

MEMORANDUM

To: Steve Borroum, El Dorado County Department of Transportation

From: Robert Spencer and Joshua Polston

Date: March 2, 2005

Re: Countywide TIMF Update – Land Use Forecast Methodology

To update the Countywide Traffic Impact Mitigation Fee (TIMF) program, MuniFinancial updated prior forecasts of household and employment growth in the County over a 16-year period (1999 through 2015). This memorandum sets out the methodology and assumptions that went into the production of the forecasts. It also discusses the variation from the previous 2025 forecasts produced by Economic and Planning Systems (EPS)¹.

Geographic Area

The TIMF program covers all of unincorporated El Dorado County west of the Sierra crest. The forecasts presented here are for the same area. The City of South Lake Tahoe and the unincorporated area east of the Sierra crest are excluded from the program.

Data Sources

Data was gathered from local, State, and Federal sources to develop the forecast. The County Department of Transportation provided MuniFinancial with January 1, 1999 base year data on existing development in each TAZ for each land use type. The base year data was developed by EPS and used for the prior forecasts. The 2000 U.S. Census and State employment data was used to validate the base year. To update the forecast based on historical trend data, MuniFinancial obtained California Department of Finance (DOF) housing data for the period 1990 to 2004. Finally, to inform the allocation of growth between the TAZs, the County Building Department provided MuniFinancial with building permit data for the period January 1, 1999 to August 1, 2004.

Base Year Validation

MuniFinancial validated the 1999 base year data used for both this forecast and the prior EPS forecast using 2000 Census data. To verify the accuracy of the 1999 EPS base forecast, MuniFinancial compared the 1999 data plus one year of building permit information to 2000 U.S. Census household data for the County. Based on this snapshot comparison, the MuniFinancial forecast was approximately five percent under the 2000 Census figure. A variance of five percent is sufficient to validate the household forecast base year.

¹ Economic and Planning System, El Dorado County Land Use Forecasts for Draft General Plan, March 5, 2002.

To validate the 1999 employment estimates MuniFinancial obtained the recent employee information (September 2003) from the State Department of Employment Development (EDD). In comparison to the EDD data for the same period, the MuniFinancial forecast is approximately 4.6 percent less. As in the household example above, a variance of 4.6 percent is sufficient to validate the jobs forecast base year for 1999.

Historical Trends

Housing Demand

MuniFinancial analyzed the demand for housing over the past 14 years (1990 to 2004) based on DOF estimates. This data is shown in **Table 1**, below. It excludes the City of South Lake Tahoe. The amount of growth in the unincorporated area east of the Sierra crest is negligible so the table provides a fair approximation of growth in the TIMF program area.

Table 1: El Dorado County Housing Growth (Excluding S. Lake Tahoe)

Year	Usersing Creedle
Year	Housing Growth
4	
1990 ¹	-
1991	1,528
1992	1,641
1993	1,184
1994	782
1995	854
1996	825
1997	1,009
1998	1,210
1999	1,037
2000	(182)
2001	`909 [°]
2002	1,536
2003	1,502
2004	1,816
1000 to 0004 Assessed	000
1990 to 2001 Average	982
1990 to 2004 Average	1,118

¹ Housing growth increment.

Source: CA Department Of Finance Table E-5, Excluding South Lake Tahoe; MuniFinancial.

DOF benchmarks its data every ten years based on the Census. This benchmarking resulted in the negative growth estimate shown in **Table 1** for the year 2000. This adjustment suggests that the DOF has a tendency to over estimate housing growth by about 100 units per year.

As shown in **Table 1** growth has varied widely in the TIMF area, ranging between less than 800 units to more than 1,800 units annually. This variability is indicative of regional real estate business cycles. It is reasonable to assume that variability of this magnitude would continue through the 2015 planning horizon for the updated forecasts presented here.

Overall the area has grown by an average of approximately 1,100 housing units per year over the entire 14-year period. If the last three high growth years are excluded, growth has averaged 980 units per year over the 11-year period from 1990 through 2001.

Employment Growth

Historical employment data was not readily available for this study so we limited our trend analysis to the last six years, from 1999 through 2005 using building permit data provided by the County. This data is presented below in **Table 2**. As shown in the table employment appears to have grown at an annual average rate of approximately 1,300 employees during that six-year period.

Table 2: El Dorado County Employment Growth (Jobs)

Employment Growth (Jobs)					
	Estimated				
Year	Employment				
1999 2005	30,434 38,364				
Average Annual Growth	1,300				

Source: County of ☐ Dorado; MuniFinancial.

Land Supply

Land supply has been governed in El Dorado County not only by General Plan policies but also more recently by court decisions. For the past five and a half years, land supply in the County has been constrained by a Writ of Mandate resulting from a lawsuit on the County's 1996 General Plan. The Writ only allows development under either of the following conditions:

- 1. Development of existing parcels in compliance with current zoning but without additional subdivision (called "legal parcels"); and
- 2. Development under approved development agreements and tentative maps (called "existing commitments").

As of 1999, the supply of existing commitments in the TIMF program area equaled approximately 14,500 units. Given the Writ's constraints on legal parcels to subdivide and accommodate higher development densities, the supply of existing commitments represents the substantial majority of land that is economically competitive within the Sacramento region to accommodate demand under the Writ (see discussion below).

Based on our quantitative analysis of the historical data and interviews with County planning staff, we estimate that legal parcels have accommodated about 100 to 200 units of housing demand annually, or about 10 to 20 percent of total demand. Builders and developers are indicating that the supply of readily developable legal parcels in competitive locations is declining.

Land supply for employment uses is not facing the constraints discussed above for housing. The 1996 General Plan forecasts a job capacity of over 110,000 at buildout based on the same nonresidential land use policies in effect today.

2015 Area-Wide Forecast

The MuniFinancial January 1, 2015 forecast was produced under two different policy scenarios. The first forecast is referred to as the MuniFinancial Writ scenario and the second as the MuniFinancial 2004 General Plan scenario. Both forecasts are based on analysis of the following:

- Controls on the available supply of developable land based on General Plan policies and court-mandated land use regulations;
- Historical trends in housing and employment growth; and
- The prior EPS forecasts.

The methodology used to develop each scenario is described below.

MuniFinancial Writ Scenario

The Writ scenario is based on the continuation of land use controls imposed by the courts and described above. Supply is constrained to the remaining existing commitments and development on legal parcels. New subdivisions are prohibited. Therefore, the Writ scenario has constrained supply compared to the 2004 General Plan scenario.

The Writ scenario assumes that the declining supply of existing commitments and developable legal parcels will slow growth below the historical averages. The Writ scenario assumes that over 75% of the remaining existing commitments in 1999 will be constructed by 2015. And, as mentioned above, current growth rates are beginning to lead to constraints in the supply of legal parcels as well. Supply constraints will lead to increases in the marginal cost of new development. Increasing marginal costs will cause a decrease in demand as other areas in the Sacramento region become more competitive compared to El Dorado County. The effect on the scenario is an average annual housing growth rate of 690 units from 2005 to 2015, about 62 percent of the average annual rate from 1990 to 2004.

The employment forecast for the Writ scenario is not similarly supply-constrained, as discussed above. The forecast is based on employment trends since 1999 and adjusted where specific development information was available (see discussion below of Manual Adjustments).

MuniFinancial 2004 General Plan Scenario

This scenario is based on the following assumptions:

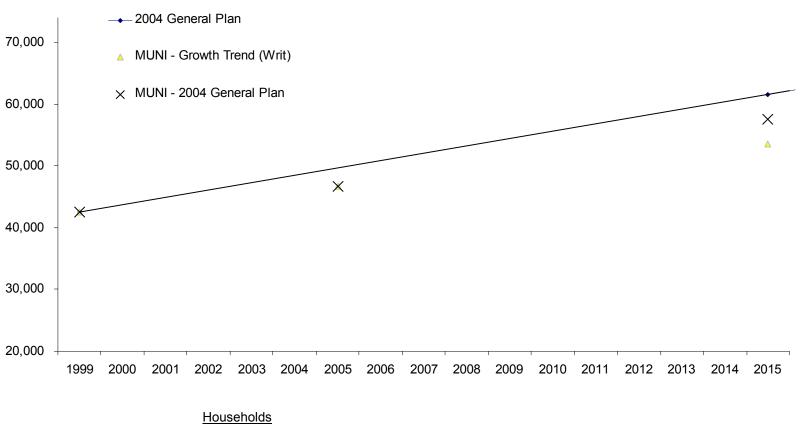
- The 2004 General Plan represents a less constrained environment for development compared to the Writ, and therefore will accommodate higher demand compared to the Writ forecast; and
- After reviewing the 2004 EPS General Plan forecast, MuniFinancial concluded that the forecast remains a reasonable indicator of growth trends without the Writ and under the 2004 General Plan.

Under this scenario, development of residential units occurs in a more unconstrained supply environment. Since land use restrictions on the creation of new buildable parcels have been removed, the existing commitments no longer represent the declining available supply to new development. Under this scenario, we would expect to see development patterns similar to the historical trend without the Writ in place. The effect on the scenario is an average annual housing growth rate of approximately 1,100 units from 2005 to 2015, about the same as the average annual rate from 1990 to 2004.

The employment forecast for the General Plan scenario is based on employment trends since 1999 and adjusted where specific development information was available (see discussion below of Manual Adjustments). While employment was not explicitly constrained under either scenario, the increased residential development under the General Plan scenario does drive higher employment as well. This additional employment is attributable to the regional economic multiplier effects that additional housing adds to the region. These effects are both direct and indirect. Direct examples are employment related to the construction and maintenance of additional households. Indirect jobs come from the additional spending that these households contribute to the regional economy.

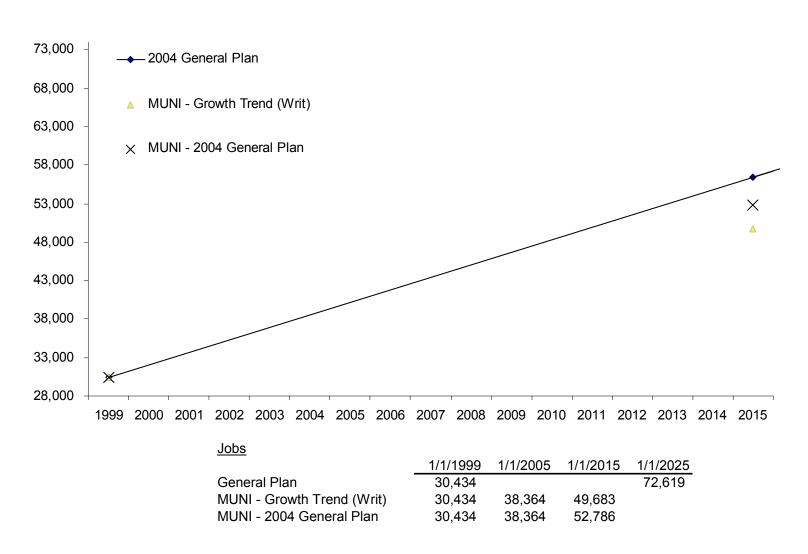
Our approach was conservative in estimating growth in both scenarios. Both our forecast scenarios are less than the projected 2004 General Plan jobs and households. These two forecast scenarios are graphed in **Figures 1 and 2**.

Figure 1
Projected Households



	1/1/1999	1/1/2005	1/1/2015	1/1/2025
General Plan	42,579			73,469
MUNI - Growth Trend (Writ)	42,579	46,707	53,606	
MUNI - 2004 General Plan	42.579	46.707	57.605	

Figure 2
Projected Jobs



Allocation Of Area-Wide Forecasts To Traffic Assessment Zones

County building permit data from 1999 to 2004 was used to allocate area-wide growth estimates to traffic assessment zones (TAZs) for the purposes of traffic modeling. This allocation methodology is explained below.

Traffic Model Land Use Categories and Conversion Methodology

El Dorado County is divided into 267 Traffic Assessment Zones (TAZs) for the purpose of modeling traffic impacts on roads and highways throughout the County (excluding S. Lake Tahoe). Trip generation is based on estimates of the amount of development in each TAZ for each of the six land use types listed below. Residential data is expressed in number of households (occupied housing units), and nonresidential data is expressed in employment (jobs).

Residential (Households)

- Single-Family
- Multi-Family
- Mobile Home

Non-Residential (Jobs)

- Retail
- Service
- Other

Residential

The residential permit information included nine different use categories. These categories were sorted into the three residential land use types listed above. Residential structures that had received a final certificate of occupancy prior to August 1, 2004 were counted as a new unit for the purpose of growth allocation. The residential building permit data was incomplete in that it omitted some or all planned developments. As a result, there may be some misallocations between the TAZs, but these are probably minor and can be corrected in the next update to the TIMF program.

Per County policy, no additional mobile homes were included in the projection, which were frozen at 1999 base year levels. In addition, 264 units of temporary mobile homes were excluded from the forecast.²

A five percent vacancy rate was used to convert residential building structures into households.

Non-Residential

The nonresidential building permits had 18 land use designations and were sorted into the three categories listed above based on SIC code designations and input from County Staff. Only new, nonresidential square footage was compiled and allocated to TAZs. All remodel, tenant improvements, renovation, and other miscellaneous permit square footage was omitted. New nonresidential square footage was included if the final building permit was

² Since 1990, the County has not approved any additional mobile home parks. Current County policy does not allow for new mobile home construction. Temporary mobile home permits are granted on a hardship basis. These units are considered temporary in nature and were excluded from the residential growth count per County guidance.

received prior to August 1, 2004. Total nonresidential new square footage was compiled and converted to employees (jobs) based on the following factors.

Land-Use Categories	Square Feet per Employee
Retail	400
Service	350
Other	600

Initial TAZ Allocation Methodology

Countywide residential and nonresidential growth was allocated at the TAZ level based on County Building Department data. This data excluded all or some of the planned residential units developed over the period 1999 to 2004. Using this building permit data, the growth was allocated between the 267 TAZs. The building permit data was the best available TAZ-level information available at the time. The exclusion of some or all of the planned unit developments may impact the allocation of growth in those TAZs which have a significant number of such development, but has no impact on nonresidential job allocation. The allocation methodology is the same for both the Writ and General Plan scenarios. The allocation by District (amalgamation of TAZ zones) is shown in **Table 3**.

Table 3: El Dorado County Growth 2005 - 2015

	Housing	Housing Growth General		<u>owth</u> General
District 1	Writ	Plan	Writ	Plan
1	131	96	11	10
2	1,463	2,016	2,861	2,369
3	500	1,201	2,053	2,521
4	1,306	878	121	330
5	715	676	188	471
6	438	287	71	95
7	571	533	171	138
8	1,761	5,033	5,582	7,660
Total	6,886	10,721	11,058	13,594

¹ Excluding Placerville.

Source: Appendix B, MuniFinancial.

Manual Adjustments

Residential (single-family) growth is capped in individual TAZs to 2004 General Plan buildout projected levels. Growth in excess of build out for multi-family development was re-allocated to adjacent TAZs where capacity existed. County building data is used in the forecast for the purpose of allocating growth between the 267 TAZs.

For employment areas, specific TAZs were modified manually where we had specific information about development patterns and expectations in the forecast period. The primary modifications were located in the El Dorado Hills Business Park, Missouri Flat Road area, and the City of Placerville and are detailed below.

The El Dorado Hills Business Park (ELDHBP) is a major employment area on the western end of the County. In consultation with ELDHBP management we used modified employee square footage ratios in estimating new employees based on actual building construction. A ratio of 574 square feet per employee was used based on ELDHBP survey data. This modification to TAZs 148 and 344 resulted in lower projected jobs in 2015.

The Missouri Flat (MF) commercial area was also modified to reflect projects in the near-term pipeline. The changes did not significantly impact the total number of jobs in the area. Jobs were re-allocated between the six TAZs in the MF area based on a number of major projects including: Prospector Plaza, Golden Center, Raley's, and El Dorado Village. The Sundance Plaza project was not included in job counts during this forecast period. Changes to the individual TAZs are listed below in the summary table.

		<u> 3005</u>
TAZ	Status of Development	<u>Added</u>
186	Expected 150k new retail at Lucky's/Prospector Plaza to add 375 new jobs	375
320	Wal Mart Constructed, built out, cap retail jobs, cap service to GP buildout	-
322	Expected 50k new retail at Golden Center to add 125 retail jobs	125
323	Expected 63k new retail at Raley's Project to add 158 retail jobs	158
332	No development during period and none forecasted	-
333	Expected 120k new retail El Dorado Village under construction to add 300 retail jobs	300

Inhe

Other manual corrections include the addition of 261 jobs at the Home Depot in the City of Placerville (no building permit data was obtained for the city of Placerville) located in TAZ 203. The Town Center East Project was assumed to grow faster than expected with an early build out in TAZ 143. Finally, for the purpose of this forecast, we assumed that the proposed casino would not be operating during the forecast period in TAZ 188.

Comparison With EPS Forecasts

Finally, we compared the MuniFinancial forecasts to the EPS forecasts to identify any significant variances between the two.

Comparison of Percentage Variance

We compared our 2015 forecasted growth with that of the EPS 2004 General Plan and Writ (No Project) growth projections to 2025. To compare our forecast with these prior growth projections we utilized the following methodology requested by County staff:

Computation of Growth Increment – We computed the growth increment for each TAZ in the MuniFinancial forecasts. The growth period was 1999 to 2015. We then computed the growth increment for each TAZ for the EPS 2004 General Plan and Writ scenarios. The growth period used was 1999 to interpolate 2015.

Comparison of Growth Increments – We compared the Muni growth increment by TAZ with the EPS growth projections. We flagged all TAZs where our growth increment was less than 50 percent or greater than 150 percent of the EPS interpolated 2015 growth projections.

The following table summarizes the results of this analysis. A complete list of all TAZs that were flagged through this process may be found in **Appendix A**.

Muni 2015 vs. EPS Forecast 2015 Interpolated (Number of TAZs)

Over 150%	Under 50%	Total
49	88	137
39	4	43
Over 150%	Under 50%	Total
128	49	177
79	5	84
	49 39 Over 150% 128	39 4 Over 150% Under 50% 128 49

The results presented above were effective in flagging variance between the EPS and MuniFinancial forecasts by TAZ on a percentage basis. As we reviewed the results of this analysis we found there were many TAZs flagged only because they had a very small amount of growth, leading to high variability on a percentage basis but very little impact on an absolute basis. To further analyze the differences between MuniFinancial and EPS forecasts, we performed a second analysis of absolute variance

Comparison of Absolute Variance

The MuniFinancial forecasts are used as primary drivers to the traffic generation model. The inputs to the model are absolute numbers of households and jobs in the 267 TAZs. The model is not sensitive to percentage change from one scenario versus another. Therefore, we examined the absolute number of households and jobs that are projected in each TAZ to better evaluate the impact of the MuniFinancial vs. EPS scenarios on traffic model results.

In our second analysis, we utilized the following methodology:

Comparison of Growth – We compared the MuniFinancial 2015 projection for each TAZ with the interpolated 2015 growth projections from the EPS forecasts. We then sorted the lists by variance and examined the top 20 TAZs (10 highest variance and 10 lowest) in absolute terms.

We found that many of the nonresidential TAZs found on this top 20 list were the same TAZs that had been manually corrected based on specific development information provided by County officials and developers.

The omission of Planned Unit Developments from the County building permit data became evident in our analysis of the residential variance. The RIF District (District 8), under the Writ scenario, exhibited significantly lower growth than previous EPS forecasts. We attribute this significant variance to the omission of Planned Unit Developments from the data and the resulting impact on the allocation of growth among TAZs.

The tables on the following page show the results of this analysis.

Top 10 Highest TAZ's by absolute difference from 2015 Interpolated General Plan and Writ Forecasts **General Plan**

			Jobs			
Rank	<u>TAZ</u>	<u>Higher</u>	<u>Notes</u>	<u>TAZ</u>	Lower	<u>Notes</u>
1	143	725	Town Center East	344	(2,112)	El Dorado Hills Business Park
2	167	689	Barnett Business Park	148	(1,775)	El Dorado Hills Business Park
3	186	607	Mo Flat - Prospector Plaza	188	(370)	Proposed Casino
4	320	503	Mo Flat - Wal Mart	322	(359)	Mo Flat - Golden Center
5	166	354		175	(275)	
6	334	199		358	(258)	
7	168	192		147	(216)	Town Center West
8	333	182	Mo Flat - El Dorado Village	137	(153)	
9	338	151		255	(149)	
10	352	121		349	(144)	

Difference Muni vs 2015 Interpolated

Difference Muni vs 2015 Interpolated

Original -6.40% Top 20 Removed -2.69%

Writ

Original

Top 20 Removed

				Jobs			
Rank		<u>TAZ</u>	<u>Higher</u>	<u>Notes</u>	<u>TAZ</u>	Lower	<u>Notes</u>
	1	167	1,615	Barnett Business Park	344	(2,640)	El Dorado Hills Business Park
	2	166	745		148	(2,218)	El Dorado Hills Business Park
	3	186	650	Mo Flat - Prospector Plaza	188	(738)	Proposed Casino
	4	320	636	Mo Flat - Wal Mart	147	(580)	Town Center West
	5	143	490	Town Center East	322	(427)	Mo Flat - Golden Center
	6	334	422		358	(404)	
	7	168	402		175	(334)	
	8	338	336		255	(260)	
	9	163	331		355	(248)	
	10	352	243		137	(243)	

-5.73%

-1.51%

Difference Muni vs 2015 Interpolated	
Original	-2.75%
Top 20 Removed	4 71%

Households								
<u>TAZ</u>	<u>Higher</u>	District	TAZ	Lower	District			
206	167	Placerville	316	(886)	District 3			
219	68	Placerville	334	(635)	District 8			
262	58	District 5	360	(293)	District 2			
246	50	District 5	143	(265)	District 8			
126	37	District 4	167	(245)	District 2			
251	37	District 5	168	(227)	District 2			
314	36	District 6	333	(219)	District 3			
183	36	District 3	120	(206)	District 4			
134	33	District 1	208	(188)	District 5			
149	32	District 7	303	(164)	District 1			

Difference Muni vs 2015 Interpolated

Original -6.47% Top 20 Removed -1.96%

Households								
TAZ	<u>Higher</u>	District	<u>TAZ</u>	Lower	District			
136	419	District 8	346	(1,721)	District 8			
163	262	District 2	358	(1,247)	District 8			
139	155	District 8	344	(537)	District 8			
107	137	District 4	148	(494)	District 8			
109	124	District 4	335	(435)	District 8			
312	109	District 3	137	(409)	District 8			
160	95	District 2	242	(286)	Placerville			
153	94	District 2	147	(224)	District 8			
167	93	District 2	339	(217)	District 8			
106	91	District 4	337	(123)	District 8			

The previous table represents the outliers in both forecast scenarios. Overall variance between the MuniFinancial forecasts and the interpolated 2015 EPS 2004 General Plan and Writ forecasts is on the order of negative five to six percent. When the outliers are removed, the overall variance between the two forecasts is approximately negative two percent. The one exception is the Writ Household forecast where removal of the outliers actually increased the variance due to a significantly lower projection in the RIF. The table below shows the number of TAZs where variance exceeds 100 jobs or households. The number of TAZs exceeding this threshold ranges from seven to ten percent of the total.

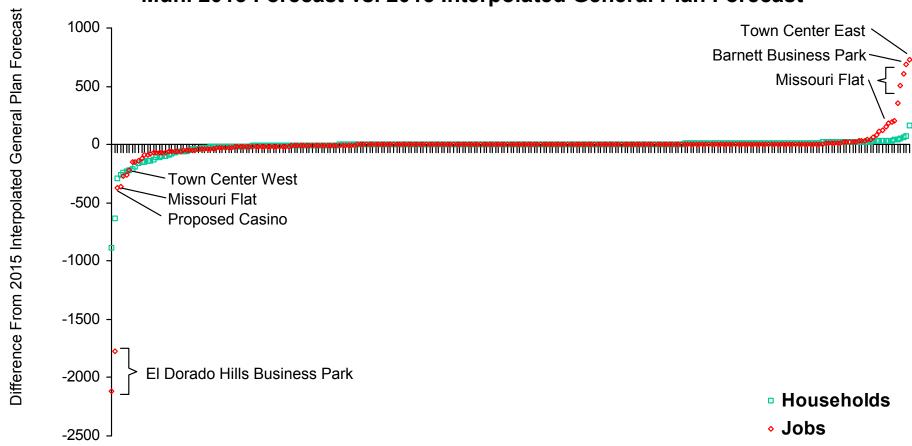
Count of TAZs Exceeding 100 Jobs/Households Variance MuniFinancial vs. EPS Forecasts (Number of TAZs)

<u>Jobs</u>			<u>Households</u>		
	Over	% of		Over	% of
	+/- 100	TAZ's		+/- 100	TAZ's
Writ	28	10.5%	Writ	19	7.1%
General Plan	22	8.2%	General Plan	19	7.1%

The impact these outliers have on the overall forecast is best demonstrated graphically. In the graphs on the following two pages, all of the TAZs are plotted according to variance from the 2015 interpolated EPS 2004 General Plan and Writ forecasts. Significant outliers are labeled.

General Plan Forecast

Muni 2015 Forecast vs. 2015 Interpolated General Plan Forecast



Note: Each marker represents an individual TAZ. N=267

Writ Forecast

Muni 2015 Forecast vs. 2015 Interpolated Writ (No Project) Forecast



Note: Each marker represents an individual TAZ. N=267

Conclusion

The MuniFinancial forecasts provide a reasonable basis for updating the County Traffic Impact Mitigation Fee Program on an areawide basis. Each scenario is based on the effect of a specific land use policy environment in El Dorado County on housing and employment growth.

TAZ-level growth allocations were based on recent building permit data. As discussed, data gaps may lead to variances in specific TAZs. These variances at the TAZ level should be evaluated and the forecasts adjusted during the next traffic fee update.

Additional Data Tables

Attached to this memorandum are additional Appendices with detailed forecast data.

Appendix A contains detailed information on TAZs that were flagged based on percentage variance from previous forecasts.

Appendix B contains the Muni forecasts at the TAZ and land-use level that were used as the basis for the traffic generation model.

Appendix C contains additional data and analysis that is displayed graphically in the previous pages.