4 Reduce the maximum jump distance to 1.5 miles
- 5 No longer include low-density hop or jump corridors in urban areas
- 6 No longer include low-density indentations in urban areas
- 7 Split large urban agglomerations using worker flow data

Change 1: Qualify blocks as urban based on housing unit density

Current

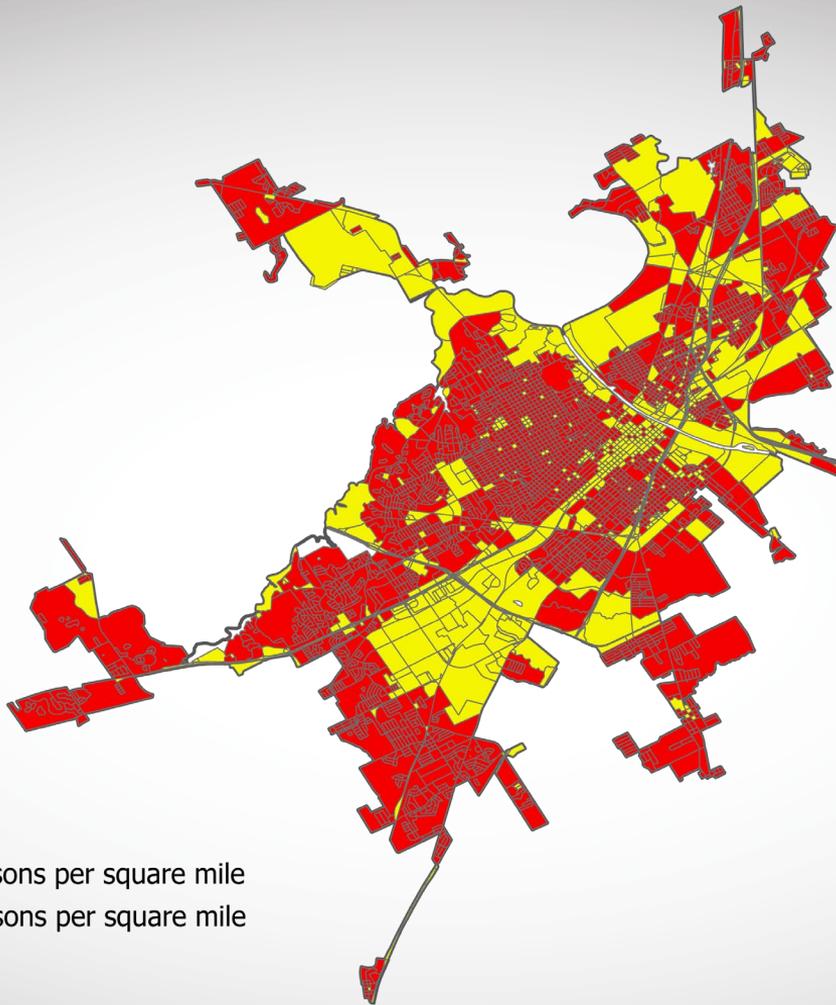
- Urban cores qualify as urban with at least **1,000 persons per square mile (PPSM)**.
- Blocks qualify as urban with at least **500 PPSM**.

Proposed

- Blocks qualify as urban with at least **385 housing units per sq. mi (HPSM)**.

Discussion

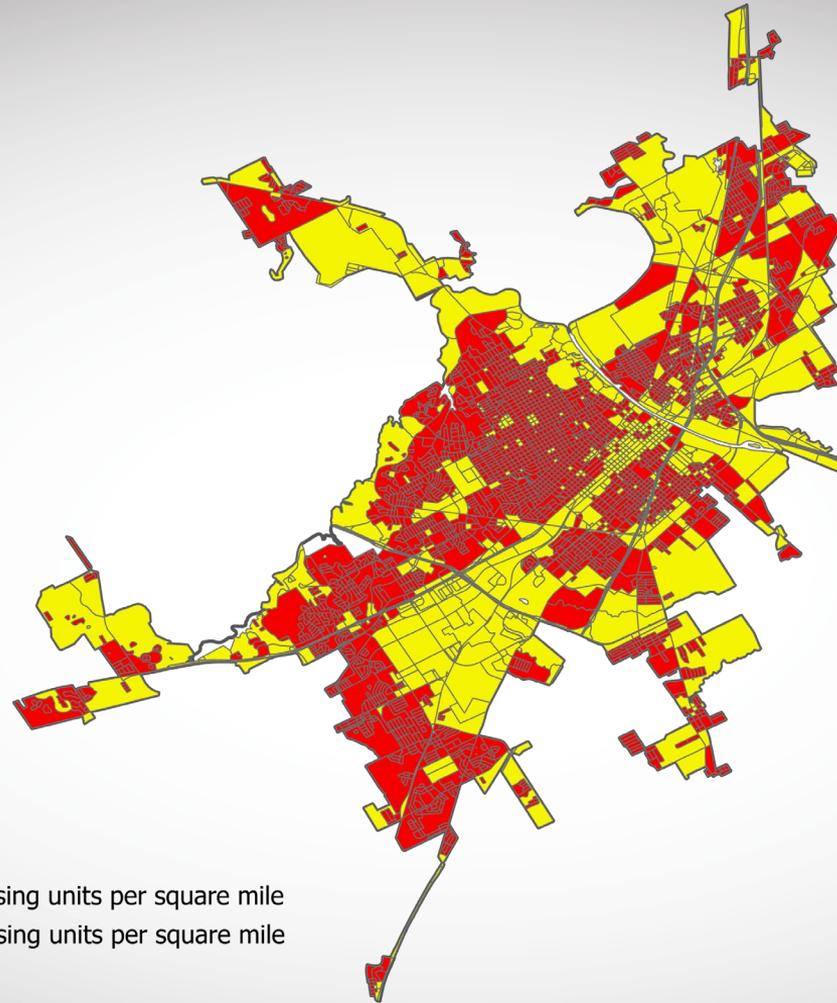
- 385-housing-unit-density is similar to the “urban core” with at least 1,000 PPSM (based on national average 2.6 people per household)
- Rationales behind this proposed change:
 1. Reduces impacts from the new disclosure avoidance system (DAS) at the block-level data
 2. Allows for more frequent updating of urban areas, if needed
 3. Directly measures development of landscape



Waco_UA_blocks

 below 500 persons per square mile

 above 500 persons per square mile



Waco_UA_blocks

below 385 housing units per square mile

above 385 housing units per square mile

Change 2: Qualify urban areas based on 4,000 housing units or 10,000 persons

Current

- Group of blocks qualifies as an urban area with at least **2,500 people**

Proposed

- Group of blocks qualify as an urban area with at least **4,000 housing units OR 10,000 people**

Discussion

- Rationales behind this proposed change:
 1. The urban population threshold of 10,000 is currently used by the Office of Management and Budget
 2. Reduces impacts from the new disclosure avoidance system (DAS) at the block-level data
 3. Allows for more frequent updating of urban areas, if needed
- Would eliminate all urban areas with less than 10,000 people (if do not have 4,000 housing units)

Change 3: Cease distinguishing between different types of urban areas

Current

- Census Bureau labels urban areas between 2,500 and 49,999 people as **urban clusters**
- Census Bureau labels urban with at least 50,000 people as **urbanized areas**

Proposed

- All urban areas with at least 4,000 housing units or 10,000 people would be labeled as **urban areas**

Discussion

- Rationales behind this proposed change:
 1. No statistical differences between urban clusters and urbanized areas with close to 50,000 people.
- All urban areas would be simply “urban areas”
- Other federal agencies could classify urban areas as needed (e.g., FTA labeling - small urban, large urban, etc. can be continued)

Change 4: Reduce maximum jump distance to 1.5 miles

Current

- Jumps along roadways over low-density areas to near-by urban-qualified blocks are allowed up to **2.5 miles** once

Proposed

- Jumps along roadways over low-density areas to near-by urban-qualified blocks are allowed up to **1.5 miles** once

Discussion

- 1.5-mile jump distance used from 1950s to 1990 Census
- Would reduce the possibility of “overextending” urban area boundaries

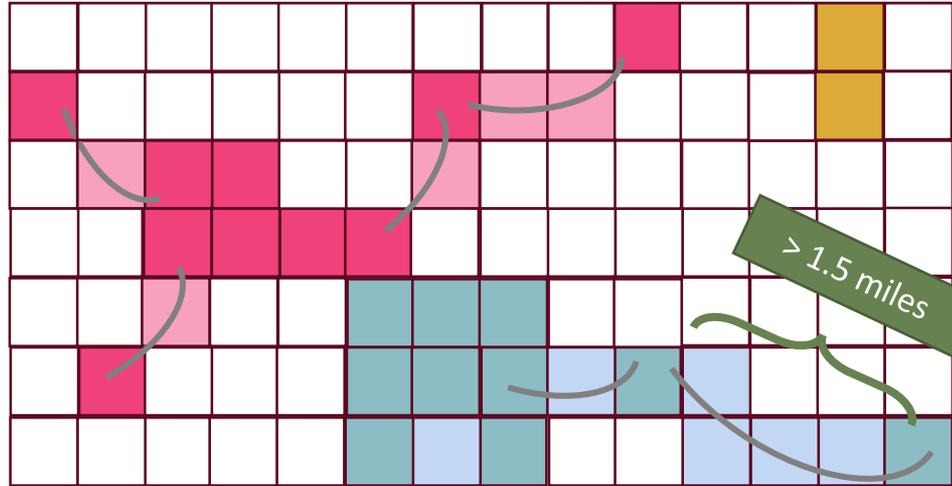
Jump distance reduction

Step 1: Urban-qualified blocks

Step 2: Urban areas

Step 3: Hops and jumps

Step 4: Split or merge



Change 5: No longer include low-density jump corridor as part of the urban area

Current

- Low-density blocks (<500 PPSM) that are in the hop or jump corridor **are included** in the urban area

Proposed

- Low-density blocks (<385 HPSM) that are in the hop or jump corridor **will not be** included in the urban area

Discussion

- All the blocks in an urban area would pass the housing unit density check
- Would create non-contiguous urban areas

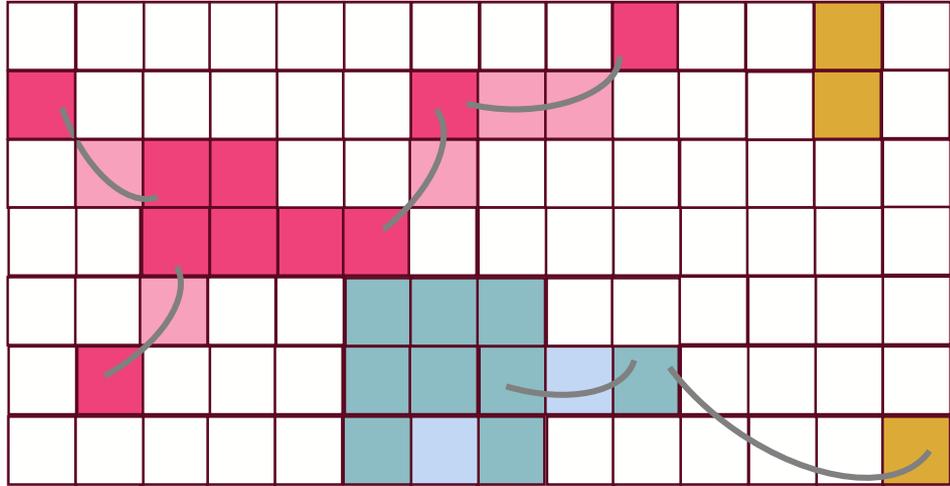
Eliminating the hop and jump corridor as part of the urban area

Step 1: Urban-qualified blocks

Step 2: Urban areas

Step 3: Hops and jumps

Step 4: Split or merge



Change 6: No longer include low-density enclaves

Current

- Low-density blocks (<500 PPSM) that are surrounded on three sides by urban territory are **included** in the urban area

Proposed

- Low-density blocks (<385 HPSM) that are surrounded on three sides by urban territory **will not be** included in the urban area

Discussion

- Previously included these blocks to help “smooth” urban area boundaries and make mapping easier
- No longer needed this approach because advanced GIS software and “zoomable” maps

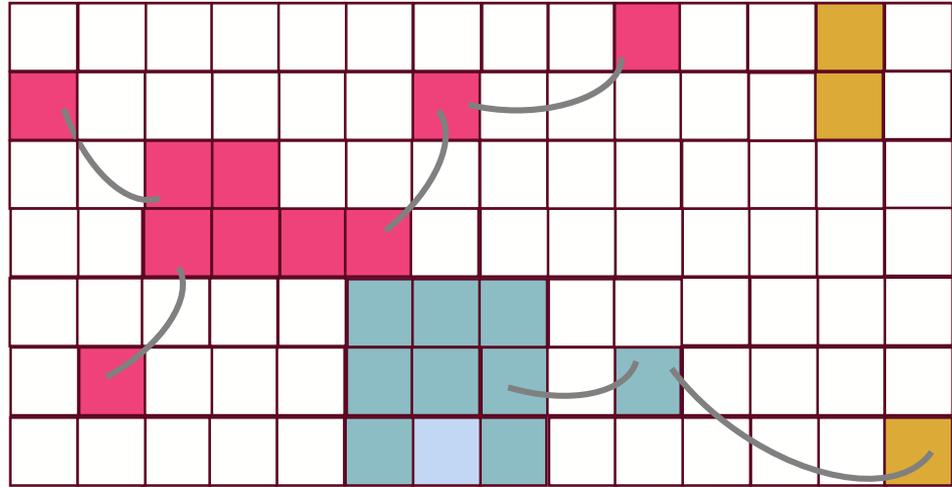
No longer including enclaves as part of the urban area

Step 1: Urban-qualified blocks

Step 2: Urban areas

Step 3: Hops and jumps

Step 4: Split or merge



Change 7: Split / merge agglomerations using worker flow data

Current

- A large agglomeration includes multiple urban areas. Currently, the decision of where to split a large agglomeration is based on the “legacy” approach

Proposed

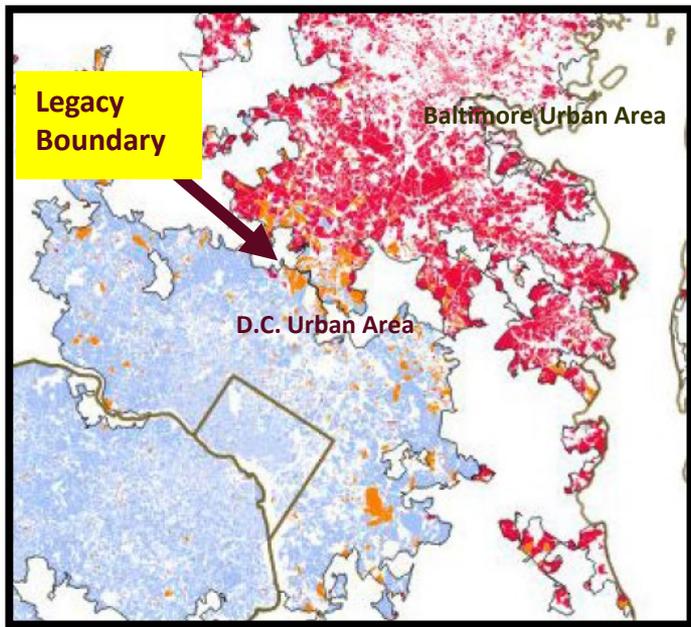
- Use worker flow data (i.e., commuting flows) from the Longitudinal Employer-Household Dynamics (LEHD) data to draw boundaries between different urban areas

Discussion

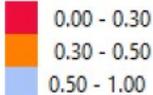
- Two-step approach:
 1. Analyze worker flows (based on 2010 UA delineations) to determine whether to merge or split urban areas
 2. Based on the LEHD empirical commuting patterns to draw the urban area boundaries
- Urban area boundaries become more dynamic and will keep changing over time

Split / merge agglomerations using worker flow data

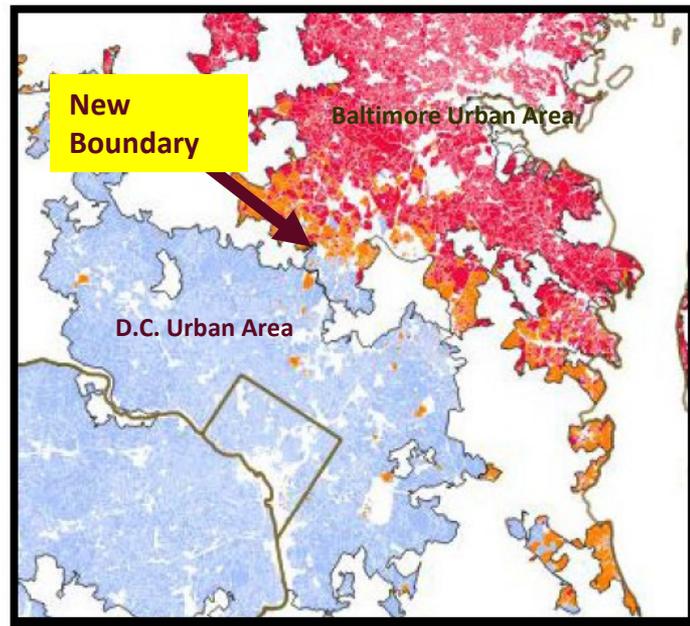
Where do Washington Residents work?



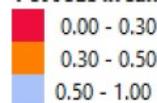
Percent of jobs filled by residents of Washington



Where do Washington Workers live?



Percent of residents working in Washington





Potential Impacts

Differential impacts of housing unit density threshold for block qualification

- Not all areas have similar people per household
- Areas with larger household size may see reduced urbanization
 - Fewer houses per square mile even if heavily populated
- Areas with lower household size may see increased urbanization
 - More houses per square mile even if less populated

Texas: Average county household size

County	Rank	ACS (5-Year) 2019 Average Household Size	Housing Unit Density Equivalent to 1,000 ppsm
Starr County	1	3.92	255
Reeves County	2	3.87	258
Culberson County	3	3.76	266
Glasscock County	4	3.75	267
Hudspeth County	5	3.71	270
Webb County	6	3.61	277
Maverick County	7	3.56	281
Hidalgo County	8	3.55	282
Gaines County	9	3.54	282
Willacy County	10	3.52	284
Donley County	245	2.27	441
Jones County	246	2.24	446
Brewster County	247	2.23	448
Kent County	248	2.20	455
Terrell County	249	2.14	467
Throckmorton County	250	2.14	467
Marion County	251	2.10	476
Jeff Davis County	252	2.07	483
Menard County	253	2.05	488
Coke County	254	1.95	513
State of Texas	N/A	2.82*	355
United of States	N/A	2.61*	385

Note: * Used values from the 2019 1-Year ACS Data.

Source: 2019 1-Year ACS Data & 2019 5-Year ACS Data

Example of differential impacts of switching to housing units

Characteristic	Block 1	Block 2	Block 3
Previously qualified as urban	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Population density (people per sq. mi.)	1,000	1,000	1,000
People per housing unit (average)	2.6	3.00	1.95
Housing unit density (units per sq. mi.)	385	333	513
Qualifies as urban?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

“Higher bar” impacts

- Qualifying census blocks as urban
 - 385 housing units per sq. mi. based on prior urban CORE criteria of 1,000 people per sq. mi.
 - Sets a higher bar for urban block qualification
- Qualifying urban areas
 - Need at least 10,000 people or 4,000 housing units to qualify as urban area
 - Will affect previous urban “cluster” areas (between 2,500 and 10,000 people)
 - Should not affect already developed urban areas with 50,000+ population

Conservative urban area growth and some potential minor reductions

- Several proposed changes may slow urban area growth
 - Smaller jump distance (now 1.5 miles)
 - No longer including low-distance “hop and jump” corridors
 - No long including enclaves
- Main impact areas
 - Along established urban area “edges”
 - In newly developing urban areas
- Texas’s ongoing development may help balance the impacts

Splits uncertain

- Using LEHD worker flow data provides *empirical* basis for splitting agglomerations of urban areas, BUT
- Potential impacts of uncertain
 - Adjacent urban areas could be merged if they function as a single region / community
 - Urban agglomerations could be split in different places than current, depending on worker flow data

Urban areas may be discontinuous

- Not including “hop and jump” corridors means that urban area blocks may not all touch
- Not including enclaves may create many indentations in boundaries
- Potential confusion about urban area service vs. rural service



Summary and Resources

Key take aways

- Urbanization becoming more about the built environment than population
- Upping the ante about what is urban
- Potentially slower urban area growth than previous Census
- Well-established urban areas receiving FTA funding likely not significantly impacted **EXCEPT**
 - Potential for merges or splits
 - Potential for only small gains (or even losses) on the edges of development
- Urban areas may not be contiguous

Resources

- Federal Register announcement:
<https://www.federalregister.gov/documents/2021/02/19/2021-03412/urban-areas-for-the-2020-census-proposed-criteria>
 - Comments due May 20, 2021
- Housing unit data:
<https://www.census.gov/about/policies/quality/corrections/luca.html>
- LEHD data:
<https://lehd.ces.census.gov/>



Questions & Discussion

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