February 2011 addendum (comparison to 2010 Census) on p16

<u>Research on regression-based county population estimates for Colorado</u> (work paper)

Eddie Hunsinger, Colorado Department of Local Affairs, September 2010 (Updated December 2012)

Readers and reviewers: I'll start with a brief description of the background and plan, then describe the method used, and data and results. At the end I'll give a link to the related, simple R script (with linked data), and the sources. Skip as you like, of course—some review or thoughts are better than no review or thoughts—you can't go wrong. It looks a little formal at first glance, but it's not meant to (forgive any poor or mixed grammar). If more information would be useful, don't hesitate to ask.

Especially useful thoughts would be on ideas to change or append the model (including variables and relationships) to improve the fit or logic, and any opinions on problems with the model. Please do point out mistakes if you see them.

1. Background and plan

The Colorado Department of Local Affairs, State Demography Office (SDO), used to make alternative, regression-based total population estimates for Colorado counties, and would like to start offering a form of them again for a couple of reasons: (1) They would offer something to compare the annual estimates from the current methodology to, and (2) If they fit very well, they could be used exclusively, and the SDO estimates would be less dependent on the US Census Bureau's administrative-record-based migration numbers.

The plan is to make a regression-based estimate for 2010, then compare that to the 2010 Census data when it comes out, and have some rough idea of what level of error should be expected for future, annual estimates.

The regression-based estimates presented here rely on the very simple and well-reviewed and -documented "ratio-correlation" techniques that are described similarly in several publications (including Shyrock and Segal, 1980, and Feeney, Hibbs and Gillaspy, 1995), and described below:

2. Ratio-correlation method

The ratio-correlation method is the most widely used regression-based method for county population estimates. It is based on the simple assumption that changes in the county shares of state record-counts of "symptomatic" data, such as birth certificates and voter registrations, will correlate with change in the county shares of state population (the total state population is estimated independently). It's been in use since the 1950's and is currently used in some form by many state demography offices (California, North Carolina, Texas, Virginia, among others) for official county population estimates. It may be described with the following formula:

$PR_{i,t} / PR_{i,t-k} = b_1 * (XR_{i,t} / XR_{i,t-k}) + b_2 * (YR_{i,t} / YR_{i,t-k}) + a$

Where " $PR_{i,t-k}$ " is the ratio of county population ("i") to the state population at a specified time ("t-k"), " $XR_{i,t-k}$ " and " $YR_{i,t-k}$ " are county ratios of specified variables that are supposed to correlate with population, to the state total for that variable, at a specified time. "b₁", "b₂" and "a" are

coefficients for a multiple linear regression model that are estimated with data from the last two census years. (Note: Some users of the model leave "**a**" in, while others drop it.) Independent variables that may be used for the ratio-correlation method include:

-Birth certificates -Death certificates -School enrollment -Voter registrations -Vehicle registrations -Driving licenses -Occupied housing units -Employment data -Tax records (income or sales)

To account for certain types of counties in the model, which may respond differently to the specified correlations, users can also use "dummy variables" (having a value of either 1 or 0) that indicate something about the county's population (such as rural, or largely-imprisoned) to adjust the zero-intercept for these, and improve the overall fit (Pursell, 1970).

Additionally, it seems that users could set up an interaction for an area with a specified independent variable. For instance, if prisons are thought to be an important indicator of population change for certain counties, a prison population variable could be added to the model, and multiplied by a dummy variable that indicates whether the county was significantly affected by change in the prison population.

Stratification (multiple models) is an option if the number of counties (sample size) is large enough (Rosenberg, 1968). It should be noted that use of either stratification or dummy variables has not been shown to consistently improve ratio-correlation estimates (O'Hare, 1980).

Problems with ratio-correlation estimates include (1) Timing: Model coefficients based on censuses that are 10 years apart can't clearly account for annual lags in the model correlations; also, data from the census years have an April 1 reference date, while data for the estimate years have a July 1 reference date, (2) Temporal instability: The modeled correlations will change to some degree over time, and this change will weaken the model, and (3) No clear interpretation and risk of multicollinearity: Rather than careful formulation and testing of a clear hypothesis, the independent variables are selected based only on some broadly-assumed relationships, and whether or not they improve the overall fit of the model (usually measured by the coefficient of determination, R²), (4) Temporal inconsistency: The model is typically applied for post- or inter-censal years with the full (ten year) ratio adjustment, but following reason, the ratio adjustment should be interpolated. (O'Hare, 1980.)

Based on review of estimate errors through comparison to censuses, it seems that county-level ratio-correlation estimates for 10 years after the estimate base year (last census) have a Mean Absolute Percent Error (MAPE) of approximately 5. Below are examples of ratio-correlation estimate error analyses (each for 10 years after the estimate base year) that have been conducted by different states:

-Florida 1980 ratio-correlation population estimates error: Variables: Birth certificates, school enrollment and occupied housing units MAPE: 5.4 (Smith and Mandell, 1984) -Texas 1990 ratio-correlation population estimates: Variables: Birth certificates, death certificates, elementary school enrollment, vehicle registrations and voter registrations MAPE: 4.8 (Hoque and Murdock, 1999)

-Arizona 2000 ratio-correlation population estimates: Variables: School enrollment, federal tax returns and driving licenses MAPE: 5.5 (Brown, 2003)

-Texas 2000 ratio-correlation population estimates: Variables: Birth certificates, death certificates, elementary school enrollment, vehicle registrations and voter registrations MAPE: 5.7 (Hoque, 2008)

3. Preparing 2010 ratio-correlation estimates for Colorado counties

The steps in making 2010 ratio-correlation estimates for Colorado counties are (1) Select and create the dependent and independent variables from 1990 and 2000 for the ratio-correlation model, (2) Estimate model coefficients using multiple-regression methods or statistical software, (3) Apply the model and coefficients to 2000 and 2010 data.

The official April 1, 1990 Census and April 1, 2000 Census household population counts for Colorado counties are used to create the dependent variables (population shares of state total) for a ratio-correlation model. These data don't include Broomfield County, which was created in 2001. Only the household (non-group quarters) population is modeled for estimation because the group quarters population can significantly affect the ratio-correlation model for certain counties, and much of the group quarters population (such as prisons and university dorms) can be tracked directly.

For independent variables in the ratio-correlation model, the following data sources are available for consideration (single variable 1990-2000 ratio-correlation model R² in parentheses):

-Birth Certificate counts for the fiscal year ending on July 1 of the estimate year (.68) -Death Certificate counts for the fiscal year ending on July 1 of the estimate year (.29) -Housing Units on April 1 of the census year, or July 1 of the estimate year (.71) -QCEW Employment data for the first two quarters of the estimate year (.13) -School Enrollment for fall of the estimate year (.79) -Vehicle Registration counts for the previous calendar year (.90)

-Voter Registrations on November 1 of the estimate year (.74)

Some of the dummy variables that are considered are:

-Small (<50,000 people in 2000)

- -Denver Metro (Region 3 counties)
- -Tourism (population is significantly affected by tourism and resort communities)

-Prison (population is significantly affected by prisons)

After review of the model fit from various combinations of independent variables in the multiple regression formula, the following variables are selected:

-Birth certificates

-School enrollment

-Vehicle registrations

-Voter registrations

Neither Death Certificates, QCEW Employment data, nor any of the listed dummy variables are found to meaningfully improve the model fit beyond the use of those four selected variables. Housing Unit counts are not included, even though they do marginally improve the model fit, because instability in residential construction (across time and space) seems so great.

For a 1990-2000 ratio-correlation model (1990-2000 model) with respective census data on the household population, those selected variables give the following coefficients and error range (from the "Im" function in the R statistical software package):

	Estimate	Standard Error	
Intercept	-0.06706	0.02835	
Birth Certificates	0.15033	0.02729	
School Enrollment	0.31686	0.04984	
Vehicle Registrations	0.39634	0.05951	
Voter Registrations	0.22403	0.03798	
-			
Residuals:			

Minimum	First Quartile	Median	Third Quartile	Maximium
-0.1339356	-0.0323842	0.0006768	0.0307365	0.1049861

Multiple R-squared: 0.9665, Adjusted R-squared: 0.9642

Comparison of the 1990-2000 model predictions for 2000 to the 2000 Census data gives a MAPE of 3.90.

At the end of this document are graphs describing the 1990-2000 model error:

-Figure 1 is a histogram of the 1990-2000 model's residuals

-Figure 2 is a histogram of the residuals (percent) of population estimates for 2000, based on the 1990-2000 model

-Figure 3 is a histogram of the residuals of population estimates for 2000, based on the 1990-2000 model

-Figure 4 is a point-plot to compare the estimates for 2000 from the 1990-2000 model to the respective data from the 2000 Census

-Figure 5 is a point-plot to compare the estimates for 2000 from the 1990-2000 model, to the respective data from the 2000 Census, for areas with less than 50,000 people in 2000

The errors in the 2010 estimates won't be known until the 2010 Census data is released, of course, but should be as large as those for the above-described 2000 estimates, plus any effect of temporal instability in the model, and error in the state total population estimate.

In reviewing the selected model's errors for 2000, no clear biases by type of county (e.g. high tourism counties generally underestimated, Front Range generally overestimated, etc.) are discerned. Finding any of these, or recognizing any interactions of county-types with the independent variables, would be an ideal way to improve the model fit.

Using the 1990-2000 model, the next step will be to make population estimates for 2010. Because the independent variables for the 2010 estimates aren't yet available (should all be available by January of 2011), it's not possible them at this time, but it is possible to prepare and review *2009* estimates based on the 1990-2000 model, and compare them to the official Colorado State Demography Office county population estimates for 2009 (SDO estimates). The comparison can't give information on the accuracy of the selected model, but can provide description of the differences in shares of total population from the different estimate models.

The dependent variable for the 2009 estimates are the ratios of county populations to the state total population for 2009, divided by those for 2000, with any adjustments to 2000 for geography changes, such as the addition of Broomfield County. The independent variables are the ratios of county symptomatic data to the state total for 2009, divided by those for 2000, with any adjustments to 2000 for geography changes. The 1990-2000 model coefficients are not changed.

Comparison of the 1990-2000 model prediction for 2009 to the SDO estimates for 2009 gives a MAPE of 4.87. (Note: This MAPE includes an anomaly in 2007-2009 school district data for Sedgwick County. I'm trying to get in contact with Sedgwick County to make sense of it. With Sedgwick County removed, the MAPE is 3.84.)

At the end of this document are graphs describing the differences between the SDO estimates for 2009, and ratio-correlation 1990-2000 model estimates for 2009:

-Figure 6 is a histogram of the differences (percent) between the SDO estimates for 2009, and the 1990-2000 model estimates for 2009

-Figure 7 is a histogram of the differences between the SDO estimates for 2009, and the 1990-2000 model estimates for 2009

-Figure 8 is a point-plot to compare the SDO estimates for 2009 to the 1990-2000 model estimates for 2009

-Figure 9 is a point-plot to compare the SDO estimates for 2009 to the 1990-2000 model estimates for 2009, for areas with less than 50,000 people in 2000

4. R Code

The R script (with linked data) to make the described ratio-correlation estimates, is available at:

http://www.demog.berkeley.edu/~eddieh/RatioCorrelationEstimates/RCScript.txt

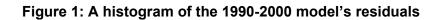
Just paste into R to run it. Unused variables are included in the script, and may be added to the model as well.

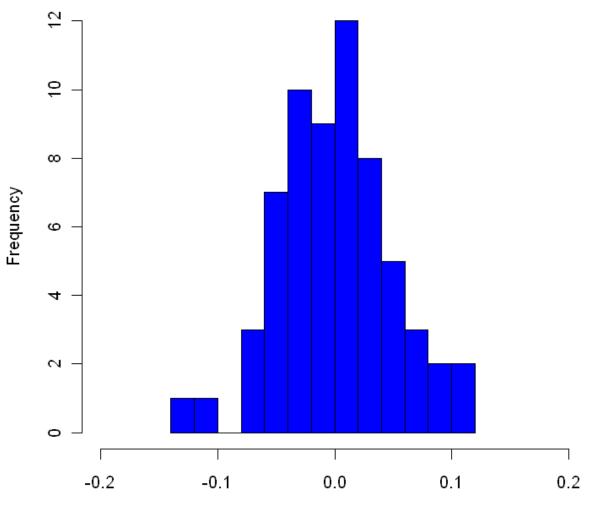
5. Sources

- -W. Brown (2003). "Evaluation of July 1, 2000 County and Municipal Population Estimates by the Arizona Department of Economic Security." Unpublished report for the Arizona Department of Economic Security. Available online at: http://www.workforce.az.gov/admin/UploadedPublications/1834_WABEstEvalReport-050205.pdf
- -D. Feeney, J. Hibbs, and T. Gillaspy (1995). "Ratio-Correlation Method." In N. Rives, W. Serow, A. Lee, H. Goldsmith, and P. Voss (eds), *Basic Methods for Preparing Small-Area Population Estimates* (pp 118-136). University of Wisconsin-Madison/Extension.
- -N. Hoque (2008). "An Evaluation of Population Estimates for Counties and Places in Texas for 2000"

In S. Murdock and D. Swanson (eds), *Applied Demography in the 21st Century* (pp 125-148). Springer Science and Business Media.

- -N. Hoque and S. Murdock, (1999). "Evaluation of Texas population and estimates and projections programs population estimates for 1990." Presented at the Population Estimates Methods Conference, U.S. Census Bureau.
- -W. O'Hare (1980). "A Note on the Use of Regression Estimates in Population Estimates." *Demography*, 17 (pp 341-343). Johns-Hopkins University Press.
- -D. Pursell (1970). Improving Population Estimates with the Use of Dummy Variables." *Demography*, 7 (pp 87-91). Johns-Hopkins University Press.
- -H. Rosenberg (1968). "Improving Current Population Estimates through Stratification." *Land Economics*, 44 (pp 331-338). University of Wisconsin Press.
- -H. Shyrock and J. Segal (1980). *The Methods and Materials of Demography*, Volume 2. U.S. Department of Commerce.
- -S. Smith and M. Mandell (1984). "A Comparison of Population Estimates Methods: Housing Unit Versus Component II, Ratio Correlation, and Administrative Records." *Journal of the American Statistical Association*, 79 (386) (pp 282-289). American Statistical Association.

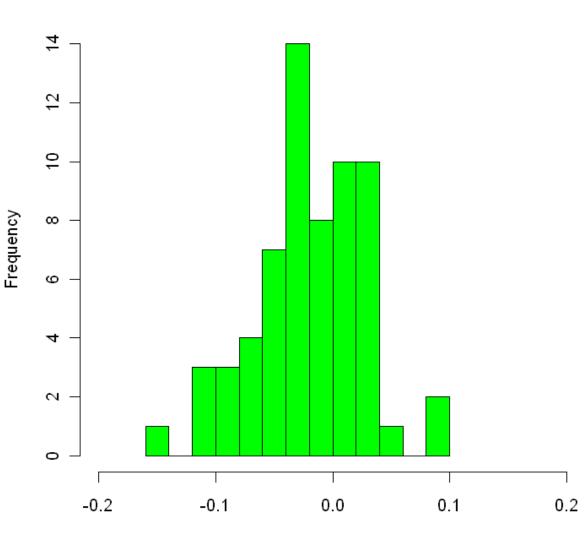




Histogram of residuals(Model)

residuals(Model)

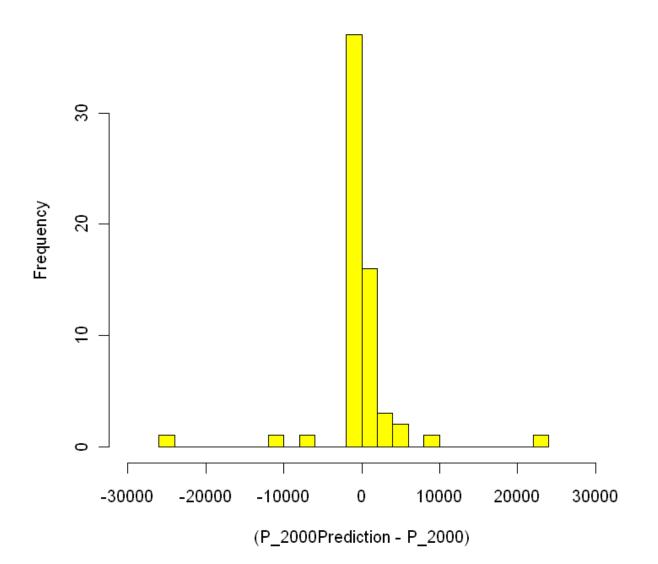
Figure 2: A histogram of the residuals (proportional to 2000 population) of population estimates for 2000, based on the 1990-2000 ratio-correlation model



Histogram of (P_2000Prediction - P_2000)/P_2000

(P_2000Prediction - P_2000)/P_2000

Figure 3: A histogram of the residuals of population estimates for 2000, based on the 1990-2000 model



Histogram of (P_2000Prediction - P_2000)

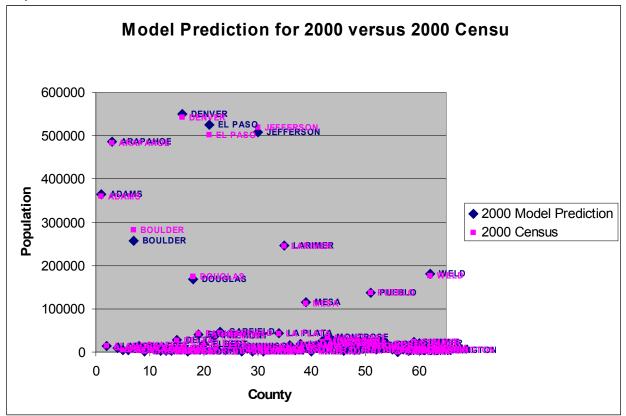


Figure 4: A point-plot to compare the estimates for 2000 from the 1990-2000 model to the respective data from the 2000 Census

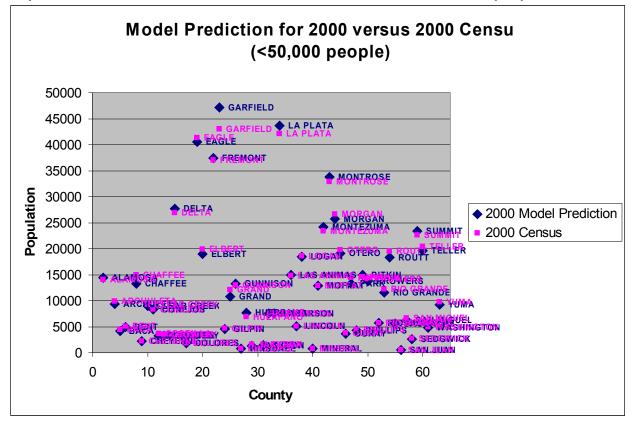
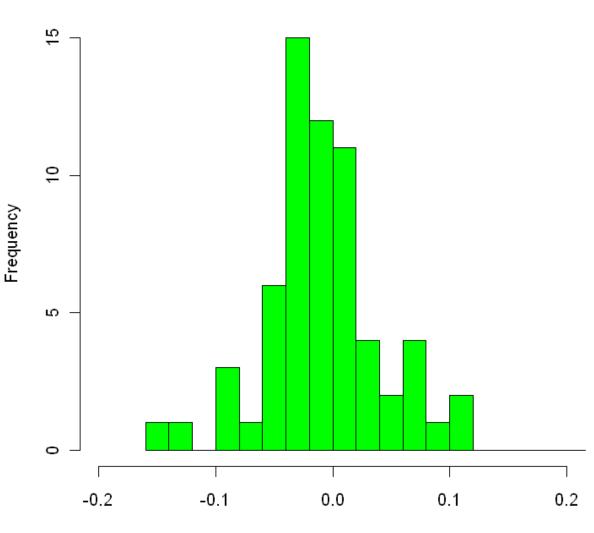


Figure 5: A point-plot to compare the estimates for 2000 from the 1990-2000 model to the respective data from the 2000 Census, for areas with less than 50,000 people in 2000

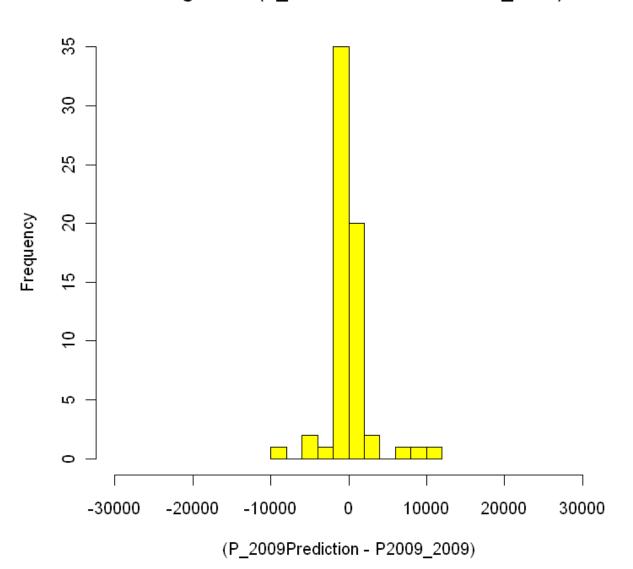
Figure 6: A histogram of the differences (proportional to 2009 population) between the SDO estimates for 2009, and the 1990-2000 model estimates for 2009



Histogram of (P_2009Prediction - P2009_2009)/P2009_2009

(P_2009Prediction - P2009_2009)/P2009_2009

Figure 7: A histogram of the differences between the SDO estimates for 2009, and the 1990-2000 model estimates for 2009



Histogram of (P_2009Prediction - P2009_2009)

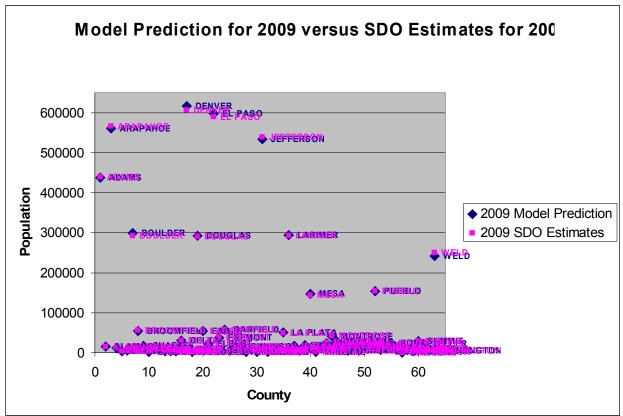


Figure 8: A point-plot to compare the SDO estimates for 2009 to the 1990-2000 model estimates for 2009

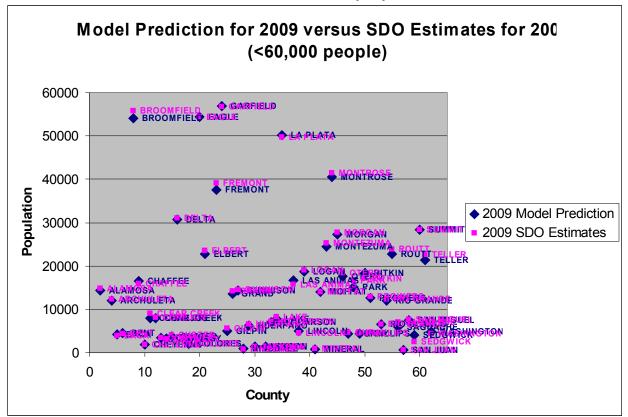


Figure 9: A point-plot to compare the SDO estimates for 2009 to the 1990-2000 model estimates for 2009, for areas with less than 60,000 people in 2009

Comparison of Colorado county population estimates for April 1, 2010*

ALAMOSA COUNTY15,2211,4515,2381,3417,49613,2813,2815,445ARAPAHOE COUNTY566,5380.96565,6641.13571,5280.08572,003ARCHULETA COUNTY12,2271.1811,7622.6611,5694.2612,084BACA COUNTY3,6334.094.22511.545,28139,413,788BOULDER COUNTY6,8515.426,6151.787,0127.896,499BOULDER COUNTY301,9992.52302,8472.81315,3687.06294,567BROOMFIELD COUNTY56,1720.5154,7052.1245,81818.0258,899CHAFFEE COUNTY1,7007.411,9717.352,60842.051,836CLEXR CREEK COUNTY3,03713.823,4103.234,88221.513,524CONTLA COUNTY3,03713.823,4103.234,28221.513,524CROULEY COUNTY6,2547.406,1465.556,45110.785,823COSTILLA COUNTY3,9926,183,77911.194,0953,764,255DELTA COUNTY3,9296,183,71911,194,0827,8530,952DELTA COUNTY31,2981,1231,7822,6832,5395,1330,952DELTA COUNTY1,9067,661,9435,862,1564,462,064DOLORES COUNTY1,99261,66290,094 <t< th=""><th>County</th><th>Census Estimates</th><th>Percent Error MAPE: 4.46</th><th>Regression Estimates</th><th>Percent Error MAPE: 4.97</th><th>Naïve Estimates</th><th>Percent Error MAPE: 13.25</th><th>2010 Census</th></t<>	County	Census Estimates	Percent Error MAPE: 4.46	Regression Estimates	Percent Error MAPE: 4.97	Naïve Estimates	Percent Error MAPE: 13.25	2010 Census
ARAPAME COUNTY 96,838 0.66 95,854 1.13 07.838 0.88 97,003 ARAPAME COUNTY 2.27 1.16 1.7.22 2.06 1.13,00 4.23 1.004 BRI COUNTY 0.081 5.22 0.016 R COUNTY 0.018 2.02 0.024 2.01 0.016 R COUNTY 0.017 R COUNTY 0.018 R COUNTY	ADAMS COUNTY	444,006	0.54	440,088	0.34	406,806	7.88	441,603
ARCHUEY 1227 116 1172 2.66 11,969 4.26 10,964 BALA COUNTY 3.03 4.90 4.228 11.64 5.201 30.41 37.88 BOLLDER COUNTY 3.01,989 2.52 42.24 1.64 5.201 56.48 10.65 30.44 10.65 30.44 10.65 10.65 56.88 10.65	ALAMOSA COUNTY	15,221	1.45	15,238	1.34	17,496	13.28	15,445
BAAA COUNTY 3.63 4.09 4.25 1.54 5.281 39.44 3.788 BERT COUNTY 561 5.2 5.475 2.3 7.692 7.692 5.688 BRODWITS 561 2.3 5.475 2.3 5.678 10.22 5.688 BRODWITS 1.700 7.41 1.7778 7.83 5.688 1.788 GENERES COUNTY 1.700 7.41 1.971 7.33 5.688 1.688 1.588 GENERES COUNTY 1.700 7.41 1.971 7.33 5.688 1.641 1.071 5.538 CONTAGE COUNTY 3.077 1.82 3.410 5.23 6.421 1.771 6.625 CONTAGE COUNTY 3.138 5.61 6.461 1.071 6.625 1.646 1.071 6.625 DELTA COUNTY 3.138 5.61 6.461 1.071 6.620 1.622 1.622 1.622 1.623 1.623 1.623 1.623 1.623 1.623	ARAPAHOE COUNTY	566,538	0.96	565,564	1.13	571,528	0.08	572,003
EMI-LICOUNTY 6.61 5.42 6.61 1.78 7.02 7.89 6.499 BULLER COUNTY 01 097.03 2.14 315.380 7.00 324 CAMPER COUNTY 17.00 7.41 197.01 2.14 48.697 10.01 529.01 CAMPER COUNTY 17.00 7.41 197.11 7.35 2.068 42.05 18.85 CLEAR CREEK COUNTY 8.440 7.44 10.41 10.35 4.089 10.92 6.088 CONTLA COUNTY 6.244 7.40 0.16 6.25 4.421 17.8 4.265 CONTLA COUNTY 0.324 7.40 0.16 6.25 4.261 0.78 4.262 CONTLA COUNTY 1.306 7.61 11.18 4.065 3.76 4.262 DEINTR COUNTY 1.308 1.58 2.009.41 1.62 4.373 6.66 3.445 2.00 2.848 DEINTR COUNTY 1.308 1.59 1.418 3.16 4.163 <t< td=""><td>ARCHULETA COUNTY</td><td>12,227</td><td>1.18</td><td>11,762</td><td>2.66</td><td>11,569</td><td>4.26</td><td>12,084</td></t<>	ARCHULETA COUNTY	12,227	1.18	11,762	2.66	11,569	4.26	12,084
BOLDER COUNTY B1,889 2.52 B2,475 2.13 4.5,888 7.56 24,867 BCAUERID COUNTY 17,72 2.51 1.5,758 1.2,828 1.5,828 1.5,838 CHEYNING EARLY 17,703 7.41 17,571 7.35 1.0,838 1.6,828 1.6,838 CONELOS COUNTY 7.447 7.38 8.239 0.33 1.6,860 1.6,84 3.258 CONELOS COUNTY 7.477 7.38 8.239 0.33 4.6,80 1.6,84 3.258 CONELOS COUNTY 3.962 6.18 3.779 1.1,15 4.245 3.25,90 3.3 3.6,850 3.0,852 DENVER COUNTY 3.962 6.18 3.779 1.1,15 4.245 3.6,850 3.0,852 DENVER COUNTY 41,820 3.74 5.14 3.178 4.245 3.2,950 3.0,852 3.0,852 3.0,852 3.0,852 3.0,852 3.0,852 3.0,852 3.0,852 3.0,853 3.0,856 3.0,856 3.0,856 3.0,856 <t< td=""><td>BACA COUNTY</td><td>3,633</td><td>4.09</td><td>4,225</td><td>11.54</td><td>5,281</td><td>39.41</td><td>3,788</td></t<>	BACA COUNTY	3,633	4.09	4,225	11.54	5,281	39.41	3,788
BROWNEY 51,72 6,51 54,705 2,12 4,518 16,02 55,889 CHETER COUNTY 1,708 1,747 7,35 2,034 4,292 1,039 CHETER COUNTY 1,707 7,38 8,229 0,33 0,804 16,92 1,039 CHETER COUNTY 1,707 7,38 8,229 0,33 0,804 16,94 8,269 COSTILLA COUNTY 3,077 1,382 3,410 3,23 4,482 2,151 3,524 CONLAGS COUNTY 3,128 1,22 3,772 1,68 3,2339 5,13 30,582 DELING COUNTY 1,500 7,0 1,944 5,68 2,164 4,40 2,004 DOLGRES COUNTY 1,900 7,0 1,943 5,68 2,014 4,40 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,024 2,0	BENT COUNTY	6,851	5.42	6,615	1.78	7,012	7.89	6,499
CHAPEE COUNTY 1,000 4,21 17,87 0,74 18,87 6,61 17,800 4,88 182 0,51 8,88 0,52 4,65 4,55 4,55 4,55 4,55 4,55 4,55 4,55	BOULDER COUNTY	301,989	2.52	302,847	2.81	315,368	7.06	294,567
CHEYENE COUNTY 1,700 7,41 1,717 7,38 2,663 4,205 1,888 CONTRA COUNTY 7,747 7,39 2,20 0,33 0,600 1634 0,638 CONTRA COUNTY 7,747 7,39 2,20 0,33 0,600 1634 0,638 CONTRA COUNTY 3,962 1,74 0,879 1,19 4,005 3,76 4,265 CONTRA COUNTY 3,962 1,78 3,779 1,19 4,005 3,76 4,265 CONTRA COUNTY 3,962 1,78 4,979 1,19 4,005 3,76 4,265 CONTRA COUNTY 3,962 1,78 4,979 1,19 4,005 3,76 4,265 CONTRA COUNTY 4,960 1,78 4,994 1,98 2,957 4,79 4,66 4,265 CONTRA COUNTY 4,968 1,88 4,914 1,18 4,98 2,196 4,471 6,66 4,263 CONTRA COUNTY 4,938 3,84 5,141 4,19 4,20 2,203 4,20	BROOMFIELD COUNTY	56,172	0.51	54,705	2.12	45,818	18.02	55,889
CLAR CERC COUNTY 9.448 7.04 8.104 19.83 10.888 19.92 0.088 CORNLOS COUNTY 3.07 13.82 3.410 3.23 4.282 2.151 3.262 CORSILG COUNTY 3.077 13.82 3.410 3.23 4.282 2.151 3.262 CORTILG COUNTY 31.89 1.12 31.782 2.88 33.539 5.13 30.652 DELTA COUNTY 15.80 2.77 61.813 3.11 47.281 7.45 30.652 DODIGLE COUNTY 15.80 7.67 61.813 51 4.62 2.156 4.62 2.25.197 DELACOUNTY 23.28 0.75 2.20.49 4.46 0.37.2 2.28 4.22.23 4.22.23 4.22.23 4.22.23 4.22.23 4.22.23 4.22.23 4.22.23 4.22.23 4.22.23 4.22.23 4.22.23 4.23.23 4.23.23 4.23.24 4.23.24 4.23.24 4.23.24 4.23.24 4.23.24 4.23.24 4.23.24 4.23.24	CHAFFEE COUNTY	17,060	4.21	17,678	0.74	18,987	6.61	17,809
CONE_DOS COUNTY 7.47 7.38 8.229 0.33 9.820 19.94 8.258 CONTLA_COUNTY 6.254 7.46 6.148 5.69 0.435 1.78 5.824 CROWLEY COUNTY 6.254 7.46 6.148 5.89 0.445 1.78 5.825 DEIN COUNTY 6.15,00 2.57 618,613 5.11 0.035 0.055 <td>CHEYENNE COUNTY</td> <td>1,700</td> <td>7.41</td> <td>1,971</td> <td>7.35</td> <td>2,608</td> <td>42.05</td> <td>1,836</td>	CHEYENNE COUNTY	1,700	7.41	1,971	7.35	2,608	42.05	1,836
COSTILLA COUNTY 3.047 1.8.2 3.410 3.23 4.282 2.151 3.554 CONTLY COUNTY 3.962 6.18 3.779 1.19 4.085 3.78 4.285 CUSTER COUNTY 3.962 6.18 3.779 1.19 4.085 3.78 4.285 DOLORES COUNTY 1.965 7.66 1.943 5.65 2.156 4.46 2.064 DOLORES COUNTY 1.943 5.65 2.016 4.46 2.024 2.026 DOLORES COUNTY 1.943 5.65 2.0144 4.04 2.021 6.68 2.168 2.046 EAGLE COUNTY 5.405 3.24 5.1413 1.50 4.47.19 6.68 2.218 2.044 2.218 6.64 2.218 6.64 2.218 6.64 5.218 6.64 5.218 6.64 5.218 6.64 5.218 6.64 5.218 6.64 5.218 6.64 5.218 6.64 5.218 6.64 6.71 5.64 6.64	CLEAR CREEK COUNTY	8,448	7.04	8,104	10.83	10,898	19.92	9,088
COSTILLA COUNTY 3.07 13.82 3.410 3.23 4.282 2.151 3.524 CONTLEY COUNTY 3.92 6.18 3.77 1.18 4.08 3.76 4.282 CUNTER COUNTY 3.92 6.18 3.77 1.18 4.08 3.76 4.282 DEWER COUNTY 1.960 2.67 118.13 3.64 2.064 4.60 2.064 DOUGLAS COUNTY 1.903 3.44 51.413 1.50 4.45 2.02 2.8646 DOUGLAS COUNTY 4.403 2.0217 6.68 2.0214 4.64 2.021 6.68 2.0216 2.024 <td>CONEJOS COUNTY</td> <td>7,647</td> <td>7.38</td> <td>8,229</td> <td>0.33</td> <td>9,820</td> <td>18.94</td> <td>8,256</td>	CONEJOS COUNTY	7,647	7.38	8,229	0.33	9,820	18.94	8,256
CLUSTER COUNTY 3.862 6.18 3.775 11.19 4.065 3.76 4.255 DETA COUNTY 615.810 2.57 616.813 3.11 647.323 7.86 0.8052 DETA COUNTY 615.810 2.57 616.813 3.11 647.323 7.86 0.8056 DEVICE COUNTY 269.036 1.56 1.57 0.805 2.50	COSTILLA COUNTY		13.82	3,410	3.23	4,282	21.51	3,524
DELTA COUNTY 31,28 1.12 31,782 2.88 32,593 5.13 30,962 DEVRER COUNTY 1,804 7.85 2,164 4.46 2,044 DOLGRES COUNTY 1,803 1.44 5.88 2,164 4.46 2,044 DOLGRES COUNTY 23,289 3.45 250,047 0.48 0.66 2,447 ELBERT COUNTY 23,289 0.75 22,049 4.49 21,313 0.63 22,086 ELPASC COUNTY 47,328 1.68 66,46 1.68 63,485 1.521 66,824 GRAND COUNTY 47,328 1.68 6,464 1.68 63,485 1.521 64,824 GRAND COUNTY 1.366 6,473 1.34 1.513 6,471 1.54 4,454 2.01 1.54,43 GRAND COUNTY 1.373 3.66 6,473 3.43 1.61,515 6,471 3.44 1.53,43 6,471 3.44 1.53,43 6,471 3.44 1.53,43 1.44,44,43 2	CROWLEY COUNTY	6,254	7.40	6,146	5.55	6,451	10.78	5,823
DENNER COUNTY 015,010 2.57 618,813 3.11 647,283 7.85 600,158 DOUGLS COUNTY 289,020 1.66 5,000 280,064 1.62 206,478 2.80.2 225,465 DOUGLS COUNTY 289,020 2.86 5,1143 1.50 4.64 7.80 2.215 DOUGLS COUNTY 60,00 2.86 5,014 6.66 5,046 1.62 22,85 EL PASO COUNTY 63,80 0.53 5,5438 1.69 5,193 2.21 65,344 GRANE COUNTY 5,666 0.53 5,5438 1.69 5,193 2.21 6,344 GRANE COUNTY 13,800 0.70 13,005 1.84 14,545 2.01 14,443 GRANE COUNTY 13,74 1.43 1.34 1.51 1.52 1.86 3.62 1.344 1.33 ACKSON COUNTY 7.37 2.80 6,457 0.34 9,191 30,55 6,71 MURESKANCOUNTY 7.374 2.80 <td>CUSTER COUNTY</td> <td>3,992</td> <td>6.18</td> <td>3,779</td> <td>11.19</td> <td>4,095</td> <td>3.76</td> <td>4,255</td>	CUSTER COUNTY	3,992	6.18	3,779	11.19	4,095	3.76	4,255
DCLORES COUNTY 1.96 7.66 1.943 5.86 2.166 2.466 2.2044 DAUGLAS COUNTY 54.203 3.84 51.413 1.50 48.719 6.66 52.197 ELPARD TOOLNTY 22.89 0.75 2.2044 4.41 0.316 2.311 6.65 23.008 ELPARD TOOLNTY 67.63 2.85 64.144 0.34 63.316 2.81 64.235 GLAPRED COUNTY 5.666 0.75 1.508 1.54 63.316 63.31 63.31 63.31 63.33 63.44 63.15 6.47 53.36 GLAND COUNTY 15.86 0.76 15.085 7.18 9.14 4.85 2.01 14.843 GUNND COUNTY 15.36 0.44 14.966 2.34 16.315 6.47 5.343 GUNND COUNTY 15.34 0.867 0.25 1.968 5.82 6.313 GUNND COUNTY 1.524 1.969 5.15 9.365 1.324 9.334	DELTA COUNTY	31,298	1.12	31,782	2.68	32,539	5.13	30,952
DOUCLAS COUNTY 299, 292 1.56 200, 094 1.62 205, 476 2.60, 220 ELBERT COUNTY 23, 239 0.75 22, 049 4.49 23, 231 0.63 23, 068 ELBERT COUNTY 47, 328 1.08 620, 147 0.34 064, 312 2.88 622, 2231 REMONT COUNTY 47, 328 1.08 46, 048 1.68 53, 948 1.51 52, 2231 REMONT COUNTY 47, 328 1.08 46, 048 1.68 53, 948 1.521 46, 524 GRAND COUNTY 1.35, 40 7.6 1.30, 055 1.14 1.525 0.41 1.46, 622 GRAND COUNTY 1.35, 40 1.30, 055 0.33 1.68 9, 94 9, 61 9, 33 LIREFRANO COUNTY 1.374 1.43 1.365 0.41 1.38, 3, 16 1.444 32, 28 1, 334 LIREFRANO COUNTY 1.374 1.43 1.251 1.52 1.566 9, 33 1.56 9, 134 LIREFRANO COUNTY 1.38	DENVER COUNTY	615,610	2.57	618,813	3.11	647,283	7.85	600,158
EAGLE COUNTY 54.03 3.84 51.413 1.50 48.719 6.66 52.197 ELPRX COUNTY 63.300 2.85 62.047 0.34 69.312 2.85 62.2263 ELPASC COUNTY 60.300 2.85 62.047 0.34 69.312 2.86 62.2263 GRIPN COUNTY 5.00 6.71 5.168 1.02 5.1167 2.50 6.824 GRIPN COUNTY 5.00 6.71 5.168 1.02 1.16.35 6.47 1.53.44 GUNNSD COUNTY 15.366 0.44 1.4693 2.34 1.63 6.47 1.53.44 HURSALE COUNTY 7.32 8.68 6.487 3.34 9.191 38.65 6.711 MURCANO COUNTY 7.324 8.69 6.471 0.32 61.16 2.24 6.173 MURCANO COUNTY 7.374 1.43 1.438 1.43 1.43 1.43 1.43 MURCANO COUNTY 7.374 1.64 5.37 9.102 1.43	DOLORES COUNTY	1,906	7.66	1,943	5.86	2,156	4.46	2,064
EAGLE COUNTY 54.203 3.44 51.413 1.50 48.719 6.66 52.197 ELPARS COUNTY 603.300 2.85 620.147 0.34 603.312 2.88 622.263 ELPARS COUNTY 603.300 2.85 620.147 0.34 603.312 2.88 622.263 ERMONT COUNTY 45.06 6.71 5.168 5.02 5.377 2.50 6.43 GILPIN COUNTY 5.060 6.71 5.168 5.02 5.44 1.6453 2.01 1.6443 GUNNSD COUNTY 15.268 0.44 1.669 2.34 1.63 6.47 1.64 1.52 0.1 6.447 GUNNSD COUNTY 7.137 1.38 1.43 1.63 1.64 3.24 9.61 5.34 MCCON COUNTY 7.137 1.34 1.63 1.64 3.24 9.13 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.34 1.38	DOUGLAS COUNTY	289,926	1.56	290,094	1.62	205,476	28.02	285,465
ELBERT COUNTY 23.289 0.75 22.044 4.49 22.231 0.63 23.086 EPASD COUNTY 67.03.00 2.45 62.0147 0.34 60.312 2.88 62.2231 REMONTY 67.03.00 0.71 5.168 6.024 65.945 15.21 66.88 GLPIN COUNTY 5.060 6.71 5.168 5.02 5.77 2.50 5.441 GLPIN COUNTY 5.260 0.41 1.4985 6.12 4.163 6.17 1.5326 GUNNSON COUNTY 1.526 0.44 1.4985 0.33 0.68 9.24 9.61 6.33 HINSDAL COUNTY 1.526 0.44 1.438 3.16 1.844 9.19 36.95 6.711 JACKSON COUNTY 1.374 1.43 1.438 3.16 1.844 9.19 36.95 1.324 1.384 LEFERSON COUNTY 1.374 1.43 1.251 1.526 1.434 1.325 1.376 1.38 3.376 1.334 <td>EAGLE COUNTY</td> <td>54,203</td> <td>3.84</td> <td>51,413</td> <td>1.50</td> <td></td> <td>6.66</td> <td>52,197</td>	EAGLE COUNTY	54,203	3.84	51,413	1.50		6.66	52,197
FREMONT COUNTY 47.38 1.08 46.046 1.66 53.045 15.21 46.824 GAPRIEL COUNTY 5.668 0.53 55.438 1.69 51.713 2.50 54.441 GRAND COUNTY 15.86 0.71 5.168 5.02 5.577 2.50 5.441 GUNNS COUNTY 15.26 0.44 14.968 2.34 16.315 6.47 15.334 HIRSALE COUNTY 7.312 8.98 6.447 3.34 0.191 36.35 6.71 ACKSON COUNTY 7.372 8.98 6.447 3.34 0.191 36.35 1.344 HIREFANCOUNTY 7.372 8.98 6.447 3.34 0.191 36.35 1.344 1.845 HIRESALE COUNTY 7.372 8.98 6.447 1.345 1.446 1.344 1.84 LARE COUNTY 7.374 1.44 1.438 1.18 1.342 1.343 1.373 LARE COUNTY 7.98 7.15 5.916 2.1	ELBERT COUNTY	23,259	0.75	22,049	4.49		0.63	
GARPIELD COUNTY 56,86 0.53 55,438 1.69 51,193 2.21 66,889 GRAND COUNTY 13,840 6.76 13,085 11.44 14,645 2.01 14,4433 GNAND COUNTY 15,226 0.44 14,395 0.647 15,324 HINSDAL COUNTY 15,256 0.44 16,315 0.647 3.34 0,911 0.695 6,711 HINSDAL COUNTY 1,374 1.43 1.438 3.16 1,844 3.22.8 1,534 HEFERSON COUNTY 1,384 1,438 3.16 1,844 3.22.8 1,393 HEFERSON COUNTY 1,898 7,517 2.8 6,161 3.34 0,895 1,32.4 8,370 HACK COUNTY 1,892 2.81 7,517 2.84 8,152 2.45 7,310 LARE COUNTY 7,892 6.819 7,517 2.84 8,152 2.452 7,711 LARE COUNTY 7,837 2.81 2.9381 0.66 5,847 1.8<	EL PASO COUNTY							
GARPIELD COUNTY 56,86 0.53 55,438 1.69 51,193 2.21 66,889 GRAND COUNTY 13,840 6.76 13,085 11.44 14,645 2.01 14,4433 GNAND COUNTY 15,226 0.44 14,395 0.647 15,324 HINSDAL COUNTY 15,256 0.44 16,315 0.647 3.34 0,911 0.695 6,711 HINSDAL COUNTY 1,374 1.43 1.438 3.16 1,844 3.22.8 1,534 HEFERSON COUNTY 1,384 1,438 3.16 1,844 3.22.8 1,393 HEFERSON COUNTY 1,898 7,517 2.8 6,161 3.34 0,895 1,32.4 8,370 HACK COUNTY 1,892 2.81 7,517 2.84 8,152 2.45 7,310 LARE COUNTY 7,892 6.819 7,517 2.84 8,152 2.452 7,711 LARE COUNTY 7,837 2.81 2.9381 0.66 5,847 1.8<	FREMONT COUNTY	47.328	1.08	46.046	1.66	53,945	15.21	46.824
GILPIN COUNTY 5.806 6.71 5.188 5.02 5.777 2.50 5.441 GUNNSON COUNTY 13.840 6.76 13.085 11.844 16.315 6.47 15.324 GUNNSON COUNTY 13.3 3.66 6.437 3.34 9.911 8695 6.711 JACKSON COUNTY 7.312 8.96 6.447 3.34 9.914 8695 6.711 JACKSON COUNTY 1.324 1.438 3.16 1.1444 322.22 1.934 JEFFERSON FOUNTY 1.328 1.431 1.226 1.0.55 6.14.128 1.439 5.34,543 JEFFERSON COUNTY 1.982 2.919 7.517 2.83 9.132 2.42.22 1.935 LARE COUNTY 5.948 2.92.951 0.94 5.1378 0.090 5.1334 LARIMACOUNTY 1.5.914 1.6.471 7.16 3.0.16 5.467 LARIMACOUNTY 2.9576 7.15 5.916 8.21 7.716 3.0.16 5.467								
GRAND COUNTY 13,840 6.76 13,085 11,4 14,643 2.01 14,643 GUNNSON COUNTY 15,256 0.44 14,966 2.34 16,315 6.47 15,324 HINSDAL COUNTY 7,312 8.96 6,487 3.34 9,191 36.95 6,711 JACKSON COUNTY 1,374 1.43 1,438 3.16 1,844 32.28 1,394 LEFERSON COUNTY 1,198 1.431 1,251 0.25 614,128 14.86 5.297 7.212 8.36 5.15 9,365 13.24 8.272 1,398 KIOWA COUNTY 1,198 1.431 1.251 0.44 5.1378 0.069 5.1334 LAPLATA COUNTY 1.440 0.22 5.1108 0.44 5.1378 0.069 5.134 LAPLATA COUNTY 1.443 0.45 1.16 0.3507 1.68 9.162 LAPLATA COUNTY 2.173 1.54 2.2057 1.060 2.3.9907 1.88 7.27								
GUNNSON COUNTY 15,266 0.44 14,966 2.34 16,315 6.47 15,324 HUBRALE COUNTY 7,312 8,66 6,437 3,34 9,191 36,65 6,711 JACKSON COUNTY 1,374 1,43 1,438 3,16 1,844 32,26 1,394 JEFFERSON COUNTY 1,374 1,43 1,425 1,632 1,846 35,62 1,394 JEFFERSON COUNTY 1,984 1,251 1,052 1,846 35,62 1,398 KIT CARSON COUNTY 1,986 5,15 9,865 1,324 8,270 LAP LATA COUNTY 7,982 9,19 7,517 2,83 9,132 24,92 7,310 LAP LATA COUNTY 7,982 9,19 7,517 2,86 1,777 1,464 15,607 LAS ANIMAS COUNTY 15,911 2,61 1,64,77 1,62 1,777 1,464 1,507 LAS ANIMAS COUNTY 1,773 1,730 1,375 1,34 1,375 1,34 1,375 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
HINSDALE COUNTY8133.5693310.8892.49.61643HUEFRANC COUNTY1.3741.431.4383.369.19136.956.711JACKSON COUNTY1.3741.431.483.361.4423.285.34.54HUEFRANC COUNTY532.9970.29555.8570.256.14,1281.4865.553.245.35.87KICWA COUNTY1.981.4311.2510.521.9863.56.21.3983.56LAKE COUNTY7.9829.197.5172.839.1322.49.27.310LARE COUNTY7.9829.197.5176.2617.7771.4645.507LARIE COUNTY7.5767.155.9168.217.1163.0165.467LINCOL COUNTY15.9172.0569.4820.2571.0.8024.0525.912.4052LINCOL COUNTY15.9767.155.9168.217.11630.165.467LINCOL COUNTY15.9767.155.9163.299.9113.637.12MIEFAL COUNTY15.9769.4614.4531.1813.67016.83146.723MINERAL COUNTY13.9250.9414.0952.1715.1311.173.555MONTEZUAR COUNTY15.9190.763.703.223.90835.314.4575MONTEZUAR COUNTY4.5831.951.811.3094.5154.4501.6206OTENC COUNTY1.6181.62<								
HUERFAND COUNTY 7,312 8.96 6.487 3.34 9.191 36.95 6.711 JACKSON COUNTY 13,24 1,43 3.16 18.44 32.8 15.34 JEFFERSON COUNTY 1,198 1,431 1,251 10.52 614,128 14.89 554,543 KIT CARSON COUNTY 1,502 2.81 8.696 5.15 9.395 1.324 8.707 LARE COUNTY 7,982 9.19 7.577 2.83 0.132 24.92 7.310 LARE COUNTY 7,982 9.19 7.577 2.83 0.132 24.92 7.313 LAREAT COUNTY 5.966 7.15 5.916 8.20 17.717 14.64 15.507 LISCALN COUNTY 2.505 7.15 5.916 8.21 7.116 30.16 2.709 MIERAL COUNTY 18.73 14.73 14.73 17.37 14.62 3.91 2.709 MISCAL COUNTY 18.73 1.13 3.13 3.22 2.963 9.13 <td></td> <td></td> <td>3.56</td> <td></td> <td></td> <td></td> <td></td> <td></td>			3.56					
JACKSON COUNTY1.3741.431.4383.161.8443.281.394LEFFERSON COUNTY532.9970.29535.86570.25614.1281.49655.421.398KIOWA COUNTY1.1981.4311.25110.521.89655.623.248.270LAKE COUNTY7.8929.197.5172.839.1322.4.927.310LARE COUNTY51.4460.2251.0180.4461.3780.0951.334LARIER COUNTY58.7770.282.99.8910.09293.9951.88296.830LINCOL COUNTY5.0767.155.9168.217.11630.165.467LINCOL COUNTY15.0767.155.9168.217.11630.63712MISRAL COUNTY13.9250.44140.952.1715.41311.7313.795MOFFAT COUNTY13.9250.4414.0952.1715.41311.7313.795MORFAT COUNTY13.9250.4414.0952.1715.41311.7313.795MORFAT COUNTY13.9250.4614.0952.1715.41311.7313.795MORFAT COUNTY13.9250.9414.933.6123.74426.0912.819MORFAT COUNTY15.311.463.9703.8239.0835.314.436OTENC COUNTY16.1821.993.8123.74426.0913.7414.26OTENC COUNTY16.1821.993.81 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
JEFFERSON COUNTY 52.997 0.29 535.857 0.25 614.128 1.489 635.463 KIT CARSON COUNTY 1.198 1.431 1.251 10.52 1.386 35.62 3.24 LARE COUNTY 7.862 2.81 8.696 5.15 9.365 13.24 9.27 LARE COUNTY 7.862 9.19 7.517 2.83 9.132 24.92 7.101 LARMER COUNTY 5.946 0.22 51.108 0.44 51.378 0.09 51.384 LAS ANMAS COUNTY 15.911 2.61 16.477 6.26 17.777 14.64 15.607 LOGAN COUNTY 50.76 7.15 5.916 8.21 7.116 30.16 5.647 LOGAN COUNTY 16.32 1.480 3.23 971 36.38 126.799 MINERAL COUNTY 13.925 0.44 14.096 2.17 15.413 11.73 13795 MORFAT COUNTY 13.656 2.71 1.25 2.4705 3.25 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>								
KIOWA COUNTY 1.198 1.431 1.251 1.052 1.896 35.62 1.398 LAKE COUNTY 7.992 9.19 7.517 2.83 9.132 2.49.2 7.310 LAR COUNTY 7.982 9.19 7.517 2.83 9.132 2.49.2 7.310 LAR COUNTY 5.146 0.22 5.1108 0.44 51.378 0.09 51.334 LARIME COUNTY 15.911 2.61 16.477 6.26 17.777 14.64 15.007 LAS ANIMAS COUNTY 15.076 7.15 5.916 6.21 7.116 30.16 5.467 LOGAN COUNTY 147.396 0.46 148.453 1.18 136.701 6.83 146.723 MINERAL COUNTY 17 15.439 0.76 39.700 3.82 39.89 5.31 41.276 MORGAN COUNTY 27.737 1.50 28.143 0.06 31.764 12.80 25.535 MORGAN COUNTY 13.92 16.13 3.81 23.7								
KIT CARSON COUNTY 8,502 2.81 8,696 5.15 9,365 13.24 8,270 LA PLATA COUNTY 7,982 9.19 7,517 2.83 9,132 24.92 7,310 LA PLATA COUNTY 298,77 0.28 299,891 0.09 293,995 1.88 0.09 51,334 LAS ANIMAS COUNTY 15,011 2.61 16,477 6.26 17,777 14.64 15,077 LINCOLN COUNTY 50,76 7,15 5,516 8.21 7,116 30,16 5,467 LINCOLN COUNTY 147,396 0.46 148,453 1.18 136,701 68,38 712 MINERAL COUNTY 132 2.261 949 3.29 971 36,38 712 MORFAN COUNTY 132,32 0.94 14,095 2.17 15,413 11.73 13,765 MORFAN COUNTY 13,295 0.81 3.21 15,413 11.73 13,765 MORFAN COUNTY 14,358 0.47 3.26 27,588 9.10 28,553 MORFAN COUNTY 14,518 1.042 16,77				,				
LAKE COUNTY 7,982 9,19 7,517 2,83 9,132 24,92 7,310 LAPLATA COUNTY 50,877 0,28 299,891 0.99 293,995 1.88 299,630 LARIME COUNTY 15,017 0,28 299,891 0.99 203,995 1.88 299,630 LASAIMAS COUNTY 15,076 7,15 5,916 8,21 7,118 30,16 5,667 LINCOLNCUNTY 20,556 9,46 144,453 1,18 136,701 6,83 146,723 MINERAL COUNTY 147,398 0,46 144,453 1,18 136,701 6,83 1712 MORFAT COUNTY 13,325 0,44 14,096 2,17 15,413 1,173 13,795 MORFAT COUNTY 13,325 0,44 14,096 2,17 15,413 1,173 13,795 MORFAN COUNTY 13,325 0,414,1096 2,17 15,413 1,173 13,795 OURAY COUNTY 4,556 2,71 2,526 2,638 3,1								
LA PLATA COUNTY 51,446 0.22 51,088 0.44 51,378 0.09 51,334 LARMER COUNTY 15,911 2.61 16,477 6.26 17,777 14,64 15,507 LINCOLN COUNTY 5,076 7.15 5,916 6.21 7,118 30.16 5,467 LINCOLN COUNTY 20,556 9.48 20,257 10.80 24,052 5.91 22,707 MIESA COUNTY 13,925 0.94 148,453 1.18 136,701 6.83 146,723 MOFFAT COUNTY 13,925 0.94 14,095 2.17 15,413 11.73 13,795 MONTEZUMA COUNTY 25,277 1.25 24,705 3.25 27,868 9.10 25,535 MONTEZUMA COUNTY 25,656 2.71 15,413 3.81 237,44 26.09 18,831 MORGAN COUNTY 41,863 1.95 16,913 3.476 16,206 OTERO COUNTY 44,535 1.042 16,978 4,76 16,206								
LARIMER COUNTY 1591 261 16,471 6.26 1.777 14.64 15,507 LINCOLN COUNTY 5,076 7.15 5,916 8.21 7,116 30.16 5,467 LINCOLN COUNTY 20,555 9.48 20,257 10.80 24,052 5,91 22,709 MINERAL COUNTY 147,396 0.46 148,453 1.18 136,701 6.83 166,723 MINERAL COUNTY 13,925 0.94 140,955 2.17 15,613 11,73 13,795 MORTAU COUNTY 13,25 0.94 140,955 2.17 15,613 11,73 13,795 MORTAUS COUNTY 12,593 0.76 39,700 3.82 30,803 5.31 41,276 MORGAN COUNTY 18,463 1.95 12,113 3.81 2.2,744 2.6.09 2.8,159 MORGAN COUNTY 16,382 1.96 14,519 3.42 1.98 3.45 4.375 1.38 4.436 MORGAN COUNTY 16,382 1.99 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
LAS ANIMAS COUNTY 15,911 2.61 19.47 6.26 17.777 14.64 15.507 LINCOLN COUNTY 5076 7.15 5.916 8.21 7.116 30.16 5.4976 LOGAN COUNTY 20.556 9.48 20.257 10.80 24.052 5.91 22.709 MESA COUNTY 873 22.61 34.9 33.29 971 36.38 712 MOFFAT COUNTY 25.217 1.25 24.705 3.25 27.858 9.10 25.555 MONTEZUMA COUNTY 25.737 1.50 28.143 0.66 31.764 12.80 28.555 MORGAN COUNTY 18.463 1.95 11.13 3.81 28.744 26.09 88.51 OTEXO COUNTY 18.463 1.95 16.113 3.81 28.744 26.09 88.51 OTEXO COUNTY 4.565 2.71 4.599 3.45 4.375 1.88 4.435 OTEXO COUNTY 4.632 1.06 3.774 1.80 1.99 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
LINCOUNTY5.0767.155.9168.217.11830.165.467LOGAN COUNTY20.5569.4820.25710.8024.0525.9122.709MESA COUNTY147.3960.46148.4531.18136.7016.83146.723MINERAL COUNTY87322.6194933.2997136.38712MOFFAT COUNTY13.9250.9414.0952.1715.1311.7313.795MONTEQSE COUNTY25.2171.2524.7053.2527.8589.1025.535MORTAGAN COUNTY27.7371.5028.1430.0631.76412.8028.159OTERO COUNTY18.4631.9518.1133.8123.74426.0918.831OTERO COUNTY4.5562.714.5593.454.3751.384.436OTERO COUNTY16.3821.0914.5181.04216.9784.7616.206PARK COUNTY16.625.7517.3341.0817.3861.3917.48POWERS COUNTY16.6181.81150.6030.633165.3853.97159.0633RIO BLANCO COUNTY6.6140.786.9283.936.9984.986.968RIO GRANDE COUNTY1.4014.851.2062.7014.51111.192159.063RIO BLANCO COUNTY6.6140.786.9283.936.9984.986.668RIO GRANDE COUNTY7.06815.725.8164.786.917<								
LOGAN COUNTY20,5569,4820,27710,8024,0525,9122,709MESA COUNTY147,3960.46148,4531.18136,7016.83146,723MINERAL COUNTY87322,6194933,2997136,3317,72MOFFAT COUNTY13,9250.9414,0952.1715,41311,7313,795MONTEZUMA COUNTY13,9250.9414,0952.1715,41311,7313,795MONTESUMA COUNTY41,5890.7639,7003.8239,0835.3141,276MORGAN COUNTY18,4631.9518,1133.8123,74426,0928,159OURAV COUNTY16,8621.714,5893.454,3751.384,436PHILIPS COUNTY16,625.7517,3341.0817,3861.3912,511OURAV COUNTY12,8172.1212,9092.8516,9313.49012,551PHIKIN COUNTY16,1625.7517,3341.0817,3863.9715,903PIC DUCOUNTY12,8172.1212,9092.8516,9313.49012,551PUES COUNTY11,4014.8512,9062.7014,5112.11111,982PROWERS COUNTY11,4014.8512,9062.7014,5112.11111,982RO GRANDE COUNTY14,6181.725.8164.786,91713,246,066RIO GRANDE COUNTY7,68815.725.8164.78								
MESA COUNTY147,3960.46148,4531.18136,7016.83146,723MINERAL COUNTY13,9250.9414,0952.1715,41311.7313,795MOFFAT COUNTY13,2250.9414,0952.1715,41311.7313,795MONTROSE COUNTY25,2171.2524,7053.2527,8589.1025,535MORGAN COUNTY27,7371.5028,1430.0631,76412.8028,159OTERO COUNTY14,6631.9518,1133.8123,74426.0918,831OURAY COUNTY4,5562.714,5593.454,3751.384,436OURAY COUNTY16,3821.0914,51810,4216,9784,7616,206PARK COUNTY16,1625.7517,341.0817,3861.3917,148POWERS COUNTY15,61881.81156,0530.63165,3853.97159,063PUEDLO COUNTY16,6140.786,9283.936,9984,986,666RIO BLANC COUNTY11,4014.8512,3062.7014,51121,1111,992PUELD COUNTY14,641.786,9283.936,9284,973,509RIO BLANC COUNTY13,611.725,8164.786,91713,246,108SAN JUAN COUNTY7,681.5725,8164.786,91713,246,108SAN JUAN COUNTY7,2852,5332,5692,0036				- /				
MINERAL COUNTY 873 2.61 949 33.29 971 36.38 712 MOFFAT COUNTY 13,925 0.94 14.095 2.17 15.413 11.73 13.795 MORFAT COUNTY 25.217 1.25 24.705 3.25 27.856 9.10 25.635 MORRAN COUNTY 41.599 0.76 39.700 3.82 39.083 5.31 41.276 MORGAN COUNTY 18.463 1.95 18.113 3.81 23.744 26.09 28.159 OTERO COUNTY 4.556 2.71 4.589 3.45 4.375 1.38 4.436 OURAY COUNTY 4.556 2.71 4.438 3.45 4.375 1.38 4.436 PARK COUNTY 16.162 5.75 17.334 10.042 16.978 4.76 16.206 PHILIPS COUNTY 4.435 0.16 4.571 2.90 2.85 16.931 34.90 12.551 ROK GAN COUNTY 1.6162 5.75 17.34 10.8								
MOFFAT COUNTY 13,925 0.94 14,095 2.17 15,113 11.73 13,795 MONTEQUMA COUNTY 25,217 1.25 24,705 3.25 27,858 9.10 25,535 MORTROSE COUNTY 41,589 0.76 39,700 3.82 39,063 5.31 41,276 MORGAN COUNTY 27,737 1.50 28,143 0.06 31,764 12.80 28,159 OURAY COUNTY 16,382 1.09 14,518 10.42 16,978 4,76 16,206 PARK COUNTY 16,382 0.16 4,571 2.90 5,237 17.90 4,442 PIKIN COUNTY 16,162 5,75 17,334 1.08 17,386 1.39 17,148 PROWERS COUNTY 12,617 2.12 12,909 2.85 16,931 3.490 12,551 PIKIN COUNTY 16,162 5,75 17,334 1.08 17,386 1.39 17,148 PROWERS COUNTY 12,618 1.81 18,053 0.63								
MONTEZUMA COUNTY 26,217 1.25 24,705 3.25 27,858 9.10 22,535 MONTROSE COUNTY 41,589 0.76 39,700 3.82 39,083 5.31 41,276 MORGAN COUNTY 27,737 1.50 28,143 0.06 31,764 12.60 28,159 OTERO COUNTY 18,463 1.95 18,113 3.81 23,744 26.09 18,831 OURAY COUNTY 4,556 2.71 4,589 3.45 4,375 1.38 4,436 PHIK COUNTY 16,382 1.09 14,518 10.42 16,978 4,76 16,206 PHIKIN COUNTY 16,162 5.75 17,334 1.08 17,386 1.39 17,148 PUEBLO COUNTY 16,612 5.75 17,334 1.08 165,385 3.97 159,063 RIO BLANCO COUNTY 16,614 0.78 6,928 3.93 6,998 4.98 6,666 RIO GRANDE COUNTY 13,401 14,511 11,11 19,82<								
MONTROSE COUNTY 41,589 0.76 39,700 3.82 39,083 5.31 41,276 MORGAN COUNTY 27,737 1.50 28,143 0.06 31,764 12.80 28,159 OTERO COUNTY 18,463 1.95 18,113 3.81 23,744 26.09 18.831 OURAY COUNTY 4,556 2.71 4,599 3.45 4,375 1.38 4,436 PARK COUNTY 16,382 1.09 14,518 10.42 16,978 4.76 16,206 PHILLIPS COUNTY 16,162 5.75 17,334 1.08 17,366 1.39 17,148 PROWERS COUNTY 15,6188 1.81 158,053 0.63 169,31 34.90 12,551 PUEBLO COUNTY 156,188 1.81 158,053 0.63 165,385 3.97 159,063 RIO GRANDE COUNTY 11,401 4.85 12,306 2.70 14,511 2.11 11,982 RIO GRANDE COUNTY 7,068 15.72 5.816 4.78 6,917 13.24 6,108 SAN JUAN COUNTY 7,488								
MORGAN COUNTY 27,737 1.50 28,143 0.06 31,764 12.80 28,159 OTERO COUNTY 18,463 1.95 18,113 3.81 22,744 26,09 18,831 OURAY COUNTY 16,382 1.09 14,518 10.42 16,978 4.76 16,206 PHILIPS COUNTY 4,435 0.16 4,571 2.90 5,237 17.90 4,442 PIKIN COUNTY 16,162 5.75 17,334 1.08 17,366 1.39 12,551 PIKIN COUNTY 16,162 5.75 17,309 2.85 16,931 34.90 12,551 PUEBLO COUNTY 16,164 0.78 6,928 3.93 6.998 4.98 6.666 RIO GRANCE COUNTY 11,401 4.85 12,306 2.70 14,511 21.11 11,982 ROU TC COUNTY 12,651 12,306 2.70 14,511 21.11 11,982 SAGUACHE COUNTY 7,068 15.72 5,816 4.78 6,917 13.24 6,108 SAN JUAN COUNTY 7,686 12,559								
OTERO COUNTY18,4631.9518,1133.8123,74426.0918,831OURAY COUNTY4,5562.714,5893.454,3751.384,436PARK COUNTY16,3821.0914,51810.4216,9784.7616,206PHILLIPS COUNTY4,4350.164,5712.905,23717.904,442PITKIN COUNTY16,1625.7517,3341.0817,3861.3917,148PROWERS COUNTY12,8172.1212,9092.8516,93134.9012,551PUEBLO COUNTY156,1881.81158,0530.63165,3853.97159,063RIO BLANCO COUNTY6,6140.786,9283.936,9984.986,666RIO GRANDE COUNTY11,4014.8512,3062.7014,51121.1111,982ROUTT COUNTY7,06815.725,8164.786,91713.246,108SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SUMMIT COUNTY22,814.122,62810.473,21134.972,379SUMMIT COUNTY27,2852.5325,6958.2127,5281.6627,994SUMMIT COUNTY2,8551.0621,01610.0024,0292.9123,350WASHINGTON COUNTY4,32710.125,1747,48								
OURAY COUNTY4,5562.714,5893.454,3751.384,436PARK COUNTY16,3821.0914,51810.4216,9784.7616,206PHILLIPS COUNTY4,4350.164,5712.905,23717.904,442PITKIN COUNTY16,1625.7517,3341.0817,3861.3917,148PROWERS COUNTY12,8172.1212,9092.8516,93134.9012,551PUEBLO COUNTY16,61881.81158,0530.63165,3853.97159,063RIO BLANCO COUNTY6,6140.786,9283.936,9984.986,666RIO GRANDE COUNTY11,4014.8512,3062.7014,51121.1111,982ROUTT COUNTY23,5530.1922,5743.9823,0162.1023,509SAGUACHE COUNTY7,08815.725,8164.786,91713.246,108SAN JUAN COUNTY53623.3255920.036526.72699SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SUMMIT COUNTY27,2852.5325,6958.2127,5281.6627,994SUMMIT COUNTY21,4698.0621,01610.0024,0292.9123,350WASHINGTON COUNTY21,4698.0621,01610.0024,0292.9123,350WASHINGTON COUNTY21,4698.0621,01610.00								
PARK COUNTY16,3821.0914,51810,4216,9784.7616,206PHILIPS COUNTY4,4350.164,5712.905,23717.904,442PITKIN COUNTY16,1625.7517,3341.0817,3861.3917,148PROWERS COUNTY12,8172.1212,9092.8516,93134.9012,551PUEBLO COUNTY156,1881.81158,0530.63165,3853.97159,063RIO BLANCO COUNTY6,6140.786,9283.936,9984.986,666RIO GRANDE COUNTY11,4014.8512,3062.7014,51121.1111,982ROUTT COUNTY23,5530.1922,5743.9823,0162.1023,509SAGUACHE COUNTY7,06815.725,8164.786,91713.246,108SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SEDGWICK COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY27,2852.5325,6958.2127,5281.6627,994TELLER COUNTY21,4698.0621,01610.0024,0292.9123,350WASHINGTON COUNTY4,32710.125,1747.485,75919,634,814WELD COUNTY25,9981.2624,5212.99211,42816.37252,825								
PHILLIPS COUNTY4,4350.164,5712.905,23717.904,442PITKIN COUNTY16,1625.7517,3341.0817,3861.3917,148PROWERS COUNTY12,8172.1212,9092.8516,93134.9012,551PUEBLO COUNTY156,1881.81158,0530.63165,3853.97159,063RIO BLANCO COUNTY6,6140.786,9283.936,9984.986,666RIO GRANDE COUNTY11,4014.8512,3062.7014,51121.1111,982ROUTT COUNTY23,5530.1922,5743.9823,0162.1023,509SAGUACHE COUNTY7,06815.725,8164.786,91713.246,918SAN JUAN COUNTY53623.3255920.036526.72699SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SEDGWICK COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY2,2814.122,62810.473,21134.972,379VASHINGTON COUNTY4,32710.125,1747,485,7591,6627,994TELLER COUNTY21,4698.061,01610.0024,02								
PITKIN COUNTY16,1625.7517,3341.0817,3861.3917,148PROWERS COUNTY12,8172.1212,9092.8516,93134.9012,551PUEBLO COUNTY156,1881.81158,0530.63165,3853.97159,063RIO BLANCO COUNTY6,6140.786,9283.936,9984.986,666RIO GRANDE COUNTY11,4014.8512,3062.7014,51121.1111,982ROUTT COUNTY23,5530.1922,5743.9823,0162.1023,509SAGUACHE COUNTY7,06815.725,8164.786,91713.246,108SAN JUAN COUNTY53623.3255920.036526.72699SACMACHE COUNTY7,4881.757,2661.267,7094.767,359SEDGWICK COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY27,2852.5325,6958.2127,5281.6627,994TELLER COUNTY21,4698.0621,01610.0024,0292.9123,350WASHINGTON COUNTY4,32710.125,1747.485,75919.634,814WELD COUNTY25,9981.26245,2612.9921,42816.37252,825								
PROWERS COUNTY12,8172.1212,9092.8516,93134.9012,551PUEBLO COUNTY156,1881.81158,0530.63165,3853.97159,063RIO BLANCO COUNTY6,6140.786,9283.936,9984.986,666RIO GRANDE COUNTY11,4014.8512,3062.7014,51121.1111,982ROUTT COUNTY23,5530.1922,5743.9823,0162.1023,509SAGUACHE COUNTY7,06815.725,8164.786,91713.246,108SAN JUAN COUNTY53623.3255920.036526.726,99SAN MIGUEL COUNTY7,4881.757,2661.267,7094,767,359SEDGWICK COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY27,2852.5325,6958.2127,5281,6627,994TELLER COUNTY21,4698.0621,01610.0024,0292.9123,350WASHINGTON COUNTY4,32710.125,1747.485,75919.634,814WELD COUNTY25,9981.26245,2612.9921,42816.37252,825								
PUEBLO COUNTY 156,188 1.81 158,053 0.63 165,385 3.97 159,063 RIO BLANCO COUNTY 6,614 0.78 6,928 3.93 6,998 4.98 6,666 RIO GRANDE COUNTY 11,401 4.85 12,306 2.70 14,511 21.11 11,982 ROUTL COUNTY 23,553 0.19 22,574 3.98 23,016 2.10 23,509 SAGUACHE COUNTY 7,068 15.72 5,816 4.78 6,917 13.24 6,108 SAN JUAN COUNTY 536 23.32 559 20.03 652 6.72 699 SAN MIGUEL COUNTY 7,488 1.75 7,266 1.26 7,709 4.76 7,359 SEDGWICK COUNTY 2,281 4.12 2,628 10.47 3,211 34.97 2,379 SUMMIT COUNTY 2,785 2.53 25,695 8.21 27,528 1.66 27,994 TELLER COUNTY 21,469 8.06 21,016 10.00								
RIO BLANCO COUNTY6,6140.786,9283.936,9984.984.986,666RIO GRANDE COUNTY11,4014.8512,3062.7014,51121.1111,982ROUTT COUNTY23,5530.1922,5743.9823,0162.1023,509SAGUACHE COUNTY7,06815.725,8164.786,91713.246,909SAN JUAN COUNTY53623.3255920.036526.72699SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SEDEWICK COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY21,4698.0621,01610.0024,0292.9123,500WASHINGTON COUNTY4,32710.125,1747.485,75919.634,814WELD COUNTY25,5981.26245,2612.99211,42816.37252,825								
RIO GRANDE COUNTY11,4014.8512,3062.7014,51121.1111,982ROUTT COUNTY23,5530.1922,5743.9823,0162.1023,509SAGUACHE COUNTY7,06815.725,8164.786,91713.246,108SAN JUAN COUNTY53623.3255920.036526.72699SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SEDGWICK COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY27,2852.5325,6958.2127,5281.6627,994TELLER COUNTY21,4698.0621,01610.0024,0292.9123,350WASHINGTON COUNTY4,32710.125,1747.485,75919.634,814WELD COUNTY255,9981.26245,2612.99211,42816.37252,825								
ROUTT COUNTY 23,553 0.19 22,574 3.98 23,016 2.10 23,509 SAGUACHE COUNTY 7,068 15.72 5,816 4.78 6,917 13.24 6,108 SAN JUAN COUNTY 536 23.32 559 20.03 652 6.72 699 SAN MIGUEL COUNTY 7,488 1.75 7,266 1.26 7,709 4.76 7,359 SEDGWICK COUNTY 2,281 4.12 2,628 10.47 3,211 34.97 2,379 SUMMIT COUNTY 27,285 2.53 25,695 8.21 27,528 1.66 27,994 TELLER COUNTY 21,469 8.06 21,016 10.00 24,029 2.91 23,350 WASHINGTON COUNTY 4,327 10.12 5,174 7.48 5,759 19.63 4,814 WELD COUNTY 25,998 1.26 245,261 2.99 21,428 16.37 252,825								
SAGUACHE COUNTY7,06815.725,8164.786,91713.246,108SAN JUAN COUNTY53623.3255920.036526.72699SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SEDGWICK COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY27,2852.5325,6958.2127,5281.6627,994TELLER COUNTY21,4698.0621,01610.0024,0292.9123,350WASHINGTON COUNTY4,32710.125,1747.485,75919.634,814WELD COUNTY255,9981.26245,2612.99211,42816.37252,825								
SAN JUAN COUNTY53623.3255920.036526.72699SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SEDGWICK COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY27,2852.5325,6958.2127,5281.6627,994TELLER COUNTY21,4698.0621,01610.0024,0292.9123,350WASHINGTON COUNTY4,32710.125,1747.485,75919.634,814WELD COUNTY255,9981.26245,2612.99211,42816.37252,825								
SAN MIGUEL COUNTY7,4881.757,2661.267,7094.767,359SEDGWICK COUNTY2,2814.122,62810.473,21134.972,379SUMMIT COUNTY27,2852.5325,6958.2127,5281.6627,994TELLER COUNTY21,4698.0621,01610.0024,0292.9123,50WASHINGTON COUNTY4,32710.125,1747.485,75919.634,814WELD COUNTY255,9981.26245,2612.9921,42816.37255,825		,		- /		- / -		
SEDGWICK COUNTY 2,281 4.12 2,628 10.47 3,211 34.97 2,379 SUMMIT COUNTY 27,285 2.53 25,695 8.21 27,528 1.66 27,994 TELLER COUNTY 21,469 8.06 21,016 10.00 24,029 2.91 23,350 WASHINGTON COUNTY 4,37 10.12 5,174 7.48 5,759 19.63 4,814 WELD COUNTY 255,998 1.26 245,261 2.99 21,428 16.37 252,825								
SUMMIT COUNTY27,2852.5325,6958.2127,5281.6627,994TELLER COUNTY21,4698.0621,01610.0024,0292.9123,350WASHINGTON COUNTY4,32710.125,1747.485,75919.634,814WELD COUNTY255,9981.26245,2612.99211,42816.37252,825								
TELLER COUNTY 21,469 8.06 21,016 10.00 24,029 2.91 23,350 WASHINGTON COUNTY 4,327 10.12 5,174 7.48 5,759 19.63 4,814 WELD COUNTY 255,998 1.26 245,261 2.99 211,428 16.37 252,825								
WASHINGTON COUNTY 4,327 10.12 5,174 7.48 5,759 19.63 4,814 WELD COUNTY 255,998 1.26 245,261 2.99 211,428 16.37 252,825								
WELD COUNTY 255,998 1.26 245,261 2.99 211,428 16.37 252,825								
YUMA CUUNTY 9,699 3.43 10,708 6.62 11,504 14.55 10,043								
	YUMA COUNTY	9,699	3.43	10,708	6.62	11,504	14.55	10,043

*Notes:

1. This is a comparison of allocation, so all are controlled to the 2010 Census statewide number for Colorado (5,029,196). All comparisons (error calculations) are to the actual 2010 Census counts.

2. The Census Estimates were made by taking the July1,2008 (both vintage 2009) Census Bureau estimates, then simply extrapolating the change between them to April1,2010 (difference times .75, plus July1,2009), and proportionally controlling to the April1,2010 Census count for Colorado. 3. The Regression Estimates were made with a ratio-correlation model that has Births, Public School Enrollment, Vehicle Registrations and Voter Registrations as the independent variables, and Household Population as the dependent variable. The Group Quarters population estimate from July1,2009 was

added to the Household Population. They were proportionally controlled to the April1,2010 Census count for Colorado.

4. The Naïve estimates were made by simply taking the year 2000 (Census Estimates base) county proportions (of state) and multiplying them by the 2010 Census state number- simply a benchmark for whether we know more than nothing.

5. 2010 Census is the actual counts for the counties from the 2010 Census.

6. MAPE is the Mean Absolute Percent Error.