

April 16, 2021

Association of Metropolitan Planning Organizations (AMPO)
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Washington, D.C. 20001

AMPO Urban Area Working Group:

The Southeast Michigan Council of Governments (SEMCOG) has undergone a review of the changes proposed by the Census Bureau to delineating urban area in the 2020 Census, as published in the Federal Register: Urban Areas for the 2020 Census-Proposed Criteria, 86 Fed. Reg. 10237-10243 (February 19, 2021). As part of this process, SEMCOG staff estimated the impact of the proposed changes on the region by replicating the process outlined in the Federal Register notice for all census blocks in the SEMCOG region. This process involved the following steps:

1. Staff downloaded 2020 Census tabulation geography files from the U.S. Census Bureau, specifically 2020 Census block tabulation geography in ESRI shapefile format.
2. SEMCOG maintains a count of housing units by building in its buildings footprints data layer, a GIS layer of all buildings in Southeast Michigan that is current through April 2020. This building footprints layer was intersected with the 2020 Census block tabulation geography to assign housing units to 2020 census block.
3. The number of housing units in each census block was divided by the number of acres to determine the housing unit density by census block. Those blocks meeting the HOUSING UNIT DENSITY criteria (≥ 385 DUA) were flagged as urban.
4. Staff also downloaded the 2016 National Land Cover Database (NLCD) from the U.S. Geological Survey, in particular the impervious surface dataset.
5. The 2020 census blocks were intersected with the 2016 impervious surface layer to assign impervious surface to each census block, recording the percentage of land area of each block that was at least 20% impervious.
6. The shape index for each 2020 census block was calculated using the formula: $4\pi(\text{Area})/(\text{Perimeter})^2$.
7. Blocks meeting both the SHAPE INDEX criteria (≥ 0.185) and the IMPERVIOUS SURFACE criteria (33% of area $\geq .200$ impervious) were flagged as urban.
8. Blocks meeting the IMPERVIOUS SURFACE criteria (33% of area $\geq .200$ impervious) that also meet the CONTIGUOUS criteria (40% of the perimeter of the block is contiguous with blocks previously flagged as urban) were also flagged as urban. This process was repeated three times, adding 1,850, 478, and 14 blocks respectively, until no more blocks could be added to the urban area through this process.
9. Blocks representing airports meeting the enplanement criteria, blocks containing group quarters contiguous with previously flagged urban blocks, and blocks completely surrounded by urban blocks, were flagged as urban.
10. Last, a near analysis was performed to crudely estimate the hop and jump portion of the urban area criteria. This process iterated 13 times, adding 2,909 census blocks to the urban area until no further blocks could be added via this process.

The results of SEMCOG's estimate of 2020 Census urban area showed that there are 2,225 census blocks that were classified as urban in 2010 that would now be classified as rural using the 2020 urban area. Many of these blocks are in communities greater than 2,500 population but less than 10,000 population, which were urban under the 2010 urban cluster definition but fail to reach the new 10,000 population minimum proposed by the Census Bureau. There are 370 census blocks that were previously rural in 2010 that would now be considered urban in 2020, mainly in areas of suburban housing growth adjacent to the urban core during the last ten years.

The use of 2016 impervious surface, rather than waiting for 2021 impervious surface, was a limiting factor in adding additional urban blocks. Several large commercial developments built between 2016 and 2020 did not qualify as urban that would likely qualify if more recent impervious surface data was used. We would strongly recommend that the U.S. Census Bureau consider the use of 2021 impervious surface data, as it will be available by the time the urban area is officially classified.

In terms of the population considered urban, the following table displays the estimated changes in urban population from 2010 to 2020:

COUNTY	2010 URBAN POPULATION	2020 URBAN POPULATION	% CHG, 2010-2020
Livingston	114,181	89,755	-21.4%
Macomb	817,048	839,542	2.8%
Monroe	94,928	77,471	-18.4%
Oakland	1,144,809	1,185,106	3.5%
St. Clair	100,377	93,076	-7.3%
Washtenaw	288,085	303,206	5.2%
Wayne	1,807,913	1,756,830	-2.8%
SEMCOG	4,367,341	4,344,986	-0.5%

Four of the region's seven counties are estimated to lose urban population, with two counties losing close to 20% of their urban population: Livingston County with a 21.4% decline and Monroe County with a 18.4% decline. These losses would be partially mitigated through the use of current impervious surface data.

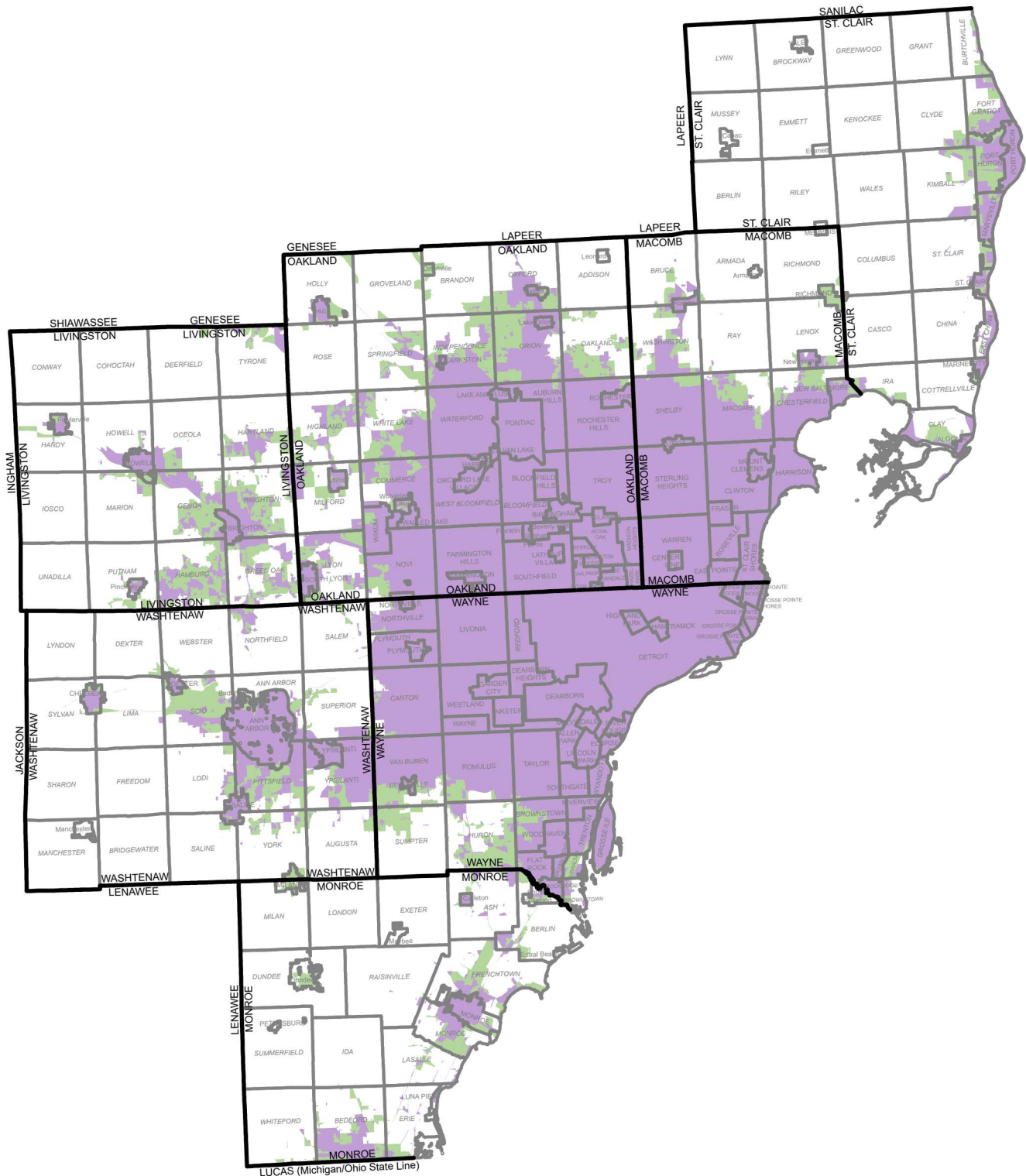
A map of the region showing the estimated changes is enclosed, showing 2010 and estimated 2020 urban area.

Regards,

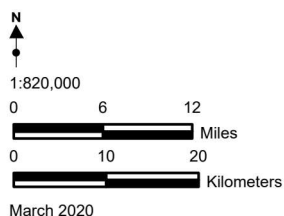
Jeffrey Nutting
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Enclosures:
Map of Draft Estimate of 2020 Census Urban Area, Southeast Michigan

Draft Estimate of 2020 Census Urban Area Southeast Michigan



Urban_Area_Map.aprx



- 2020 Estimated Census Urban Area
- 2010 Final Census Urban Area