

Appendix E: Transportation Supporting Information

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E.1 - Final Traffic Study Memorandum

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To:	Drew Wilson	From:	Derek Rapp, TE Dennis Lammers, PTP
	City of Fresno		Santa Barbara Office
File:	2064158700	Date:	February 15, 2022

Reference: Fresno Central Southeast Area Specific Plan – Final Traffic Study

The following Final Traffic Study provides an overview of potential traffic impacts generated by the Central Southeast Area Specific Plan (CSESP) Land Use Plan. The study compares the growth projections developed by Raimi + Associates (December 19, 2019) for the Specific Plan Area to land use assumptions applied in the *City of Fresno General Plan Recirculated Public Review Draft Program Environmental Impact Report (PEIR) (March 2021)* and evaluates the traffic volume changes for each Traffic Analysis Zone (TAZ) in the Specific Plan Area under General Plan (2035) conditions. A Vehicle Miles Traveled (VMT) analysis is provided in a separate document. Comments provided by City staff on the Draft Traffic Study (August 23, 2021) are also incorporated in this Final Traffic Study.

EXISTING CONDITIONS

The Central Southeast Area Specific Plan (CSESP) encompasses approximately 14 city blocks in the southeast portion of the City of Fresno. The Specific Plan is bordered by Belmont Avenue to the north, East Avenue to the west, Church Avenue to the south, and Peach Avenue to the east.

The Plan Area is served by a network of arterials, collectors and local streets. Based on information contained in the *General Plan PEIR Appendix J – Traffic Impact Analysis (March 2021)*, the existing 2035 AM and PM peak hour roadway analysis includes 282 roadways located throughout the City of Fresno, of which 18 roadway segments are located in or directly adjacent to the Specific Plan Area. These 18 roadway segments would potentially be affected by peak hour volume changes resulting from the CSESP Land Use Plan and are evaluated in this traffic and circulation study. These segments are listed in Table 1 along with the existing level of service (LOS) designation. A table showing the AM and PM peak hour volumes is attached for reference.

The City has four Traffic Impact Zones (TIZ I through IV) with different LOS thresholds. In addition, TIZ U denotes unincorporated Fresno County. The Specific Plan roadway segments are located in all five zones, for which the peak hour LOS standards are LOS D through F. As shown in Table 1, all roadway segments included in this analysis currently operate at acceptable service levels based on the level of service data contained in the General Plan PEIR and the City's TIZ LOS standards.

Reference: Central Southeast Area Specific Plan – Final Traffic Study

Table 1
Existing AM and PM Peak Hour Roadway Levels of Service

#	Roadway	Segment	TIZ/LOS Standard	Classification	No. of Lanes	LOS	
						AM Peak Hour	PM Peak Hour
83	Cedar Ave	Church Ave and Jensen Ave	II/LOS E	Arterial	4	A	A
84		California Ave and Church Ave	U/LOS D	Arterial	4	A	A
85		Belmont Ave and Tulare St	I/LOS F	Arterial	4	B	C
92	Maple Ave	Church Ave and Jensen Ave	III/LOS D	Collector	4	A	A
93	Chestnut Ave	Church Ave and Jensen Ave	III/LOS D	Arterial	4	A	A
94		Tulare St and Kings Cyn Rd	II/LOS E	Arterial	4	A	A
95		Belmont Ave to Tulare St	II/LOS E	Arterial	4	A	A
108	Peach Ave	Kings Cyn Rd to Butler St	II/LOS E	Arterial	4	A	A
109		Belmont Ave to Tulare St	II/LOS E	Arterial	4	A	A
234	Belmont Ave	First St to Cedar Ave	I/LOS F	Arterial	4	A	A
235		Willow Ave to Peach Ave	U/LOS D	Arterial	4	A	A
251	Kings Cyn Rd	Maple Ave to Chestnut Ave	II/LOS E	Arterial	4	A	A
252		Chestnut Ave to Willow Ave	II/LOS E	Arterial	4	A	A
257	Butler Ave	Hazelwood Blvd to Orange Ave	I/LOS F	Collector	2	A	A
261	Church Ave	Orange Ave to Cedar Ave	U/LOS D	Collector	4	A	A
262		Cedar Ave to Maple Ave	III/LOS D	Collector	3	A	A
267	Jensen Ave	Cedar Ave to Maple Ave	IV/LOS E	Expressway	4	A	A
268		Maple Ave to Chestnut Ave	IV/LOS E	Expressway	4	A	A

GENERAL PLAN (2035) CONDITIONS

General Plan 2035 traffic volumes contained in the PEIR were developed using the Fresno COG travel demand model (ABM) and are based on socioeconomic data (SED) for the year 2035 as included in the *2050 Fresno County Growth Projections* report prepared by Fresno COG. Detailed technical information regarding the development of 2035 volumes is presented in the *General Plan PEIR Appendix J – Traffic Impact Analysis* and its technical appendices.

Reference: Central Southeast Area Specific Plan – Final Traffic Study

The General Plan (2035) conditions analysis includes implementation of the Circulation Element configuration of the roadway network to reflect the City's Mobility goals. Based on the General Plan Circulation Element, the following modifications are proposed to be implemented to the roadway segments in the CSESP Plan Area:

- Jensen Avenue will be widened to a six-lane Super Arterial between Orange Avenue and Highland Avenue.
- Church Avenue will be widened to a four-lane Collector from Cedar Avenue to Maple Avenue.
- Belmont Avenue will be converted from a four-lane Arterial to a two-lane Collector from First Street to Cedar Street.

Table 2 summarizes the General Plan 2035 roadway segment peak hour volumes and levels of service for the 18 roadway segments the CSESP Plan Area. A table showing the 2035 AM and PM peak hour volumes is attached for reference. Table 2 indicates that the roadway segments included in this study are forecast to operate at acceptable service levels under General Plan 2035 conditions based on the City's TIZ LOS standards.

Table 2
2035 AM and PM Peak Hour Roadway Levels of Service
General Plan with Circulation Element Roadway Network

#	Roadway	Segment	TIZ/LOS Standard	Classification	No. of Lanes	LOS	
						AM Peak Hour	PM Peak Hour
83	Cedar Ave	Church Ave and Jensen Ave	II/LOS E	Arterial	4	A	A
84		California Ave and Church Ave	U/LOS D	Arterial	4	A	A
85		Belmont Ave and Tulare St	I/LOS F	Arterial	4	C	C
92	Maple Ave	Church Ave and Jensen Ave	III/LOS D	Collector	4	A	A
93	Chestnut Ave	Church Ave and Jensen Ave	III/LOS D	Arterial	4	A	A
94		Tulare St and Kings Cyn Rd	II/LOS E	Arterial	4	A	A
95		Belmont Ave to Tulare St	II/LOS E	Arterial	4	A	A
108	Peach Ave	Kings Cyn Rd to Butler St	II/LOS E	Arterial	4	A	A
109		Belmont Ave to Tulare St	II/LOS E	Arterial	4	A	A
234	Belmont Ave	First St to Cedar Ave	I/LOS F	Collector	2	B	F
235		Willow Ave to Peach Ave	U/LOS D	Arterial	4	A	A
251	Kings Cyn Rd	Maple Ave to Chestnut Ave	II/LOS E	Arterial	4	A	A
252		Chestnut Ave to Willow Ave	II/LOS E	Arterial	4	A	A

Reference: Central Southeast Area Specific Plan – Final Traffic Study

257	Butler Ave	Hazelwood Blvd to Orange Ave	I/LOS F	Collector	2	B	B
261	Church Ave	Orange Ave to Cedar Ave	U/LOS D	Collector	4	A	A
262		Cedar Ave to Maple Ave	III/LOS D	Collector	3	A	A
267	Jensen Ave	Cedar Ave to Maple Ave	IV/LOS E	<i>Super Arterial</i>	6	A	A
268		Maple Ave to Chestnut Ave	IV/LOS E	<i>Super Arterial</i>	6	A	A

CSESP 2035 CONDITIONS

CSESP Land Use Assumptions

To determine the traffic volume changes within the Specific Plan resulting from the CSESP Land Use Plan and assumptions, a comparison is provided between the land use assumptions used in the *2014 City of Fresno General Plan and Development Code Update Master Environmental Impact Report (MEIR)* with the currently proposed CSESP Land Use Plan. The *2021 General Plan PEIR* does not provide specific information regarding housing unit and/or non-residential square foot increases per TAZ for the Year 2035. The socioeconomic data used in the Fresno COG traffic model for the PEIR is derived from housing unit and employment (job) increase projections contained in the previous *2014 General Plan MEIR*. Thus, the residential and non-residential data for the Specific Plan contained in the *2014 MEIR* are consistent with the data used for the *2021 PEIR*.

The CSESP Land Use Plan is based on the growth projections and capacity analysis completed by Raimi + Associates for the Specific Plan Area with a 2035 horizon. The growth projections assume the maximum amount of residential and non-residential development that could occur on each vacant or underutilized parcels. A growth adjustment scenario was provided that assumes 60 percent of the maximum residential growth and 40 percent of the maximum non-residential growth could occur by the 2035 horizon. To provide a traffic comparison that is consistent with the *2021 PEIR*, the analysis applies the reasonable growth projection that could occur by 2035.

The General Plan land use growth data in the *2014 MEIR* is provided in housing units and employment (jobs). Jobs were converted into non-residential square feet (SF) in order to develop trip generation estimates, because trip generation rates per SF are more stable than rates per employee (jobs) and are the industry standard. To generate trip estimates for the non-residential land uses included in the *MEIR*, Stantec converted the job increase per TAZ to square footage based on land use assumptions (Office, Retail, Light Industrial etc.) and the relationship between ITE rate for employees and ITE rate for KSF for each land use.

For example, *ITE Land Use #710 - General Office Building* has a trip generation rate of 9.74 Average Daily Trips (ADT) per KSF and a rate of 3.28 ADT per employee. Based on this relationship, there are 3 employees per 1,000 SF ($9.74 / 3.28$). Thus, if the *2014 MEIR* projected a growth of 12 jobs under the land use Office, the resulting building square footage would be 4,000 SF.

Reference: Central Southeast Area Specific Plan – Final Traffic Study

Table 3 provides an overview of the proposed land use changes per Specific Plan TAZ. As shown, the proposed CSESP Land Use Plan would result in residential and non-residential development slightly below the growth projected in the General Plan buildout (278 fewer housing units and 128,858 fewer square feet (SF) of non-residential building space).

Table 3
2035 General Plan and CSESP Land Use Growth Comparison

TAZ	GP Housing Units	CSESP Housing Units	Change in Housing Units	GP Non-Residential SF	CSESP Non-Residential SF	Change in Non-Residential SF
1430	2	5	3	4,000	0	-4,000
1431	203	389	186	41,524	23,717	-17,807
1433	282	79	-203	96,595	7,145	-89,540
1445	31	37	6	28,261	3,460	-24,801
1447	13	55	42	0	3,390	3,390
1448	12	0	-12	8,581	0	-8,581
1449	119	281	162	37,453	24,652	-12,081
1450	101	295	194	12,878	17,459	4,581
1451	0	117	117	0	0	0
1452	228	526	298	54,255	36,050	-18,205
1453	293	54	-239	98,439	725	-97,714
1454	86	127	41	0	9,405	9,405
1455	3	3	0	0	0	0
1469	836	0	-836	0	30,334	30,334
1472	0	0	0	22,085	69,333	47,248
1474	0	82	82	285,276	323,860	38,584
1476	196	289	93	0	10,589	10,589
1478	372	160	-212	3,630	0	-3,630
1535	0	0	0	0	0	0
TOTAL	2,777	2,499	-278	692,977	560,119	-128,858

Trip Generation Estimates

Trip generation estimates were developed for each TAZ in the Specific Plan Area based on the anticipated housing unit and non-residential square-footage growth, and trip generation rates contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017) for each projected land use. Detailed trip generation worksheets are attached for reference. The trip generation estimates per TAZ are summarized in Table 4.

Reference: Central Southeast Area Specific Plan – Final Traffic Study

Table 4
2035 General Plan and CSESP Trip Generation Estimates Comparison

TAZ	General Plan PEIR			CSESP			Change		
	ADT	AM PHT	PM PHT	ADT	AM PHT	PM PHT	ADT	AM PHT	PM PHT
1430	58	6	7	47	4	5	-11	-2	-2
1431	3,250	191	451	3,908	247	443	658	56	-8
1433	5,450	254	688	800	43	108	-4650	-211	-580
1445	968	44	174	378	20	58	-590	-24	-116
1447	95	6	8	505	28	68	410	22	60
1448	488	38	26	0	0	0	-488	-38	-26
1449	2,060	123	283	2,815	147	194	755	24	-89
1450	1,253	73	181	2,555	194	195	1302	121	14
1451	0	0	0	1,104	87	116	1104	87	116
1452	3,437	175	427	5,180	306	556	1743	131	129
1453	5,487	230	661	465	32	53	-5022	-198	-608
1454	812	64	85	1,221	68	150	409	4	65
1455	28	3	3	28	3	3	0	0	0
1469	6,120	384	468	332	49	31	-5788	-335	-437
1472	110	15	14	1,199	149	82	1089	134	68
1474	1,415	200	180	3,720	215	221	2305	15	41
1476	1,850	154	194	2,573	196	223	723	42	29
1478	3,594	287	374	1,290	89	114	-2304	-198	-260
1535	0	0	0	0	0	0	0	0	0
Subtotal	36,474	2,249	4,234	27,591	1,877	2,620	-8,883	-372	-1614
Pass-By Trips ¹	-1,098	-29	-643	-308	-8	-209	(-)781	(-)21	(-)434
TOTAL	35,376	2,220	3,591	27,283	1,869	2,411	-8,102	-351	-1,180

ADT = average daily trips.

PHT = peak hour trips.

¹ A pass-by rate of 34% (ITE Trip Generation Manual) is applied to commercial land uses to account for vehicles already on the adjacent roadway system that visit the site.

The trip generation data contained in Table 4 indicates that compared to the General Plan, the proposed CSESP land use changes would result in an overall reduction of traffic in the Specific Plan area of 8,102 average daily trips (ADT), a reduction of 351 AM peak hour trips and a reduction of 1,180 PM peak hour trips compared to GP 2035 conditions. Significant peak hour trip reductions are expected in four TAZ's (1433, 1453, 1469 and

Reference: Central Southeast Area Specific Plan – Final Traffic Study

1478), while any potential trip increase per TAZ is moderate with a maximum of 134 peak hour trips in TAZ 1472.

Roadway Segment Impact Assessment

The roadway segment analysis contained in the PEIR focusses on 282 roadways located throughout the City of Fresno, of which 18 roadway segments are located in or directly adjacent to the Specific Plan Area. The existing conditions analysis indicates that the 18 roadway segments that could be affected by Specific Plan land use changes currently operate at acceptable service levels based on the City's TIZ LOS standards. The PEIR also indicates that all 18 roadway segments are forecast to operate at acceptable service levels under General Plan 2035 with Circulation Element conditions based on the City's TIZ LOS standards.

The Specific Plan area trip generation estimates outlined in this study found that the CSESP Land Use Plan would result in an overall reduction of traffic in the Specific Plan area of 8,102 ADT, a reduction of 351 AM peak hour trips and a reduction of 1,180 PM peak hour trips compared to GP 2035 conditions. With respect to roadway segment operations, the following findings are made:

- 4 TAZ's could expect significant peak hour trip reductions (more than 260 PHT), which would result in increased levels of service on the roadway segments directly adjacent to each TAZ.
- 10 TAZ'S could expect slight peak hour trip reductions or increase (-89 PHT to 65 PHT), which would not result in noticeable traffic volume change once distributed onto the study-area roadway network.
- 4 TAZ's could expect moderate peak hour trip increases (more than 100 PHT to 150 PHT), which would result in slight increases in traffic volume on the roadway segments directly adjacent to each TAZ. These slight increases would not have the potential to change the 2035 roadway segment level of service levels contained in the PEIR.

Table 2 indicated that 17 of the 18 roadway segments included in this study are expected to operate at LOS A-C under 2035 GP with Circulation Element conditions, well within each roadway's minimum level of service standard. One segment – Belmont Avenue between First Street and Cedar Avenue - will be reduced from 4 lanes to 2 lanes and is expected to operate in the LOS F range per the *General Plan PEIR* (see Table 2). Given that Belmont Ave is on the northern boundary of the Specific Plan area and the nearest TAZ (1430) would see a reduction in trips assuming the CSESP Land Use Plan, no changes to the roadway segment's level of service would occur.

Conclusions

The level of service data and trip generation data provided in this study indicates that the CSESP Land Use Plan would not result in any changes to the roadway segment peak hour levels of service contained in *City of Fresno General Plan Recirculated Public Review Draft Program Environmental Impact Report (PEIR) (March 2021)*.

Reference: Central Southeast Area Specific Plan – Final Traffic Study

Appendix A
Table 5.14-2: Roadway Functional Class and Peak Hour Level-of-Service Thresholds

Functional Class	Median	Lanes	Peak Hour Level of Service Capacity Threshold				
			A	B	C	D	E
Freeway	N/A ¹	4	2,720	4,460	6,630	7,720	8,630
		3+Aux ²	2,360	3,860	5,640	6,730	7,530
		3	2,000	3,270	4,660	5,740	6,430
		2+Aux	1,650	2,700	3,850	4,760	5,340
		2	1,300	2,130	3,050	3,790	4,260
State Expressway	Divided	6	2,410	3,960	5,730	7,450	8,450
		4	1,610	2,650	3,810	4,960	5,630
		2	810	1,340	1,890	2,470	2,810
City Expressway	Raised Median	6			1,860	6,170	6,520
		5			1,520	5,110	5,430
		4			1,180	4,050	4,340
		2			520	1,910	2,160
Super Arterial	Raised Median	6				4,910	6,240
		5				4,040	5,195
		4				3,170	4,150
Arterial	Raised Median	8			2,120	7,070	7,490
		6			1,560	5,270	5,610
		5			1,280	4,370	4,670
		4			1,000	3,470	3,730
		3			720	2,555	2,795
		2			440	1,640	1,860
	TWLTL ³	4			940	3,290	3,550
		2			420	1,550	1,760

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Functional Class	Median	Lanes	Peak Hour Level of Service Capacity Threshold				
			A	B	C	D	E
	Undivided	4			770	2,740	2,980
		2			340	1,270	1,480
Collector	TWLTL	4			940	3,290	3,550
		2			420	1,550	1,760
	Undivided	4			770	2,740	2,980
		2			340	1,270	1,480
One-Way	Undivided	3		1,960	2,240	2,430	2,610
		2		1,250	1,490	1,620	1,740
		1		550	740	800	870
Rural State Highway	Undivided	2	310	570	1,020	1,730	2,470
Rural Arterial	Divided	4			1,950	3,580	3,780
	Undivided	2			570	1,230	1,310
Rural Collector/Local	Undivided	2			700	930	1,000
Notes: ¹ N/A - Not applicable for operational class ² Aux - Auxiliary Lane ³ TWLTL – Two-way Left-turn Lane - LOS is not achievable because of type of facility. Source: Fehr & Peers 2012.							

2035 GP - RESIDENTIAL TRIP GENERATION

TAZ	Land Use TAZ Map #	GP Housing Units	Trip Generation								
			AM Peak Hour			PM Peak Hour					
			Rate	In	Out	Rate	In	Out			
			0.74	0	1	0.99	1	1			
1430	6	2									
1431	-	203									
1433	-	141	0.46	15	50	0.56	50	29			
		141	0.74	26	78	0.99	88	52			
1445	1	31	0.46	3	11	0.56	11	6			
1447	1	13	0.46	1	5	0.56	5	3			
1448	-	12	0.74	2	7	0.99	7	4			
1449	2 & 3	89	0.46	9	32	0.56	31	18			
		30	0.74	6	17	0.99	19	11			
1450	4	51	0.46	5	18	0.56	18	11			
		50	0.74	9	28	0.99	31	18			
1451	-	0									
1452	-	228									
1453	7	293									
1454	5	86	0.74	16	48	0.99	54	32			
1455	-	3	0.74	1	2	0.99	2	1			
1469	-	836	0.46	88	296	0.56	295	173			
1472	11	0									
1474	10 & 11	0									
1476	9	196	0.74	36	109	0.99	122	72			
1478	8	372	0.74	69	206	0.99	232	136			
1535	-	0									
TOTAL		2,777		381	1,203		1,276	750			

2035 GP - NON-RESIDENTIAL TRIP GENERATION

GP Non-Residential SF			GP Jobs	GP SF Conversion
	4,000		12	12/3 = 4,000
				office/limited retail
	41,524		103	25/3 = 8,333 78/2.35 = 33,191
				center mixed use (mixed office/retail)
	96,595		240	60/3 = 20,000 180/2.35 = 76,595
				center mixed use (mixed office/retail)
	28,261		74	35/3 = 11,666 39/2.35 = 16,595
				commercial & office
	0		0	
				-
	8,581		26	26/3.03 = 8,581
				public & institutional
	37,463		98	30/3.03 = 9,900 15/3 = 5,000 53/2.35 = 22,553
				public & institutional community commercial
	12,878		32	8/3 = 2,666 24/2.35 = 10,212
				community commercial
	0		0	
				-
	54,255		134	30/3 = 10,000 104/2.35 = 44,255
				center mixed use (mixed office/retail)
	98,439		240	40/3 = 13,333 200/2.35 = 85,106
				center mixed use (mixed office/retail)
	0		0	
				-
	0		0	
				-
	0		0	
	22,085		36	36/1.63 = 22,085
				Light Industrial
	285,276		465	465/1.63 = 285,276
				light industrial
	0		0	
	3,630		11	11/3.03 = 3,630
				civic uses
	0		0	
			0	-
	692,977		1,471	

Trip Generation					
AM Peak Hour			PM Peak Hour		
Rate	In	Out	Rate	In	Out
1.16	4	1	1.15	1	4

ITE 10th Edition rates applied to GP employees
Office: 3.0 employees/KSF

1.16	8	2	1.15	2	8
0.94	19	12	FC	115	125
1.16	20	3	1.15	4	19
0.94	45	27	FC	214	232
1.16	12	2	1.15	2	11
0.94	10	6	FC	69	75

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Govt Office: 3.03 employees/KSF

3.34	21	8	1.71	4	11
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Govt Office: 3.03 employees/KSF Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

1.16	5	1	1.15	1	5
0.94	13	8	FC	86	94
1.16	3	0	1.15	0	3
0.94	6	4	FC	48	52

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

1.16	10	2	1.15	2	10
0.94	42	16	FC	142	155
1.16	13	2	1.15	2	13
0.94	50	30	FC	231	251

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

0.7	13	2	0.63	2	12
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Light Industrial: 1.63 employees/KSF

0.7	176	24	0.63	23	157
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Light Industrial: 1.63 employees/KSF

3.34	9	3	1.71	1	5
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Govt Office: 3.03 employees/KSF

	504	161		953	1,255
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ITE 10th Edition rates applied to GP employees
Office: 3.0 employees/KSF

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Govt Office: 3.03 employees/KSF

Govt Office: 3.03 employees/KSF Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Office: 3.0 employees/KSF Retail: 2.35 employees/KSF

Govt Office: 3.03 employees/KSF

Light Industrial: 1.63 employees/KSF

Light Industrial: 1.63 employees/KSF

Govt Office: 3.03 employees/KSF

Light Industrial: 1.63 employees/KSF

Light Industrial: 1.63 employees/KSF

Govt Office: 3.03 employees/KSF

Light Industrial: 1.63 employees/KSF

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Light Industrial: 1.63 employees/KSF

Light Industrial: 1.63 employees/KSF

Govt Office: 3.03 employees/KSF

Light Industrial: 1.63 employees/KSF

Light Industrial: 1.63 employees/KSF

Govt Office: 3.03 employees/KSF

Light Industrial: 1.63 employees/KSF

Light Industrial: 1.63 employees/KSF

Govt Office: 3.03 employees/KSF

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Light Industrial: 1.63 employees/KSF

Govt Office:

Retail Pass-By Rate: 10% AM PHT and 34% PM PHT

19	10	308	335
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2035 CESP - RESIDENTIAL TRIP GENERATION

TAZ	Land Use TAZ Map #	CSESP Housing Units
1430	6	5
1431	-	233
1433	-	156
		79
1445	1	37
1447	1	55
1448	-	0
1449	2 & 3	281
1450	4	295
1451	-	117
1452	-	421
1453	7	105
1454	5	34
		20
		127
1455	-	3
1469	-	0
1472	11	0
1474	10 & 11	53
		29
1476	9	188
		101
1478	8	104
		56
1535	-	0
TOTAL		2,499

Trip Generation						
AM Peak Hour			PM Peak Hour			
Rate	In	Out	Rate	In	Out	
0.74	1	3	0.99	3	2	
0.46	25	83	0.56	82	48	
0.74	29	87	0.99	97	57	
0.46	8	28	0.56	28	16	
0.46	4	13	0.56	13	8	
0.46	6	19	0.56	19	11	
0.46	30	100	0.56	99	58	
0.46	31	104	0.56	104	61	
0.74	22	65	0.99	73	43	
0.46	45	149	0.56	149	87	
0.74	19	58	0.99	65	38	
0.46	4	12	0.56	12	7	
0.74	4	11	0.99	12	7	
0.46	13	45	0.56	45	26	
0.74	1	2	0.99	2	1	
0.46	6	19	0.56	19	11	
0.74	5	16	0.99	18	11	
0.46	20	67	0.56	66	39	
0.74	19	56	0.99	63	37	
0.46	11	37	0.56	37	22	
0.74	10	31	0.99	35	21	
	311	1004		1042	612	

2035 CSEP - NON-RESIDENTIAL TRIP GENERATION

CSEP Non-Residential SF	CSESP	Zoning
	Jobs	
0	0	-
23,717	54	5.930x3 = 12 17.787x2.35 = 42 center mixed use (mixed office/retail)
7,145	18	1.786x3 = 5 5.359x2.35 = 13 center mixed use (mixed office/retail)
3,460	9	0.863x3 = 3 2.595x2.35 = 6 center mixed use (mixed office/retail)
3,390	9	0.848x3 = 3 2.542x2.35 = 6 center mixed use (mixed office/retail)
0	0	-
24,652	62	6.136x3 = 18 18.516x2.35 = 44 center mixed use (mixed office/retail) community commercial
17,459	53	17.46x.3.03 = 53 Urban Neighborhood
0	0	-
36,050	91	9.013x3 = 27 27.037x2.35 = 64 center mixed use (mixed office/retail)
725	2	0.725x2.35 = 2 retail
9,405	24	2.35x3 = 7 7.045x2.35 = 17 center mixed use (mixed office/retail)
0	0	-
30,334	64	10.334x3.03 = 31 20.000 x 1.63 = 33 business park
69,333	199	20.000 x 3.03 = 61 40.000x3.08 = 123 9.333x1.63 = 15 business park
323,860	809	193.860 x 3.08 = 597 130.000x1.63 = 212 business park
10,589	32	10.589x.3.03 = 32 Urban Neighborhood
0	0	-
0	0	-
560,119	1,426	-

ITE 10th Edition rates applied to CSESP employees	Trip Generation					
	AM Peak Hour			PM Peak Hour		
	Rate	In	Out	Rate	In	Out
Office: 3.0 employees/KSF Retail: 2.35 employees/KSF	1.16	6	1	1.15	1	6
	0.94	10	7	FC	72	79
	1.16	2	0	1.15	0	2
	0.94	3	2	FC	30	32
Office: 3.0 employees/KSF Retail: 2.35 employees/KSF	1.16	1	0	1.15	0	1
	0.94	1	1	FC	17	19
	1.16	1	0	1.15	0	1
	0.94	1	1	FC	17	19
Office: 3.0 employees/KSF Retail: 2.35 employees/KSF	1.16	1	0	1.15	0	1
	0.94	1	1	FC	17	19
	3.34	43	15	1.71	7	23
Govt Office: 3.03 employees/KSF	1.16	9	1	1.15	1	9
	0.94	15	10	FC	99	107
	0.94	1	1	FC	7	7
Office: 3.0 employees/KSF Retail: 2.35 employees/KSF	1.16	3	0	1.15	0	3
	0.94	4	3	FC	36	40
Retail: 2.35 employees/KSF	3.34	26	9	1.71	4	14
	0.7	12	2	0.63	2	11
	0.4	5	3	0.42	3	5
	3.34	100	34	1.71	17	51
Govt Office: 3.03 employees/KSF	0.7	6	1	0.63	1	5
	0.4	47	31	0.42	37	44
	0.7	80	11	0.63	11	71
	3.34	26	9	1.71	4	14
Govt Office: 3.03 employees/KSF	3.34	26	9	1.71	4	14
	0.7	12	2	0.63	2	11
	0.4	5	3	0.42	3	5
	3.34	100	34	1.71	17	51
Govt Office: 3.03 employees/KSF	0.7	6	1	0.63	1	5
	0.4	47	31	0.42	37	44
	0.7	80	11	0.63	11	71
	3.34	26	9	1.71	4	14
Govt Office: 3.03 employees/KSF	3.34	26	9	1.71	4	14
	0.7	12	2	0.63	2	11
	0.4	5	3	0.42	3	5
	3.34	100	34	1.71	17	51
Govt Office: 3.03 employees/KSF	0.7	6	1	0.63	1	5
	0.4	47	31	0.42	37	44
	0.7	80	11	0.63	11	71
	3.34	26	9	1.71	4	14
Govt Office: 3.03 employees/KSF	3.34	26	9	1.71	4	14
	0.7	12	2	0.63	2	11
	0.4	5	3	0.42	3	5
	3.34	100	34	1.71	17	51
Govt Office: 3.03 employees/KSF	0.7	6	1	0.63	1	5
	0.4	47	31	0.42	37	44
	0.7	80	11	0.63	11	71
	3.34	26	9	1.71	4	14
Govt Office: 3.03 employees/KSF	3.34	26	9	1.71	4	14
	0.7	12	2	0.63	2	11
	0.4	5	3	0.42	3	5
	3.34	100	34	1.71	17	51
Govt Office: 3.03 employees/KSF	0.7	6	1	0.63	1	5
	0.4	47	31	0.42	37	44
	0.7	80	11	0.63	11	71
	3.34	26	9	1.71	4	14
Govt Office: 3.03 employees/KSF	3.34	26	9	1.71	4	14
	0.7	12	2	0.63	2	11
	0.4	5	3	0.42	3	5
	3.34	100	34	1.71	17	51
Govt Office: 3.03 employees/KSF	0.7	6	1	0.63	1	5
	0.4	47	31	0.42	37	44
	0.7	80	11	0.63	11	71
	3.34	26	9	1.71	4	14
Govt Office: 3.03 employees/KSF	3.34	26	9	1.71	4	14
	0.7	12	2	0.63	2	11
	0.4	5	3	0.42	3	5
	3.34	100	34	1.71	17	51
Govt Office: 3.03 employees/KSF	0.7	6	1	0.63	1	5
	0.4	47	31	0.42	37	44
	0.7	80	11	0.63	11	71
	3.34	26	9	1.71	4	14
Govt Office: 3.03 employees/KSF	3.34	26	9	1.71	4	14
	0.7	12	2	0.63	2	11
	0.4	5	3	0.42	3	5
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	0.4	47	31	0.42	37	44
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	0.4	47	31	0.42	37	44
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	0.7	12	2	0.63	2	11
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	0.4	5	3	0.42	3	5
	3.34	100	34	1.71	17	51
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	0.4	47	31	0.42	37	44
	0.7	80	11	0.63	11	71
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	0.4	5	3	0.42	3	5
	3.34	100	34	1.71	17	51
Govt Office: 3.03 employees/KSF	0.7	6	1	0.63	1	5
	0.4	47	31	0.42	37	44
	0.7	8				

Retail Pass-By Rate: 10% AM PHT and 34% PM PHT

5	3	100	109
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		311	1004	1042	612

	413	149	383	583
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2035 GP - RESIDENTIAL TRIP GENERATION					
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TAZ	GP Housing Units	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
1430	2	0	1	1	1
1431	203	38	113	127	74
1433	141	15	50	50	29
	141	26	78	88	52
1445	31	3	11	11	6
1447	13	1	5	5	3
1448	12	2	7	7	4
1449	89	9	32	31	18
	30	6	17	19	11

1450	51	5	18	18	11
	50	9	28	31	18
1451	0				
1452	228	24	81	80	47
1453	293	31	104	103	61
1454	86	16	48	54	32
1455	3	1	2	2	1
1469	836	88	296	295	173
1472	0				
1474	0				
1476	196	36	109	122	72
1478	372	69	206	232	136
1535	0				
TOTAL	2,777	381	1,203	1,276	750

GP Non-Residential SF	GP	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
4,000	12	4	1	1	4
41,524	103	8	2	2	8
		19	12	115	125
96,595	240	20	3	4	19
		45	27	214	232
28,261	74	12	2	2	11
		10	6	69	75
0	0				
8,581	26	21	8	4	11
37,453	98	25	8	4	13
		5	1	1	5
		13	8	86	94
12,878	32	3	0	0	3
		6	4	48	52
0	0				
54,255	134	10	2	2	10
		42	16	142	155
98,439	240	13	2	2	13
		50	30	231	251
0	0				
0	0				
22,085	36	13	2	2	12
285,276	465	176	24	23	157
0	0				
3,630	11	9	3	1	5
0	0				
692,977	1,471	504	161	953	1,255

Retail Pass-By Rate: 10% AM PHT and 34% PM PHT

NET NEW TRIPS

2035 GP - TOTAL TRIP GENERATION					
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AM Peak Hour	PM Peak Hour	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
4	2	4	2	2	5
46	115	46	115	129	82
19	12	19	12	115	125
35	53	35	53	54	48
71	105	71	105	302	284
15	13	15	13	13	17
10	6	10	6	69	75
1	5	1	5	5	3

23	15	11	15
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34	40	35	31
11	18	20	16
13	8	86	94
8	18	18	14
15	32	79	70

34	83	82	57
42	16	142	155
44	106	105	74
50	30	231	251
16	48	54	32

1	2	2	1
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88	296	295	173
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13	2	2	12
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176	24	23	157
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36	109	122	72
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78	209	233	141
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885	1,364	2,229	2,005
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19	10	308	335
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866	1,354	1,922	1,670
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2035 CSESP - RESIDENTIAL TRIP GENERATION										2035 CSESP - NON-RESIDENTIAL TRIP GENERATION										2035 CSESP - TOTAL TRIP GENERATION									
TAZ	CSESP Housing Units	AM Peak Hour		PM Peak Hour		CSESP Non-Residential SF	CSESP Jobs	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour	
		In	Out	In	Out			In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
1430	5	1	3	3	2	0	0					6	1	1	6	31	84	83	54	1	3	3	2	31	84	83	54		
1431	233	25	83	82	48	23,717	54					10	7	72	79	39	94	169	136					39	94	169	136		
1433	156	29	87	97	57	7,145	18					2	0	0	2	10	28	28	18					10	28	28	18		
1433	79	8	28	28	16							3	2	30	32	3	2	30	32					3	2	30	32		
1445	37	4	13	13	8	3,460	9					1	0	0	1	5	13	13	9					5	13	13	9		
1447	55	6	19	19	11	3,390	9					1	1	17	19	1	1	17	19					1	1	17	19		
1448	0											1	0	0	1	7	19	12						1	1	17	19		
1448	0					0	0																						
1449	281	30	100	99	58	24,652	62					1	0	0	1	31	100	99	59					31	100	99	59		
1450	295	31	104	104	61	17,459	53					10	7	17	19	10	7	17	19					10	7	17	19		
1451	117	22	65	73	43		0					43	15	7	23	74	119	111	84					74	119	111	84		
1452	421	45	149	149	87		0									22	65	73	43					22	65	73	43		
1453	105	19	58	65	38	36,050	91					9	1	1	9	54	150	150	96					54	150	150	96		
1453	34	4	12	12	7	725	2					15	10	99	107	34	68	164	145					34	68	164	145		
1454	20	4	11	12	7							1	1	7	7	5	13	19	14					5	13	19	14		
1454	127	4	11	12	7							3	0	0	3	4	11	12	7					4	11	12	7		
1455	3	13	45	45	26	9,405	24					4	3	36	40	16	45	45	29					16	45	45	29		
1455	3	1	2	2	1		0									4	3	36	40					4	3	36	40		
1469	0						0									1	2	2	1					1	2	2	1		
1472	0					30,334	64					26	9	4	14	26	9	4	14					26	9	4	14		
1472	0											12	2	2	11	12	2	2	11					12	2	2	11		
1474	53	6	19	19	11	69,333	189					5	3	3	5	5	3	3	5					5	3	3	5		
1476	188	20	67	66	39							100	34	17	51	100	34	17	51					100	34	17	51		
1476	101	19	56	63	37							6	1	1	5	6	1	1	5					6	1	1	5		
1478	104	11	37	37	22	323,860	809					47	31	37	44	53	50	56	55					53	50	56	55		
1535	56	10	31	35	21							80	11	11	71	85	27	29	82					85	27	29	82		
1535	0					10,589	32					26	9	4	14	20	67	66	39					20	67	66	39		
TOTAL	2,499	311	1,004	1,042	612		1,426					413	149	383	583	724	1,153	1,425	1,195					724	1,153	1,425	1,195		

Retail Pass-By Rate: 10% AM PHT and 34% PM PHT

NET NEW TRIPS

5 3 100 109

719 1,150 1,325 1,086

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E.2 - Vehicle Miles Traveled Analysis

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MEMORANDUM

DATE: August 16, 2022

To: Sophia Pagoulatos and Drew Wilson, City of Fresno

FROM: Ambarish Mukherjee, Principal, LSA

SUBJECT: Fresno Central Southeast Area Specific Plan - Vehicle Miles Traveled Analysis

LSA has prepared this memorandum documenting the methodology and findings of a Vehicle Miles Traveled (VMT) analysis for the Fresno Central Southeast Area Specific Plan (CSESP) (project/specific plan) in the City of Fresno (City). Based on our understanding of the project, modifications are currently being proposed for some of the CSESP land uses. As such, these updates within CSESP would require a General Plan Amendment (GPA). Since the project is a specific plan, it qualifies as a land use plan. Therefore, the project's VMT analysis needs to be prepared using the criteria set forth in the City's CEQA Guidelines for VMT Thresholds (VMT Guidelines) adopted June 25, 2020 for land use plans. The City's VMT guidelines require that for land use plans, the project's VMT per capita and VMT per employee under forecast/cumulative scenario be compared to the corresponding base year VMT per capita/employee to determine whether the project would have a significant VMT impact. Additionally, this memorandum also provides VMT per capita and VMT per employee under the no project cumulative scenario (no changes to the General Plan) for uses within the CSESP area. Although analysis of this scenario is not required per the City's guidelines, the findings from this analysis will help develop a narrative regarding whether the proposed project would be beneficial in reducing VMT per capita and VMT per employee under cumulative conditions. The Fresno Council of Governments (Fresno COG) Activity Based Model (ABM) has been used to determine VMT impact of the proposed changes.

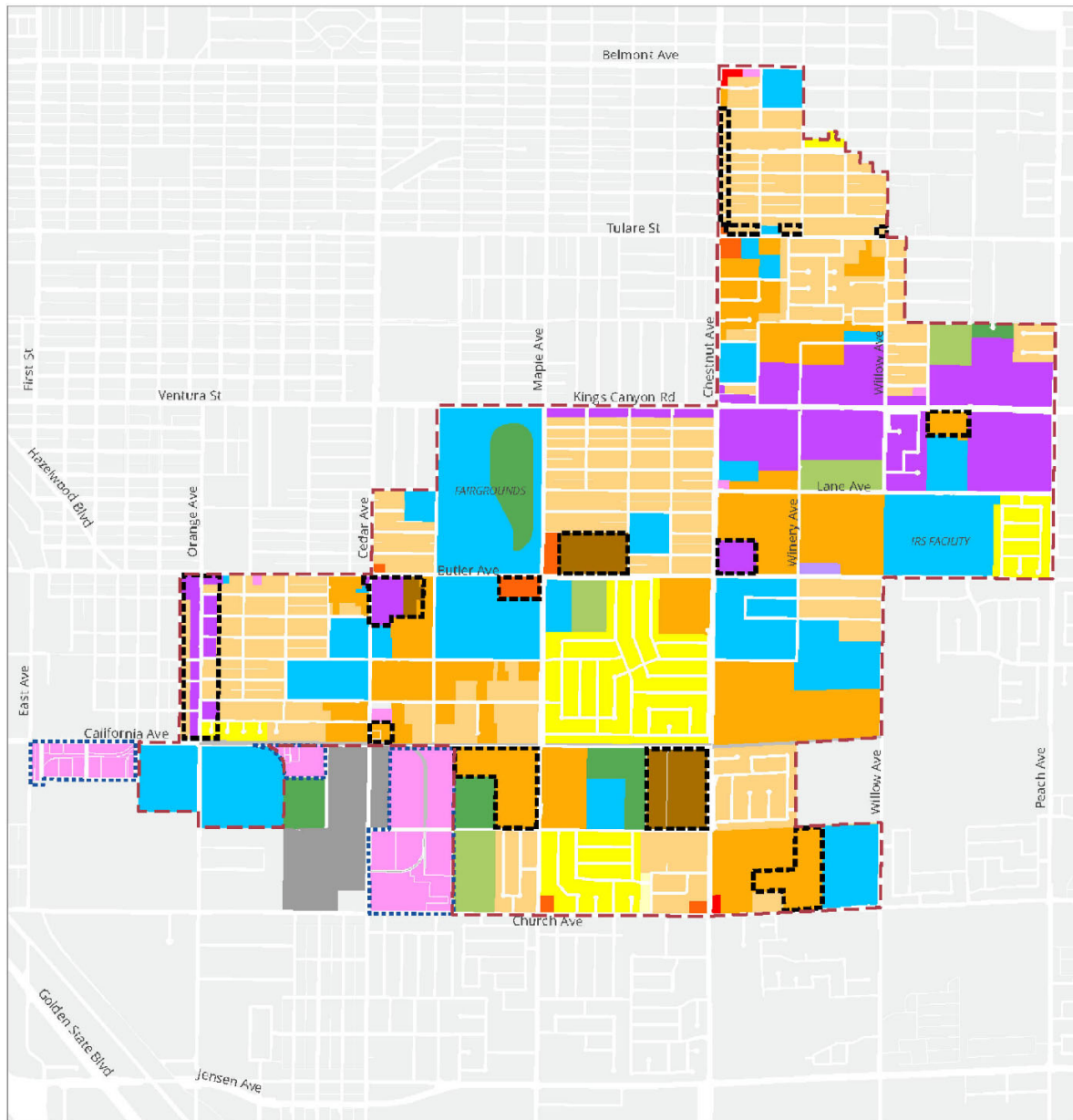
INTRODUCTION

On December 28, 2018, the California Office of Administrative Law cleared the revised California Environmental Quality Act (CEQA) guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's/plan's effect on VMT.

PROJECT DESCRIPTION

The Fresno CSESP is a long-term, comprehensive planning document which provides the basis for implementation of the City's General Plan over the 2,200-acre Plan Area. The CSESP provides policies relating to land use and urban design, transportation, public spaces, and economic development, as well as a range of specific projects that would address these policies in areas considered deficient in their existing condition. The CSESP Public Draft, completed in April 2021, defines the Plan Area, and shows proposed land use changes as shown in Figure 1.

Figure 1: CSESP Plan Area and Proposed Land Use Changes



Proposed Land Use Changes

Legend

 CSESP Boundary

 Land Use Change Area

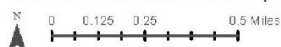
 Proposed Land Use Changes outside of Plan Area to be considered in the South Central Specific Plan

Land Use Designations

Commercial - Community
 Commercial - General
 Mixed Use - Corridor Center
 Mixed-Use - Neighborhood
 Employment - Office
 Employment - Light Industrial
 Employment - Heavy Industrial
 Railroad

Open Space
 Park
 Public Facility
 Residential - Low Density
 Residential - Medium Density
 Residential - Medium High Density
 Residential - Medium Low Density
 Residential - Urban Neighborhood

Central Southeast Fresno Specific Plan



METHODOLOGY

These updates within CSESP would require a GPA. Since the project is a specific plan, it qualifies as a land use plan. Therefore, the project's VMT analysis needs to be prepared using the criteria set forth in the City's VMT Guidelines, 2020, for land use plans.

The VMT Guidelines also provide multiple screening criteria for land use projects. However, given the project is a specific plan with an amendment and would require a GPA, the screening criteria are not applicable and hence a complete VMT analysis was conducted.

The City's VMT guidelines require that for land use plans, the project's VMT per capita and VMT per employee under forecast/cumulative scenario be compared to the corresponding base year VMT per capita/employee to determine whether the project would have a significant VMT impact.

The Fresno Council of Governments (Fresno COG) Activity Based Model (ABM) has been used to determine VMT impact of the proposed changes. Total CSESP area comprises of 19 ABM/model Traffic Analysis Zones (TAZs) – 1096, 1115, 1117, 1135, 1136, 1137, 1138, 1139, 1140, 1153, 1154, 1155, 1156, 1157, 1166, 1167, 1168, 1169 and 1170 as shown in Figure 2.

The current amendment is proposing changes in approximately 14 different areas within the specific plan (identified in Figure 1). The 14 different areas fall within 11 ABM TAZs. The proposed land uses within these 14 areas are shown in Figure 3. The city provided the existing and proposed CSESP land uses for these amended areas/parcels.

PROJECT TRAFFIC ANALYSIS ZONES UPDATE

LSA converted the amended parcel land uses into model socioeconomic categories using generic land use to socioeconomic conversion factors. The conversion factors are same as the conversion factors used during the City's latest General Plan update. Table 1 shows the conversion factors used to convert the CSESP amended land uses into model socioeconomic categories.

Table 1: CSESP Proposed Land Use Conversion Factors

CSESP Proposed Land Use	DUs per Acre	Employees per Acre
Business Park	0.0	16.3
Commercial Community	0.0	17.5
Corridor - Center Mixed Use *	9.6	26.2
Residential - Medium Density	8.0	0.0
Residential - Medium High Density	14.0	0.0
Urban Neighborhood	24.0	0.0

DU – Dwelling Units

**: Assumed 75% of area for residential uses and 25% of area for non-residential uses*

Figure 2: Fresno COG Activity-Based Model Traffic Analysis Zones

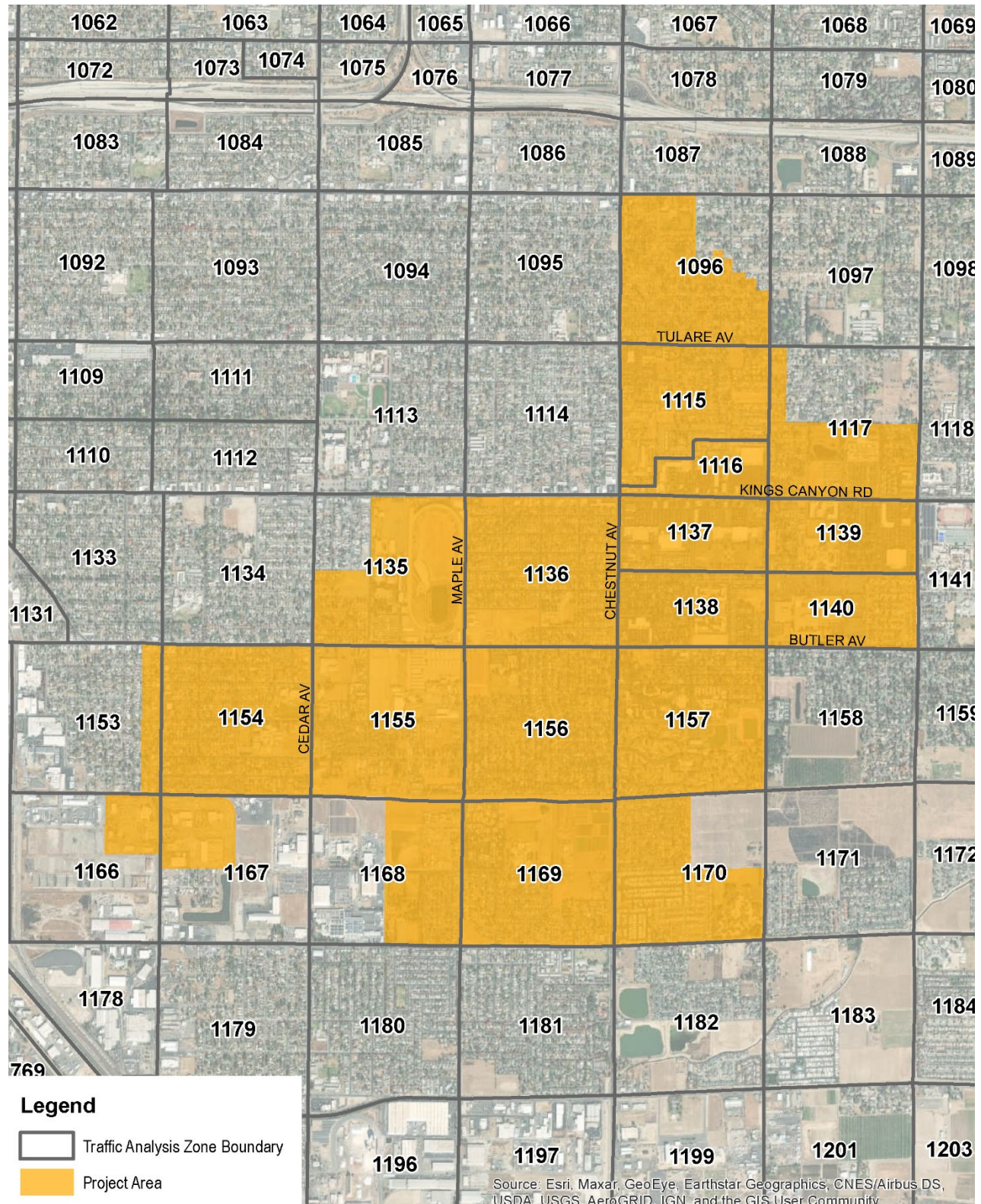


Figure 3: Proposed CSESP Land Use Changes

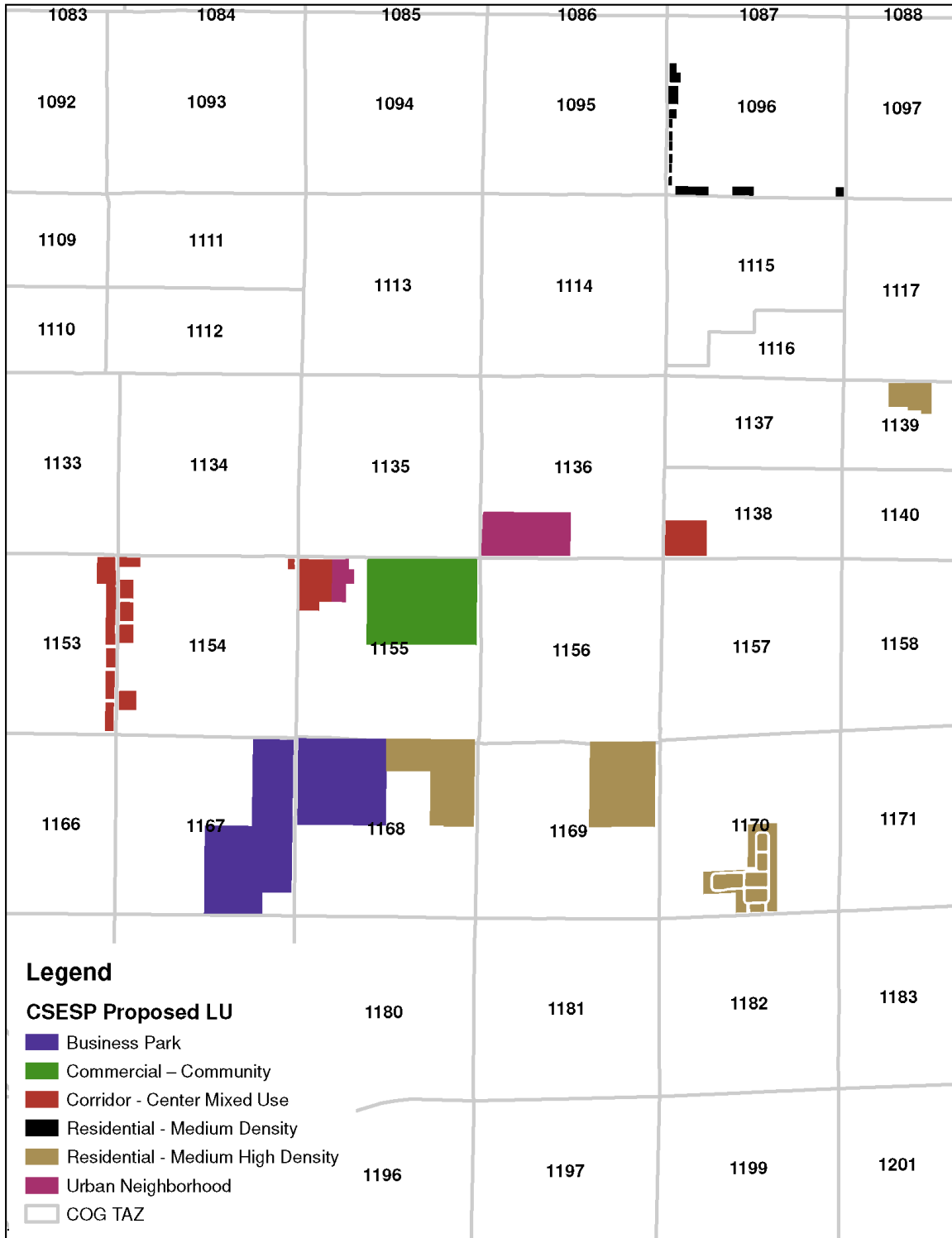


Table 2 shows the resulting dwelling units and total employment for each project TAZ. LSA understands that the conversion was conducted using maximum densities as specific probable densities are unavailable and use of maximum densities would also present with a conservative scenario.

Table 2: CSESP Proposed Dwelling Units and Employment

Existing Fresno COG TAZ / Parent TAZ	New TAZ ID for VMT Analysis	CSESP Amendment Area DU	CSESP Amendment Area Employment
1096	2856	48	-
1136	2857	443	-
1138	2858	50	46
1139	2859	75	-
1153	2860	60	54
1154	2860	43	39
1155	2861	143	861
1167	2862	-	837
1168	2863	356	609
1169	2864	142	-
1170	2865	183	-
Total		1,544	2,447

DU – Dwelling Units

The Fresno COG ABM includes ability to split zones/add new zones. As indicated before, the 14 different areas with amendments fall within 11 ABM TAZs. To isolate the effect of the amendments, 10 new TAZs were created for the 11 different areas. Amendments in existing TAZs 1153 and 1154 were combined into one new TAZ, given parcels in both areas contain same land use type and are adjacent to one another.

Given that the proposed project is an amendment to the 2035 General Plan, the amended land uses cannot be directly added to the model but the 2035 growth in the Fresno COG model dataset need to be adjusted appropriately before adding the amendments.

Upon conversion of the amendment land uses to socioeconomic data (SED), the General Plan SED from Fresno COG 2035 was adjusted appropriately and SED for the amendment was added into the new model TAZs. Comparison of SED between CSESP amendments and Fresno COG growth (2035 – 2019) was conducted at a TAZ level.

Table 3 illustrates the existing 2019, 2035 ABM, CSESP amendment SEDs, and the corresponding adjusted SED for the parent/original TAZs. The adjusted SED for the parent/original TAZs was arrived by the following methodology:

- For each TAZ, if proposed CSESP SED is higher than the model growth, then entire growth for the TAZ was removed from Fresno COG 2035 model.

- If model growth is higher than CSESP SED then, the model growth was adjusted to the difference between model growth and CSESP SED (model growth minus CSESP amendment data).

The corresponding SED for the proposed CSESP was added to the new TAZs as a conservative approach. Same methodology was followed for both households and total employment. The resulting 2035 SED for the parent TAZs is illustrated under the “Adjusted 2035 ABM” columns of Table 3. The 2035 SED for the project TAZs is illustrated in previously referenced Table 2.

MODEL RUNS AND PROJECT VMT ESTIMATION

A horizon year (2035) model run was conducted using the adjusted socioeconomic data for the original zones (Table 3) and amended socioeconomic data for the new TAZs (Table 2). No roadway or transit network modifications were conducted for the model run with the CSESP amendments. The outputs from this updated model run were used to calculate the VMT per capita and VMT per employee for the proposed amendments.

As indicated before, for land use plans, the City’s guidelines recommend use of VMT per capita to evaluate residential land uses and VMT per employee to evaluate non-residential land uses. Since the project contains both residential and non-residential uses, LSA estimated VMT per capita for the amended parcel’s residential land uses and VMT per employee for the non-residential land uses. VMT metrics for Fresno COG ABM include two components, internal-internal (II) and internal-external/external-internal (IXXI) VMT. Both II VMT and IX/XI VMT were included in the estimation of overall project VMT per capita and VMT per employee.

PROJECT VMT ANALYSIS

Table 4 shows the VMT metrics for the amended parcels only. As can be seen from Table 4, the proposed amendments/project does not constitute a significant VMT impact.

Table 4: 2035 CSESP Amended Parcels Only and Regional VMT Metrics

2035	CSESP (Project)	City of Fresno (Threshold) ***	Significant Impact
VMT per capita *	8.7	14.0	No
VMT per employee **	20.0	22.3	No

*: VMT per capita estimate includes internal-internal (II) and internal-external (IX) VMT

**: VMT per employee estimate includes internal-internal (primary work tour and sub-tours) and external-internal (XI) VMT

***: City thresholds are 13% below the existing county averages

Table 3: Model Socioeconomic data Adjustments for CSESP Amendments

	2019 ABM		2035 ABM		Growth ABM (2035 - 2019)		CSESP Amendment Area		Adjusted 2035 ABM	
ABM TAZ	Total Households	Total Employment	Total Households	Total Employment	Total Households	Total Employment	Total Households	Total Employment	Total Households	Total Employment
1096	417	80	418	82	1	2	48	-	417	82
1115	898	263	931	267	33	5	na	na	931	267
1117	273	704	391	723	118	19	na	na	391	723
1135	262	263	280	281	18	18	na	na	280	281
1136	516	254	520	254	4	(0)	443	-	516	254
1137	122	1,201	122	1,201	-	(0)	na	na	122	1201
1138	884	394	938	394	54	-	50	46	888	394
1139	505	1,099	505	1,099	-	(0)	75	-	505	1099
1140	101	4,892	101	4,892	-	-	na	na	101	4892
1153	437	826	465	825	28	(0)	60	54	437	826
1154	549	176	581	176	32	(0)	43	39	549	176
1155	655	561	688	575	33	14	143	861	655	561
1156	687	63	687	75	-	12	na	na	687	75
1157	623	1,089	638	1,150	15	61	na	na	638	1150
1166	1	216	1	928	-	712	na	na	1	928
1167	21	387	21	668	-	281	-	837	21	387
1168	95	544	95	575	-	31	356	609	95	544
1169	486	110	518	110	32	(0)	142	-	486	110
1170	436	103	438	103	2	(0)	183	-	436	103
Total	7,968	13,224	8,338	14,377	370	1,153	1,544	2,447	8,156	14,052

VMT metrics for the entire CSESP area were also estimated with and without the proposed amendments to assess their impact to the entire specific plan area. As can be seen from Tables 5 and 6, (both VMT per capita and VMT per employee) for the entire CSESP area with proposed amendments (project) as the CSESP area without proposed amendments (no project) scenarios would not have a significant VMT impact. Additionally, as can be identified from both tables, the project would have a lower VMT per capita and VMT per employee compared to the no project scenario within the entire CSESP plan area.

Table 5: 2035 CSESP Entire Plan Area and Regional VMT Metrics With Proposed Amendments

2035	CSESP (Project)	City of Fresno (Threshold) ***	Significant Impact
VMT per capita *	8.7	14.0	No
VMT per employee **	20.4	22.3	No

*: VMT per capita estimate includes internal-internal (II) and internal-external (IX) VMT

**: VMT per employee estimate includes internal-internal (primary work tour and sub-tours) and external-internal (XI) VMT

***: City thresholds are 13% below the existing county averages

Table 6: 2035 CSESP Entire Plan Area and Regional VMT Metrics Without Proposed Amendments

2035	CSESP (Project)	City of Fresno (Threshold) ***	Significant Impact
VMT per capita *	9.2	14.0	No
VMT per employee **	20.7	22.3	No

*: VMT per capita estimate includes internal-internal (II) and internal-external (IX) VMT

**: VMT per employee estimate includes internal-internal (primary work tour and sub-tours) and external-internal (XI) VMT

***: City thresholds are 13% below the existing county averages

ATTACHMENTS

Appendix A – Detailed VMT Calculation Worksheets



Appendix A: Central Southeast Specific Plan (CSESP), City of Fresno VMT Analysis (Amended Parcels Only)

Detailed VMT per capita calculations

Total households	1,544
Total Population (a)	4,403
Total Internal-Internal (II) household VMT (b) *	26,591
II VMT per capita (c=a/b)	6.04
IX VMT per capita (d) **	2.28
VMT per capita (e=c+d)	8.32
Adjustment factor (new base)(f)	1.05
Adjusted VMT per capita (g=e*f)	8.74

Detailed VMT per employee calculations

Total employment (a)	2,447
Total Internal-Internal (II) Work VMT (b) *	27,922
II VMT per employee (c=a/b)	11.41
XI VMT per employee (d) **	8.13
VMT per employee (e=c+d)	19.54
Adjustment factor (new base)(f)	1.02
Adjusted VMT per capita (g=e*f)	20.01



Appendix A: Central Southeast Specific Plan (CSESP), City of Fresno VMT Analysis (Entire CSESP area including CSESP Amendments)

Detailed VMT per capita calculations

Total households	10,982
Total Population (a)	33,075
Total Internal-Internal (II) household VMT (b) *	201,778
II VMT per capita (c=a/b)	6.10
IX VMT per capita (d) **	2.18
VMT per capita (e=c+d)	8.28
Adjustment factor (new base)(f)	1.05
Adjusted VMT per capita (g=e*f)	8.70

Detailed VMT per employee calculations

Total employment (a)	16,498
Total Internal-Internal (II) Work VMT (b) *	199,425
II VMT per employee (c=a/b)	12.09
XI VMT per employee (d) **	7.81
VMT per employee (e=c+d)	19.89
Adjustment factor (new base)(f)	1.02
Adjusted VMT per capita (g=e*f)	20.38



**Appendix A: No project / 2035 Fresno COG ABM,
City of Fresno VMT Analysis (Entire CSESP area)**

Detailed VMT per capita calculations

Total households	9,485
Total Population (a)	27,560
Total Internal-Internal (II) household VMT (b) *	181,642
II VMT per capita (c=a/b)	6.59
IX VMT per capita (d) **	2.18
VMT per capita (e=c+d)	8.77
Adjustment factor (new base)(f)	1.05
Adjusted VMT per capita (g=e*f)	9.22

Detailed VMT per employee calculations

Total employment (a)	14,377
Total Internal-Internal (II) Work VMT (b) *	177,625
II VMT per employee (c=a/b)	12.35
XI VMT per employee (d) **	7.81
VMT per employee (e=c+d)	20.16
Adjustment factor (new base)(f)	1.02
Adjusted VMT per capita (g=e*f)	20.65