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Mat-Su Pre-MPO Metropolitan Planning Area (MPA) Boundary Development Strategy

Background

This paper will outline a methodology to form the Mat-Su Metropolitan Planning Organization (MPO) Metropolitan Planning Area (MPA) boundary to be included in the Operating Agreement that is to be submitted to the Governor for designation as an MPO in accordance with USC 23 Sec 134(e) and 23 CFR 450.312:

- The boundaries of a MPA shall be determined by agreement between the Metropolitan Planning Organization (MPO) and the Governor.
- Each MPA shall encompass at least the existing urbanized and the contiguous area expected to become urbanized within a 20-year forecast period; and may encompass the entire metropolitan statistical area or consolidated metropolitan statistical area, as defined by the Bureau of the Census.
- The MPA boundary shall, as a minimum, cover the UZA (Urbanized Area) and the contiguous geographic area likely to become urbanized within the 20-year forecast period of the Metropolitan Transportation Plan.
- The MPA boundary should be established to reflect the most comprehensive boundary to foster an effective planning process that ensures connectivity between modes, reduces access disadvantages experienced by modal systems, and promotes efficient overall transportation investment strategies.
- The boundaries of the MPA shall include at least the boundaries of the nonattainment or maintenance areas, except as otherwise provided by agreement between the MPO and Governor.
- Approval of MPA boundaries by the FHWA or the FTA is not required. However, MPA boundary maps must be submitted to the FHWA and the FTA after their approval by the MPO and the Governor.

Terms

“CENSUS BLOCK” A geographic area bounded by visible and/or invisible features shown on a map prepared by the Census Bureau. A block is the smallest geographic entity for which the Census Bureau tabulates decennial census count data.¹

“CENSUS BLOCK GROUP (BG)” A block group (BG) is a cluster of census blocks having the same first digit of their four-digit identifying numbers within a census tract. BGs generally contain between 600 and 3,000 people, with an optimum size of 1,500 people. Most BGs were delineated by local participants as part of the U.S. Census Bureau's Participant Statistical Areas Program. The U.S. Census Bureau delineated BGs only where a local, state, or tribal government declined to participate or where the U.S. Census Bureau could not identify a potential local or tribal participant. Each census tract contains at least one BG.²

“CENSUS DESIGNATED PLACE (CDP)” Statistical geographic entities representing closely settled, unincorporated communities that are locally recognized and identified by name. They are the statistical equivalents of incorporated places, with the primary differences being the lack of a legally defined

¹ U.S. Department of Commerce. (2010). Federal Register, 76 (164), 53042. Washington, DC: U.S. Census Bureau.

² U.S. Department of Commerce. (2010). Federal Register, 76 (164), 53042. Washington, DC: U.S. Census Bureau

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boundary and an active, functioning governmental structure, chartered by the state and administrated by local officials.³

“CENSUS TRACT” A small, relatively permanent statistical geographic division of a county defined for the tabulation and publication of Census Bureau data. The primary goal of the census tract program is to provide a set of nationally consistent, small, statistical geographic units, with stable boundaries that facilitate analysis of data between decennial censuses.⁴



Relationship between U.S. Census Bureau Geographic Entities

“CONTIGUOUS” A geographic term referring to two or more areas that are adjacent to one another, sharing either a common boundary or at least one common point.⁵

“GROUP QUARTERS” Places where people live or stay in a group living arrangement that is owned or managed by an organization providing housing and/or services for the residents.⁶

“HOP” A connection from one urban area core to other qualifying urban territory along a road connection of 0.5 miles or less in length.⁷

“HOUSEHOLD” A household consists of all the people who occupy a housing unit. A house, an apartment or other group of rooms, or a single room, is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters; that is, when the occupants do not live with any other persons in the structure and there is a direct access from the outside or through a common hall. It includes related family members and all the unrelated people, if any, such as lodgers, foster children, wards or employees who share the housing unit.⁸

³ U.S. Department of Commerce. (2018). Federal Register, 83 (219), 56290. Washington DC: U.S. Census Bureau

⁴ U.S. Department of Commerce. (2010). Federal Register, 76 (164), 53042. Washington, DC: U.S. Census Bureau.

⁵ U.S. Department of Commerce. (2010). Federal Register, 76 (164), 53042. Washington, DC: U.S. Census Bureau.

⁶ U.S. Department of Commerce. (2010). Federal Register, 76 (164), 53042. Washington, DC: U.S. Census Bureau.

⁷ U.S. Department of Commerce. (2010). Federal Register, 76 (164), 53030.. Washington, DC: U.S. Census Bureau.

⁸ U.S. Department of Commerce. Current Population Survey. Washington, DC: U.S. Census Bureau.

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“HOUSING UNITS” A housing unit is a living quarters in which the occupant or occupants live separately from any other individuals in the building and have direct access to their living quarters from outside the building or through a common hall. Housing units are usually houses, apartments, mobile homes, groups of rooms, or single rooms that are occupied as separate living quarters. They are residences for single individuals, for groups of individuals, or for families who live together. A single individual or a group living in a housing unit is defined to be a household.⁹

“IMPERVIOUS SURFACE” is man-made surfaces, such as building roofs, roads, and parking lots that storm water cannot permeate through.¹⁰

“JUMP” A connection from one urban area core to other qualifying urban territory along a road connection that is greater than 0.5 miles, but less than or equal to 2.5 miles in length.¹¹

“MATANUSKA-SUSITNA BOROUGH (MSB)” A borough located in the U.S. state of Alaska. Its county seat is Palmer and the largest community is the census-designated place of Knik-Fairview. The borough is a part of the Anchorage Metropolitan Statistical Area along with the municipality of Anchorage on its south.¹²

“METROPOLITAN PLANNING AREA (MPA)” is the geographic area determined by agreement between the metropolitan planning organization for the area and the Governor.¹³

“METROPOLITAN PLANNING ORGANIZATION (MPO)” is the policy board of an organization established as a result of the designation process.¹⁴

“OCCUPIED HOUSING UNIT” A housing unit is classified as occupied if it is the usual place of residence of the individual or group of individuals living in it on Census Day, or if the occupants are only temporarily absent, such as away on vacation, in the hospital for a short stay, or on a business trip, and will be returning.¹⁵

“PERSONS PER SQUARE MILE” (PPSM) is the average number of inhabitants per square mile of land area. These figures are derived by dividing the total number of residents by the number of square miles of land area in the specified geographic area. The land area measurement is from the Census 2010.¹⁶

⁹ U.S. Department of Commerce. State & Country QuickFacts. Washington, DC: U.S. Census Bureau.

¹⁰ U.S. Department of Commerce. (2010). Federal Register, 76 (164), 53043. Washington, DC: U.S. Census Bureau.

¹¹ 11 U.S. Department of Commerce. (2010). Federal Register, 76 (164), 53030. Washington, DC: U.S. Census Bureau.

¹² https://en.wikipedia.org/wiki/Matanuska-Susitna_Borough,_Alaska Accessed 09.07.2021

¹³ 49 USC§ 5303, Metropolitan Transportation Planning

¹⁴ 49 USC§ 5303, Metropolitan Transportation Planning

¹⁵ U.S. Department of Commerce. <https://www.census.gov/housing/hvs/definitions.pdf>. Accessed 09.07.2021

¹⁶ U.S. Department of Commerce. State & Country QuickFacts. Washington, DC: U.S. Census Bureau

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RURAL” is territory not defined as urban.¹⁷

URBAN” is densely developed territory, encompassing residential, commercial, and other nonresidential urban land uses within which social and economic interactions occur.¹⁸

State of Alaska Department of Transportation and Public Facilities (ADOT)

URBAN AREA” is the generic term used to refer collectively to urbanized areas and urban clusters.¹⁶ “URBANIZED AREA” (UZA) is a statistical geographic entity consisting of a densely settled core created from census tracts or blocks and contiguous qualifying territory that together have a minimum population of at least 50,000 persons.¹⁹

Objective and Scope

This paper provides a methodology to be used to develop the Mat-Su Area MPO Boundary between January 2022 – August 2022. The impetus for this project stems from the pending US Census Bureau release of the new Urbanized Area (UZA) data in Spring 2022. The release of a new Mat-Su UZA is expected to cause the need for some portion of the MSB to be designated as an Urbanized Area over 50,000 persons and to form a Metropolitan Planning Organization (MPO). This area *plus* the contiguous area expected to become urbanized within a 20-year forecast period for the metropolitan transportation plan will define the minimum boundary for the new MPO.

Historical Information

The 2010 Census defined the Mat-Su Urban Area (red shaded in the graphic below) as an area of 54.58 square miles. An adjustment to the urban area was done by the State of Alaska Department of Transportation and Public Facilities along with Mat-Su area planners and the FHWA. It is outlined in light blue and totals 119.12 square miles. One should try to ascertain the assumptions that were used in the development of the adjusted boundary and consider the use of those assumptions or similar ones in the development of the MPA.

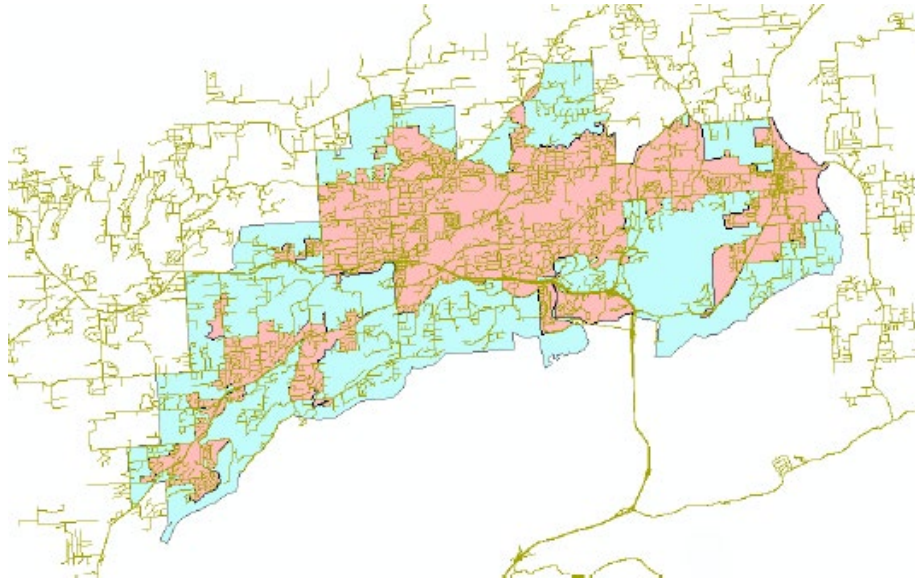
¹⁷ U.S. Department of Commerce. Understanding and Using American Community Survey Data, ACS Rural Handbook, 2019.

¹⁸ U.S. Department of Commerce. Understanding and Using American Community Survey Data, ACS Rural Handbook, 2019.

¹⁹ U.S. Department of Commerce. (2010). Federal Register, 76 (164), 53043. Washington, DC: U.S. Census Bureau

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Assumptions

- After meeting with the MSB and the ADOT, it was determined that both agencies will provide the GIS and TransCad Modeling services required to develop the boundary map alternatives. This will include layers such as Census Block Groups, Blocks, TAZ's, population, housing units, developable land, and any other information that will be useful in developing alternatives.
- The number, size and geographic area of the Census Blocks will not change from the 2010 Decennial Census to 2030.
- The projected population growth will be distributed among the MSB Census BG's at the same rate as the projected household growth.
- Population growth in each Census Block will occur consistent with the current population distributions of each Census Block comprising a BG. For the 2045 projections, the growth percentages will be projected at Census BG level and allocated to specific Blocks based on 2020 population data. (e.g., if a 2020 Census Block contained 60% of the 2010 Census BG population then exactly 60% of the projected growth in that particular Census BG will occur within that Census Block).
- The only factor for delineating the contiguous area expected to become urbanized within a 20-year forecast period is the projected population density of a Census Block of at least 500 ppsm. In 2020, there are other factors which the U.S. Census Bureau uses in determining the exact Census Blocks which encompass a UZA, such as international airports, bodies of water, and inclusion of areas with a high degree of impervious surfaces. These factors were not included in the contiguous area expected to become urbanized within a 20-year forecast period.
- The State will be working in-step with the Pre-MPO Steering Committee to ensure the result is a cooperative effort that will be approved by the Governor.

Task Workflow

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1. Gauge the 20-year projected population growth in the MSB. Review the 2010 and 2020 Census Data shown in Attachment A. Review locally available estimates for population growth from the MSB, ADOT and the State of Alaska Department of Labor. Obtain data from private sources such as Woods & Poole for their population projections. The 2010 MSB data below is based on U.S. Dept. of Commerce historical data estimates. All other data are projected by Woods & Poole Economics, Inc. (Dollars are in millions of 2012 dollars).

Year	Population	Employment	Income
2010	89,732	32,139	\$3,764,695
2020	110,479	39,271	\$5,140,757
2040	166,391	63,796	\$9,791,793
2045	182,639	70,300	\$11,408,705

2. Determine the annual growth rate for the MSB and total population projection for 2045. Document your process and vet it with the Pre-MPO Steering Committee. Since the MTP has to be, at a minimum, a 20-year plan, it is recommended that 2045 is used as opposed to census year 2040.
3. Allocate the 25-year projected population growth between the U.S. Census 2020 Block Groups (BG's) comprising the MSB.
4. Utilize the 2012 Density Study Overview found in Attachment B and remove from consideration any areas where land is not suitable for residential construction, or is federally or MSB-owned or otherwise unbuildable. Determine the assumptions that were used to delineate land as buildable and unbuildable and document.
5. Review the Mat-Su Boroughs (MSB) Borough-Wide Comprehensive Plan, the MSB Core Area Comprehensive Plan, Capital Improvement Program, Road Improvement Program (RIP) List that the Rural Service Areas put together annually and the Comprehensive Plans for the City of Wasilla and City of Palmer to provide additional background on growth in the area.
6. Obtain information regarding the likelihood of any area within the MSB that may become a non-attainment area for air quality standards. Including these areas within the boundary of the MPO will significantly impact the transportation planning process. Unless these areas are contiguous to the UZA, it is recommended that they are not included within the MPA.
7. Gather subject matter experts such as planners, platting managers, floodplain managers, real estate agents, developers and the like to get a sense of where the most growth is likely to occur. Allocate the 25-year projected population growth geographically to the Census 2020 Blocks.
8. Ground truth your allocation of population by ensuring that more households are not assigned to a BG that has already exceeded its developable land. Residential development in the MSB is limited by constraints on individual water and septic systems so often occurs at densities of one unit per acre. Number of housing units in each Traffic Analysis Zone (TAZ) is available in the

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TransCad Model. Also available are the total number of housing units at full build-out in each TAZ. Work to determine the BGs or Blocks in each of the TAZs if that work has not already been done. See Attachment C, *Briefing Paper on Mat-Su Pre-MPO Boundary Map Development developed by the ADOT*.

9. Sum the current Census 2020 Blocks population with the additional persons allocated to each block by the 25-year expected population growth exercise of each Census Block.
10. Calculate the expected 2045 density (people per square mile) of the Census 2020 Blocks geographical area using the 25-year projected population.
11. Visually show the U.S. Census Blocks which are project to have a density of at least 500 people per square mile by the year 2045.
12. Expand the Census 2020 UZA to include the Census Blocks *contiguous* to the UZA which are expected to have a density of at least 500 people per square mile in 2045. This geographical area will be considered “the contiguous area expected to become urbanized within a 20-year forecast period.” This will create the minimum MPA.
13. Form a committee to review the Minimum MPA and develop options for a new MPA based on logical boundary termini consistent with 23 CFR 450.312 (i). There will likely be a minimum boundary and a maximum boundary alternative although there may be one that falls between these. Consider the number of road miles included in each alternative as this will have a bearing on how well the MPO can serve the area. See Attachment D for the data available on road miles within the MSB and the Small Urban Area.
14. Hold a public open house to solicit comments from the general public regarding MPA options.
15. Take all options and comments before the Pre-MPO Steering Committee and obtain a recommendation for the proposed MPA.
16. Bring the recommendation to the Pre-MPO Policy Board for approval.
17. Submit final recommendation to the Governor and FHWA per (23 USC 134 (e) (1)).

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Attachment A

2000 and 2010 MSB Census Data

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Attachment B
2012 Density Study Overview

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Attachment C

Briefing Paper on Mat-Su Pre-MPO Boundary Map Development developed by the ADOT

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Attachment D
Roads Miles within the MSB