Estimates of the Total Populations of Counties and Places in Texas for July 1, 2009 and January 1, 2010

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The attached are estimates of the total population for counties and places in Texas for July 1, 2009 and January 1, 2010 completed by personnel from the Texas State Data 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 State Data Center at The University of Texas at San Antonio.

Estimation Methodology

Methodology for County Estimates

The estimates reported for counties are the averages of estimates made using ratio-correlation, component-method II, and housing-unit methods. 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 State Data 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 of 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 2000 Census) to the estimate date (in this case, July 1, 2009), 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 State Data 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 State Data 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 2009 estimates, 2000 vacancy rates and average household sizes for each of the housing structure types were assumed to prevail as of the estimate date of July 1, 2009. For 2009, the

estimates of the number of new mobile homes added to an area's housing stock were obtained from the Texas State Data 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 to the estimate date of July 1, 2009.

The average of the component-method II, ratio-correlation and housing-unit population estimates is used as the population estimate for July 1, 2009 with the total for all counties being controlled to the July 1, 2009 estimate for the State obtained from the U.S. Bureau of the Census. Prior to the release of these estimates, county estimates were evaluated for consistency and reasonableness by comparing them to those from other State and local agencies.

The January 1, 2010 estimates are obtained by adding births to, and subtracting deaths from July 1, 2009 through December 31, 2009, to the July 1, 2009 estimates and assuming that July 1, 2008 to July 1, 2009 rates of migration continue from July 1, 2009 to January 1, 2010. 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 2009, standard component procedures were applied to 2000 Census population counts for places. County-level birth and death data for 2000-09 from the Texas Department of State Health Services and 2000-09 data from the Texas Education Agency on public school enrollment and from the Texas State Data 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 of 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 child-bearing 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 2000 were survived (using state-level survival rates for 1999-2001) to July 1, 2009, 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, 2009 and adjusted to account for population changes due to annexations or other boundary changes as obtained from the annual Texas State Data 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 2009 estimates, the allocation was done on the basis of the nonreporting places' proportions of county housing stocks as reported in the 2000 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, 2009 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, 2010 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, 2010 are controlled to the county estimate for January 1, 2010.

Comparisons to U.S. Census Bureau Estimates

The estimates presented here differ from those from 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 can not 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 2008 birth and death data, whereas 2009 values were employed in the Texas State Data Center estimates reported here. Also, the Census Bureau utilizes birth and death data only in their county level estimates while the Texas State Data Center includes current births and deaths in both county and place level estimates. Finally, the Census Bureau estimates do not include information on annexation and boundary changes for places later than 2007 whereas information through 2009 was 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.

If you have any questions concerning these estimates, please contact:

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Table 3

Texas State Data Center Population Estimates Program July 1, 2009 and January 1, 2010 Estimates of the Total Population of Metropolitan Statistical Areas and 2000-2009 and 2000-2010 Population Change for All Metropolitan Statistical Areas in Texas

Metropolitan Statistical Area*	2000 Census Count	July 1, 2009 Population Estimate	January 1, 2010 Population Estimate	Numerical Change 2000-09	Numerical Change 2000-10	Percent Change 2000-09	Percent Change 2000-10
Abilene	160,245	162,388	162,568	2,143	2,323	1.3	1.4
Amarillo	226,522	248,642	249,434	22,120	22,912	9.8	10.1
Austin-Round Rock-San Marcos	1,249,763	1,687,436	1,712,461	437,673	462,698	35.0	37.0
Beaumont-Port Arthur	385,090	383,985	385,152	-1,105	62	-0.3	0.0
Brownsville-Harlingen	335,227	396,901	398,624	61,674	63,397	18.4	18.9
College Station-Bryan	184,885	214,188	217,155	29,303	32,270	15.8	17.5
Corpus Christi	403,280	417,552	418,307	14,272	15,027	3.5	3.7
Dallas-Fort Worth-Arlington	5,161,544	6,408,756	6,480,858	1,247,212	1,319,314	24.2	25.6
El Paso	679,622	755,073	758,303	75,451	78,681	11.1	11.6
Houston-Sugar Land-Baytown	4,715,407	5,849,484	5,915,715	1,134,077	1,200,308	24.1	26
Killeen-Temple-Fort Hood	330,714	381,741	382,580	51,027	51,866	15.4	15.7
Laredo	193,117	240,749	241,974	47,632	48,857	24.7	25.3
Longview	194,042	206,137	207,080	12,095	13,038	6.2	6.7
Lubbock	249,700	276,741	279,952	27,041	30,252	10.8	12.1
McAllen-Edinburg-Mission	569,463	740,014	747,512	170,551	178,049	29.9	31.3
Midland	116,009	133,023	135,244	17,014	19,235	14.7	16.6
Odessa	121,123	133,754	135,240	12,631	14,117	10.4	11.7
San Angelo	105,781	107,383	107,861	1,602	2,080	1.5	2.0
San Antonio-New Braunfels	1,711,703	2,070,001	2,090,692	358,298	378,989	20.9	22.1
Sherman-Denison	110,595	119,618	120,050	9,023	9,455	8.2	8.5
Texarkana	89,306	94,160	94,563	4,854	5,257	5.4	5.9
Tyler	174,706	204,097	205,893	29,391	31,187	16.8	17.9
Victoria	111,663	115,953	116,453	4,290	4,790	3.8	4.3
Waco	213,517	230,145	230,967	16,628	17,450	7.8	8.2
Wichita Falls	151,524	154,152	155,947	2,628	4,423	1.7	2.9
State of Texas	20,851,820	24,782,302	25,010,235	3,930,482	4,158,415	18.8	19.9

Source: Texas State Data Center, Population Estimates and Projections Program

* Metropolitan Statistical Areas (MSAs) utilize the 2009 definition specified by the Office of Management and Budget.