



Small Area Estimates and Projections 2000-2025

Part One – Research Design and Method Pikes Peak Area Council of Governments

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Summary

The Small Area Estimates and Projections document is divided in two parts. Part One is a detailed discussion of the research design and method used to generate the estimates and projections. Part Two contains all 47,424 estimates and projections at the Traffic Analysis Zone (TAZ) level for years 2000 to 2025 in five-year increments.

Enclosed is the summary of the procedures used to generate the Small Area Estimates and Projections for 2000 – 2025. These forecasts serve three purposes. First, the forecasts are used extensively by Pikes Peak Area Council of Governments (PPACG) and its member entities as best estimates of housing, employment, population, school enrollment, income and military presence. The Small Area Estimates and Projections are an essential input to long-range transportation planning for the Colorado Springs Urbanized Area, without which the long-range transportation plan could not move forward. Second, the data are also extremely valuable to member governments' planners who are responsible for long-range planning for their communities. Third, a large number of local businesses and others in the private sector use these data for marketing and other strategic purposes.

The Small Area Estimates and Projections for 2000 – 2025 represent a significant departure from work that had been done in the past. PPACG believes these projections are extremely reliable. For example, the housing equation was found to have accurately explained housing starts within one housing unit in 90 percent of the TAZ's. All final equations were determined to be significant at the .00001 level, a level that suggests the likelihood the results are due to chance is less than a one in one hundred thousand. This was made possible by working to identify and access better data, and soliciting constructive input from member entities throughout the modeling process. This effort also marks the first time all research design, data gathering, programming, model specification and testing were done completely by PPACG.

Collectively, 47,424 estimates and projections comprise the final product. This required over 300,000,000 calculations, approximately 80,000 addresses to be geocoded and about 1,100 PPACG staff hours.

Three especially noteworthy differences are:

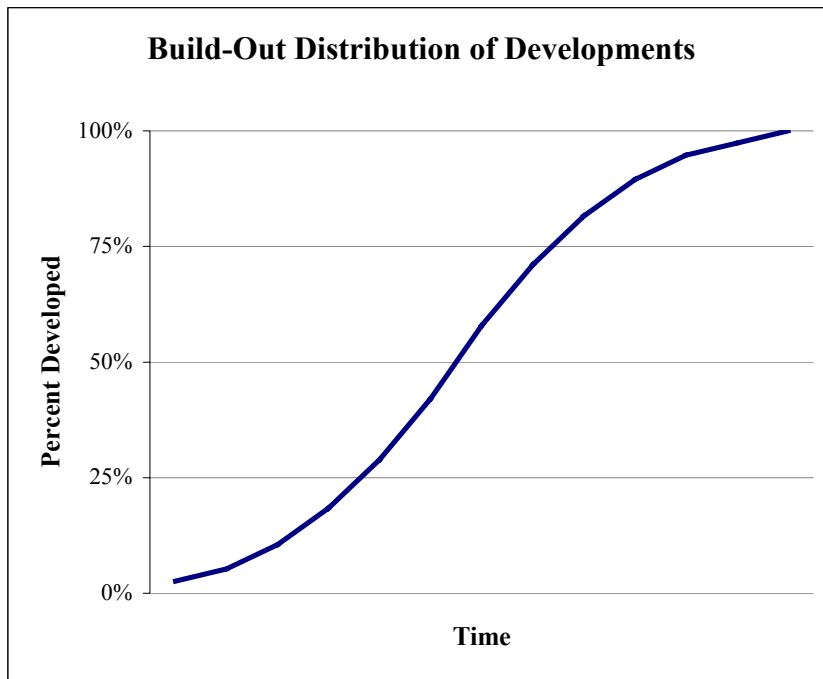
- With the exception of age of housing stock, all variables were observed at the Traffic Analysis Zone (TAZ) level. Previously, observations were made at the Census Tract level. This is two levels poorer data definition than TAZ data. Disaggregation of housing stock age was done from the block group level to the TAZ level. This involved about half of the TAZ's. Block group data is one level away from TAZ data.
- Input to the process was sought from PPACG Transportation Staff, key staff of member entities and reviewed by appropriate technical and advisory committees at PPACG. Numerous relevant observations were incorporated to the projection process in an effort to be complete and minimize error.

- Projections were made for all of El Paso County. Previous efforts limited their work to the Colorado Springs Urbanized Transportation Planning Area.

The methodology follows this section. Finally, the detailed projections are available for your review.

Housing and Population Estimates and Projections

The housing and population projection model sought to work within two constraints. First, the input variables needed to be observed at the Traffic Analysis Zone (TAZ) level. This would eliminate disaggregating the results if the projections were done at the Census Tract level. Second, the model attempted to identify observations that captured the housing preferences that the citizens of the community demonstrated. This led to the development of an inertia or growth model.



A growth model’s projections for housing/population should conform to a normal distribution. The cumulative normal density pattern is demonstrated in the adjacent figure. Housing starts and age of housing stock in a TAZ were examined. It was found that this relationship existed. The premise of the model could now be developed and built upon to project the necessary socio-economic data.

Variable Definitions for Housing Equation

The following variables were used to explain growth in housing units.

$DV_Starts_{i,t}$ Dummy variable indicating if the number of housing starts in period “t” for TAZ “i” was above the average during 1990 – 1999 (1=yes, 0=no).

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$$Pop_Grav_{i,t} = \sum_i^n \sum_j^n \frac{P_{i,t} P_{j,t}}{D_{i,j}}$$

Where $P_{i,t}$ is the population in TAZ “i” in period “t” and $D_{i,j}$ is the distance between midpoints of TAZ “i” and TAZ “j.”

- Age_HUS_{i,t}* Average age of housing stock in period “t” for TAZ “i.” This contributed to measuring the cumulative normal density build-out distribution.
- Log_HUS_Ac_{i,t}* Log of housing units per acre in period “t” for TAZ “i.” A log transformation was needed to achieve a linear transform of the variable.
- DV_Low_Den_{i,t}* Dummy variable indicating if the housing units per acre in the period “t” for TAZ “i” was below the average housing units per acre - (1=yes, 0=no).
- DV_LD_GR_{i,t}* Dummy variable indicating low housing unit density per acre and high growth in housing units in period “t” for TAZ “i” - (1=yes, 0=no).
- Gr_HUS_{i,t}* Growth rate in housing units in period “t” for TAZ “i.”
- Log_Starts_{i,t}* Log of housing starts in period “t” for TAZ “i.” A log transformation was needed to achieve a linear transform of the variable.

The dependent variable is the number of housing unit starts in period “t” for TAZ “i”; i.e. (*Log_Starts_{i,t+1}*). A log transformation is needed to achieve a linear transform of the variable. The equation was specified as:

$$Log_Starts_{i,t+1} = f(DV_Starts_{i,t}, Pop_Grav_{i,t}, Age_HUS_{i,t}, Log_HUS_Ac_{i,t}, DV_Low_Den_{i,t}, DV_LD_GR_{i,t}, Gr_HUS_{i,t}, Log_Starts_{i,t})$$

Results from the Housing Unit Regression

Housing starts for 1994-1999 were obtained from the Pikes Peak Regional Building Department. Approximately 60,000 building permits were geocoded to provide housing information. Data for years 1990-1993 were not available. The total number of starts for the period was known. Starts for 1990-1993 were allocated among the area TAZ’s based on the market share of housing starts each TAZ had during 1994-1999.

The regression results for the estimated model are shown below. A broadly defined summary of the equation is that it “explained” housing unit starts, by TAZ, over years 1995-1999 within one housing unit for approximately 90 percent of the TAZ’s. The equation is significant at the .00001 level. This equation was determined to be reliable and used to project housing starts for years 2005 – 2025.¹

¹ Inputs for the equation included all TAZ’s in El Paso County plus generators. External generators were considered important to try to capture as inputs to the equation. Values for the external generators were assigned a “missing

All observations were obtained at the TAZ level except for age of housing unit. This could be observed at the block group level and disaggregated to the TAZ level.

There are three hundred and twelve block groups in El Paso County. Many TAZ's were the

Housing Unit Regression Summary

<i>Multiple R</i>	0.9081
<i>R Square</i>	0.8247
<i>Adjusted R Square</i>	0.8219
<i>Standard Error</i>	0.8526
<i>Observations</i>	515

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig. of F</i>
<i>Regression</i>	8	1730.56	216.32	297.58	0.0000*
<i>Residual</i>	506	367.82	0.73		
<i>Total</i>	514	2098.38			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
<i>Intercept</i>	0.2826	0.1354	2.0866	0.0374
<i>DV_Starts_{i,t}</i>	0.1129	0.1471	0.7672	0.4433
<i>Pop_Grav_{i,t}</i>	-0.0002	0.0005	-0.4597	0.6460
<i>Age_HUS_{i,t}</i>	0.0022	0.0009	2.6266	0.0089**
<i>Log_HUS_Ac_{i,t}</i>	0.0736	0.0509	1.4468	0.1486****
<i>DV_Low_Den_{i,t}</i>	0.0548	0.1350	0.4063	0.6847
<i>DV_LD_GR_{i,t}</i>	0.0475	0.1517	0.3133	0.7542
<i>Gr_HUS_{i,t}</i>	0.0728	0.0672	1.0826	0.2795*****
<i>Log_Starts_{i,t}</i>	0.8649	0.0280	30.8857	0.0000*

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- * .001% level of significance
 - **1% level of significance (one tail)
 - **** 10% level of significance (one tail)
 - ***** 15% level of significance (one tail)

same as block group definitions. Age of housing stock for the remaining TAZ's were estimated by proportionately weighting respective block group age of housing units with block group housing weights.

value" equal to the averages of the observed variables since their values could not be observed directly. This is an often-used procedure in regression analysis..

Population Estimates and Projections

Population projections were obtained by multiplying the number of projected housing units by the 1990 Census based number of people per household, by TAZ. For example, if TAZ “1” averaged 2.3 people per household in 1990, it was assumed that it would continue to average 2.3 people per household in the future. TAZ “72” might have averaged 1.9 people per household in 1990. This was assumed to hold for the future. The County average of approximately 2.6 people per household was not assigned arbitrarily across the TAZ’s.

Population projections were also constrained for land use and cleared to a required population total that was previously adopted by the Board of Directors in March 2000.

Household Income Estimates and Projections

Household incomes were stratified into five categories. They are:

- Low-income (0th to 20th percentile)
- Low to middle-income (21st to 40th percentile)
- Middle-income (41st to 60th percentile)
- Middle to high-income (61st to 80th percentile)
- High-income (81st to 100th percentile)

Income levels are meant to be relative statements of wealth and not absolutes. That is, low income does not necessarily mean poverty. It represents that level of income, below which, 20 percent of households fall.

Income distributions for each TAZ were observed for the 1990 Census. If it was observed that 10 percent of a TAZ’s households were in the low-income category in 1990, it was assumed that 10 percent would continue to be in the low income. Data obtained from the 1990 Census and the 1998 Home Mortgage Disclosure Act summary data, by Census Tract, suggest regional household income levels tend to be stable between Census periods.

Employment Estimates and Projections

Employment estimates for 2000 came from a US West database that PPACG acquired. The database included addresses, Standard Industrial Classifications (SIC), number of employees and phone numbers. Businesses that used a P.O. Box for an address were contacted to get a physical address if they had more than four employees. Approximately 18,000 businesses were geocoded through this process.

Employment projections are extremely difficult to do at the TAZ level. A single employer may employ anywhere from one to several thousand people. Reliably projecting the number of additional firms and employees for the entire County is quite different from projecting which firm (and number of employees) will conduct business in a specific location. The behavior

pattern of “big box” firms is especially difficult to “predict.” They may come, go, or relocate within the community; moving thousands of employees around and affecting driving patterns that are extremely difficult to anticipate. These limitations aside, a model was developed to explain employment at the TAZ level. It is based on standard research design methods given the availability of data.

Separate location equations were estimated for basic employment, retail employment and service employment. The explanatory variables used in all equations are:

L_Inc_{i,t} Number of households in TAZ “i” in period “t” whose income is in the 0th to 20th percentile of the region.

LM_Inc_{i,t} Number of households in TAZ “i” in period “t” whose income is in the 21st to 40th percentile of the region.

M_Inc_{i,t} Number of households in TAZ “i” in period “t” whose income is in the 41st to 60th percentile of the region.

MH_Inc_{i,t} Number of households in TAZ “i” in period “t” whose income is in 61st to 80th percentile of the region.

H_Inc_{i,t} Number of households in TAZ “i” in period “t” whose income is in 81st to 100th percentile of the region.

Pop_Grav_{i,t} Population gravity for TAZ “i” in period “t.”

$$Pop_Grav_{i,t} = \sum_i^n \sum_j^n \frac{P_{i,t} P_{j,t}}{D_{i,j}}$$

Where $P_{i,t}$ is the population in TAZ “i” in period “t” and $D_{i,j}$ is the distance between midpoints of TAZ “i” and TAZ “j.”

Bas_Grav_{i,t} Basic employment gravity for TAZ “i” in period “t.”

$$Bas_Grav_{i,t} = \sum_i^n \sum_j^n \frac{B_{i,t} B_{j,t}}{D_{i,j}}$$

Where $B_{i,t}$ is Basic Employment in TAZ “i” in period “t” and $D_{i,j}$ is the distance between midpoints of TAZ “i” and TAZ “j.” Basic employment includes SIC designations from 1 thru 51.

Rtl_Grav_{i,t} Retail employment gravity for TAZ “i” in period “t.”

$$Rtl_Grav_{i,t} = \sum_i^n \sum_j^n \frac{R_{i,t} R_{j,t}}{D_{i,j}}$$

Where $R_{i,t}$ is the population in TAZ “i” in period “t” and $D_{i,j}$ is the distance between midpoints of TAZ “i” and TAZ “j.” Retail employment includes SIC designations from 52 thru 59.

Svc_Grav_{i,t} Service employment gravity for TAZ “i” in period “t.”

$$Svc_Grav_{i,t} = \sum_i^n \sum_j^n \frac{S_{i,t} S_{j,t}}{D_{i,j}}$$

Where $S_{i,t}$ is the population in TAZ “i” in period “t” and $D_{i,j}$ is the distance between midpoints of TAZ “i” and TAZ “j.” Service employment includes SIC designations from 60 thru 96.

Bus_Ctr_{i,t} Dummy variable indicating an established business center or areas expected to develop as centers based on current trends and land set aside by developers for such purposes (1 = yes, 0 = no).

Land_A_i Proportion of remaining land in TAZ “i” that is developable.

Net_Acre_{i,t} Number of acres of land that is not occupied in TAZ “i” in period “t.”

Basic_{i,t} Number of basic industry employees working in TAZ “i” in period “t.”

Retail_{i,t} Number of retail industry employees working in TAZ “i” in period “t.”

Service_{i,t} Number of retail industry employees working in TAZ “i” in period “t.”

The employment equations were:

$$Basic_{i,t+1} = f(L_Inc_{i,b}, LM_Inc_{i,b}, M_Inc_{i,b}, MH_Inc_{i,b}, H_Inc_{i,b}, Pop_Grav_{i,b}, Bas_Grav_{i,b}, Rtl_Grav_{i,b}, Svc_Grav_{i,t}, Bus_Ctr_{i,t}, Land_A_i, Net_Acre_{i,t}, Basic_{i,t}, Retail_{i,t}, Service_{i,t})$$

$$Retail_{i,t+1} = f(L_Inc_{i,b}, LM_Inc_{i,b}, M_Inc_{i,b}, MH_Inc_{i,b}, H_Inc_{i,b}, Pop_Grav_{i,b}, Bas_Grav_{i,b}, Rtl_Grav_{i,b}, Svc_Grav_{i,t}, Bus_Ctr_{i,t}, Land_A_i, Net_Acre_{i,t}, Basic_{i,t}, Retail_{i,t}, Service_{i,t})$$

$$Service_{i,t+1} = f(L_Inc_{i,b}, LM_Inc_{i,b}, M_Inc_{i,b}, MH_Inc_{i,b}, H_Inc_{i,b}, Pop_Grav_{i,b}, Bas_Grav_{i,b}, Rtl_Grav_{i,b}, Svc_Grav_{i,t}, Bus_Ctr_{i,t}, Land_A_i, Net_Acre_{i,t}, Basic_{i,t}, Retail_{i,t}, Service_{i,t})$$

Control Numbers for Employment

	Basic	Retail	Service	Total
1990	53,605	32,770	85,296	171,671
Share	32.70%	23.96%	43.34%	
2000	77,233	56,590	102,377	236,200
2005	86,062	63,059	114,079	263,200
2010	92,536	67,803	122,661	283,000
2015	98,160	71,923	130,116	300,200
2020	102,771	75,302	136,228	314,300
2025	106,662	78,153	141,386	326,200

All projections from the estimated equations were constrained for land use, employment densities and employment totals. County employment levels were previously adopted by PPACG. Basic employment’s share of

**Population and Employment Forecast
El Paso County and Colorado Springs (population)**

Year	El Paso County		Colorado Springs
	Employment	Population	Population
1999	229,700	500,100	351,600
2000	236,200	510,000	358,400
2001	241,900	521,000	366,000
2002	248,200	533,100	374,300
2003	253,400	542,900	381,000
2004	258,200	552,100	387,300
2005	263,300	561,100	393,500
2006	267,800	570,000	399,600
2007	271,700	578,700	405,500
2008	275,500	587,300	411,400
2009	279,100	595,700	417,200
2010	283,000	604,000	422,800
2011	285,900	612,100	428,400
2012	288,400	620,100	433,900
2013	291,700	628,100	439,400
2014	295,900	635,900	444,700
2015	300,200	643,700	450,000
2016	303,400	651,400	455,300
2017	306,000	659,000	460,500
2018	308,600	666,500	465,700
2019	311,400	674,000	470,800
2020	314,300	681,500	475,900
2021	316,500	688,900	481,000
2022	318,700	696,300	486,100
2023	321,200	703,600	491,100
2024	323,700	711,000	496,200
2025*	326,200	718,800	501,300

Source: Colorado Springs Utilities, January 2000

*Data for 2025 projected by PPACG

total employment was determined by calculating its year 1990 market share and projected as a constant to the future. This was also done for retail and service employment.

The employment equations were estimated without a constant term. This allowed for the economic argument that there is no autonomous employment level. This supports zoning restrictions in a TAZ that might prohibit certain employment categories.

No adjustments to land use were made except for three TAZ's. TAZ's 58, 108 and 112 are commercial properties that are being redeveloped on property that was indicated as being "not vacant." These TAZ's cover Intel, Plaza of the Rockies and a smaller downtown building project.

"Basic" Employment Regression Summary

<i>Multiple R</i>	0.55312
<i>R Square</i>	0.30594
<i>Adjusted R Square</i>	0.28416
<i>Standard Error</i>	358.8761
<i>Observations</i>	493

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig. of F</i>
<i>Regression</i>	15	27136891.83	1809126.122	14.0469	0.0000*
<i>Residual</i>	478	61562602.17	128792.0548		
<i>Total</i>	493	88699494			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t-Stat</i>	<i>P-value</i>
<i>Pop_Grav_{i,t}</i>	-0.0515	0.3963	-0.1300	0.8966
<i>H_Inc_{i,t}</i>	-0.1119	0.2903	-0.3853	0.7002
<i>L_Inc_{i,t}</i>	0.2501	0.2001	1.2502	0.2118****
<i>LM_Inc_{i,t}</i>	0.2942	0.6369	0.4620	0.6443
<i>M_Inc_{i,t}</i>	-1.1402	1.2876	-0.8855	0.3763
<i>MH_Inc_{i,t}</i>	1.1648	0.9274	1.2559	0.2098****
<i>Bus_Ctr_{i,t}</i>	456.6171	43.5373	10.4879	0.0000*
<i>Bas_Grav_{i,t}</i>	-2.1880	18.8395	-0.1161	0.9076
<i>Net_Acre_{i,t}</i>	-0.0019	0.0024	-0.8051	0.4214
<i>Basic_{i,t}</i>	0.2839	0.4208	0.6746	0.5003
<i>Retail_{i,t}</i>	0.1950	0.5748	0.3392	0.7346
<i>Service_{i,t}</i>	-0.3574	0.3132	-1.1410	0.2544****
<i>Land_A_{i,t}</i>	52.3113	29.8802	1.7507	0.0806***
<i>Rtl_Grav_{i,t}</i>	-28.4757	47.2752	-0.6023	0.5472
<i>Svc_Grav_{i,t}</i>	15.1281	21.8364	0.6928	0.4888

*.001% level of significance

***5% level of significance (one tail)

****15% level of significance (one tail)

“Retail” Employment Regression Summary

<i>Multiple R</i>	0.47819
<i>R Square</i>	0.22867
<i>Adjusted R Square</i>	0.20446
<i>Standard Error</i>	300.70882
<i>Observations</i>	493

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig. of F</i>
<i>Regression</i>	15	12814112	854274	9.44724	0.0000*
<i>Residual</i>	478	43223531	90425.8		
<i>Total</i>	493	56037643			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t-Stat</i>	<i>P-value</i>
<i>Pop_Grav_{i,t}</i>	-0.4185	0.3321	-1.2604	0.2081****
<i>H_Inc_{i,t}</i>	0.0678	0.2433	0.2788	0.7805
<i>L_Inc_{i,t}</i>	0.5064	0.1676	3.0206	0.0027**
<i>LM_Inc_{i,t}</i>	-0.4387	0.5337	-0.8221	0.4114
<i>M_Inc_{i,t}</i>	-0.1085	1.0789	-0.1006	0.9199
<i>MH_Inc_{i,t}</i>	0.2564	0.7771	0.3299	0.7416
<i>Bus_Ctr_{i,t}</i>	244.9447	36.4807	6.7144	0.0000*
<i>Bas_Grav_{i,t}</i>	-17.5343	15.7859	-1.1108	0.2672*****
<i>Net_Acre_{i,t}</i>	-0.0016	0.0020	-0.7829	0.4341
<i>Basic_{i,t}</i>	-0.2988	0.3526	-0.8474	0.3972
<i>Retail_{i,t}</i>	0.6650	0.4816	1.3808	0.1680****
<i>Service_{i,t}</i>	0.1840	0.2624	0.7009	0.4837
<i>Land_A_{i,t}</i>	45.6920	25.0372	1.8250	0.0686***
<i>Rtl_Grav_{i,t}</i>	6.0965	39.6128	0.1539	0.8778
<i>Svc_Grav_{i,t}</i>	-9.2601	18.2971	-0.5061	0.6130

*.001% level of significance
 ** 1% level of significance (one tail)
 ***5% level of significance (one tail)
 ****10% level of significance (one tail)
 *****15% level of significance (one tail)

“Service” Employment Regression Summary

<i>Multiple R</i>	0.53925
<i>R Square</i>	0.29079
<i>Adjusted R Square</i>	0.26853
<i>Standard Error</i>	426.63331
<i>Observations</i>	493

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig. of F</i>
<i>Regression</i>	15	35672682.1	2378179	13.0658	0.0000*
<i>Residual</i>	478	87003640.9	182016		
<i>Total</i>	493	122676323			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t-Stat</i>	<i>P-value</i>
<i>Pop_Grav_{i,t}</i>	-0.3943	0.4711	-0.8370	0.4030
<i>H_Inc_{i,t}</i>	0.5300	0.3451	1.5357	0.1253****
<i>L_Inc_{i,t}</i>	0.6333	0.2378	2.6626	0.0080**
<i>LM_Inc_{i,t}</i>	-0.4527	0.7572	-0.5978	0.5502
<i>M_Inc_{i,t}</i>	0.2732	1.5307	0.1785	0.8584
<i>MH_Inc_{i,t}</i>	-0.7117	1.1026	-0.6455	0.5189
<i>Bus_Ctr_{i,t}</i>	419.8461	51.7574	8.1118	0.0000*
<i>Bas_Grav_{i,t}</i>	-33.5183	22.3964	-1.4966	0.1352****
<i>Net_Acre_{i,t}</i>	-0.0030	0.0028	-1.0514	0.2936*****
<i>Basic_{i,t}</i>	-0.5326	0.5003	-1.0646	0.2876*****
<i>Retail_{i,t}</i>	-0.4167	0.6833	-0.6098	0.5423
<i>Service_{i,t}</i>	0.4699	0.3724	1.2621	0.2075*****
<i>Land_A_{i,t}</i>	67.9916	35.5217	1.9141	0.0562***
<i>Rtl_Grav_{i,t}</i>	8.2313	56.2009	0.1465	0.8836
<i>Svc_Grav_{i,t}</i>	9.2435	25.9592	0.3561	0.7219

*.001% level of significance

** 1% level of significance (one tail)

***5% level of significance (one tail)

****10% level of significance (one tail)

*****15% level of significance (one tail)

Educational Enrollments

Three education enrollment categories were projected. They are:

- Grade school (includes preschool and middle school)
- High school
- College/University

School enrollments for year 2000 were obtained from the respective school districts, colleges and universities where available. If numbers were not available, the values were taken from the previous small area forecast.

Grade school (*GS_Enroll*) and high school (*HS_Enroll*) enrollments were fitted to a regression line to obtain an equation to project future enrollments. The grade school equation was estimated with data from those TAZ's that had a grade school in them. Similarly, the high school equation was estimated with data from those TAZ's that had a high school in them. Both equations used the same independent variables. Both were estimated with regression through the origin. They are:

- *Pop_TAZ_{i,t}*, population in TAZ "i" in period "t."
- *Pop_Tract_{i,t}*, Population in Tract "i" in period "t."

The grade school regression equation was stated as:

$$GS_Enroll_{i,t} = f(Pop_TAZ_{i,t} \ Pop_Tract_{i,t})$$

The high school regression equation was stated as:

$$HS_Enroll_{i,t} = f(Pop_TAZ_{i,t} \ Pop_Tract_{i,t})$$

Both equations were estimated without a constant, regression through the origin. It was believed that economic reason supports the position that the existence of school children is not autonomous. Regression through the origin allows for this. The results from these regressions were both significant at the .00001 level. They are summarized below.

Grade School Enrollment Summary

<i>Multiple R</i>	0.8578
<i>R Square</i>	0.7358
<i>Adjusted R Square</i>	0.7292
<i>Standard Error</i>	364.3087
<i>Observations</i>	82

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig. of F</i>
<i>Regression</i>	2	29574234.13	14787117.07	111.4152	0.0000*
<i>Residual</i>	80	10617666.87	132720.84		
<i>Total</i>					

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t-Stat</i>	<i>P-value</i>
<i>Pop_TAZ</i>	0.1522	0.0216	7.0474	0.0000*
<i>Pop_Tract</i>	0.0172	0.0052	3.3151	0.0014**

*.001% level of significance

** 1% level of significant (one tail)

High School Enrollment Summary

<i>Multiple R</i>	0.6724
<i>R Square</i>	0.4522
<i>Adjusted R Square</i>	0.4361
<i>Standard Error</i>	596.3171
<i>Observations</i>	70

ANOVA

	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig. of F</i>
<i>Regression</i>	2	19958961.25	9979480.63	28.0643.	0.0000*
<i>Residual</i>	68	24180397.75	355594.08		
<i>Total</i>					

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t-Stat</i>	<i>P-value</i>
<i>Pop_TAZ</i>	0.0642	0.0413	1.5530	0.1252****
<i>Pop_Tract</i>	0.0366	0.0122	2.9971	0.0038**

*.001% level of significance

**1% level of significance (one tail)

**** 10% level of significance (one tail)

College enrollments were obtained from the campuses, when available. If an enrollment number was not available for 2000, figures from the previous small area forecasts were used. Special efforts were made to identify enrollment data for the University of Colorado at Colorado Springs (UCCS), Colorado College (CC) and Pikes Peak Community College (PPCC). PPCC is currently working on a master plan and does not have long-term enrollment projections. It was assumed their enrollments would increase by 1.75 percent a year to 2025. UCCS recently completed its master plan. Their enrollment projections to year 2005 were included in this report. CC also completed a master plan recently. CC does not anticipate significant enrollment increases. Both UCCS and CC were projected to increase their enrollments by 1.75% a year; beginning in 2005 for UCCS and beginning in 2000 for CC.

Military

All military facilities were contacted during this project. They provided estimates on the number of in-service and civilian (appropriated and non-appropriated) personnel at the facilities. Recent announcements about increased housing at Fort Carson and anticipated increases in personnel at Schriever AFB were included in the projections. All other military data were held constant to year 2025.

Group Quarters

Most information for group quarters came from the previous small area projection. New group quarters facilities were identified in the County. These include dorms, assisted care facilities, nursing homes, prisons and other group accommodation facilities. Known new construction of group housing facilities was allowed for in the gather of data. This included new dorms at UCCS and expansions to the assisted care facilities in the Southwest area of Colorado Springs along 21st street. Group quarters were projected to increase 1.75% a year over the planning horizon.

