FEHR PEERS

MEMORANDUM

Date: February 17, 2012

To: Tammy Seale, PMC

From: Chris Gray - Fehr & Peers

Subject: ***SCAG Travel Model Data for Pomona – Revised Draft***

IE11-0079

The purpose of this memorandum is to summarize data related to population and employment for the City of Pomona, as currently contained in the Southern California Association of Governments (SCAG) Regional Travel Demand Model. The following information is included in this memorandum:

- Background information on the SCAG Travel Demand Model
- Background on using the SCAG Travel Demand Model
- Discussion of land use categories in the SCAG Travel Demand Model
- Description of Traffic Analysis Zones in the SCAG Travel Demand Model corresponding to the City of Pomona
- Our review of the SCAG land use data for the City of Pomona zones
- Summary of Existing and Future land use data in the SCAG Travel Demand Model for the City of Pomona
- VMT Forecasts for Existing and Forecasts Years for Community Emissions

Additional information regarding each of these items is provided below.

BACKGROUND INFORMATION ON THE SCAG TRAVEL DEMAND MODEL

The SCAG Travel Demand Model is used in a variety of planning and engineering studies throughout the Southern California Region. The main components of the model include:

- Land use data by Traffic Analysis Zone (TAZ)
- Roadway networks including freeways and most major roadways within the SCAG Region
- Transit networks including bus and rail lines

This information is available for 2003 and 2035. 2003 represents the Base Year or the Existing Year when development of the SCAG model initially began. 2035 represents the forecast year and is the same year as the Regional Transportation Plan and other long-range planning documents.

The 2035 forecast of the SCAG Travel Demand Model is a standard BAU (Business As Usual) forecast accounting for the RTP planning projects. The 2035 data is derived through an extensive process using various data sources and supplemented through meetings with the local jurisdictions. The process through which 2035 data is generated can be described as follows:

- SCAG first obtains regional and countywide control totals related to population and employment from various sources including the Department of Finance.
- SCAG allocates this growth to regions and sub-regions within SCAG. As an example, SCAG may determine that Los Angeles County is anticipated to grow by 20% in terms of population and 10% in terms of employment by 2035.
- SCAG employs their own demographic models to allocate this growth to various city and county regions. Much of this demographic analysis is focused on population age, income levels, and other related items to provide the detailed data that is required. One aspect of these models is that the populations progresses through its life cycle through which those persons are born, age, and then pass away throughout their life span.
- SCAG then coordinates with local jurisdictions, Councils of Governments, transportation agencies, and other stakeholders to ensure that their forecasts are reasonable. For some jurisdictions, locally produced demographic forecasts are used to replace or update the SCAG forecasts, as occurs in Orange County.

APPLICATION OF THE SCAG TRAVEL DEMAND MODEL

In this instance, the SCAG Model was utilized to develop estimates of vehicle miles traveled (VMT) for the City of Pomona. A key input to the VMT estimates is the land use data, particularly the citywide totals since citywide VMT is being estimated. Since the models model is not being applied to forecast roadway and intersection volumes, there is less concern about the distribution of land uses for each TAZ within the City. However, the distribution of land uses to those TAZ's on the boundaries of the City is important since it can affect the citywide total.

LAND USE CATEGORIES IN THE SCAG MODEL

The land use data for each TAZ includes the following information:

- Total number of persons
- Total number of households
- Total number of households with 1 resident, 2 residents, 3 residents, and 4+ residents
- Persons by age category (under 5 years, 5 through 17 years, 17 through 64 years, and over 65 years)

- Number of heads of households by age (18 through 24 years, 25 to 44 years, 45 to 64 years, and over 65 years)
- Number of households with 0, 1, 2 or 3 workers
- K-12 school enrollment
- College enrollment
- Total number of employees
- Total number of employees by industrial and wholesale uses (construction, agricultural, warehousing, and wholesale)
- Total number of employees by retail uses
- Total number of employees by service uses (office and public employees)

Please note that the SCAG model does not provide data based on non-residential land use such as acres by various types of uses, acreage by use, or other similar data.

TRAFFIC ANALYSIS ZONES FOR POMONA

As shown in the attached graphic, there are 26 traffic analysis zones that lie entirely or partially within the City of Pomona boundaries.

OUR REVIEW OF POMONA TAZ DATA

One final element of the analysis is a review of TAZ data. This review compares the citywide totals in the SCAG Travel Demand Model to verify whether the citywide totals provided by the SCAG Travel Demand Model are consistent with historic and future population and employment data. Households are the primary determinant of VMT as opposed to population, which is why we focused on households related to residential uses. Our comparison of citywide totals of households and employment was conducted by using data from the 2010 Census and the forecast data of the SCAG Regional Transportation Plan (RTP) for year 2008 and 2035.

An analysis of the available population data for the City of Pomona indicates that the population data contained within the SCAG Travel Demand Model is within the range of available sources for comparable periods. The US Census estimates that the number of households in Pomona was 38,477 in 2010. The SCAG RTP model estimates 39,453 households for year 2008, which is slightly higher than the estimated number in the 2003 SCAG travel demand model. The percentage difference, annualized as a growth rate, is about 1% per year which leads us to conclude that the land use data within the SCAG Travel Demand Model is appropriate for use in these VMT forecasts.

Further, we conducted a comparison between the SCAG Travel Demand Model and the SCAG RTP for employment data. As with the household data, the employment data show a minor difference for employment.

We also reviewed the 2035 data in the SCAG Travel Demand Model as compared to other sources, such as the currently adopted SCAG RTP. This comparison indicated that the most recent population and employment forecasts for the City are very similar to the SCAG Travel Demand Model data for the same year.

Therefore, for both years, 2003 and 2035, no adjustment to the VMT was determined to be necessary. Please note that Fehr & Peers did not make any changes or adjustments to any of the City's TAZ demographics.

For further details about the adjustment factor calculation of the VMT as a consequence to the above described population and employment data comparison between the current SCAG model and the SCAG RTP, please refer to the separate *Adjustment Process for SCAG Model Data Related to Socio-Economic Data Memorandum* (January 2012).

SUMMARY OF EXISTING AND FUTURE LAND USE DATA FOR CITY OF POMONA

Table 1 documents the land use information for 2003. **Table 2** provides the same data for 2035 while **Table 3** provides a comparison of the two years and indicates the anticipated growth in 2035 from existing levels.

Table 1 2003 Land Use Data by TAZ						
TAZ	Pop	Households	Retail Employment	Office Employment	Industrial/Wholesale Employment	Total Employment
2411	805	3	210	2,215	531	2,956
2418	2,732	1,017	674	4,039	3,869	8,582
2414	6,704	1,135	314	3,280	109	3,703
2416	7,999	1,757	167	412	113	692
2426	8,186	2,326	740	1,287	368	2,395
2425	5,438	1,254	-	151	38	189
2432	8,201	2,076	226	444	192	862
2434	3,796	1,121	1,019	5,026	871	6,916
2437	7,523	2,414	284	889	280	1,453
2436	4,941	1,228	195	3,562	125	3,882
2439	5,452	1,574	351	1,176	474	2,001
2446	7,663	1,824	61	391	56	508
2442	4,885	1,036	82	271	111	464
2447	4,887	1,149	72	105	69	246
2444	6,787	1,618	570	1,241	318	2,129
2443	5,089	1,066	286	564	1,489	2,339
2441	8,270	1,659	182	259	840	1,281
2440	8,003	1,694	446	1,409	3,025	4,880
2435	6,609	1,294	97	421	105	623
2429	7,176	1,455	764	493	84	1,341
2408	7,115	2,039	110	203	87	400
2407	5,445	1,484	84	342	3	429
2430	7,396	1,456	43	201	26	270
2427	5,316	1,164	96	333	163	592
2420	4,812	1,164	23	139	135	297
2433	4,111	1,414	64	341	761	1,166
Total	**155,341**	**37,421**	**7,160**	**29,194**	**14,242**	**50,596**

Table 2 2035 Land Use Data by TAZ						
TAZ	Pop	Households	Retail Employment	Office Employment	Industrial/Wholesale Employment	Total Employment
2411	949	19	339	2,787	505	3,631
2418	4,042	1,397	893	4,968	3,269	9,130
2414	8,800	1,433	395	3,718	143	4,256
2416	10,261	2,196	223	590	162	975
2426	11,895	3,205	908	1,576	331	2,815
2425	7,177	1,592	27	252	81	360
2432	10,400	2,586	272	623	247	1,142
2434	5,736	1,672	1,281	5,987	887	8,155
2437	9,575	3,000	325	1,109	239	1,673
2436	6,603	1,589	330	4,267	200	4,797
2439	6,976	1,946	396	1,394	381	2,171
2446	9,649	2,196	69	440	65	574
2442	6,279	1,293	109	362	121	592
2447	7,381	1,635	84	137	73	294
2444	8,812	2,034	625	1,473	326	2,424
2443	5,862	1,182	374	731	1,453	2,558
2441	12,353	2,378	253	421	839	1,513
2440	10,455	2,137	547	1,981	2,820	5,348
2435	8,883	1,677	164	605	155	924
2429	9,547	1,866	798	646	122	1,566
2408	10,073	2,680	158	375	111	644
2407	8,374	2,105	90	380	18	488
2430	10,607	1,931	74	303	75	452
2427	7,029	1,497	136	443	170	749
2420	7,125	1,600	176	547	263	986
2433	7,243	2,297	233	885	785	1,903
Total	**202,086**	**49,143**	**9,279**	**37,000**	**13,841**	**60,120**

Table 3 Increase in 2035 from 2003						
TAZ	Pop	Households	Retail Employment	Office Employment	Industrial/Wholesale Employment	Total Employment
2411	144	16	129	572	(26)	675
2418	1,310	380	219	929	(600)	548
2414	2,096	298	81	438	34	553
2416	2,262	439	56	178	49	283
2426	3,709	879	168	289	(37)	420
2425	1,739	338	27	101	43	171
2432	2,199	510	46	179	55	280
2434	1,940	551	262	961	16	1,239
2437	2,052	586	41	220	(41)	220
2436	1,662	361	135	705	75	915
2439	1,524	372	45	218	(93)	170
2446	1,986	372	8	49	9	66
2442	1,394	257	27	91	10	128
2447	2,494	486	12	32	4	48
2444	2,025	416	55	232	8	295
2443	773	116	88	167	(36)	219
2441	4,083	719	71	162	(1)	232
2440	2,452	443	101	572	(205)	468
2435	2,274	383	67	184	50	301
2429	2,371	411	34	153	38	225
2408	2,958	641	48	172	24	244
2407	2,929	621	6	38	15	59
2430	3,211	475	31	102	49	182
2427	1,713	333	40	110	7	157
2420	2,313	436	153	408	128	689
2433	3,132	883	169	544	24	737
Total	**56,745**	**11,722**	**2,119**	**7,806**	**(401)**	**9,524**

VMT ESTIMATES AND FORECASTS

The following approach was used for calculating VMT in this analysis:

- Trips which are internal to Pomona (those that begin and end inside the City boundaries) are assumed to count 100% towards VMT calculations.

- Trips which either begin or end within Pomona are assumed to count 50% towards VMT calculations. This approach ensures that there is no double counting of VMT at the City level. For example, if there is a trip that begins in Pomona and ends in San Diego, this approach ensures that Pomona is partially responsible for this VMT and the recipient City (San Diego) would be responsible for the remaining portion of the VMT.

- Pass through trips that originate and terminate outside of Pomona are excluded from the VMT calculations. This exclusion of through trips ensures that Pomona is not penalized by traffic which travels through City without stopping.

The approach above is consistent with the Regional Targets Advisory Committee (RTAC) document entitled *Recommendations of the Regional Targets Advisory Committee (RTAC) Pursuant to Senate Bill 375* (September 2009).

Further, for verification of the VMT data, we conducted an in-depth comparison between the input data of the model (household and employment), the data from the 2010 Census, and the SCAG 2008 RTP forecasts for the years 2008 and 2035. For a small number of cities, the difference between the data was significant enough to have a potential impact on the VMT data for 2003, 2035, or both, of greater than +/-5%.

For the City of Pomona the comparison of both household and employment data for both years (2003 and 2035) between the SCAG Travel Demand Model and the SCAG Regional Transportation Plan showed a percentage difference smaller than +/-5%. Therefore, no VMT adjustment was conducted.

Table 4 documents the daily VMT estimates by speed bin obtained from the SCAG Travel Model for the existing and future years. The estimates stratify the VMT estimates by speed increments, commonly referred to as speed bins (i.e. 0-5, 5-10, 10-15, etc. miles per hour) for use with emissions models (i.e. EMFAC or MOVES) that account for other important factors such as fleet mix and fuel type to ultimately generate final emissions estimates. In addition, the table differentiates between external and internal VMT for the City as mentioned above (100% count for internal VMT and 50% for external-internal and internal-external VMT). For summarized VMT and demographic data for the City of Pomona, please refer to **Table 5**. Please note the following regarding the information in **Table 4**:

- SCAG does not provide 2010 data, therefore the 2010 data is interpolated between 2003 and 2035
- Likewise, 2020 data is not provided in the SCAG Travel Demand Model so these values are interpolated between the 2003 and 2035 data

Table 4 Daily VMT Forecast & Estimates by Speed Bin 2003-2035								
	2003			2010	2020	2035		
Speed Bin	internal	ext-int	total	total	total	internal	ext-int	total
0-5	38	615	653	677	712	49	715	765
5-10	441	7,110	7,551	7,834	8,237	571	8,272	8,843
10-15	2,825	45,496	48,322	50,130	52,714	3,656	52,935	56,591
15-20	10,411	167,665	178,075	184,742	194,265	13,473	195,075	208,549
20-25	38,951	627,300	666,251	691,192	726,821	50,410	729,855	780,264
25-30	38,781	624,559	663,339	688,171	723,644	50,189	726,665	776,854
30-35	10,673	171,886	182,559	189,393	199,156	13,813	199,987	213,800
35-40	17,833	287,198	305,032	316,450	332,762	23,079	334,151	357,231
40-45	23,428	377,298	400,726	415,727	437,156	30,320	438,981	469,301
45-50	12,706	204,626	217,332	225,468	237,090	16,444	238,080	254,524
50-55	4,753	76,542	81,294	84,338	88,685	6,151	89,055	95,206
55-60	1,584	25,503	27,086	28,100	29,549	2,049	29,672	31,721
60-65	580	9,348	9,928	10,300	10,831	751	10,876	11,627
>65	168	2,702	2,870	2,977	3,131	217	3,144	3,361
Total VMT	**163,172**	**2,627,848**	**2,791,020**	**2,895,498**	**3,044,754**	**211,173**	**3,057,464**	**3,268,637**

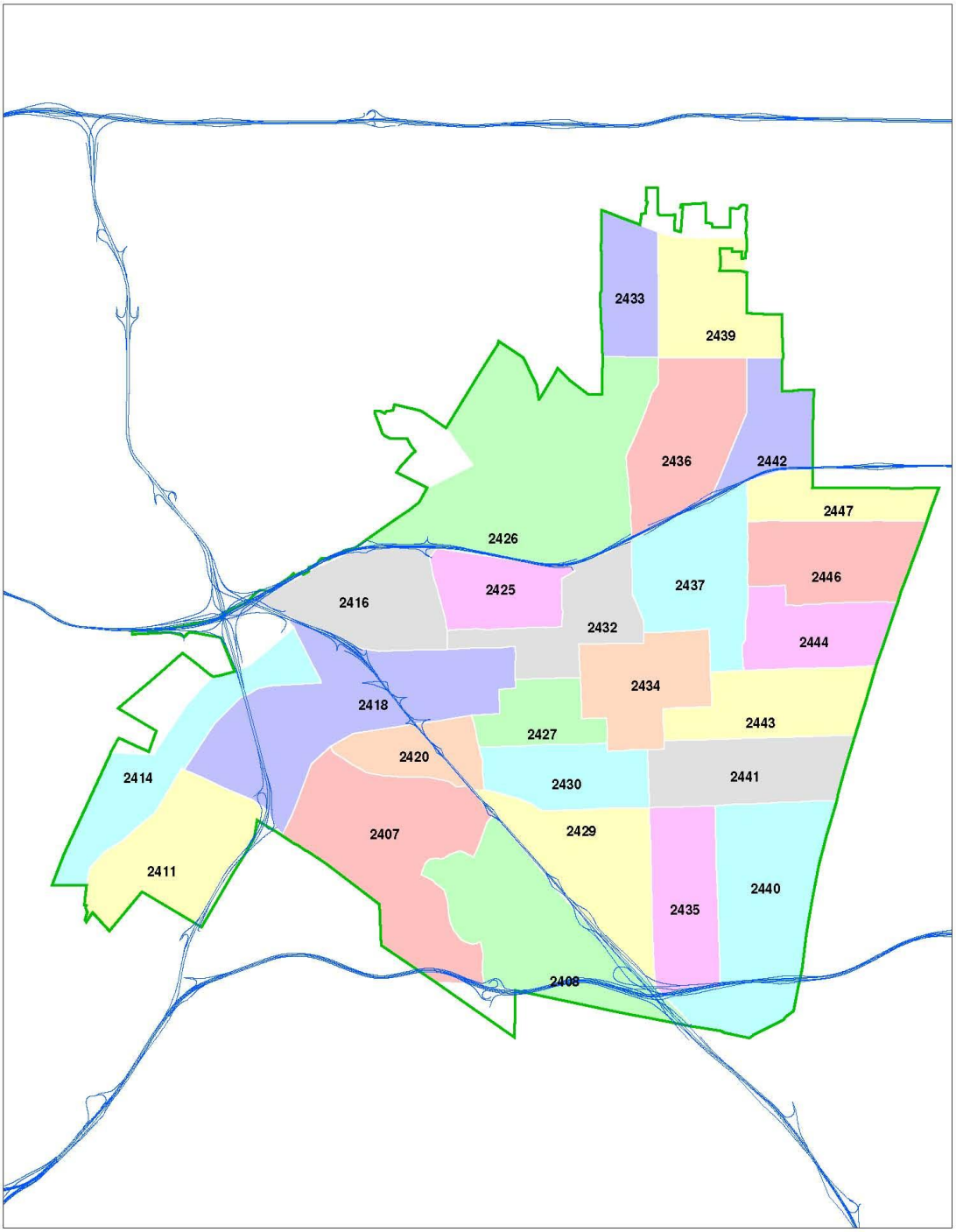
Table 5 Daily VMT and Demographic Data Summary 2003-2035				
	Year 2003	Year 2035	Difference	Difference (%)
Internal-Internal VMT	163,172	211,173	48,002	29%
Internal-External VMT	2,627,848	3,057,464	429,616	16%
Total VMT	2,791,020	3,268,637	477,617	17%
Household	37,421	49,143	11,722	31%
Employment (Total)	50,596	60,120	9,524	19%

In **Table 6**, the yearly VMT forecast and estimates are presented by speed bin. The Air Resources Board (ARB) recommends a conversion factor of 347 which was used in this case to convert daily VMT to yearly VMT.

Table 6 Yearly VMT Forecast & Estimates by Speed Bin 2003-2035								
	2003			2010	2020	2035		
Speed Bin	internal	ext-int	total	total	total	internal	ext-int	total
0-5	13,245	213,310	226,555	235,036	247,151	17,142	248,183	265,325
5-10	153,185	2,467,011	2,620,196	2,718,280	2,858,401	198,248	2,870,333	3,068,581
10-15	980,284	15,787,279	16,767,563	17,395,238	18,291,917	1,268,662	18,368,274	19,636,936
15-20	3,612,564	58,179,634	61,792,198	64,105,321	67,409,783	4,675,301	67,691,174	72,366,475
20-25	13,516,035	217,673,110	231,189,145	239,843,457	252,206,759	17,492,158	253,259,555	270,751,713
25-30	13,456,967	216,721,825	230,178,792	238,795,282	251,104,554	17,415,713	252,152,749	269,568,462
30-35	3,703,527	59,644,573	63,348,100	65,719,466	69,107,133	4,793,023	69,395,609	74,188,632
35-40	6,188,083	99,657,866	105,845,949	109,808,176	115,468,500	8,008,482	115,950,504	123,958,986
40-45	8,129,404	130,922,474	139,051,878	144,257,132	151,693,210	10,520,898	152,326,429	162,847,326
45-50	4,408,954	71,005,339	75,414,292	78,237,344	82,270,274	5,705,972	82,613,698	88,319,669
50-55	1,649,196	26,559,983	28,209,179	29,265,159	30,773,701	2,134,354	30,902,161	33,036,514
55-60	549,491	8,849,452	9,398,943	9,750,782	10,253,409	711,140	10,296,211	11,007,350
60-65	201,413	3,243,720	3,445,133	3,574,098	3,758,333	260,665	3,774,022	4,034,686
>65	58,224	937,680	995,903	1,033,184	1,086,442	75,352	1,090,977	1,166,329
Total VMT	56,620,570	911,863,256	968,483,826	1,004,737,955	1,056,529,567	73,277,107	1,060,939,878	1,134,216,985

We hope you find this information helpful. Please contact Chris Gray (c.gray@fehrandpeers.com or 951-274-4801) if you have any questions or need more information from us at this time.

Pomona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