Estimates of the Total Populations of Counties and Places in Texas for July 1, 2015 and January 1, 2016

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Introduction

The estimates of the total population for counties and places in Texas for July 1, 2015 and January 1, 2016 are completed by personnel from the Texas Demographic Center offices in the Institute for Demographic and Socioeconomic Research at The University of Texas at San Antonio. In this brief report, the methodology used to prepare the estimates is described. Because of space limitations, only a summary of the methodology is presented. Those wishing to obtain a more complete description of the estimation procedures and of the historical and sensitivity analyses used to select the methods employed in these estimates should contact program personnel in the Texas Demographic Center at The University of Texas at San Antonio.

Methodology for County Estimates

Population estimates for counties are completed using three methods, including: ratio-correlation, component-method II, and housing-unit methods. These methods and the types of data used for each are discussed below.

Ratio-correlation procedures utilize multiple regression techniques with the ratio of variable values for adjacent time periods rather than simply the variable values themselves being used as independent and dependent variables. After an extensive evaluation of the relative accuracy of alternative procedures (including difference-rate, ratio-correlation and rate-correlation methods) and an analysis of alternative variables, a simple ratio-correlation model was employed to complete the final estimates. This model used the variables of births, deaths, elementary school enrollment, vehicle registration, and voter registration.

The component-method II procedure employed utilizes data on births, deaths and elementary school enrollment to estimate population. In this method, migration of the school-age population is assumed to be indicative of migration in the total population (with adjustments being made for the historical differences between the school-age migration rate and the total population's rate of migration). Data on public school enrollment from the Texas Education Agency and data from the Texas Demographic Center's survey of private schools in Texas are used to estimate change in the school-age population. Data on institutional populations were obtained from applicable institutions, while data on other special populations, such as the elderly population, utilize Medicare enrollment acquired from the Centers for Medicare and Medicaid Services in the U.S. Department of Health and Human Services.

The housing-unit method used is of the standard form with change in the number of housing units in the housing stock of an area, from the base date (in this case, the 2010 Census) to the estimate date (in this case, July 1, 2015), being used to estimate population change. New housing additions and demolitions are taken from the U.S. Bureau of the Census survey of building permits and demolitions and the Texas Demographic Center survey of counties and cities issuing permits for residential buildings and demolitions. Both the U.S. Census Bureau's building permit survey and the Texas

Demographic Center's survey can only collect data from permit issuing county and city jurisdictions (methods for dealing with non-permit issuing places are discussed later). Assumptions about vacancy rates and average household size are then used in conjunction with data on the number of housing units in an estimate area (including those in the area at the base date and the net number of units added to, or subtracted from, the base housing stock for the time period between the base date and the estimate date). Separate estimates are completed by type of structure with the types used being single-family structures, 2 to 4 unit structures, structures with 5 or more units, and mobile homes. For purposes of the 2015 estimates, vacancy rates and average household sizes for each of the housing structure types from the American Community Survey (ACS) 2010-2014 Summary File were used. For 2015, the estimates of the number of new mobile homes added to an area's housing stock were obtained from the Texas Demographic Center's survey of building permits and demolitions. The sum of mobile homes from the survey was subtracted from the U.S. Bureau of the Census' estimate of the total number of mobile homes shipped to Texas. The difference was allocated to jurisdictions on the basis of the change in units in jurisdictions for other housing types from 2000 through 2010, to estimate the distribution for July 1, 2015.

Prior to the release of these estimates, county estimates were evaluated for consistency and reasonableness by the Texas Demographic Center and external reviewers from other State and local agencies. While generally the housing-unit population estimate is used as the population estimate for July 1, 2015, when estimates appeared to be inconsistent with other indicators of population and population change, an estimate produced using another method (component-method II, ratio-correlation method or an average of methods) could be selected as the estimate for July 1, 2015. The total of all county estimates are then controlled to the July 1, 2015 estimate for the State obtained from the U.S. Bureau of the Census.

The January 1, 2016 estimates are obtained by adding births to, and subtracting deaths from July 1, 2015 through December 31, 2015, to the July 1, 2015 estimates and assuming that   July 1, 2014 to July 1, 2015 rates of migration continue from July 1, 2015 to January 1, 2016. The State and county estimates are obtained using the same method with the sum of the county estimates controlled to the State estimate.

Methodology for Place Estimates

For places, population estimates were made using the same three methods as used for county estimates. To complete the component-method II estimates for places for 2015, standard component procedures were applied to 2010 Census population counts. The 2010 Census population used as a base for the place estimates includes population adjustments that were accepted by the Census Bureau as a result of the CQR (Count Question Resolution) process. County level birth and death data from the Texas Department of State Health Services and data from the Texas Education Agency on public school enrollment and from the Texas Demographic Center survey of private schools on

enrollment in private schools were used in this procedure. In addition, data on Medicare enrollment is acquired from the Centers for Medicare and Medicaid Services and data on the net movement of persons from the military to the civilian population were obtained for counties from the U.S. Bureau of the Census. Values for each of these items were allocated from counties to places prior to the completion of the place estimates. Such allocation procedures were necessary because data items that were available for places (such as birth and death data) showed year-to-year fluctuations and reporting errors that made the direct use of place-level data problematic. The general allocation procedures used for these items involved population subgroups closely associated with the item being allocated (i.e., women of childbearing age for fertility, school-age population for school enrollment, the total population for deaths, persons 65+ years of age for Medicare enrollment, and the population 14-17 years of age for net movement). The number in the appropriate subgroups for each place and the remainder of the county in each county in 2010 were survived to July 1, 2015, and the sum of the survived groups in each place and the remainder of the county were controlled to the county total for the item as reported from the appropriate agency to obtain the value for each place. Place estimates were completed for July 1, 2015 and adjusted to account for population changes due to annexations or other boundary changes as obtained from the annual Texas Demographic Center boundary and annexation survey.

The housing unit estimates for places were completed using the same general procedures delineated above (for counties) except that it was necessary to use procedures to allocate new housing units and demolitions to places that were not reporting jurisdictions. This was done by taking the difference between the county totals for new building permits and demolitions and the sum of values for places for which data were reported for a county and proportionally allocating the difference to the nonreporting places. For the 2015 estimates, the allocation was done on the basis of the nonreporting places' proportions of county housing stocks as reported in the 2010 Census.

The third method used is the ratio-correlation method. Ratio correlation estimates were made to allocate county populations to places (and non-place areas) using births, deaths and housing units for places as estimation items.

The estimates for place populations from the three methods were averaged to provide a July 1, 2015 estimate of the total population for each place. The sum of the estimated populations for places in each county (and for that part of each county's population not living in places) were controlled to county totals to ensure consistency with the county estimates.

The January 1, 2016 place estimates are prepared using the same extrapolative procedures as described above for the State and county. Place estimates for each county for January 1, 2016 are controlled to the county estimate for January 1, 2016.

Comparisons to U.S. Census Bureau Estimates

The estimates presented here differ from those from other sources, such as those periodically produced by the U.S. Census Bureau, for several reasons. These estimates have been made using techniques that are different than those used by the Bureau. The Census Bureau uses only the distributive housing unit method to estimate place populations and the administrative records method to estimate county populations. Because the administrative records method uses income tax data that are not available to analysts outside the Census Bureau, this technique cannot be used by other agencies. In addition, the estimates reported in the following pages utilize more recent data than those used by the U.S. Bureau of the Census. The Census Bureau's county estimates utilize 2014 birth and death data, whereas 2015 values were employed in the Texas Demographic Center estimates reported here. Also, the Census Bureau utilizes birth and death data only in their county level estimates while the Texas Demographic Center includes current births and deaths in both county and place level estimates. Finally, the Census Bureau estimates include legal boundary updates reported before January 1, 2015 but do not include more recent information for places, whereas information on annexation and boundary changes through the 2015 calendar year were included in the estimates completed by the Texas program. Because of these differences, the population estimates presented here and those from the U.S. Bureau of the Census are not directly comparable.

Table 3

Texas Demographic Center Population Estimates Program July 1, 2015 and January 1, 2016 Estimates of the Total Population of
Metropolitan Statistical Areas and 2010-2015 and 2010-2016 Population Change for All Metropolitan Statistical Areas in Texas

Metropolitan Statistical Area*	Revised 2010 Census Count	July 1, 2015 Population Estimate	January 1, 2016 Population Estimate	Numerical Change 2010-15	Numerical Change 2010-16	Percent Change 2010-15	Percent Change 2010-16
Abilene	165,252	171,092	171,476	5,840	6,224	3.5	3.8
Amarillo	251,933	264,538	264,743	12,605	12,810	5.0	5.1
Austin-Round Rock	1,716,289	1,982,266	2,018,916	265,977	302,627	15.5	17.6
Beaumont-Port Arthur	403,190	405,943	405,975	2,753	2,785	0.7	0.7
Brownsville-Harlingen	406,220	424,133	425,194	17,913	18,974	4.4	4.7
College Station-Bryan	228,660	253,135	256,033	24,475	27,373	10.7	12.0
Corpus Christi	428,185	451,577	452,975	23,392	24,790	5.5	5.8
Dallas-Fort Worth-Arlington	6,426,214	7,080,558	7,153,300	654,344	727,086	10.2	11.3
El Paso	804,123	840,735	844,001	36,612	39,878	4.6	5.0
Houston-The Woodlands-Sugar Land	5,920,416	6,650,319	6,728,844	729,903	808,428	12.3	13.7
Killeen-Temple	405,300	432,374	435,060	27,074	29,760	6.7	7.3
Laredo	250,304	273,536	275,291	23,232	24,987	9.3	10.0
Longview	214,369	220,477	220,778	6,108	6,409	2.8	3.0
Lubbock	290,805	310,883	312,974	20,078	22,169	6.9	7.6
McAllen-Edinburg-Mission	774,773	841,667	848,037	66,894	73,264	8.6	9.5
Midland	141,671	166,538	169,372	24,867	27,701	17.6	19.6
Odessa	137,130	159,095	161,393	21,965	24,263	16.0	17.7
San Angelo	111,823	120,201	121,631	8,378	9,808	7.5	8.8
San Antonio-New Braunfels	2,142,508	2,381,690	2,412,219	239,182	269,711	11.2	12.6
Sherman-Denison	120,877	125,091	125,601	4,214	4,724	3.5	3.9
Texarkana	92,565	96,719	97,549	4,154	4,984	4.5	5.4
Tyler	209,714	221,173	222,702	11,459	12,988	5.5	6.2
Victoria	94,003	99,932	100,408	5,929	6,405	6.3	6.8
Waco	252,772	267,304	269,846	14,532	17,074	5.7	6.8
Wichita Falls	151,306	152,105	151,715	799	409	0.5	0.3
State of Texas	25,145,565	27,469,114	27,725,192	2,323,549	2,579,627	9.2	10.3

Source: Texas Demographic Center, Population Estimates and Projections Program

* Metropolitan Statistical Areas (MSAs) utilize the 2013 definition specified by the Office of Management and Budget.