

From: Joseph Aguilar <joseph_aguilar@dot.ca.gov>
Date: 12/6/2012 2:33 PM
Subject: Fwd: Urban Boundaries Updates requested by FHWA
Attachments: Attachment A_Adjusted Urban Area Boundary ConceptS.docx; Attachment C_MPO_Concurrence_Letter_TEMPLATE.docx; Attachment B_CITY-COUNTY_Resolution_Template.docx

Following each decennial census, Federal transportation legislation 23 USC 101(a)(36) - (37) allows responsible state and local officials through cooperative efforts, and subject to approval by the Secretary of Transportation, to adjust the Census boundaries outward, as long as they encompass, at a minimum, the entire Census Designated area.

As the MPO and RTPA for the San Francisco Bay Area, we ask that the Metropolitan Transportation Commission (MTC) work cooperatively with responsible city, county and transportation agency staff to adopt the urban boundary as provided or outwardly adjust the boundary for transportation related purposes and obtain resolutions supporting the boundary adjustments.

Proposed and current urban boundaries can be viewed and downloaded in shapefile format at the Caltrans (CT) Earth website: <http://earth.dot.ca.gov/>.

How to display CT Earth data layers:

1. Click “continue” to display CT Earth.
2. Go to the Table of Contents on the left of the web page and click on the “boundaries” pull down.
3. Check the boxes for the “proposed 2010 urban area” and the “2000 urban areas” to display these two layers on the map.

Included with this transmittal is the “Adjusted Urban Area Boundary Concepts” document which provides instruction on why and how to make adjustments to the urban boundaries. Also included are samples of agency resolution and MPO concurrence letter language. Please review these documents and determine whether any urban boundary adjustments are necessary.

Upon completion of the urban boundary adjustments, MPOs should prepare a concurrence letter supporting the urban boundary adjustments. Then forward the GIS shapefile or paper maps, agency resolutions, MPO concurrence letters, and any other support documentation to Caltrans Districts for review and further action.

For those agencies that do not respond by **February 4, 2013**, it will be determined that they accept the proposed 2010 Caltrans adjusted urban boundaries and the proposed Caltrans adjusted urban boundaries will become the “official” urban area boundaries upon approval by the FHWA

Please contact Dick Fahey your District 4 Caltrans Functional Classification Coordinator/GIS Coordinator at 510-286-5761 with questions you have in this matter.

*(See attached file: Attachment A_Adjusted Urban Area Boundary ConceptS.docx)(See attached file: Attachment C_MPO_Concurrence_Letter_TEMPLATE.docx)
(See attached file: Attachment B_CITY-COUNTY_Resolution_Template.docx)*

Thank you.

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1 ADJUSTED URBAN AREA BOUNDARY CONCEPTS

1.1 Introduction

Many Federal transportation programs and policies rely upon a clear and well-documented distinction between urban and rural areas. Urban and rural areas are explicitly defined by the Census Bureau according to specific population, density and related criteria.

Very rigid technical definitions define the urban and rural areas. From these technical definitions, irregularities and boundaries that are separated from or inconsistent with transportation features may result. For their transportation purposes, States have the option of using Census-defined boundaries exclusively, or they may adjust the Census-defined boundaries to be more consistent with transportation needs. States, in coordination with local planning partners, may *adjust* the urban area boundaries so fringe areas having "...residential, commercial, industrial, and/or national defense significance", as noted in the December 9, 1991 Federal-Aid Policy Guide, are included.

Reasons for adjusting urban area boundaries for transportation planning purposes often relate to a need for consistency or geographic continuity. For example, it may be logical to include, as part of an urban area, a roadway that is used by urban residents but that is located just outside the current urban area boundary. Or, to designate, as urban, a rural pocket in the middle of an urban area, or to make adjustments to address alternating patterns of rural and urban-designated areas. Lastly, large, low density land uses on the urban fringe that serve the urban population such as airports, industrial parks, regional shopping centers and other urban attractions may also be included in an urban area.

The authority to establish the geographic definitions is set forth in Section 101(a) of Title 23 U.S.C. and subsequent guidance has been provided in 23 CFR 470 and in FHWA policy documents. This chapter is intended to assemble and complete all previous policy given by FHWA for establishing urban area boundaries.

1.2 Defining Urban and Rural

The following provides State and regional transportation planners a set of clear definitions of urban and rural, in the context of the Federal transportation planning process.

The terms urban and rural mean different things to different people, and in many cases their definitions differ depending upon the context in which they are used. At their core, the concepts of *urban* and *rural* are clear; urban areas are considered to have *dense* development patterns, while rural areas are considered to have *sparse* development patterns (see **Figure 1-1**).

Figure 1-1: Prototypical Urban and Rural Areas

Urban



Rural



Source: CDM Smith

1.2.1.1 Federal Highway Administration Area Definitions

The Census Bureau defines urban areas solely for the purpose of tabulating and presenting Census Bureau statistical data. However, a number of Federal agency programs use the Census definitions as the starting point (if not the basis) for implementing and determining eligibility for a variety of their funding programs.

There are differences in the way FHWA and the Census Bureau define and describe urban and rural areas. According to FHWA’s definitions, based on 23 U.S.C. 101(a), areas of population greater than 5,000 and above can qualify as urban.

Table 1-1: FHWA Urban Area Types defined by Population Range

| FHWA Area Definition | Population Range | Subject to FHWA Urban Area Boundary Adjustments |
|----------------------------------|------------------|---|
| Urban Area | 5,000+ | Yes |
| Small Urban Area (From Clusters) | 5,000-49,999 | Yes |
| Urbanized Area | 50,000+ | Yes |

Federal transportation legislation allows for the outward adjustment of Census Bureau defined urban boundaries (of population 5,000 and above) as the basis for development of *adjusted* urban area boundaries for transportation planning purposes, through the cooperative efforts of State and local officials. By Federal rule, these adjusted urban area boundaries must encompass the entire Census-designated urban area (of population 5,000 and above) and are subject to approval by the Secretary of Transportation (23 USC 101(a)(36) -(37) and 49 USC 5302(a)(16) - (17)).

For the purposes of the boundary adjustment process, the term *Adjusted Urban Area Boundaries* to refer to the FHWA boundary adjustment process in all areas of 5,000 population and above.

1.3 Relationship to Functional Classification

Recent changes to FHWA policy have normalized the concepts of urban boundaries and functional classification to improve consistency. Twelve unnormalized classes have been normalized and expanded to fourteen combinations of seven pure functional classes and two area types. The combined classification of a given roadway will now come from two separate attributes -- functional system and area type. As an example, a roadway classified as a minor arterial that happens to be in an urban area has a combined classification of urban minor arterial. There is no change in the definitions of the functionally-classified roads. Nor does this in any way change the eligibility of rural and urban-classified roads for Federal programs and policies, or how highway statistics are reported.

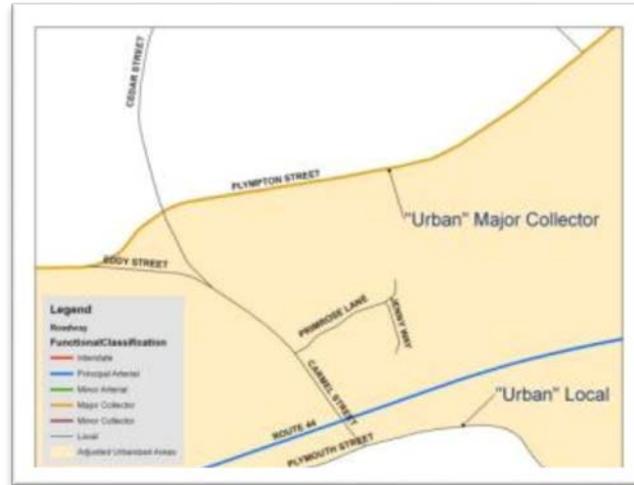
However, this change in conceptualization provides an opportunity to clarify how functional classifications at the boundaries of urban/rural areas should be treated:

1. The previous practice in some States of automatically changing the functional classification of a route that crosses into or out of an adjusted urban area boundary should be phased out and eliminated. Upgrading due to an actual change in function should be the operative criterion.
2. Special attention should be paid to locations at which roadways and boundaries are in close proximity. The Adjusted Urban Area Boundary should be designed to eliminate or minimize a roadway’s snaking in and out of the boundary. In these cases, as the boundary is adjusted, it needs to be clearly defined that the road is either in or out. This adjustment serves to maintain consistent designation of these peripheral routes and avoids the situation of a roadway alternating between urban and rural designations. Special care should be taken when developing the boundary so that spatial consistency is maintained with the roadways and associated attributes. (Figure 1-3)

3. Roads that define a boundary should be considered consistently urban or rural, and it is strongly recommended that these roadways are carefully evaluated before they are included in or out of the adjusted urban area boundary. In the graphic below, Plympton Street, a major collector, defines the adjusted urban area boundary, and is considered to be an urban major collector, while Plymouth Street, a local roadway, is considered to be an urban local road.

While the urban/rural designation is independent of the functional classification, it is important to recognize that the adjusted urban area boundary is a significant factor in developing the functional classification of a road in an urban/rural context.

Figure 1-2: Example of roadway coincident with Adjusted Urban Area



Source: CDM Smith 2012; Data provided by Massachusetts Department of Transportation

1.4 Developing Adjusted Urban Area Boundaries

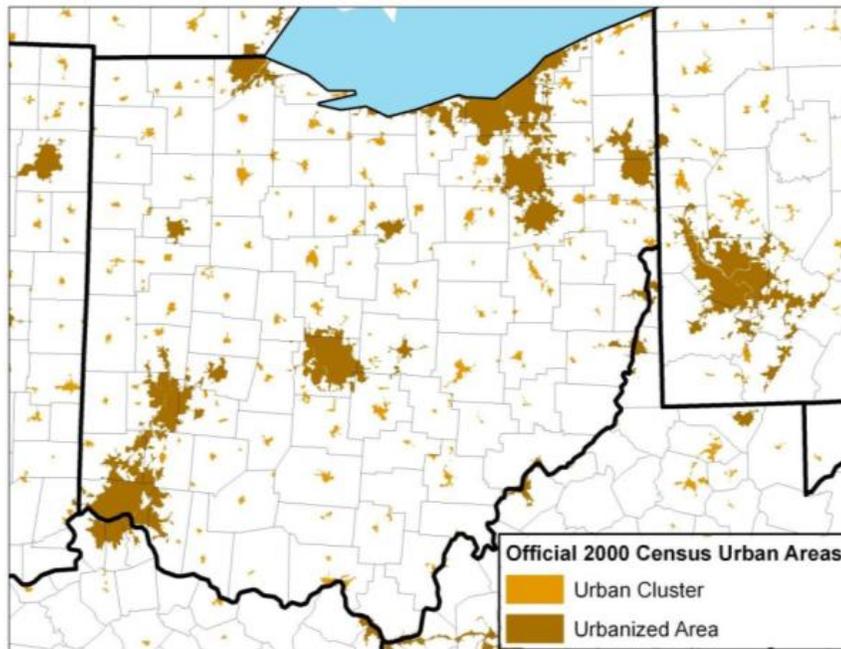
This section outlines a series of recommended technical and procedural steps to develop adjusted urban area boundaries. These tasks should be conducted through a collaborative effort between State Departments of Transportation and their local planning partners.

As described previously, there is no requirement to adjust the Census urban boundaries. States may adopt the Census boundaries as is, or they may adjust them for transportation planning purposes. The only official requirement is that an adjusted boundary includes the original urban area boundary defined by the Census Bureau in its entirety. In other words, any adjustment must expand, not contract, the Census Bureau urban area boundary.

1.4.1 Adjusted Urban Area Boundaries – Technical Tasks

The first step in defining the adjusted urban area boundaries is to obtain the U.S. Census urban area geospatial boundary files.

Figure 1-3: 2000 Census Urban Cluster and Urbanized Areas (Ohio and vicinity)



Source: Arizona Department of Transportation; <http://azdot.gov/mpd/gis/fclass/urban.asp>

These urban area boundary files should be edited in GIS. Additional GIS layers should also be gathered from the same year as the decennial census (e.g., 2010) or of similar vintage. Potentially useful GIS layers include:

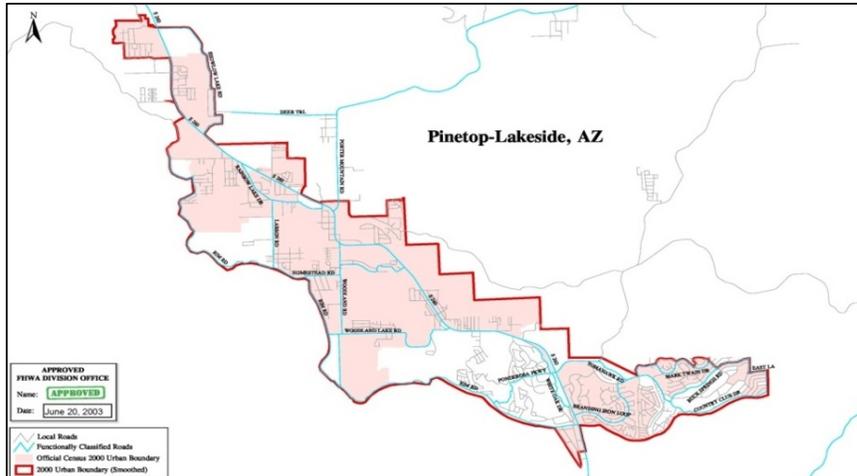
- Land Use, including areas of recent growth
- Roadway Network
- Railroads
- Transit Routes
- Ports (e.g., airports, seaports)
- Military installations
- Other significant traffic generators
- Hydrography
- Municipal boundaries (i.e., incorporated areas)
- Digital Orthophotography

1.4.2 Consideration Factors for Adjusting Urban Areas

When adjusting the urban areas, a variety of factors should be considered. The list below describes these factors and includes an example for each. All examples are courtesy of the Arizona or Massachusetts Department of Transportation.

1. **The adjusted urban area boundary will encompass the entire urban area (of population 5,000 or greater) as designated by the Bureau of Census.**

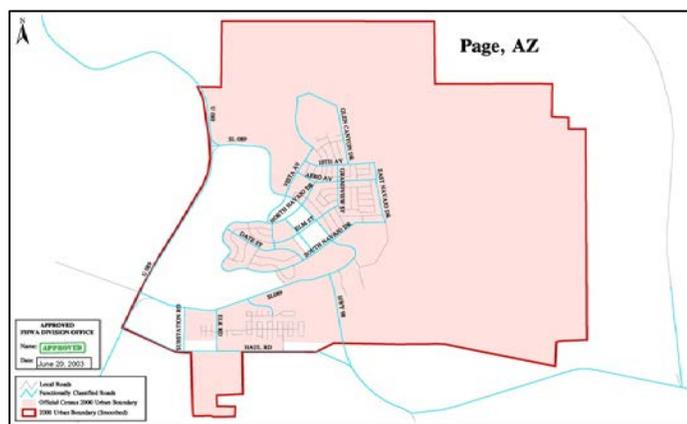
In the example that follows, no part of the original urban area was removed.



Source: Arizona Department of Transportation; <http://azdot.gov/mpd/gis/fclass/urban.asp>

The adjusted urban area boundary will be one, single contiguous area.

In the example below, the new boundary, like the original Census boundary, is a single contiguous area without any holes or discontinuities, such that there is no rural area contained within the outer urban boundary.



Source: Arizona Department of Transportation; <http://azdot.gov/mpd/gis/fclass/urban.asp>

2. **The Adjusted Urban Area Boundary may seek to include entire municipalities (i.e., incorporated areas) if the municipality has not extended its limits well beyond the Census urban area and the municipality is likely to become part of the urban area in the next decade.** Note: this situation may arise when a city has annexed a narrow buffered area along a roadway that extends for several miles outside of the urban area, or has a very aggressive annexation policy. In these situations, the urban area should not be extended to include the annexed territory.

In the example below, the urban area was extended to encompass the entire core municipality.



4. The Adjusted Urban Area Boundary should encompass areas outside of municipal boundaries that have urban characteristics with residential, commercial, industrial, or national defense land uses that are consistent with or related to the development patterns with the boundary.

In the example below, the urban area was expanded to cover the nearby Air Force base.

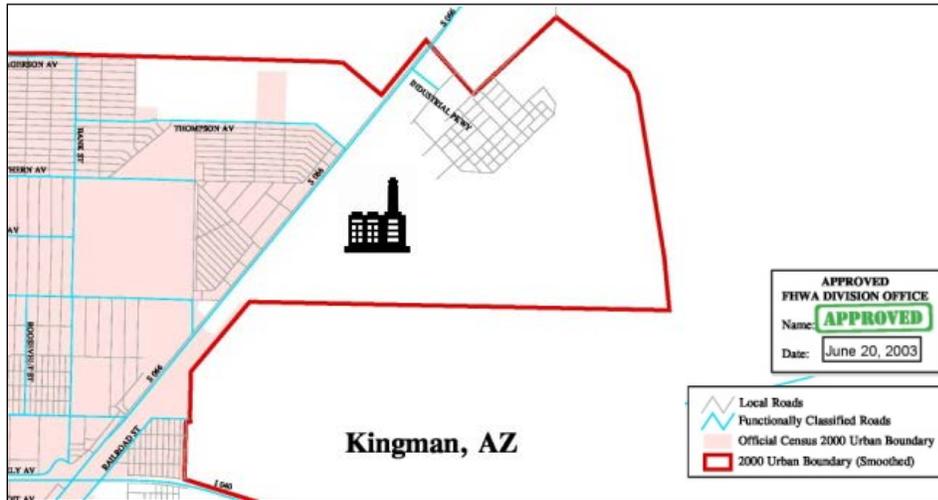


Source: Map created by CDM Smith, using data provided by MassDOT and U.S. 2000 Census.

4. The FHWA adjusted Census urban area boundary should encompass all large traffic generators that are within a reasonable distance from the urban area (e.g., fringe area public parks, large places of assembly, large industrial plants, etc.).

ATTACHMENT A

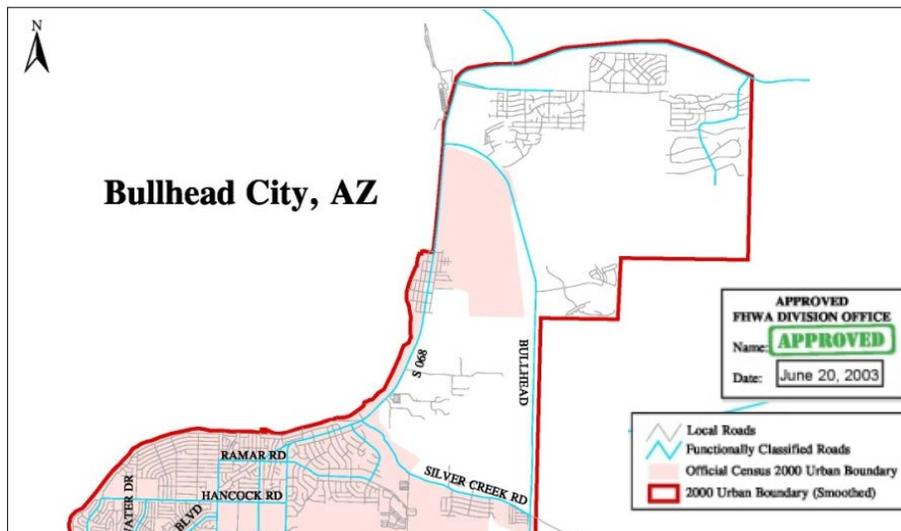
In the example below, the urban area was expanded to include the industrial area east of the Census urban area boundary.



Source: Arizona Department of Transportation; <http://azdot.gov/mpd/gis/fclass/urban.asp> with overlay graphic by CDM Smith to identify industrial plant.

5. The adjusted Census urban area boundary should include areas of rapidly developing urbanization that lie within a reasonable distance from the urban area. Moreover, a review of local and regional plans should be conducted so that the boundary reflects expectations for the upcoming decade (i.e., until the next Census urban area boundary release), accounting for anticipated development, roadway construction, and city annexations.

In the example that follows, the urban area was expanded to include the rapidly developing urbanization to the northeast of the Census urban area boundary.

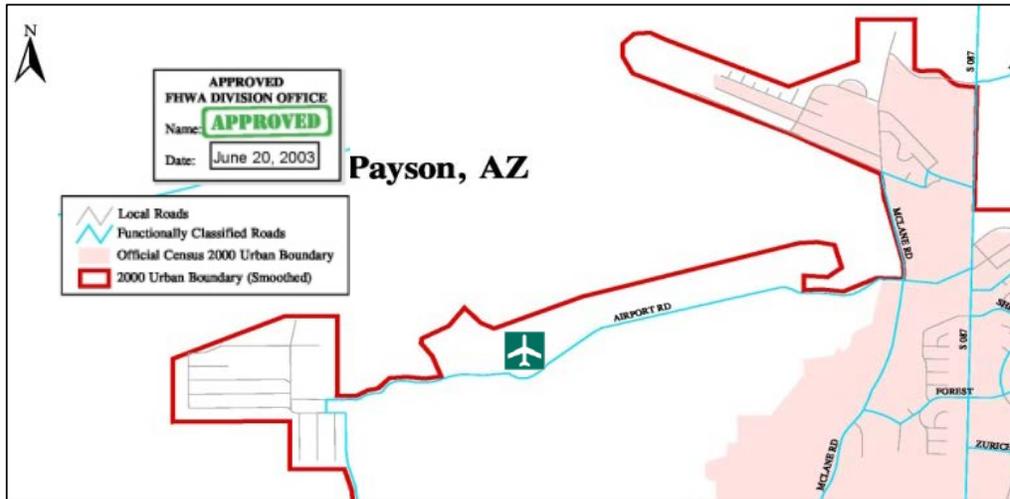


Source: Arizona Department of Transportation; <http://azdot.gov/mpd/gis/fclass/urban.asp>

6. The adjusted urban area boundary should include transportation terminals and their access roads, if such terminals lie within a reasonable distance of the urban area (e.g., airports, seaports).

ATTACHMENT A

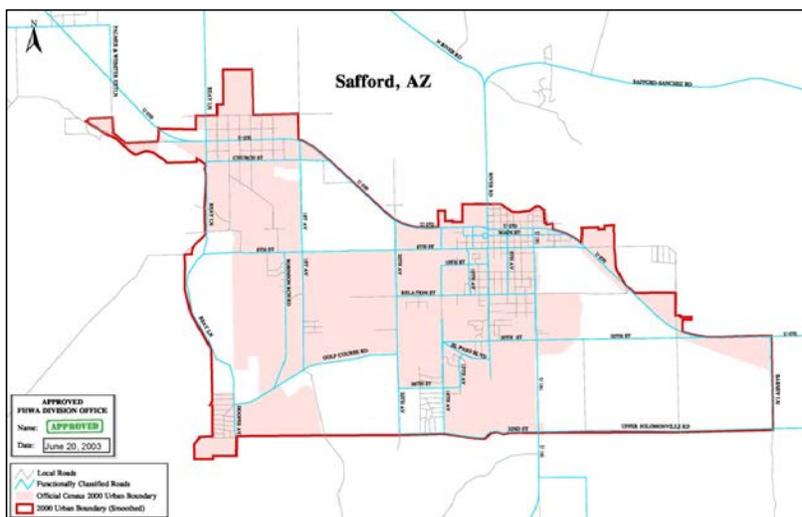
In the example that follows, the urban area was expanded to include the airport to the west of the Census urban area boundary.



Source: Arizona Department of Transportation; <http://azdot.gov/mpd/gis/fclass/urban.asp> with overlay graphic by CDM Smith to identify airport.

7. The Adjusted Urban Area Boundary should consider transit service routes (e.g., bus route, passenger rail line) in the placement of a boundary location. But their inclusion should not unduly distort the shape or composition of the original Census-defined urban area boundary.
8. The adjusted urban area boundary should be defined so that its physical location is easy to discern in the field from data shown on the map. Whenever possible, if the boundary is going to deviate from political jurisdictional boundaries, it should follow physical features (e.g., rivers, streams, irrigation canals, transmission lines, railroads, streets or highways). In instances where physical features are lacking, the boundary should cross at roadway intersections which are readily identifiable in the field.

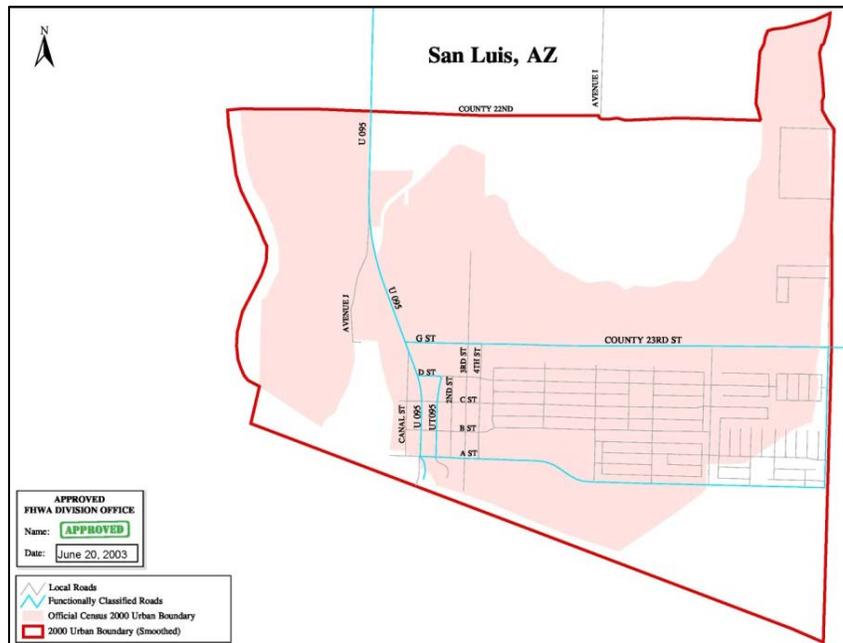
In the example that follows, the boundary was adjusted to align with the major east-west roadway to the south.



Source: Arizona Department of Transportation

9. After the adjusted urban area boundary has been defined using all the factors previously listed, remaining boundary irregularities should be minimized to avoid the confusion that irregular boundaries can create.

In the example below, the boundary was adjusted to be considerably less complex than the original irregular Census boundary.



Source: Arizona Department of Transportation; <http://azdot.gov/mpd/gis/fclass/urban.asp>

Additional recommendations regarding the adjustment of the urban area boundaries

- Adjusted urban area boundaries should be defined so that confusion or ambiguity is minimized. For example, a boundary should not be drawn in the middle of a divided highway. The divided highway should be either completely in or completely out of the urban area boundary.
- In instances where a roadway defines the boundary between two urban areas, the roadway should be clearly assigned to the urban area that the roadway primarily serves. If the roadway serves each urban area equally, a business rule should be developed that assigns the roadway appropriately.
- If access controlled roadways are used to define the adjusted urban area boundary, all ramps and interchanges should be either included or excluded concerning the adjusted urban area boundary, interchanges should not be divided by the AUAB.
- For coastal areas, if the intent of the adjusted urban area boundaries is to be reflective of the shoreline, then the generally accepted coastal boundaries most commonly used for geospatial processes such as spatial analysis or map-making should be used.

SAMPLE CITY/COUNTY RESOLUTION

A RESOLUTION REGARDING THE ADJUSTMENT OF 2010 CENSUS DESIGNATED URBAN BOUNDARIES FOR TRANSPORTATION PURPOSES

WHEREAS, Section 101(a) of Title 23 U.S. Code allows for the State and local officials in cooperation with each other to adjust the Census designated urban area boundaries, subject to approval by the Secretary of Transportation; and

WHEREAS, the California Department of Transportation, on behalf of the Federal Highway Administration, requested the _____(city/county)_____ to adjust, if necessary, the 2010 Census Designated Urban Boundaries; and

NOW, THEREFORE, BE IT RESOLVED, that the _____(City Council/County Board of Supervisors)_____ of the _____(city/county)_____ approves the adjusted urban area for _____ and authorizes submittal to the California Department of Transportation on ____ (date)_____.

ATTACHMENT C

SAMPLE MPO CONCURRENCE LETTER

Date

To Whom It May Concern:

The _____, as the Metropolitan Planning Organization for _____,
concur with the adjustments the _____ has made to the 2010 Census
designated urban boundary area.

Sincerely,