

MEMORANDUM

To: Allan Shields
TVTC Administrator
From: Elizabeth Chau, P.E.
Kimley-Horn and Associates
Date: March 9, 2026
Subject: Preliminary Transit Priority Area TVTDF Reduction

The purpose of this memorandum is to summarize the methodology and results of a preliminary analysis to determine the reduction to the Tri-Valley Transportation Development Fee (TVTDF) for multi-family developments within transit priority areas (TPAs) in the Tri-Valley Development Area.

Background

TRI-VALLEY TRANSPORTATION DEVELOPMENT FEE (TVTDF)

The purpose of the Tri-Valley Transportation Development Fee (TVTDF) is to finance transportation improvement projects identified to reduce traffic-related impacts caused by future development in Tri-Valley Development Area (Dublin, Pleasanton, Livermore, Danville, San Ramon, and some unincorporated parts of Alameda County and Contra Costa County).

The current TVTDF rate schedule is based on the findings from a 2020 Nexus Study, adopted on August 16, 2021 and 2022 Update of the Strategic Expenditure Plan (SEP), adopted in June 2022. The current rate schedule includes six land use types: Single Family, Multi-Family, Retail, Office, Industrial, and Other.

AB 3177

California Assembly Bill 3177 (AB 3177) was adopted September 2024. The bill amends the Mitigation Fee Act to require agencies with traffic impact fees to include a lower rate for qualified residential developments within a “transit priority area” (TPA). To qualify, residential development must include the following characteristics:

- The development is located within a transit priority area (within ½ mile of major transit stop) and the major transit stop, if planned, is programmed to be completed before or within one year from the scheduled completion and occupancy of the housing development.
- Convenience retail uses, including a store that sells food, are located within one-half mile of the development.
- The development provides either the minimum number of parking spaces required by the local ordinance, or no more than one onsite parking space for zero- to two-bedroom units, and two onsite parking spaces for three or more bedroom units, whichever is less.

Transit Priority Area (TPA)

Attachment A presents the TPA locations assumed for this analysis. TPA locations were primarily chosen based on MTC's Transit Priority Project Eligible Area¹ within the Tri-Valley Development Area which includes:

- West Dublin/Pleasanton BART Station
- Dublin/Pleasanton BART Station
- Pleasanton ACE Station
- Livermore Transit Center
- South Vasco Road ACE Station

The San Ramon Transit Center was also added to the list as it is a major transit center, and the above list did not include any locations within Contra Costa County.

Fee Reduction Analysis

The preliminary fee reduction analysis utilized existing transit system, GIS, and trip generation data to determine the potential impacts and potential fee reduction for multi-family uses within TPAs. It is recommended that additional analysis be conducted to determine if other land use rates should be adjusted as well.

EXISTING TRANSIT SYSTEM

Existing transit conditions were evaluated by reviewing US Census data, existing transit schedule and routing information, and 2024 BART Station Profile. Detail information on each source is discussed in the next sections. The review identified notable gaps in the existing transit system, indicating that many TPA residents would remain dependent on private vehicles for a considerable portion of their trips in the absence of enhanced transit service.

US Census Data

Data from the 2024 American Community Survey 5-year estimates for *Means of Transportation to Work* (Table B08301) were pulled for the cities with a TPA (San Ramon, Dublin, Pleasanton, and Livermore), which is summarized in **Figure 1** and the full data as **Attachment B**. Note census data is only at the city level, which may underrepresent the mode split within TPA, but not significantly.

Figure 1 shows that most residents that do have to commute to work drive alone. The percentage of commuters that utilize transit ranges between 2% and 6%, where BART (subway/elevated rail) is highest, followed by bus, and ACE (commuter rail).

¹ MTC Transit Priority Project Eligible Areas, https://opendata.mtc.ca.gov/datasets/165d990e3d1341c4942b79e526eafe0f_0/explore?location=37.776529%2C-122.192197%2C9, accessed February 17, 2026.

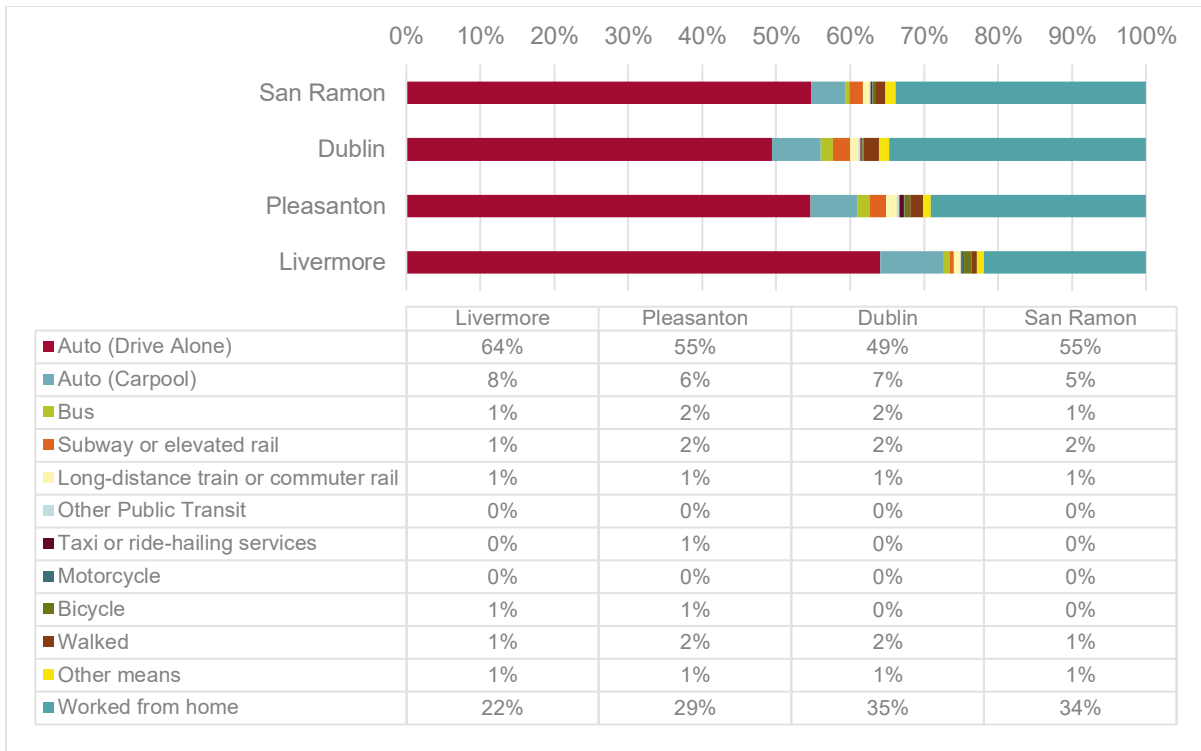


Figure 1: US Census Means of Transportation to Work

Existing Transit Service

Kimley-Horn reviewed current route and schedules information for all transit operators (BART, ACE Trains, Wheels (LAVTA), County Connection, AC Transit) within Tri-Valley Development Area. Currently BART's and Wheels Bus Route 30R provide high frequency headways (15-20 minutes) during peak commute times. All remaining local routes tend to run on 30-minutes and 60-minutes during the peak and off-peak periods respectively. Existing bus services are predominantly concentrated along arterial and major collector facilities and do not provide substantial coverage within local development areas. As a result, direct transit accessibility for residents may be limited.

2024 BART Station Profile

BART Station Profile provides mode splits and home locations for riders at each of their stations. Excerpts for the two stations with Tri-Valley Development Area (Dublin/Pleasanton and West Dublin/Pleasanton) are included as **Attachment C**. For the two stations, approximately 8-9% riders (86-250 riders) live within ½-mile of the station.

TPA LAND USE

To be consistent with the methodology used to determine the current rate schedule, the CCTA travel demand model 2020 and 2040 land use assumption from the 2020 Nexus Study was used in the analysis.

GIS analysis was conducted to identify traffic analysis zones (TAZ) that included any portion of a TPA. A map showing the affected TAZs and the TPA area coverage for each affected TAZ is provided in **Attachment A**. The percentage of TPA (TPA Coverage) within a TAZ area was calculated and summarized in **Table 1**. Detailed calculations are included in **Attachment D**.

The TPA coverage percentage for each TAZ was applied to approximate the land uses amounts within each TPA. **Table 2** presents the total land uses for the entire TVTC and TPA areas. Developments within TPAs account for 33% of total TVTC growth for multi-family residential developments and 8-30% for employment growth.

Table 1: TPA Coverage for Affected TAZ

TPA	Jurisdiction	Total Affected TAZ Area (SF)	TPA Area (SF)	TPA Coverage (%)
San Ramon Transit Center	San Ramon	47,775,426	21,862,422	46%
West Dublin/Pleasanton BART	Dublin	20,552,015	10,431,641	51%
	Pleasanton	39,807,658	11,439,314	29%
Dublin/Pleasanton BART	Dublin	22,269,589	10,978,405	49%
	Pleasanton	17,433,985	10,959,942	63%
Pleasanton ACE	Pleasanton	45,427,469	21,904,356	48%
Livermore Transit Center	Livermore	64,619,848	21,903,167	34%
South Vasco Rd ACE	Livermore	115,103,758	21,902,660	19%
Total		372,989,748	131,381,907	35%

Table 2: Total Land Use Summary

Model Land Use Type	Total TVTC Area			TPA Area			% Total Growth
	2020	2040	Growth	2020	2040	Growth	
Multi-family Residential Household	29,449	46,905	17,456	2,017	7,743	17,456	33%
Retail Employment	50,168	60,403	10,235	9,285	11,830	2,541	25%
Service Employment	69,029	91,685	22,656	15,982	22,826	6,838	30%
Other Employment	67,621	88,356	20,735	15,873	20,703	4,829	23%
Agriculture Employment	1,225	1,224	-1	117	118	1	-
Manufacturing Employment	14,942	23,842	8,900	3,554	4,305	750	8%
Trading Employment	7,338	8,760	1,422	1,719	1,885	165	12%

Land Use, specifically multi-family residential household and total employment forecasts and growth, are summarized by TPA and by agency within TVTDF in **Table 3** and **Table 4**, respectively. Note the Dublin and Pleasanton portions of the West Dublin/Pleasanton BART and Dublin/Pleasanton BART TPAs were analyzed separately since both portions are separated by I-580 and may have different land use and transportation characteristics.

As noted previously, potential eligible developments account for 33% of total TVTC multi-family residential growth. These developments are only located in Dublin, Livermore, Pleasanton, and San Ramon, where it accounts for 16-48% growth per agency. Detailed land use data is included in **Attachment D**.

Table 3: TPA Land Use Summary for each TPA

TPA	Jurisdiction	Multi-family Residential Household			Total Employment		
		2020	2040	Growth	2020	2040	Growth
San Ramon Transit Center	San Ramon	98	2,921	2,823	18,395	22,083	3,688
West Dublin/Pleasanton BART	Dublin	44	1,008	964	4,421	6,432	2,008
	Pleasanton	14	113	99	5,106	8,080	2,974
Dublin/Pleasanton BART	Dublin	465	1,130	665	3,232	5,372	2,141
	Pleasanton	0	487	487	4,037	7,030	2,994
Pleasanton ACE	Pleasanton	857	949	92	3,269	4,323	1,055
Livermore Transit Center	Livermore	548	1,030	485	4,261	4,262	0
South Vasco Rd ACE	Livermore	21	105	84	3,809	4,081	271
Total		2,047	7,743	5,699	46,530	61,663	15,131

Table 4: TPA Land Use Summary by Agency

Agency	Multi-family Residential Household			Total Employment		
	2020	2040	Growth (% Total TVTC Growth)	2020	2040	Growth
Danville	0	0	0 (0%)	0	0	0
Dublin	509	2,138	1,629 (36%)	7,653	11,804	4,149
Livermore	569	1,135	569 (16%)	8,070	8,343	271
Pleasanton	871	1,549	678 (24%)	12,412	19,433	7,023
San Ramon	98	2,921	2,823 (48%)	18,395	22,083	3,688
Alameda Unincorporated	0	0	0 (0%)	0	0	0
Contra Costa Unincorporated	0	0	0 (0%)	0	0	0
Total	2,047	7,743	5,699 (33%)	46,530	61,663	15,131

TRIP GENERATION ANALYSIS

Trip generation analysis estimated trips based on Institute of Transportation Engineers (ITE) Trip Generation Manual data with internal capture reduction. As discussed in the **Existing Transit Service** section, the TPAs are still in a suburban context, which Trip Generation Manual data is based on. The trip generation analysis included only multi-family and retail uses as one requirement is that residential development must be with ½ mile of convenience retail uses.

Table 5 presents the trip generation rates by land use type utilized in this analysis. This analysis utilized trip generation rates assumption from the 2020 Nexus Study which used data from the ITE *Trip Generation Manual, 10th Edition*. In addition, a 30-percent reduction was applied to retail trips to account for pass-by trips. Note the 2020 Nexus utilized the average AM and PM peak-hour trip rates by land use type.

The trip generation for each TPA was calculated using 2040 land uses summarized in **Table 6**. 2040 employment was converted to square footage based on the retail employee density assumed in the 2020 Nexus Study of 500 square feet per employee. Internal capture reduction was determined based on NCHRP 684 methodology and applied where applicable. For the internal capture calculations, TVTDF Retail land use trips were split 50%/50% between retail and restaurant uses.

Table 5: 10th Edition Trip Generation Rates

Land Use Type	ITE LUC	AM Peak	PM Peak	Average Trip Rate
Multi-Family Residential	220	0.46	0.56	0.51
Retail*	820	0.66	2.67	1.66

* 2020 Nexus Study applied a 30% reduction to LUC 820 Shopping Center rates to account for pass-by trips.

Table 6: Land Uses for Trip Generation

TPA	Jurisdiction	MFR (DU)	Retail (SF)
San Ramon Transit Center	San Ramon	2,921	812,500
West Dublin/Pleasanton BART	Dublin	1,008	830,000
	Pleasanton	113	1,381,000
Dublin/Pleasanton BART	Dublin	1,130	1,065,000
	Pleasanton	487	508,000
Pleasanton ACE	Pleasanton	949	598,500
Livermore Transit Center	Livermore	1,030	493,500
South Vasco Rd ACE	Livermore	105	226,500
Total		7,743	5,915,000

* Converted Retail Employment using 2020 Nexus Study employee density of 500 SF per retail employee.

Table 7 presents the trip generation summary for multi-family land use. The base is the number of trips based on trip generation rates from **Table 5** and reduced is the number of trips after accounting for internal capture as described in previous section. Detailed calculations are included as **Attachment E**.

Table 7: Multi-family Trip Generation Summary

TPA	Jurisdiction	2040 MFR DU	Base		Reduced	
			AM	PM	AM	PM
San Ramon Transit Center	San Ramon	2,921	1,344	1,636	1,291	1,516
West Dublin/Pleasanton BART	Dublin	1,008	464	564	420	444
	Pleasanton	113	52	63	43	38
Dublin/Pleasanton BART	Dublin	1,130	520	633	465	264
	Pleasanton	487	224	273	197	200
Pleasanton ACE	Pleasanton	949	437	531	405	443
Livermore Transit Center	Livermore	1,030	474	577	446	504
South Vasco Rd ACE	Livermore	105	48	59	40	35

MULTI-FAMILY FEE REDUCTION

The reduction to the TVTDF multi-family fee was determined based on the percentage reduction between the base and reduced trips from the trip generation analysis (**Table 7**) and summarized in **Table 8**.

The AM trip reduction ranges from 4-17% and the PM trip reduction ranges from 7-58%. The AM/PM average trip reduction ranges between 6% and 37%. The weighted average for all sites is 15% and 20% if only considering potential TPAs identified by MTC.

When selecting a reduction, multiple factors should be considered. One factor is how the fee reduction may impact the amount of fees collected for the whole TVTC and individual agencies since TPAs in this study are in four of the seven jurisdictions. Another consideration is anticipated growth for other land uses. The reduction of trips within a TPA is very dependent on the synergy of complimentary land uses. If future employment, service, commercial, and other uses are not built, then the anticipated trip reduction would also decrease. Lastly, the how robust the transit system is to provide frequency and convenient service, so residents do not need an automobile.

Based on the analysis results, additional factors, and recognizing that current land use and transit infrastructure would yield lower trip reduction, a reduction between 10% and 15% could be justified, with a recommended reduction of 10%.

Table 8: Multi-family Trip Reduction Summary

TPA	Jurisdiction	2040 MFR DU	% Trip Reduction		
			AM Peak	PM Peak	AM/PM Average
San Ramon Transit Center	San Ramon	2,921	4%	7%	6%
West Dublin/Pleasanton BART	Dublin	1,008	9%	21%	16%
	Pleasanton	113	17%	40%	30%
Dublin/Pleasanton BART	Dublin	1,130	11%	58%	37%
	Pleasanton	487	12%	27%	20%
Pleasanton ACE	Pleasanton	949	7%	17%	12%
Livermore Transit	Livermore	1,030	6%	13%	10%
South Vasco ACE	Livermore	105	17%	41%	30%
Weighted Average (All Sites)			7%	21%	15%
Weighted Average (MTC TPA - without San Ramon Transit Center)			9%	29%	20%

ATTACHMENT

Attachment A – TPA Locations

Attachment B – US Census Data

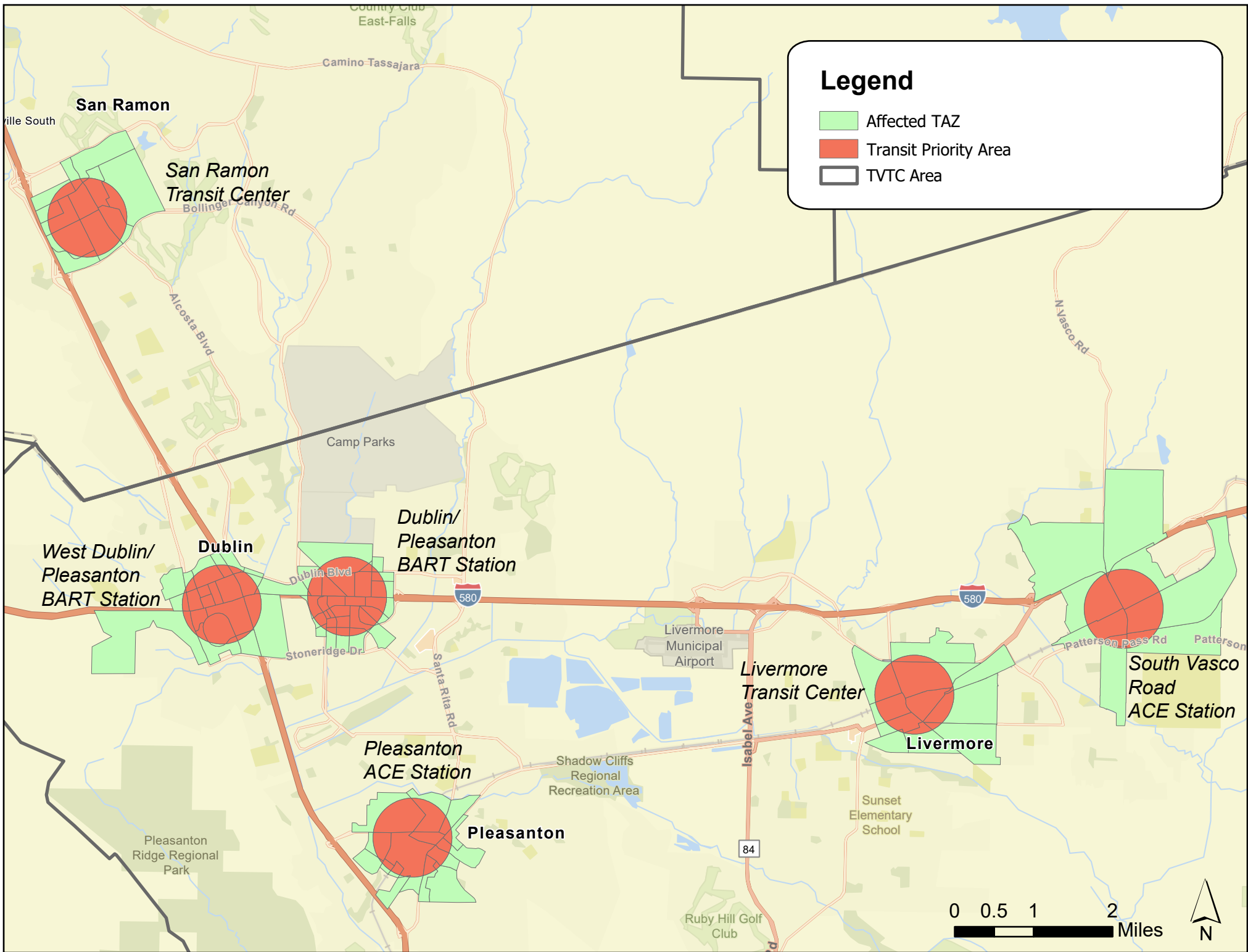
Attachment C – 2024 BART Station Profile Excerpts

Attachment D – Detailed Land Use

Attachment E – Trip Generation Calculations



Attachment A – TPA Locations





Attachment B – Detailed Land Use

TCID	Jurisdiction	TPA	Total TAZ Area (SF)	TPA Area (SF)	%	2020									2020 TPA										
						HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp	HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp
1522	Dublin	Dublin/Pleasanton	1,890,479	1,890,479	100%	0	0	0	719	110	318	202	4	60	25	0	0	0	719	110	318	202	4	60	25
1523	Dublin	Dublin/Pleasanton	1,605,506	1,142,895	71%	0	0	0	330	41	145	95	1	32	16	0	0	0	235	29	103	68	1	23	11
1524	Dublin	Dublin/Pleasanton	925,897	141,774	15%	0	0	0	396	56	166	126	0	32	16	0	0	0	61	9	25	19	0	5	2
1525	Dublin	Dublin/Pleasanton	2,878,768	78,150	3%	0	0	0	838	104	398	220	5	74	37	0	0	0	23	3	11	6	0	2	1
1805	Dublin	Dublin/Pleasanton	8,130,987	2,673,474	33%	13	13	0	3,369	3,369	0	0	0	0	0	4	4	0	1,108	1,108	0	0	0	0	0
1807	Dublin	Dublin/Pleasanton	737,404	85,370	12%	0	0	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1825	Dublin	Dublin/Pleasanton	1,883,484	1,883,484	100%	745	280	465	699	699	0	0	0	0	0	745	280	465	699	699	0	0	0	0	0
1826	Dublin	Dublin/Pleasanton	1,605,668	1,035,273	64%	0	0	0	9	1	5	3	0	0	0	0	0	0	6	1	3	2	0	0	0
1827	Dublin	Dublin/Pleasanton	900,555	374,959	42%	0	0	0	9	2	3	4	0	0	0	0	0	0	4	1	1	2	0	0	0
1828	Dublin	Dublin/Pleasanton	1,387,745	1,387,746	100%	0	0	0	377	44	157	123	0	35	18	0	0	0	377	44	157	123	0	35	18
1863	Dublin	Dublin/Pleasanton	323,096	284,801	88%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1542	Pleasanton	Dublin/Pleasanton	859,626	859,624	100%	0	0	0	327	50	147	82	0	44	4	0	0	0	327	50	147	82	0	44	4
1543	Pleasanton	Dublin/Pleasanton	1,740,223	1,027,245	59%	0	0	0	160	31	58	39	0	29	3	0	0	0	94	18	34	23	0	17	2
1544	Pleasanton	Dublin/Pleasanton	1,674,289	433,090	26%	0	0	0	764	148	280	204	0	121	11	0	0	0	198	38	72	53	0	31	3
1545	Pleasanton	Dublin/Pleasanton	1,435,481	473,212	33%	0	0	0	118	20	47	29	0	20	2	0	0	0	39	7	15	10	0	7	1
1546	Pleasanton	Dublin/Pleasanton	1,646,172	239	0%	303	148	155	1,904	551	546	506	0	278	23	0	0	0	0	0	0	0	0	0	0
1698	Pleasanton	Dublin/Pleasanton	489,289	81,084	17%	0	0	0	241	23	95	87	0	30	6	0	0	0	40	4	16	14	0	5	1
1699	Pleasanton	Dublin/Pleasanton	644,117	493,663	77%	0	0	0	299	26	110	109	1	45	8	0	0	0	229	20	84	84	1	34	6
1700	Pleasanton	Dublin/Pleasanton	1,099,991	930,412	85%	0	0	0	828	82	283	323	3	115	22	0	0	0	700	69	239	273	3	97	19
1701	Pleasanton	Dublin/Pleasanton	576,898	576,897	100%	0	0	0	297	55	105	75	0	57	5	0	0	0	297	55	105	75	0	57	5
1702	Pleasanton	Dublin/Pleasanton	783,329	783,328	100%	0	0	0	281	38	121	77	0	41	4	0	0	0	281	38	121	77	0	41	4
1703	Pleasanton	Dublin/Pleasanton	840,466	840,465	100%	0	0	0	161	25	72	46	0	13	5	0	0	0	161	25	72	46	0	13	5
1704	Pleasanton	Dublin/Pleasanton	1,269,921	1,246,684	98%	0	0	0	473	49	279	123	0	21	1	0	0	0	464	48	274	121	0	21	1
1705	Pleasanton	Dublin/Pleasanton	665,611	665,612	100%	0	0	0	219	40	92	53	0	31	3	0	0	0	219	40	92	53	0	31	3
1706	Pleasanton	Dublin/Pleasanton	415,788	415,787	100%	0	0	0	236	48	69	69	0	46	4	0	0	0	236	48	69	69	0	46	4
1707	Pleasanton	Dublin/Pleasanton	1,103,680	230,913	21%	0	0	0	641	95	244	167	0	123	12	0	0	0	134	20	51	35	0	26	3
1722	Pleasanton	Dublin/Pleasanton	814,266	791,741	97%	0	0	0	258	42	101	69	0	42	4	0	0	0	251	41	98	67	0	41	4
1723	Pleasanton	Dublin/Pleasanton	1,048,696	783,803	75%	0	0	0	305	53	127	78	0	43	4	0	0	0	228	40	95	58	0	32	3
1868	Pleasanton	Dublin/Pleasanton	148,105	148,106	100%	0	0	0	64	9	20	18	0	16	1	0	0	0	64	9	20	18	0	16	1
1869	Pleasanton	Dublin/Pleasanton	178,038	178,038	100%	0	0	0	75	16	30	17	0	11	1	0	0	0	75	16	30	17	0	11	1
1617	Livermore	Livermore Transit	8,209,419	898,952	11%	455	319	136	0	0	0	0	0	0	0	50	35	15	0	0	0	0	0	0	0
1621	Livermore	Livermore Transit	8,706,243	6,950,233	80%	1,018	738	280	1,031	387	284	289	0	56	15	813	589	224	823	309	227	231	0	45	12
1622	Livermore	Livermore Transit	7,125,231	2,781,649	39%	923	728	195	404	159	121	109	1	14	0	360	284	76	158	62	47	43	0	5	0
1627	Livermore	Livermore Transit	3,433,046	2,744,893	80%	351	235	116	1,136	167	572	366	0	16	15	281	188	93	908	134	457	293	0	13	12
1628	Livermore	Livermore Transit	3,333,294	3,333,293	100%	203	158	45	1,701	356	723	576	4	29	13	203	158	45	1,701	356	723	576	4	29	13
1635	Livermore	Livermore Transit	2,669,410	36,369	1%	306	199	107	27	10	10	7	0	0	0	4	3	1	0	0	0	0	0	0	0
1636	Livermore	Livermore Transit	4,450,041	681,724	15%	539	411	128	53	53	0	0	0	0	0	83	63	20	8	8	0	0	0	0	0
1639	Livermore	Livermore Transit	8,695,719	304,529	4%	840	567	273	294	0	43	250	1	0	0	29	20	10	10	0	2	9	0	0	0
1642	Livermore	Livermore Transit	10,746,202	2,186,130	20%	1,193	971	222	68	0	3	65	0	0	0	243	198	45	14	0	1	13	0	0	0
1650	Livermore	Livermore Transit	4,606,023	101,359	2%	28	23	5	976	144	478	144	0	126	84	1	1	0	21	3	11	3	0	3	2
1867	Livermore	Livermore Transit	2,645,221	1,884,034	71%	84	58	26	867	162	394	297	0	6	8	60	41	19	618	115	281	212	0	4	6
1581	Pleasanton	Pleasanton ACE	2,743,682	590,474	22%	149	102	47	138	15	37	85	0	1	0	32	22	10	30	3	8	18	0	0	0
1582	Pleasanton	Pleasanton ACE	1,304,253	330,586	25%	126	56	70	581	378	66	87	0	47	3	32	14	18	147	96	17	22	0	12	1
1583	Pleasanton	Pleasanton ACE	2,747,083	522,833	19%	167	59	108	981	244	278	289	0	157	13	32	11	21	187	46	53	55	0	30	2
1584	Pleasanton	Pleasanton ACE	4,929,269	3,030,854	61%	678	241																		

TCID	Jurisdiction	TPA	Total TAZ Area (SF)	TPA Area (SF)	%	2020									2020 TPA										
						HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp	HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp
1372	San Ramon	San Ramon Transit Ctr	1,384,959	338,048	24%	0	0	0	1,600	73	472	935	1	73	46	0	0	0	391	18	115	228	0	18	11
1374	San Ramon	San Ramon Transit Ctr	2,673,455	928,131	35%	0	0	0	2,681	126	782	1,584	7	114	68	0	0	0	931	44	271	550	2	40	24
1382	San Ramon	San Ramon Transit Ctr	2,973,609	2,554,540	86%	0	0	0	1,915	53	635	1,127	2	63	35	0	0	0	1,645	46	546	968	2	54	30
1383	San Ramon	San Ramon Transit Ctr	4,830,725	4,087,956	85%	0	0	0	8,284	1,265	3,659	2,328	48	690	294	0	0	0	7,010	1,070	3,096	1,970	41	584	249
1384	San Ramon	San Ramon Transit Ctr	2,692,255	259,136	10%	0	0	0	1,227	63	337	742	0	54	31	0	0	0	118	6	32	71	0	5	3
1412	San Ramon	San Ramon Transit Ctr	4,749,433	4,230,587	89%	0	0	0	3,314	157	1,008	1,952	7	124	66	0	0	0	2,952	140	898	1,739	6	110	59
1413	San Ramon	San Ramon Transit Ctr	2,830,562	2,283,632	81%	142	84	58	0	0	0	0	0	0	0	115	68	47	0	0	0	0	0	0	0
1414	San Ramon	San Ramon Transit Ctr	12,836,736	1,663,887	13%	712	419	293	152	19	45	80	0	5	3	92	54	38	20	2	6	10	0	1	0
1415	San Ramon	San Ramon Transit Ctr	2,654,666	1,953,803	74%	34	20	14	1,852	84	546	1,100	0	77	45	25	15	10	1,363	62	402	810	0	57	33
1416	San Ramon	San Ramon Transit Ctr	2,644,770	2,644,770	100%	0	0	0	3,793	172	1,119	2,231	7	163	101	0	0	0	3,793	172	1,119	2,231	7	163	101
1417	San Ramon	San Ramon Transit Ctr	5,961,461	80,711	1%	500	294	206	0	0	0	0	0	0	0	7	4	3	0	0	0	0	0	0	0
1495	San Ramon	San Ramon Transit Ctr	1,542,795	837,221	54%	0	0	0	317	15	92	189	0	13	8	0	0	0	172	8	50	103	0	7	4
1648	Livermore	Vasco ACE	8,216,023	220,549	3%	636	488	148	7	7	0	0	0	0	0	17	13	4	0	0	0	0	0	0	0
1649	Livermore	Vasco ACE	5,536,301	3,464,195	63%	0	0	0	976	144	478	144	0	126	84	0	0	0	611	90	299	90	0	79	53
1652	Livermore	Vasco ACE	10,191,764	5,227,934	51%	10	8	2	1,303	207	238	570	2	113	173	5	4	1	668	106	122	292	1	58	89
1653	Livermore	Vasco ACE	22,786,199	9,018	0%	1,683	1,324	359	537	261	157	106	0	13	0	1	1	0	0	0	0	0	0	0	0
1656	Livermore	Vasco ACE	10,415,530	5,651,521	54%	60	33	27	3,055	247	592	43	0	1,304	869	33	18	15	1,658	134	321	23	0	708	472
1658	Livermore	Vasco ACE	22,344,492	4,911,431	22%	0	0	0	3,116	181	1,334	850	21	350	380	0	0	0	685	40	293	187	5	77	84
1659	Livermore	Vasco ACE	12,358,714	1,495,970	12%	0	0	0	1,529	89	679	382	6	179	194	0	0	0	185	11	82	46	1	22	23
1666	Livermore	Vasco ACE	22,372,205	39,758	0%	1,427	788	639	304	78	109	112	1	0	4	3	1	1	1	0	0	0	0	0	0
1787	Livermore	Vasco ACE	882,529	882,284	100%	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0
1500	Dublin	West Dublin/Pleasanton	2,640,431	24,191	1%	455	388	67	785	90	305	312	9	25	44	4	4	1	7	1	3	3	0	0	0
1501	Dublin	West Dublin/Pleasanton	1,184,053	430,377	36%	0	0	0	696	84	287	259	8	21	37	0	0	0	253	31	104	94	3	8	13
1502	Dublin	West Dublin/Pleasanton	2,258,470	2,258,468	100%	0	0	0	1,709	500	526	600	4	23	56	0	0	0	1,709	500	526	600	4	23	56
1503	Dublin	West Dublin/Pleasanton	2,824,099	1,798,122	64%	63	38	25	627	185	191	223	4	7	17	40	24	16	399	118	122	142	3	4	11
1504	Dublin	West Dublin/Pleasanton	1,363,874	267,994	20%	27	24	3	501	127	154	183	1	17	19	5	5	1	98	25	30	36	0	3	4
1525	Dublin	West Dublin/Pleasanton	2,878,768	44,336	2%	0	0	0	838	104	398	220	5	74	37	0	0	0	13	2	6	3	0	1	1
1526	Dublin	West Dublin/Pleasanton	1,920,397	1,518,419	79%	0	0	0	812	98	340	276	3	63	32	0	0	0	642	77	269	218	2	50	25
1690	Dublin	West Dublin/Pleasanton	636,211	636,211	100%	0	0	0	37	13	13	11	0	0	0	0	0	0	37	13	13	11	0	0	0
1795	Dublin	West Dublin/Pleasanton	1,150,200	1,150,201	100%	0	0	0	327	89	88	121	0	18	11	0	0	0	327	89	88	121	0	18	11
1796	Dublin	West Dublin/Pleasanton	524,630	524,632	100%	0	0	0	103	32	35	35	0	0	1	0	0	0	103	32	35	35	0	0	1
1797	Dublin	West Dublin/Pleasanton	1,124,287	544,448	48%	0	0	0	160	48	43	64	0	1	4	0	0	0	77	23	21	31	0	0	2
1798	Dublin	West Dublin/Pleasanton	843,153	399,888	47%	54	0	54	246	85	75	77	1	2	6	26	0	26	117	40	36	37	0	1	3
1802	Dublin	West Dublin/Pleasanton	370,411	1,321	0%	16	10	6	254	26	119	93	0	11	5	0	0	0	1	0	0	0	0	0	0
1865	Dublin	West Dublin/Pleasanton	833,030	833,032	100%	0	0	0	638	193	163	243	0	11	28	0	0	0	638	193	163	243	0	11	28
1535	Pleasanton	West Dublin/Pleasanton	3,955,582	3,946,347	100%	0	0	0	1,697	594	689	338	2	40	34	0	0	0	1,693	593	687	337	2	40	34
1536	Pleasanton	West Dublin/Pleasanton	3,427,493	3,292,458	96%	0	0	0	1,821	728	681	334	0	43	35	0	0	0	1,749	699	654	321	0	41	34
1537	Pleasanton	West Dublin/Pleasanton	2,886,161	634,196	22%	0	0	0	2,554	957	1,003	479	0	63	52	0	0	0	561	210	220	105	0	14	11
1538	Pleasanton	West Dublin/Pleasanton	1,890,520	231,708	12%	502	395	107	392	138	163	78	0	7	6	62	48	13	48	17	20	10	0	1	1
1539	Pleasanton	West Dublin/Pleasanton	9,030,486	1,681,728	19%	0	0	0	2,474	212	795	953	4	427	83	0	0	0	461	39	148	177	1	80	15
1688	Pleasanton	West Dublin/Pleasanton	17,511,387	546,849	3%	299	256	43	450	113	151	173	4	4	4	9	8	1	14	4	5	5	0	0	0
1689	Pleasanton	West Dublin/Pleasanton	1,106,029	1,106,029	100%	0	0	0	580	216	236	110	0	10	8	0	0	0	580	216	236	110	0	10	8
Total			372,989,748	131,381,907	35%	16,584	10,971	5,613	81,272	16,994	27,165	26,654	250	6,775	3,433	4,841	2,795	2,047	46,530	9,285	15,982	15,873	117	3,554	1,719

TPA	Jurisdiction	Total TAZ Area (SF)	TPA Area (SF)	%	2020									2020 TPA										
					HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp	HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp
San Ramon Transit Ctr	San Ramon	47,775,426	21,862,422	46%	1,388	817	571	25,135	2,027	8,695	12,268	72	1,376	697	239	141	98	18,395	1,568	6,535	8,680	58	1,039	514
West Dublin/Pleasanton BART	Dublin	20,552,015	10,431,641	51%	615	460	155	7,733	1,674	2,737	2,717	35	273	297	75	33	44	4,421	1,144	1,416	1,574	12	119	155
	Pleasanton	39,807,658	11,439,314	29%	801	651	150	9,968	2,958	3,718	2,465	10	594	222	71	56	14	5,106	1,778	1,970	1,065	3	186	103
Dublin/Pleasanton BART	Dublin	22,269,589	10,978,405	49%	758	293	465	6,748	4,426	1,193	774	10	233	112	749	284	465	3,232	2,004	618	422	5	125	57
	Pleasanton	17,433,985	10,959,942	63%	303	148	155	7,651	1,401	2,826	2,171	4	1,126	123	0	0	0	4,037	586	1,634	1,175	4	570	70
Pleasanton ACE	Pleasanton	45,427,469	21,904,356	48%	2,963	1,554	1,409	6,652	1,856	1,780	1,949	83	841	143	1,521	664	857	3,269	837	942	939	24	472	54
Livermore Transit Ctr	Livermore	64,619,848	21,903,167	34%	5,940	4,407	1,533	6,557	1,438	2,628	2,103	6	247	135	2,127	1,580	548	4,261	987	1,749	1,380	4	99	45
South Vasco Rd ACE	Livermore	115,103,758	21,902,660	19%	3,816	2,641	1,175	10,828	1,214	3,588	2,207	30	2,085	1,704	59	37	21	3,809	381	1,118	638	7	944	721
Total		372,989,748	131,381,907	35%	16,584	10,971	5,613	81,272	16,994	27,165	26,654	250	6,775	3,433	4,841	2,795	2,047	46,530	9,285	15,982	15,873	117	3,554	1,719

TCID	Jurisdiction	TPA	2040										2040 TPA									
			HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp	HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp
1522	Dublin	Dublin/Pleasanton	327	85	242	2,288	378	467	1,193	4	156	90	327	85	242	2,288	378	467	1,193	4	156	90
1523	Dublin	Dublin/Pleasanton	0	0	0	504	52	247	134	3	45	23	0	0	0	359	37	176	95	2	32	16
1524	Dublin	Dublin/Pleasanton	0	0	0	399	57	163	127	0	34	18	0	0	0	61	9	25	19	0	5	3
1525	Dublin	Dublin/Pleasanton	0	0	0	840	106	392	221	5	78	38	0	0	0	23	3	11	6	0	2	1
1805	Dublin	Dublin/Pleasanton	1,753	467	1,286	991	991	0	0	0	0	0	576	154	423	326	326	0	0	0	0	0
1807	Dublin	Dublin/Pleasanton	0	0	0	737	113	338	206	3	54	23	0	0	0	85	13	39	24	0	6	3
1825	Dublin	Dublin/Pleasanton	745	280	465	1,130	1,130	0	0	0	0	0	745	280	465	1,130	1,130	0	0	0	0	0
1826	Dublin	Dublin/Pleasanton	0	0	0	652	171	299	182	0	0	0	0	0	0	420	110	193	117	0	0	0
1827	Dublin	Dublin/Pleasanton	0	0	0	728	192	268	235	0	28	5	0	0	0	303	80	112	98	0	12	2
1828	Dublin	Dublin/Pleasanton	0	0	0	377	44	157	123	0	35	18	0	0	0	377	44	157	123	0	35	18
1863	Dublin	Dublin/Pleasanton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1542	Pleasanton	Dublin/Pleasanton	0	0	0	356	50	178	89	0	36	3	0	0	0	356	50	178	89	0	36	3
1543	Pleasanton	Dublin/Pleasanton	87	48	39	961	164	401	235	0	146	15	51	28	23	567	97	237	139	0	86	9
1544	Pleasanton	Dublin/Pleasanton	499	177	322	1,555	273	631	427	0	206	18	129	46	83	402	71	163	110	0	53	5
1545	Pleasanton	Dublin/Pleasanton	0	0	0	926	123	422	233	0	134	14	0	0	0	305	41	139	77	0	44	5
1546	Pleasanton	Dublin/Pleasanton	303	148	155	1,904	551	546	506	0	278	23	0	0	0	0	0	0	0	0	0	0
1698	Pleasanton	Dublin/Pleasanton	0	0	0	197	16	90	70	0	18	3	0	0	0	33	3	15	12	0	3	0
1699	Pleasanton	Dublin/Pleasanton	0	0	0	278	22	118	98	1	33	6	0	0	0	213	17	90	75	1	25	5
1700	Pleasanton	Dublin/Pleasanton	0	0	0	1,159	115	396	452	4	161	31	0	0	0	980	97	335	382	4	136	26
1701	Pleasanton	Dublin/Pleasanton	0	0	0	416	77	147	105	0	80	7	0	0	0	416	77	147	105	0	80	7
1702	Pleasanton	Dublin/Pleasanton	13	7	6	393	53	169	108	0	57	6	13	7	6	393	53	169	108	0	57	6
1703	Pleasanton	Dublin/Pleasanton	151	83	68	225	35	101	64	0	18	7	151	83	68	225	35	101	64	0	18	7
1704	Pleasanton	Dublin/Pleasanton	254	90	164	395	40	236	103	0	15	1	249	88	161	388	39	232	101	0	15	1
1705	Pleasanton	Dublin/Pleasanton	114	40	74	1,075	171	504	267	0	122	11	114	40	74	1,075	171	504	267	0	122	11
1706	Pleasanton	Dublin/Pleasanton	0	0	0	277	56	81	81	0	54	5	0	0	0	277	56	81	81	0	54	5
1707	Pleasanton	Dublin/Pleasanton	2	1	1	897	133	342	234	0	172	17	0	0	0	188	28	71	49	0	36	4
1722	Pleasanton	Dublin/Pleasanton	118	65	53	539	74	238	146	0	74	7	115	63	52	524	72	231	142	0	72	7
1723	Pleasanton	Dublin/Pleasanton	60	33	27	778	123	362	195	0	90	8	45	25	20	581	92	271	146	0	67	6
1868	Pleasanton	Dublin/Pleasanton	0	0	0	49	4	14	17	0	13	1	0	0	0	49	4	14	17	0	13	1
1869	Pleasanton	Dublin/Pleasanton	0	0	0	58	13	26	13	0	6	0	0	0	0	58	13	26	13	0	6	0
1617	Livermore	Livermore Transit	475	337	138	0	0	0	0	0	0	0	52	37	15	0	0	0	0	0	0	0
1621	Livermore	Livermore Transit	1,093	763	330	1,031	387	284	289	0	56	15	873	609	263	823	309	227	231	0	45	12
1622	Livermore	Livermore Transit	941	728	213	404	159	121	109	1	14	0	367	284	83	158	62	47	43	0	5	0
1627	Livermore	Livermore Transit	1,186	643	543	1,136	167	572	366	0	16	15	948	514	434	908	134	457	293	0	13	12
1628	Livermore	Livermore Transit	294	224	70	1,701	356	723	576	4	29	13	294	224	70	1,701	356	723	576	4	29	13
1635	Livermore	Livermore Transit	336	199	137	54	24	17	13	0	0	0	5	3	2	1	0	0	0	0	0	0
1636	Livermore	Livermore Transit	574	416	158	53	53	0	0	0	0	0	88	64	24	8	8	0	0	0	0	0
1639	Livermore	Livermore Transit	925	633	292	294	0	43	250	1	0	0	32	22	10	10	0	2	9	0	0	0
1642	Livermore	Livermore Transit	1,289	1,048	241	68	0	3	65	0	0	0	262	213	49	14	0	1	13	0	0	0
1650	Livermore	Livermore Transit	169	138	31	976	144	478	144	0	126	84	4	3	1	21	3	11	3	0	3	2
1867	Livermore	Livermore Transit	264	153	111	867	162	394	297	0	6	8	188	109	79	618	115	281	212	0	4	6
1581	Pleasanton	Pleasanton ACE	149	102	47	221	24	59	136	0	2	0	32	22	10	48	5	13	29	0	0	0
1582	Pleasanton	Pleasanton ACE	139	66	73	581	378	66	87	0	47	3	35	17	19	147	96	17	22	0	12	1
1583	Pleasanton	Pleasanton ACE	167	59	108	1,153	287	327	340	0	184	15	32	11	21	219	55	62	65	0	35	3
1584	Pleasanton	Pleasanton ACE	883	350	533	1,426	390	410	396	0	213	18	543	215	328	877	240	252	243	0	131	11
1585	Pleasanton	Pleasanton ACE	48	29	19	1,531	219	525	468	22	270	27	29	18	12	929	133	319	284	14	164	16
1587	Pleasanton	Pleasanton ACE	54	19	35	381	381	0	0	0	0	0	40	14	26	281	281	0	0	0	0	0
1588	Pleasanton	Pleasanton ACE	889	316	573	877	208	255	259	0	143	12	757	269	488	747	177	217	220	0	122	10
1597	Pleasanton	Pleasanton ACE	373	350	23	752	245	142	255	42	22	46	9	9	1	19	6	4	6	1	1	1
1764	Pleasanton	Pleasanton ACE	103	41	62	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0
1767	Pleasanton	Pleasanton ACE	0	0	0	125	19	58	35	0	9	4	0	0	0	72	11	33	20	0	5	2
1768	Pleasanton	Pleasanton ACE	14	8	6	592	110	137	214	0	122	9	10	6	4	418	78	97	151	0	86	6
1770	Pleasanton	Pleasanton ACE	68	24	44	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1772	Pleasanton	Pleasanton ACE	222	208	14	176	28	54	66	8	6	14	88	82	6	70	11	21	26	3	2	6
1773	Pleasanton	Pleasanton ACE	47	19	28	472	100	169	132	1	65	5	47	19	28	472	100	169	132	1	65	5
1774	Pleasanton	Pleasanton ACE	146	137	9	43	7	11	19	3	1	2	83	78	5	24	4	6	11	2	1	1

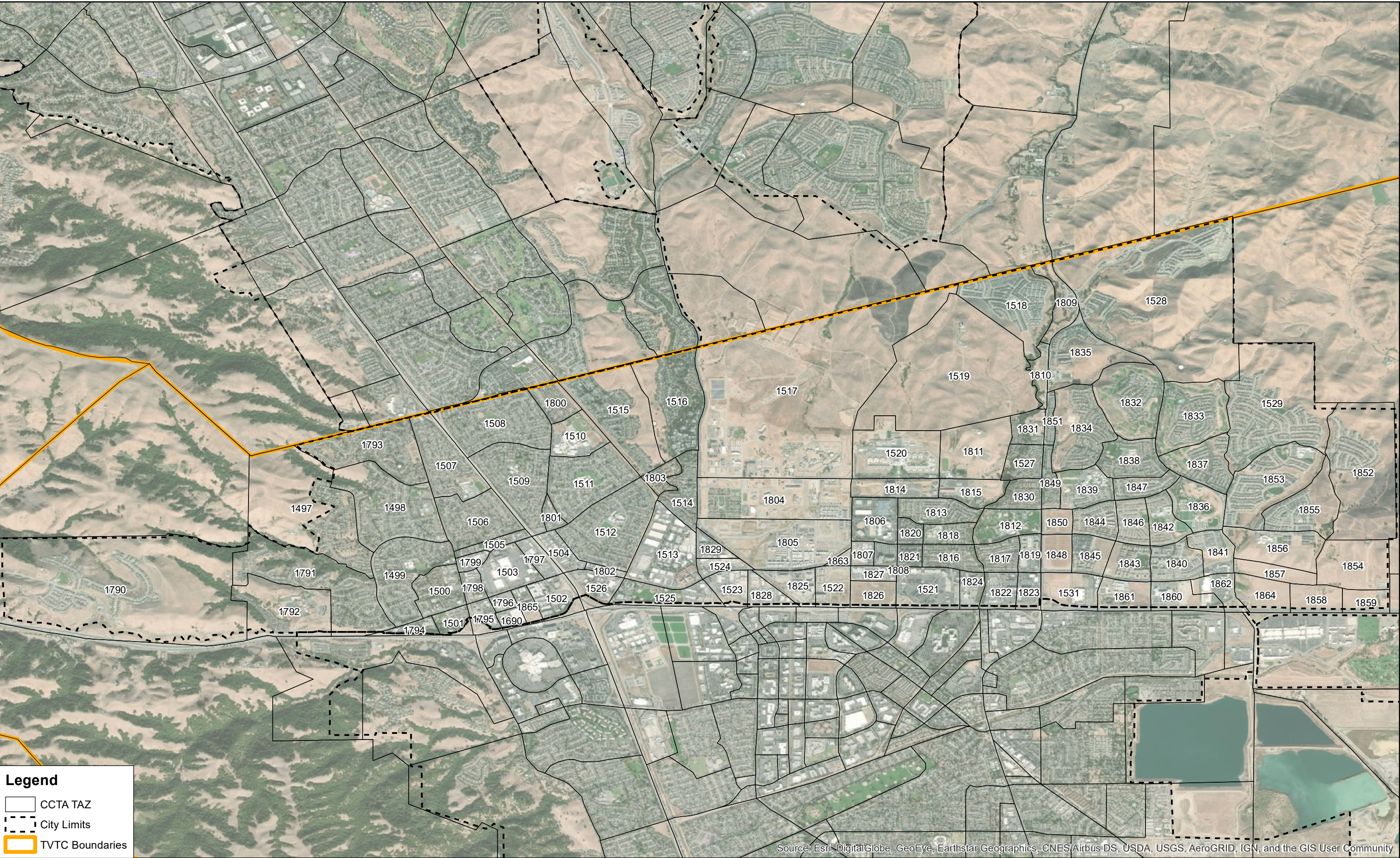
TCID	Jurisdiction	TPA	2040										2040 TPA									
			HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp	HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp
1372	San Ramon	San Ramon Transit Ctr	474	250	224	2,564	100	990	1,303	1	99	71	116	61	55	626	24	242	318	0	24	17
1374	San Ramon	San Ramon Transit Ctr	639	338	301	3,271	129	1,292	1,660	7	109	74	222	117	104	1,136	45	449	576	2	38	26
1382	San Ramon	San Ramon Transit Ctr	349	193	156	3,199	52	1,193	1,817	3	86	48	300	166	134	2,748	45	1,025	1,561	3	74	41
1383	San Ramon	San Ramon Transit Ctr	1,659	0	1,659	8,613	1,299	4,006	2,366	43	630	269	1,404	0	1,404	7,289	1,099	3,390	2,002	36	533	228
1384	San Ramon	San Ramon Transit Ctr	0	0	0	1,184	56	413	651	0	41	23	0	0	0	114	5	40	63	0	4	2
1412	San Ramon	San Ramon Transit Ctr	1,204	0	1,204	4,296	176	1,586	2,358	7	117	52	1,072	0	1,072	3,827	157	1,413	2,100	6	104	46
1413	San Ramon	San Ramon Transit Ctr	142	75	67	13	13	0	0	0	0	0	115	61	54	10	10	0	0	0	0	0
1414	San Ramon	San Ramon Transit Ctr	712	376	336	149	22	59	62	0	4	2	92	49	44	19	3	8	8	0	1	0
1415	San Ramon	San Ramon Transit Ctr	53	28	25	1,790	71	696	928	1	57	37	39	21	18	1,317	52	512	683	1	42	27
1416	San Ramon	San Ramon Transit Ctr	0	0	0	4,663	173	1,814	2,425	12	144	95	0	0	0	4,663	173	1,814	2,425	12	144	95
1417	San Ramon	San Ramon Transit Ctr	500	264	236	12	12	0	0	0	0	0	7	4	3	0	0	0	0	0	0	0
1495	San Ramon	San Ramon Transit Ctr	136	75	61	616	23	235	321	0	22	15	74	41	33	334	12	128	174	0	12	8
1648	Livermore	Vasco ACE	646	488	158	7	7	0	0	0	0	0	17	13	4	0	0	0	0	0	0	0
1649	Livermore	Vasco ACE	0	0	0	1,093	183	517	183	0	126	84	0	0	0	684	115	323	115	0	79	53
1652	Livermore	Vasco ACE	10	8	2	1,633	299	458	570	2	113	191	5	4	1	838	153	235	292	1	58	98
1653	Livermore	Vasco ACE	1,814	1,436	378	537	261	157	106	0	13	0	1	1	0	0	0	0	0	0	0	0
1656	Livermore	Vasco ACE	75	33	42	3,055	247	592	43	0	1,304	869	41	18	23	1,658	134	321	23	0	708	472
1658	Livermore	Vasco ACE	509	165	344	3,249	181	1,400	850	21	388	409	112	36	76	714	40	308	187	5	85	90
1659	Livermore	Vasco ACE	0	0	0	1,529	89	679	382	6	179	194	0	0	0	185	11	82	46	1	22	23
1666	Livermore	Vasco ACE	1,477	833	644	465	151	182	127	1	0	4	3	1	1	1	0	0	0	0	0	0
1787	Livermore	Vasco ACE	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0
1500	Dublin	West Dublin/Pleasanton	455	388	67	800	67	347	326	0	39	21	4	4	1	7	1	3	3	0	0	0
1501	Dublin	West Dublin/Pleasanton	0	0	0	711	57	312	287	0	35	20	0	0	0	258	21	113	104	0	13	7
1502	Dublin	West Dublin/Pleasanton	87	0	87	1,979	532	564	708	0	111	64	87	0	87	1,979	532	564	708	0	111	64
1503	Dublin	West Dublin/Pleasanton	266	38	228	1,160	308	392	410	9	12	29	169	24	145	739	196	250	261	6	8	18
1504	Dublin	West Dublin/Pleasanton	114	24	90	600	152	187	216	1	21	23	22	5	18	118	30	37	42	0	4	5
1525	Dublin	West Dublin/Pleasanton	0	0	0	840	106	392	221	5	78	38	0	0	0	13	2	6	3	0	1	1
1526	Dublin	West Dublin/Pleasanton	0	0	0	814	100	334	277	3	67	33	0	0	0	644	79	264	219	2	53	26
1690	Dublin	West Dublin/Pleasanton	460	305	155	974	306	392	258	1	5	12	460	305	155	974	306	392	258	1	5	12
1795	Dublin	West Dublin/Pleasanton	87	0	87	416	111	119	149	0	24	13	87	0	87	416	111	119	149	0	24	13
1796	Dublin	West Dublin/Pleasanton	203	0	203	311	90	119	97	0	1	4	203	0	203	311	90	119	97	0	1	4
1797	Dublin	West Dublin/Pleasanton	87	0	87	386	100	122	149	2	4	9	42	0	42	187	48	59	72	1	2	4
1798	Dublin	West Dublin/Pleasanton	141	0	141	310	107	103	90	3	2	5	67	0	67	147	51	49	43	1	1	2
1802	Dublin	West Dublin/Pleasanton	16	10	6	255	27	118	93	0	12	5	0	0	0	1	0	0	0	0	0	0
1865	Dublin	West Dublin/Pleasanton	203	0	203	638	193	163	243	0	11	28	203	0	203	638	193	163	243	0	11	28
1535	Pleasanton	West Dublin/Pleasanton	69	55	14	2,569	872	1,099	510	2	47	39	69	55	14	2,563	870	1,096	509	2	47	39
1536	Pleasanton	West Dublin/Pleasanton	399	318	81	3,149	1,250	1,225	577	1	52	44	383	305	78	3,025	1,201	1,177	554	1	50	42
1537	Pleasanton	West Dublin/Pleasanton	149	119	30	2,904	1,055	1,201	551	0	53	44	33	26	7	638	232	264	121	0	12	10
1538	Pleasanton	West Dublin/Pleasanton	520	413	107	435	150	188	86	0	6	5	64	51	13	53	18	23	11	0	1	1
1539	Pleasanton	West Dublin/Pleasanton	0	0	0	3,958	339	1,272	1,525	6	683	133	0	0	0	737	63	237	284	1	127	25
1688	Pleasanton	West Dublin/Pleasanton	299	256	43	720	180	242	277	7	7	7	9	8	1	22	6	8	9	0	0	0
1689	Pleasanton	West Dublin/Pleasanton	0	0	0	1,042	372	449	199	0	12	10	0	0	0	1,042	372	449	199	0	12	10
Total			29,228	15,022	14,206	102,910	19,194	37,792	33,780	247	8,189	3,709	12,858	5,118	7,743	61,663	11,830	22,826	20,703	118	4,305	1,885

TPA	Jurisdiction	2040										2040 TPA									
		HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp	HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp
San Ramon Transit Ctr	San Ramon	5,868	1,599	4,269	30,370	2,126	12,284	13,891	74	1,309	686	3,441	520	2,921	22,083	1,625	9,021	9,910	60	976	490
West Dublin/Pleasanton BART	Dublin	2,119	765	1,354	10,194	2,256	3,664	3,524	24	422	304	1,344	338	1,008	6,432	1,660	2,138	2,202	11	234	184
	Pleasanton	1,436	1,161	275	14,777	4,218	5,676	3,725	16	860	282	558	445	113	8,080	2,762	3,254	1,687	4	249	127
Dublin/Pleasanton BART	Dublin	2,825	832	1,993	8,646	3,234	2,331	2,421	15	430	215	1,648	519	1,130	5,372	2,130	1,180	1,675	6	248	133
	Pleasanton	1,601	692	909	12,440	2,093	5,002	3,443	5	1,714	182	867	380	487	7,030	1,016	3,004	1,977	5	923	108
Pleasanton ACE	Pleasanton	3,302	1,728	1,574	8,331	2,396	2,213	2,406	76	1,084	155	1,708	761	949	4,323	1,197	1,210	1,209	21	624	62
Livermore Transit Ctr	Livermore	7,546	5,282	2,264	6,584	1,452	2,635	2,109	6	247	135	3,113	2,082	1,030	4,262	987	1,749	1,380	4	99	45
South Vasco Rd ACE	Livermore	4,531	2,963	1,568	11,569	1,418	3,986	2,261	30	2,123	1,751	179	73	105	4,081	453	1,270	663	7	952	736
Total		29,228	15,022	14,206	102,910	19,194	37,792	33,780	247	8,189	3,709	12,858	5,118	7,743	61,663	11,830	22,826	20,703	118	4,305	1,885

TCID	Jurisdiction	TPA	2020-2040 Growth										TPA Growth									
			HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp	HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp
1522	Dublin	Dublin/Pleasanton	327	85	242	1,569	268	149	991	0	96	65	327	85	242	1,569	268	149	991	0	96	65
1523	Dublin	Dublin/Pleasanton	0	0	0	174	11	102	39	2	13	7	0	0	0	124	8	73	28	1	9	5
1524	Dublin	Dublin/Pleasanton	0	0	0	3	1	-3	1	0	2	2	0	0	0	0	0	0	0	0	0	0
1525	Dublin	Dublin/Pleasanton	0	0	0	2	2	-6	1	0	4	1	0	0	0	0	0	0	0	0	0	0
1805	Dublin	Dublin/Pleasanton	1,740	454	1,286	-2,378	-2,378	0	0	0	0	0	572	149	423	-782	-782	0	0	0	0	0
1807	Dublin	Dublin/Pleasanton	0	0	0	735	113	337	205	3	54	23	0	0	0	85	13	39	24	0	6	3
1825	Dublin	Dublin/Pleasanton	0	0	0	431	431	0	0	0	0	0	0	0	0	431	431	0	0	0	0	0
1826	Dublin	Dublin/Pleasanton	0	0	0	643	170	294	179	0	0	0	0	0	0	415	110	190	115	0	0	0
1827	Dublin	Dublin/Pleasanton	0	0	0	719	190	265	231	0	28	5	0	0	0	299	79	110	96	0	12	2
1828	Dublin	Dublin/Pleasanton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1863	Dublin	Dublin/Pleasanton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1542	Pleasanton	Dublin/Pleasanton	0	0	0	29	0	31	7	0	-8	-1	0	0	0	29	0	31	7	0	-8	-1
1543	Pleasanton	Dublin/Pleasanton	87	48	39	801	133	343	196	0	117	12	51	28	23	473	79	202	116	0	69	7
1544	Pleasanton	Dublin/Pleasanton	499	177	322	791	125	351	223	0	85	7	129	46	83	205	32	91	58	0	22	2
1545	Pleasanton	Dublin/Pleasanton	0	0	0	808	103	375	204	0	114	12	0	0	0	266	34	124	67	0	38	4
1546	Pleasanton	Dublin/Pleasanton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1698	Pleasanton	Dublin/Pleasanton	0	0	0	-44	-7	-5	-17	0	-12	-3	0	0	0	-7	-1	-1	-3	0	-2	0
1699	Pleasanton	Dublin/Pleasanton	0	0	0	-21	-4	8	-11	0	-12	-2	0	0	0	-16	-3	6	-8	0	-9	-2
1700	Pleasanton	Dublin/Pleasanton	0	0	0	331	33	113	129	1	46	9	0	0	0	280	28	96	109	1	39	7
1701	Pleasanton	Dublin/Pleasanton	0	0	0	119	22	42	30	0	23	2	0	0	0	119	22	42	30	0	23	2
1702	Pleasanton	Dublin/Pleasanton	13	7	6	112	15	48	31	0	16	2	13	7	6	112	15	48	31	0	16	2
1703	Pleasanton	Dublin/Pleasanton	151	83	68	64	10	29	18	0	5	2	151	83	68	64	10	29	18	0	5	2
1704	Pleasanton	Dublin/Pleasanton	254	90	164	-78	-9	-43	-20	0	-6	0	249	88	161	-77	-9	-42	-20	0	-6	0
1705	Pleasanton	Dublin/Pleasanton	114	40	74	856	131	412	214	0	91	8	114	40	74	856	131	412	214	0	91	8
1706	Pleasanton	Dublin/Pleasanton	0	0	0	41	8	12	12	0	8	1	0	0	0	41	8	12	12	0	8	1
1707	Pleasanton	Dublin/Pleasanton	2	1	1	256	38	98	67	0	49	5	0	0	0	54	8	20	14	0	10	1
1722	Pleasanton	Dublin/Pleasanton	118	65	53	281	32	137	77	0	32	3	115	63	52	273	31	133	75	0	31	3
1723	Pleasanton	Dublin/Pleasanton	60	33	27	473	70	235	117	0	47	4	45	25	20	354	52	176	87	0	35	3
1868	Pleasanton	Dublin/Pleasanton	0	0	0	-15	-5	-6	-1	0	-3	0	0	0	0	-15	-5	-6	-1	0	-3	0
1869	Pleasanton	Dublin/Pleasanton	0	0	0	-17	-3	-4	-4	0	-5	-1	0	0	0	-17	-3	-4	-4	0	-5	-1
1617	Livermore	Livermore Transit	20	18	2	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
1621	Livermore	Livermore Transit	75	25	50	0	0	0	0	0	0	0	60	20	40	0	0	0	0	0	0	0
1622	Livermore	Livermore Transit	18	0	18	0	0	0	0	0	0	0	7	0	7	0	0	0	0	0	0	0
1627	Livermore	Livermore Transit	835	408	427	0	0	0	0	0	0	0	668	326	341	0	0	0	0	0	0	0
1628	Livermore	Livermore Transit	91	66	25	0	0	0	0	0	0	0	91	66	25	0	0	0	0	0	0	0
1635	Livermore	Livermore Transit	30	0	30	27	14	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0
1636	Livermore	Livermore Transit	35	5	30	0	0	0	0	0	0	0	5	1	5	0	0	0	0	0	0	0
1639	Livermore	Livermore Transit	85	66	19	0	0	0	0	0	0	0	3	2	1	0	0	0	0	0	0	0
1642	Livermore	Livermore Transit	96	77	19	0	0	0	0	0	0	0	20	16	4	0	0	0	0	0	0	0
1650	Livermore	Livermore Transit	141	115	26	0	0	0	0	0	0	0	3	3	1	0	0	0	0	0	0	0
1867	Livermore	Livermore Transit	180	95	85	0	0	0	0	0	0	0	128	68	61	0	0	0	0	0	0	0
1581	Pleasanton	Pleasanton ACE	0	0	0	83	9	22	51	0	1	0	0	0	0	18	2	5	11	0	0	0
1582	Pleasanton	Pleasanton ACE	13	10	3	0	0	0	0	0	0	0	3	3	1	0	0	0	0	0	0	0
1583	Pleasanton	Pleasanton ACE	0	0	0	172	43	49	51	0	27	2	0	0	0	33	8	9	10	0	5	0
1584	Pleasanton	Pleasanton ACE	205	109	96	212	58	61	59	0	32	3	126	67	59	131	36	38	36	0	19	2
1585	Pleasanton	Pleasanton ACE	0	0	0	228	33	78	70	3	40	4	0	0	0	138	20	47	42	2	24	2
1587	Pleasanton	Pleasanton ACE	0	0	0	266	266	0	0	0	0	0	0	0	0	196	196	0	0	0	0	0
1588	Pleasanton	Pleasanton ACE	0	0	0	131	31	38	39	0	21	2	0	0	0	111	26	32	33	0	18	1
1597	Pleasanton	Pleasanton ACE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1764	Pleasanton	Pleasanton ACE	58	25	33	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
1767	Pleasanton	Pleasanton ACE	0	0	0	117	18	54	32	0	9	4	0	0	0	68	10	31	18	0	5	2
1768	Pleasanton	Pleasanton ACE	11	6	5	580	107	134	210	0	120	9	8	4	4	410	76	95	148	0	85	6
1770	Pleasanton	Pleasanton ACE	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1772	Pleasanton	Pleasanton ACE	6	5	1	-3	0	3	-4	0	0	-2	2	2	0	-1	0	1	-2	0	0	-1
1773	Pleasanton	Pleasanton ACE	46	19	27	29	-3	31	5	0	-3	-1	46	19	27	29	-3	31	5	0	-3	-1
1774	Pleasanton	Pleasanton ACE	0	0	0	-137	-22	-37	-55	-10	-4	-9	0	0	0	-78	-12	-21	-31	-6	-2	-5

TCID	Jurisdiction	TPA	2020-2040 Growth										TPA Growth									
			HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp	HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp
1372	San Ramon	San Ramon Transit Ctr	474	250	224	964	27	518	368	0	26	25	116	61	55	235	7	126	90	0	6	6
1374	San Ramon	San Ramon Transit Ctr	639	338	301	590	3	510	76	0	-5	6	222	117	104	205	1	177	26	0	-2	2
1382	San Ramon	San Ramon Transit Ctr	349	193	156	1,284	-1	558	690	1	23	13	300	166	134	1,103	-1	479	593	1	20	11
1383	San Ramon	San Ramon Transit Ctr	1,659	0	1,659	329	34	347	38	-5	-60	-25	1,404	0	1,404	278	29	294	32	-4	-51	-21
1384	San Ramon	San Ramon Transit Ctr	0	0	0	-43	-7	76	-91	0	-13	-8	0	0	0	-4	-1	7	-9	0	-1	-1
1412	San Ramon	San Ramon Transit Ctr	1,204	0	1,204	982	19	578	406	0	-7	-14	1,072	0	1,072	875	17	515	362	0	-6	-12
1413	San Ramon	San Ramon Transit Ctr	0	-9	9	13	13	0	0	0	0	0	0	-7	7	10	10	0	0	0	0	0
1414	San Ramon	San Ramon Transit Ctr	0	-43	43	-3	3	14	-18	0	-1	-1	0	-6	6	0	0	2	-2	0	0	0
1415	San Ramon	San Ramon Transit Ctr	19	8	11	-62	-13	150	-172	1	-20	-8	14	6	8	-46	-10	110	-127	1	-15	-6
1416	San Ramon	San Ramon Transit Ctr	0	0	0	870	1	695	194	5	-19	-6	0	0	0	870	1	695	194	5	-19	-6
1417	San Ramon	San Ramon Transit Ctr	0	-30	30	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1495	San Ramon	San Ramon Transit Ctr	136	75	61	299	8	143	132	0	9	7	74	41	33	162	4	78	72	0	5	4
1648	Livermore	Vasco ACE	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1649	Livermore	Vasco ACE	0	0	0	117	39	39	39	0	0	0	0	0	0	73	24	24	24	0	0	0
1652	Livermore	Vasco ACE	0	0	0	330	92	220	0	0	0	18	0	0	0	169	47	113	0	0	0	9
1653	Livermore	Vasco ACE	131	112	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1656	Livermore	Vasco ACE	15	0	15	0	0	0	0	0	0	0	8	0	8	0	0	0	0	0	0	0
1658	Livermore	Vasco ACE	509	165	344	133	0	66	0	0	38	29	112	36	76	29	0	15	0	0	8	6
1659	Livermore	Vasco ACE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1666	Livermore	Vasco ACE	50	45	5	161	73	73	15	0	0	0	0	0	0	0	0	0	0	0	0	0
1787	Livermore	Vasco ACE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500	Dublin	West Dublin/Pleasanton	0	0	0	15	-23	42	14	-9	14	-23	0	0	0	0	0	0	0	0	0	0
1501	Dublin	West Dublin/Pleasanton	0	0	0	15	-27	25	28	-8	14	-17	0	0	0	5	-10	9	10	-3	5	-6
1502	Dublin	West Dublin/Pleasanton	87	0	87	270	32	38	108	-4	88	8	87	0	87	270	32	38	108	-4	88	8
1503	Dublin	West Dublin/Pleasanton	203	0	203	533	123	201	187	5	5	12	129	0	129	339	78	128	119	3	3	8
1504	Dublin	West Dublin/Pleasanton	87	0	87	99	25	33	33	0	4	4	17	0	17	19	5	6	6	0	1	1
1525	Dublin	West Dublin/Pleasanton	0	0	0	2	2	-6	1	0	4	1	0	0	0	0	0	0	0	0	0	0
1526	Dublin	West Dublin/Pleasanton	0	0	0	2	2	-6	1	0	4	1	0	0	0	2	2	-5	1	0	3	1
1690	Dublin	West Dublin/Pleasanton	460	305	155	937	293	379	247	1	5	12	460	305	155	937	293	379	247	1	5	12
1795	Dublin	West Dublin/Pleasanton	87	0	87	89	22	31	28	0	6	2	87	0	87	89	22	31	28	0	6	2
1796	Dublin	West Dublin/Pleasanton	203	0	203	208	58	84	62	0	1	3	203	0	203	208	58	84	62	0	1	3
1797	Dublin	West Dublin/Pleasanton	87	0	87	226	52	79	85	2	3	5	42	0	42	109	25	38	41	1	1	2
1798	Dublin	West Dublin/Pleasanton	87	0	87	64	22	28	13	2	0	-1	41	0	41	30	10	13	6	1	0	0
1802	Dublin	West Dublin/Pleasanton	0	0	0	1	1	-1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
1865	Dublin	West Dublin/Pleasanton	203	0	203	0	0	0	0	0	0	0	203	0	203	0	0	0	0	0	0	0
1535	Pleasanton	West Dublin/Pleasanton	69	55	14	872	278	410	172	0	7	5	69	55	14	870	277	409	172	0	7	5
1536	Pleasanton	West Dublin/Pleasanton	399	318	81	1,328	522	544	243	1	9	9	383	305	78	1,276	501	523	233	1	9	9
1537	Pleasanton	West Dublin/Pleasanton	149	119	30	350	98	198	72	0	-10	-8	33	26	7	77	22	44	16	0	-2	-2
1538	Pleasanton	West Dublin/Pleasanton	18	18	0	43	12	25	8	0	-1	-1	2	2	0	5	1	3	1	0	0	0
1539	Pleasanton	West Dublin/Pleasanton	0	0	0	1,484	127	477	572	2	256	50	0	0	0	276	24	89	106	0	48	9
1688	Pleasanton	West Dublin/Pleasanton	0	0	0	270	68	91	104	3	3	3	0	0	0	8	2	3	3	0	0	0
1689	Pleasanton	West Dublin/Pleasanton	0	0	0	462	156	213	89	0	2	2	0	0	0	462	156	213	89	0	2	2
Total			12,644	4,051	8,593	21,638	2,200	10,626	7,126	-3	1,414	276	8,017	2,320	5,699	15,131	2,541	6,838	4,829	1	750	165

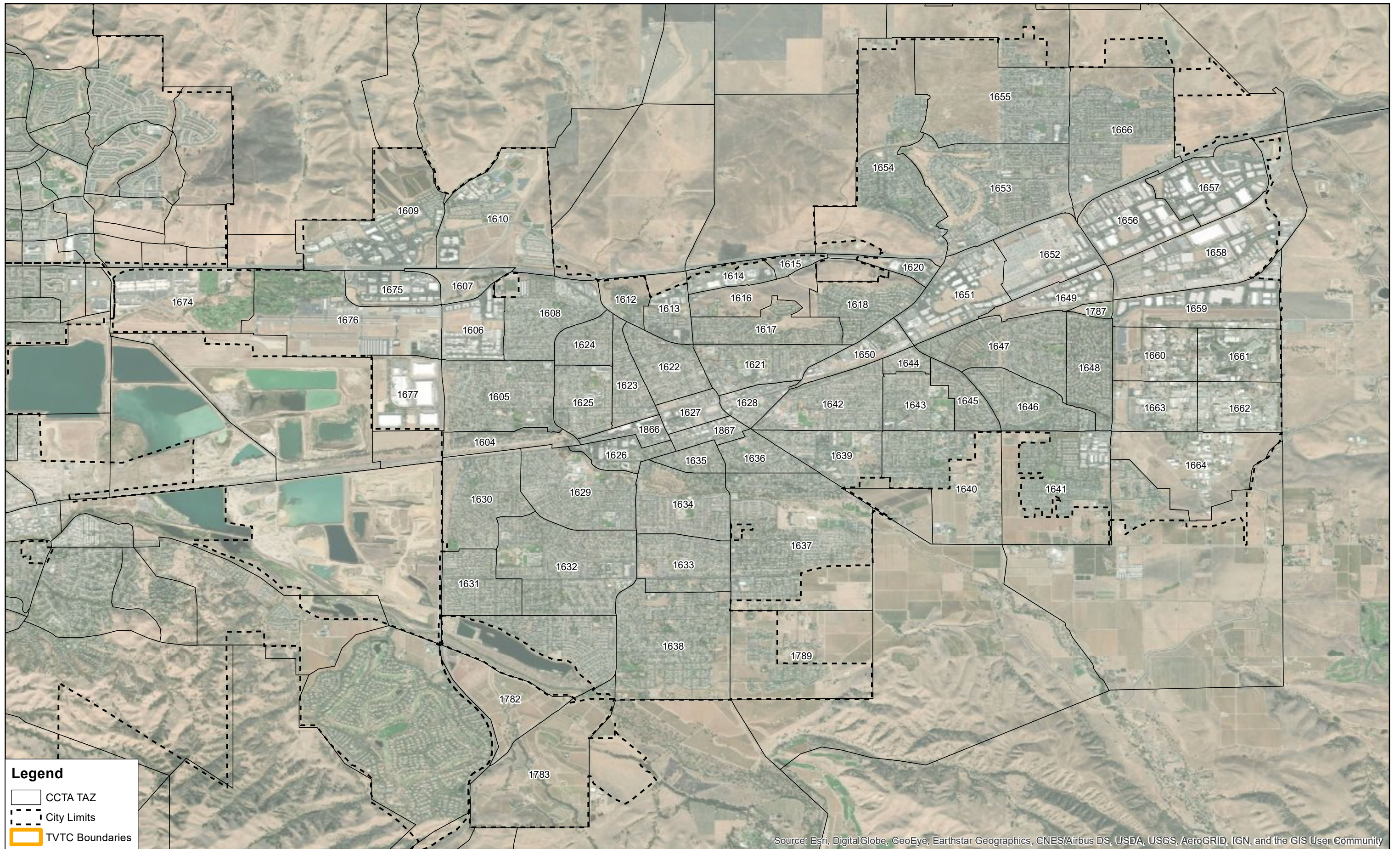
TPA	Jurisdiction	2020-2040 Growth										TPA Growth									
		HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp	HH	SF	MF	Total Emp	Retail Emp	Service Emp	Other Emp	Ag. Emp	Man. Emp	Trading Emp
San Ramon Transit Ctr	San Ramon	4,480	782	3,698	5,235	99	3,589	1,623	2	-67	-11	3,202	378	2,823	3,688	57	2,483	1,231	3	-63	-23
West Dublin/Pleasanton BART	Dublin	1,504	305	1,199	2,461	582	927	807	-11	149	7	1,269	305	964	2,008	515	721	628	-1	113	31
	Pleasanton	635	510	125	4,809	1,261	1,958	1,260	6	266	59	487	388	99	2,974	983	1,284	620	1	64	23
Dublin/Pleasanton BART	Dublin	2,067	539	1,528	1,898	-1,192	1,138	1,647	5	197	103	899	234	665	2,141	127	561	1,254	1	123	75
	Pleasanton	1,298	544	754	4,789	692	2,176	1,272	1	588	59	867	380	487	2,994	429	1,369	802	1	354	38
Pleasanton ACE	Pleasanton	339	174	165	1,679	540	433	457	-7	243	12	186	95	92	1,055	359	268	270	-4	151	6
Livermore Transit Ctr	Livermore	1,606	875	731	27	14	7	6	0	0	0	987	504	485	0	0	0	0	0	0	0
South Vasco Rd ACE	Livermore	715	322	393	741	204	398	54	0	38	47	120	36	84	271	71	152	24	0	8	15
Total		12,644	4,051	8,593	21,638	2,200	10,626	7,126	-3	1,414	276	8,017	2,320	5,699	15,131	2,541	6,838	4,829	1	750	165

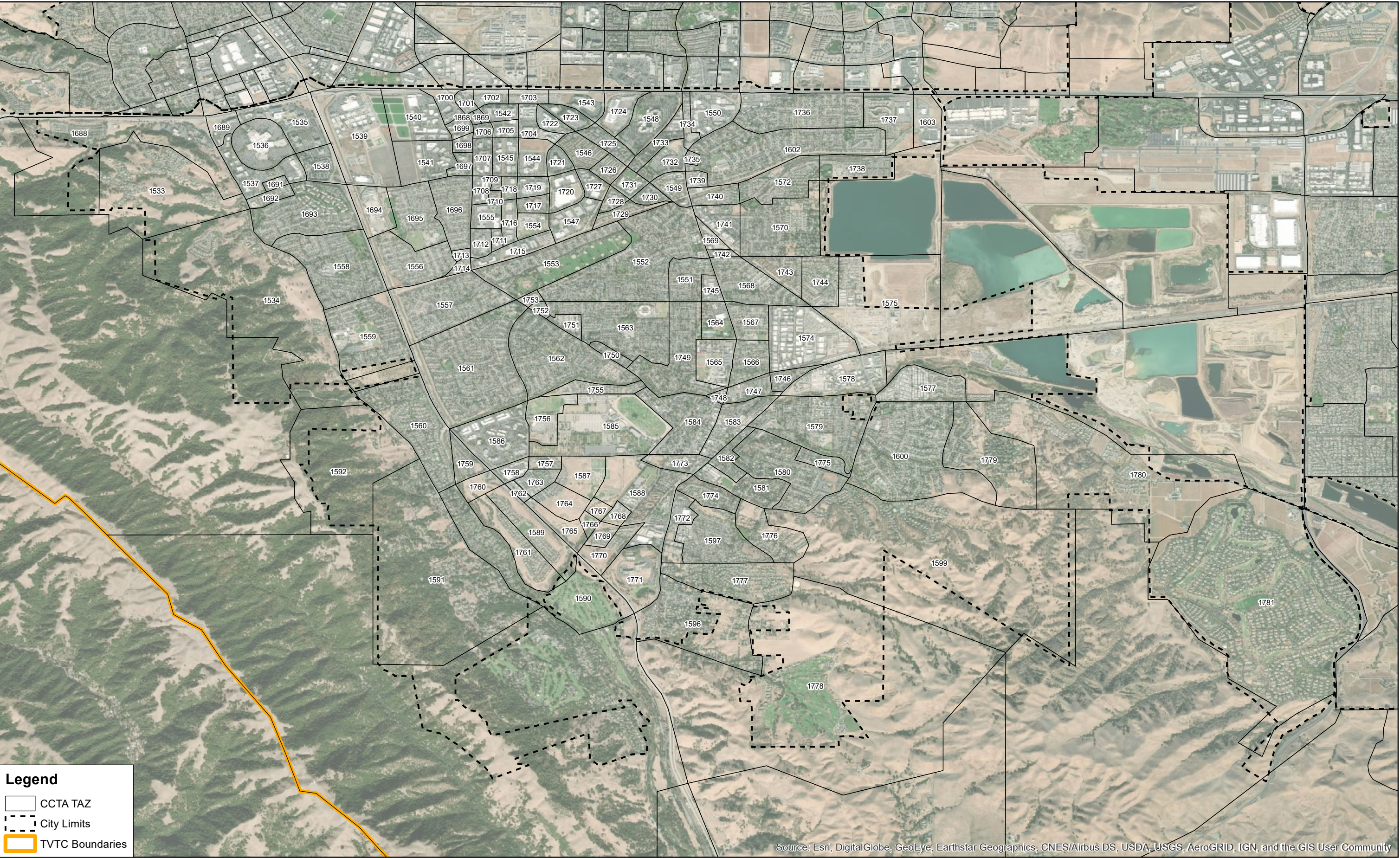


Legend

- CCTA TAZ
- City Limits
- TVTC Boundaries

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

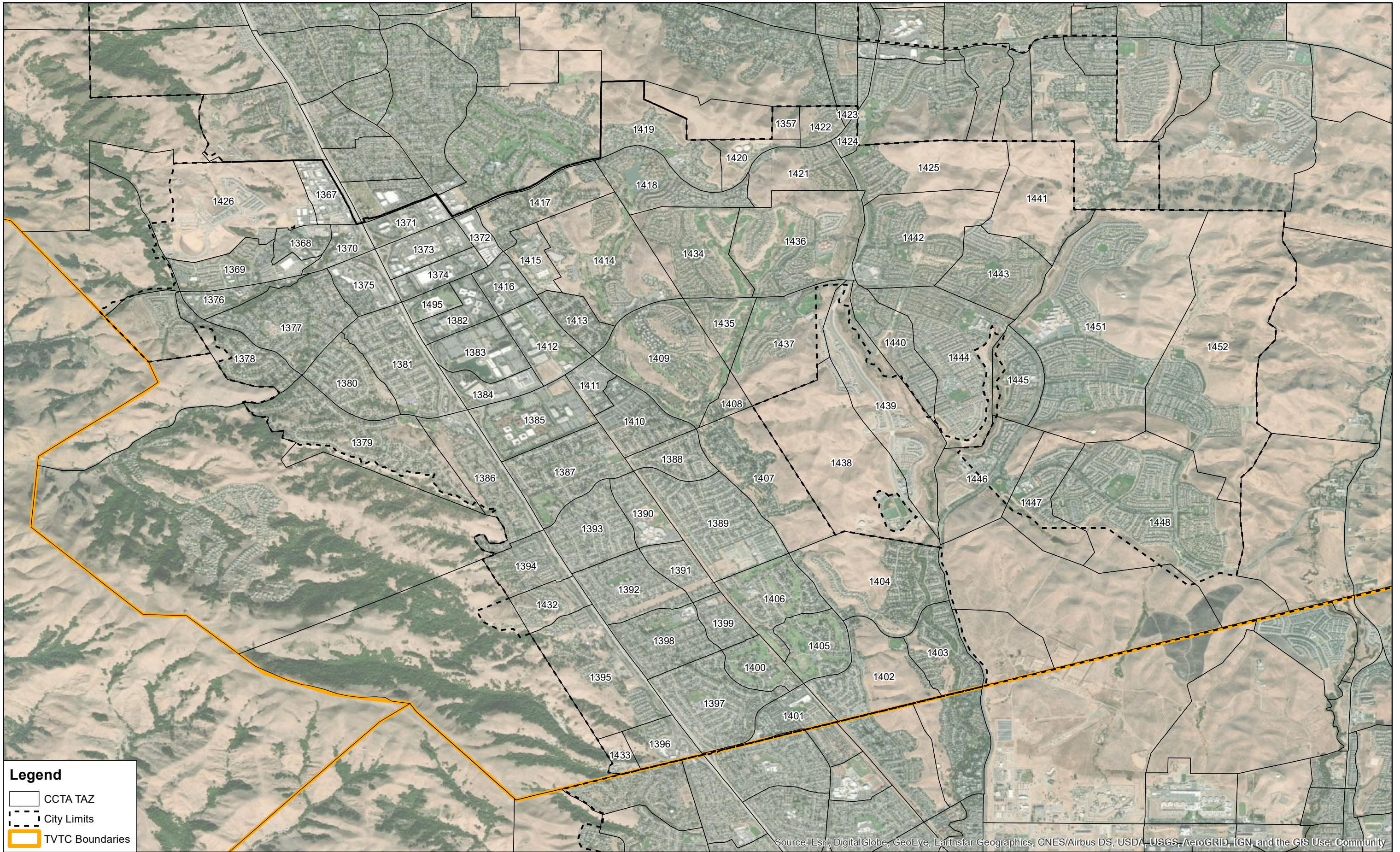




Legend

- CCTA TAZ
- City Limits
- TVTC Boundaries

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community





Attachment C – Trip Generation Calculations

San Ramon Transit Center

ITE Land Use Code		Size	Size		AM Peak			PM Peak		
					Rate	In%	Out%	Rate	In%	Out%
220		Multifamily Housing (Low-Rise)	Dwelling Unit(s)		0.46	0.23	0.77	0.56	0.63	0.37
820		Shopping Center	1,000 Sq Ft		0.66	0.62	0.38	2.67	0.48	0.52
TVTDF Land Use Type	ITE Land Use Code	Land Use	Size	Units	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Multi-Family Residential	220	Multifamily Housing (Low-Rise)	2,921	Dwelling Unit(s)	1,344	309	1,035	1,636	1,031	605
Retail	820	Shopping Center	812.500	1,000 Sq Ft	535	332	203	2,167	1,040	1,127
Total Trips					1,879	641	1,238	3,803	2,071	1,732
Internal Capture (Retail)					42	23	19	451	236	215
Internal Capture (Restaurant)					63	46	17	433	158	275
Internal Capture (Residential)					53	10	43	120	108	12
Residential Net New Trips					1,291	299	992	1,516	923	593
% Trip Reduction					4%	3%	4%	7%	10%	2%
% Trip Reduction (AM/PM Average)					6%					

Source: ITE Trip Generation, 10th Edition

Consistent with 2020 Nexus Study, a 30% reduction was applied to LUC 820 Shopping Center rates to account for pass-by trips.

Internal Capture assumed 50% Retail and 50% Restaurant split for Retail Land Use Type.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	San Ramon Transit Center			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		406	1,000 Sq Ft	268	166	102
Restaurant		406	1,000 Sq Ft	268	166	102
Cinema/Entertainment				0		
Residential		2,921	Dwelling Unit(s)	1,344	309	1,035
Hotel				0		
All Other Land Uses ²				0		
				1,879	641	1,238

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		13	0	6	0
Restaurant	0	13		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	10	33	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,880	641	1,239
Internal Capture Percentage	8%	12%	6%
External Vehicle-Trips ⁵	1,722	562	1,160
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	14%	19%
Restaurant	28%	17%
Cinema/Entertainment	N/A	N/A
Residential	3%	4%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	166	166	1.00	101.5	102
Restaurant	1.00	166	166	1.00	101.5	102
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	309	309	1.00	1035	1035
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	30		13	0	14	0
Restaurant	32	14		0	4	3
Cinema/Entertainment	0	0	0		0	0
Residential	21	10	207	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		53	38	0	0	0
Retail	0		83	0	6	0
Restaurant	0	13		0	15	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	28	33	0		0
Hotel	0	7	10	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	23	143	166	143	0	0
Restaurant	46	120	166	120	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	10	299	309	299	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	19	83	102	83	0	0
Restaurant	17	85	102	85	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	43	992	1035	992	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	San Ramon Transit Center			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		406	1,000 Sq Ft	1,084	520	564
Restaurant		406	1,000 Sq Ft	1,084	520	564
Cinema/Entertainment				0		
Residential		2,921	Dwelling Unit(s)	1,636	1,031	605
Hotel				0		
All Other Land Uses ²				0		
				3,803	2,071	1,732

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					2640	
Restaurant					2640	
Cinema/Entertainment						
Residential		2640	2640			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		151	0	64	0
Restaurant	0	231		0	44	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	5	7	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	3,804	2,071	1,733
Internal Capture Percentage	26%	24%	29%
External Vehicle-Trips ⁵	2,800	1,569	1,231
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	45%	38%
Restaurant	30%	49%
Cinema/Entertainment	N/A	N/A
Residential	10%	2%
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	520	520	1.00	563.5	564
Restaurant	1.00	520	520	1.00	563.5	564
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	1031	1031	1.00	605	605
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	11		164	23	64	28
Restaurant	17	231		45	44	39
Cinema/Entertainment	0	0	0		0	0
Residential	24	25	13	0		18
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		42	10	0	41	0
Retail	0		151	0	474	0
Restaurant	0	260		0	165	0
Cinema/Entertainment	0	21	16		41	0
Residential	0	5	7	0		0
Hotel	0	10	26	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	236	284	520	284	0	0
Restaurant	158	362	520	362	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	108	923	1031	923	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	215	349	564	349	0	0
Restaurant	275	289	564	289	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	12	593	605	593	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

West Dublin/Plesanton BART (Dublin)

ITE Land Use Code		Size	Size		AM Peak			PM Peak		
					Rate	In%	Out%	Rate	In%	Out%
220		Multifamily Housing (Low-Rise)	Dwelling Unit(s)		0.46	0.23	0.77	0.56	0.63	0.37
820		Shopping Center	1,000 Sq Ft		0.66	0.62	0.38	2.67	0.48	0.52
TVTDF Land Use Type	ITE Land Use Code	Land Use	Size	Units	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Multi-Family Residential	220	Multifamily Housing (Low-Rise)	1,008.000	Dwelling Unit(s)	464	107	357	564	355	209
Retail	820	Shopping Center	830.000	1,000 Sq Ft	546	339	207	2,214	1,063	1,151
Total Trips					1,010	446	564	2,778	1,418	1,360
Internal Capture (Retail)					34	18	16	461	241	220
Internal Capture (Restaurant)					66	48	18	439	158	281
Internal Capture (Residential)					44	6	38	120	111	9
Residential Net New Trips					420	101	319	444	244	200
% Trip Reduction					9%	6%	11%	21%	31%	4%
% Trip Reduction (AM/PM Average)					16%					

Source: ITE Trip Generation, 10th Edition

Consistent with 2020 Nexus Study, a 30% reduction was applied to LUC 820 Shopping Center rates to account for pass-by trips.

Internal Capture assumed 50% Retail and 50% Restaurant split for Retail Land Use Type.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	West Dublin/Pleasanton (Dublin)			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		415	1,000 Sq Ft	273	170	104
Restaurant		415	1,000 Sq Ft	273	170	104
Cinema/Entertainment				0		
Residential		1,008	Dwelling Unit(s)	464	107	357
Hotel				0		
All Other Land Uses ²				0		
				1,010	446	564

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		14	0	2	0
Restaurant	0	14		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	34	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,012	447	565
Internal Capture Percentage	14%	16%	13%
External Vehicle-Trips ⁵	868	375	493
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	11%	15%
Restaurant	28%	17%
Cinema/Entertainment	N/A	N/A
Residential	6%	11%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	169.5	170	1.00	103.5	104
Restaurant	1.00	169.5	170	1.00	103.5	104
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	107	107	1.00	357	357
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	30		14	0	15	0
Restaurant	32	15		0	4	3
Cinema/Entertainment	0	0	0		0	0
Residential	7	4	71	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		54	39	0	0	0
Retail	0		85	0	2	0
Restaurant	0	14		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	29	34	0		0
Hotel	0	7	10	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	18	152	170	152	0	0
Restaurant	48	122	170	122	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	6	101	107	101	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	16	88	104	88	0	0
Restaurant	18	86	104	86	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	38	319	357	319	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	West Dublin/Pleasanton (Dublin)			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		415	1,000 Sq Ft	1,107	532	576
Restaurant		415	1,000 Sq Ft	1,107	532	576
Cinema/Entertainment				0		
Residential		1,008	Dwelling Unit(s)	564	355	209
Hotel				0		
All Other Land Uses ²				0		
				2,778	1,418	1,360

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					2640	
Restaurant					2640	
Cinema/Entertainment						
Residential		2640	2640			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		154	0	66	0
Restaurant	0	236		0	45	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	5	4	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	2,780	1,419	1,361
Internal Capture Percentage	37%	36%	37%
External Vehicle-Trips ⁵	1,760	909	851
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	45%	38%
Restaurant	30%	49%
Cinema/Entertainment	N/A	N/A
Residential	31%	4%
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	531.5	532	1.00	575.5	576
Restaurant	1.00	531.5	532	1.00	575.5	576
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	355	355	1.00	209	209
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	12		167	23	66	29
Restaurant	17	236		46	45	40
Cinema/Entertainment	0	0	0		0	0
Residential	8	9	4	0		6
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		43	11	0	14	0
Retail	0		154	0	163	0
Restaurant	0	266		0	57	0
Cinema/Entertainment	0	21	16		14	0
Residential	0	5	7	0		0
Hotel	0	11	27	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	241	291	532	291	0	0
Restaurant	158	374	532	374	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	111	244	355	244	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	220	356	576	356	0	0
Restaurant	281	295	576	295	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	9	200	209	200	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

West Dublin/Plesanton BART (Pleasanton)

ITE Land Use Code		Size	Size		AM Peak			PM Peak		
					Rate	In%	Out%	Rate	In%	Out%
220		Multifamily Housing (Low-Rise)	Dwelling Unit(s)		0.46	0.23	0.77	0.56	0.63	0.37
820		Shopping Center	1,000 Sq Ft		0.66	0.62	0.38	2.67	0.48	0.52
TVTDF Land Use Type	ITE Land Use Code	Land Use	Size	Units	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Multi-Family Residential	220	Multifamily Housing (Low-Rise)	113	Dwelling Unit(s)	52	12	40	63	40	23
Retail	820	Shopping Center	1,381.000	1,000 Sq Ft	909	564	345	3,683	1,768	1,915
Total Trips					961	576	385	3,746	1,808	1,938
Internal Capture (Retail)					45	23	22	668	394	274
Internal Capture (Restaurant)					54	30	24	655	256	399
Internal Capture (Residential)					9	1	8	25	24	1
Residential Net New Trips					43	11	32	38	16	22
% Trip Reduction					17%	8%	20%	40%	60%	4%
% Trip Reduction (AM/PM Average)					30%					

Source: ITE Trip Generation, 10th Edition

Consistent with 2020 Nexus Study, a 30% reduction was applied to LUC 820 Shopping Center rates to account for pass-by trips.

Internal Capture assumed 50% Retail and 50% Restaurant split for Retail Land Use Type.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	West Dublin/Pleasanton (Pleasanton)			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		691	1,000 Sq Ft	455	282	173
Restaurant		691	1,000 Sq Ft	455	282	173
Cinema/Entertainment				0		
Residential		113	Dwelling Unit(s)	52	12	40
Hotel				0		
All Other Land Uses ²				0		
				961	576	385

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		22	0	0	0
Restaurant	0	23		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	8	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	962	576	386
Internal Capture Percentage	11%	9%	14%
External Vehicle-Trips ⁵	854	522	332
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	8%	13%
Restaurant	11%	14%
Cinema/Entertainment	N/A	N/A
Residential	8%	20%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	282	282	1.00	172.5	173
Restaurant	1.00	282	282	1.00	172.5	173
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	12	12	1.00	40	40
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	50		22	0	24	0
Restaurant	54	24		0	7	5
Cinema/Entertainment	0	0	0		0	0
Residential	1	0	8	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		90	65	0	0	0
Retail	0		141	0	0	0
Restaurant	0	23		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	48	56	0		0
Hotel	0	11	17	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	23	259	282	259	0	0
Restaurant	30	252	282	252	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	11	12	11	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	22	151	173	151	0	0
Restaurant	24	149	173	149	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	8	32	40	32	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	West Dublin/Pleasanton (Pleasanton)			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		691	1,000 Sq Ft	1,842	884	958
Restaurant		691	1,000 Sq Ft	1,842	884	958
Cinema/Entertainment				0		
Residential		113	Dwelling Unit(s)	63	40	23
Hotel				0		
All Other Land Uses ²				0		
				3,746	1,808	1,938

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					2640	
Restaurant					2640	
Cinema/Entertainment						
Residential		2640	2640			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		256	0	18	0
Restaurant	0	393		0	6	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	3,747	1,808	1,939
Internal Capture Percentage	36%	37%	35%
External Vehicle-Trips ⁵	2,399	1,134	1,265
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	45%	29%
Restaurant	29%	42%
Cinema/Entertainment	N/A	N/A
Residential	60%	4%
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	884	884	1.00	957.5	958
Restaurant	1.00	884	884	1.00	957.5	958
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	40	40	1.00	23	23
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	19		278	38	109	48
Restaurant	29	393		77	76	67
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		1
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		71	18	0	2	0
Retail	0		256	0	18	0
Restaurant	0	442		0	6	0
Cinema/Entertainment	0	35	27		2	0
Residential	0	9	12	0		0
Hotel	0	18	44	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	394	490	884	490	0	0
Restaurant	256	628	884	628	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	24	16	40	16	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	274	684	958	684	0	0
Restaurant	399	559	958	559	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	22	23	22	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Dublin/Pleasanton BART (Dublin)

ITE Land Use Code		Size	Size		AM Peak			PM Peak		
					Rate	In%	Out%	Rate	In%	Out%
220		Multifamily Housing (Low-Rise)	Dwelling Unit(s)		0.46	0.23	0.77	0.56	0.63	0.37
820		Shopping Center	1,000 Sq Ft		0.66	0.62	0.38	2.67	0.48	0.52
TVTDF Land Use Type	ITE Land Use Code	Land Use	Size	Units	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Multi-Family Residential	220	Multifamily Housing (Low-Rise)	1,130	Dwelling Unit(s)	520	120	400	633	399	234
Retail	820	Shopping Center	1,065.000	1,000 Sq Ft	701	435	266	2,840	1,363	1,477
Total Trips					1,221	555	666	3,473	1,762	1,711
Internal Capture (Retail)					40	21	19	592	310	282
Internal Capture (Restaurant)					83	61	22	564	203	361
Internal Capture (Residential)					55	7	48	154	142	12
Residential Net New Trips					465	113	352	479	257	222
% Trip Reduction					11%	6%	12%	24%	36%	5%
% Trip Reduction (AM/PM Average)					18%					

Source: ITE Trip Generation, 10th Edition

Consistent with 2020 Nexus Study, a 30% reduction was applied to LUC 820 Shopping Center rates to account for pass-by trips.

Internal Capture assumed 50% Retail and 50% Restaurant split for Retail Land Use Type.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	Dublin/Plesanton BART (Dublin)			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		533	1,000 Sq Ft	351	218	133
Restaurant		533	1,000 Sq Ft	351	218	133
Cinema/Entertainment				0		
Residential		1,130	Dwelling Unit(s)	520	120	400
Hotel				0		
All Other Land Uses ²				0		
				1,221	555	666

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		17	0	2	0
Restaurant	0	17		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	44	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,222	556	666
Internal Capture Percentage	15%	16%	13%
External Vehicle-Trips ⁵	1,044	467	577
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	10%	14%
Restaurant	28%	17%
Cinema/Entertainment	N/A	N/A
Residential	6%	12%
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	217.5	218	1.00	133	133
Restaurant	1.00	217.5	218	1.00	133	133
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	120	120	1.00	400	400
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	39		17	0	19	0
Restaurant	41	19		0	5	4
Cinema/Entertainment	0	0	0		0	0
Residential	8	4	80	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		70	50	0	0	0
Retail	0		109	0	2	0
Restaurant	0	17		0	6	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	37	44	0		0
Hotel	0	9	13	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	21	197	218	197	0	0
Restaurant	61	157	218	157	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	113	120	113	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	19	114	133	114	0	0
Restaurant	22	111	133	111	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	48	352	400	352	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	Dublin/Plesanton BART (Dublin)			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		533	1,000 Sq Ft	1,420	682	739
Restaurant		533	1,000 Sq Ft	1,420	682	739
Cinema/Entertainment				0		
Residential		1,130	Dwelling Unit(s)	633	399	234
Hotel				0		
All Other Land Uses ²				0		
				3,473	1,762	1,711

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					2640	
Restaurant					2640	
Cinema/Entertainment						
Residential		2640	2640			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		198	0	84	0
Restaurant	0	303		0	58	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	7	5	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	3,475	1,763	1,712
Internal Capture Percentage	38%	37%	38%
External Vehicle-Trips ⁵	2,165	1,108	1,057
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	45%	38%
Restaurant	30%	49%
Cinema/Entertainment	N/A	N/A
Residential	36%	5%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	TVTC AB 3177
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	681.5	682	1.00	738.5	739
Restaurant	1.00	681.5	682	1.00	738.5	739
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	399	399	1.00	234	234
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	15		214	30	84	37
Restaurant	22	303		59	58	52
Cinema/Entertainment	0	0	0		0	0
Residential	9	10	5	0		7
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		55	14	0	16	0
Retail	0		198	0	184	0
Restaurant	0	341		0	64	0
Cinema/Entertainment	0	27	20		16	0
Residential	0	7	10	0		0
Hotel	0	14	34	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	310	372	682	372	0	0
Restaurant	203	479	682	479	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	142	257	399	257	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	282	457	739	457	0	0
Restaurant	361	378	739	378	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	12	222	234	222	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Dublin/Pleasanton BART (Pleasanton)

ITE Land Use Code		Size	Size		AM Peak			PM Peak		
					Rate	In%	Out%	Rate	In%	Out%
220		Multifamily Housing (Low-Rise)	Dwelling Unit(s)		0.46	0.23	0.77	0.56	0.63	0.37
820		Shopping Center	1,000 Sq Ft		0.66	0.62	0.38	2.67	0.48	0.52
TVTDF Land Use Type	ITE Land Use Code	Land Use	Size	Units	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Multi-Family Residential	220	Multifamily Housing (Low-Rise)	487	Dwelling Unit(s)	224	52	172	273	172	101
Retail	820	Shopping Center	508.000	1,000 Sq Ft	334	207	127	1,355	650	705
Total Trips					558	259	299	1,628	822	806
Internal Capture (Retail)					19	10	9	282	148	134
Internal Capture (Restraunt)					40	29	11	269	96	173
Internal Capture (Residential)					27	4	23	73	68	5
Residential Net New Trips					197	48	149	200	104	96
% Trip Reduction					12%	8%	13%	27%	40%	5%
% Trip Reduction (AM/PM Average)					20%					

Source: ITE Trip Generation, 10th Edition

Consistent with 2020 Nexus Study, a 30% reduction was applied to LUC 820 Shopping Center rates to account for pass-by trips.

Internal Capture assumed 50% Retail and 50% Restaurant split for Retail Land Use Type.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	Dublin/Pleasanton BART (Pleasanton)			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		254	1,000 Sq Ft	167	104	64
Restaurant		254	1,000 Sq Ft	167	104	64
Cinema/Entertainment				0		
Residential		487	Dwelling Unit(s)	224	52	172
Hotel				0		
All Other Land Uses ²				0		
				558	259	299

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		8	0	1	0
Restaurant	0	8		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	21	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	560	260	300
Internal Capture Percentage	15%	17%	14%
External Vehicle-Trips ⁵	474	217	257
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	10%	14%
Restaurant	28%	17%
Cinema/Entertainment	N/A	N/A
Residential	8%	13%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	103.5	104	1.00	63.5	64
Restaurant	1.00	103.5	104	1.00	63.5	64
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	52	52	1.00	172	172
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	19		8	0	9	0
Restaurant	20	9		0	3	2
Cinema/Entertainment	0	0	0		0	0
Residential	3	2	34	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		33	24	0	0	0
Retail	0		52	0	1	0
Restaurant	0	8		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	18	21	0		0
Hotel	0	4	6	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	10	94	104	94	0	0
Restaurant	29	75	104	75	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	48	52	48	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	9	55	64	55	0	0
Restaurant	11	53	64	53	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	23	149	172	149	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	Dublin/Pleasanton BART (Pleasanton)			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		254	1,000 Sq Ft	678	325	353
Restaurant		254	1,000 Sq Ft	678	325	353
Cinema/Entertainment				0		
Residential		487	Dwelling Unit(s)	273	172	101
Hotel				0		
All Other Land Uses ²				0		
				1,628	822	806

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					2640	
Restaurant					2640	
Cinema/Entertainment						
Residential		2640	2640			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		94	0	40	0
Restaurant	0	145		0	28	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	2	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,629	822	807
Internal Capture Percentage	38%	38%	39%
External Vehicle-Trips ⁵	1,005	510	495
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	46%	38%
Restaurant	30%	49%
Cinema/Entertainment	N/A	N/A
Residential	40%	5%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	TVTC AB 3177
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	325	325	1.00	352.5	353
Restaurant	1.00	325	325	1.00	352.5	353
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	172	172	1.00	101	101
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	7		102	14	40	18
Restaurant	11	145		28	28	25
Cinema/Entertainment	0	0	0		0	0
Residential	4	4	2	0		3
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		26	7	0	7	0
Retail	0		94	0	79	0
Restaurant	0	163		0	28	0
Cinema/Entertainment	0	13	10		7	0
Residential	0	3	5	0		0
Hotel	0	7	16	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	148	177	325	177	0	0
Restaurant	96	229	325	229	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	68	104	172	104	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	134	219	353	219	0	0
Restaurant	173	180	353	180	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	5	96	101	96	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Pleasanton ACE

ITE Land Use Code		Size	Size		AM Peak			PM Peak		
					Rate	In%	Out%	Rate	In%	Out%
220		Multifamily Housing (Low-Rise)	Dwelling Unit(s)		0.46	0.23	0.77	0.56	0.63	0.37
820		Shopping Center	1,000 Sq Ft		0.66	0.62	0.38	2.67	0.48	0.52
TVTDF Land Use Type	ITE Land Use Code	Land Use	Size	Units	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Multi-Family Residential	220	Multifamily Housing (Low-Rise)	949	Dwelling Unit(s)	437	101	336	531	335	196
Retail	820	Shopping Center	598.500	1,000 Sq Ft	394	244	150	1,596	766	830
Total Trips					831	345	486	2,127	1,101	1,026
Internal Capture (Retail)					25	13	12	332	174	158
Internal Capture (Restaurant)					47	34	13	318	115	203
Internal Capture (Residential)					32	5	27	88	80	8
Residential Net New Trips					405	96	309	443	255	188
% Trip Reduction					7%	5%	8%	17%	24%	4%
% Trip Reduction (AM/PM Average)					12%					

Source: ITE Trip Generation, 10th Edition

Consistent with 2020 Nexus Study, a 30% reduction was applied to LUC 820 Shopping Center rates to account for pass-by trips.

Internal Capture assumed 50% Retail and 50% Restaurant split for Retail Land Use Type.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	Pleasanton ACE			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		299	1,000 Sq Ft	197	122	75
Restaurant		299	1,000 Sq Ft	197	122	75
Cinema/Entertainment				0		
Residential		949	Dwelling Unit(s)	437	101	336
Hotel				0		
All Other Land Uses ²				0		
				831	345	486

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		10	0	2	0
Restaurant	0	10		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	24	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	831	345	486
Internal Capture Percentage	13%	15%	11%
External Vehicle-Trips ⁵	727	293	434
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	11%	16%
Restaurant	28%	17%
Cinema/Entertainment	N/A	N/A
Residential	5%	8%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	122	122	1.00	75	75
Restaurant	1.00	122	122	1.00	75	75
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	101	101	1.00	336	336
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	22		10	0	11	0
Restaurant	23	11		0	3	2
Cinema/Entertainment	0	0	0		0	0
Residential	7	3	67	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		39	28	0	0	0
Retail	0		61	0	2	0
Restaurant	0	10		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	21	24	0		0
Hotel	0	5	7	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	13	109	122	109	0	0
Restaurant	34	88	122	88	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	5	96	101	96	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	12	63	75	63	0	0
Restaurant	13	62	75	62	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	27	309	336	309	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	Pleasanton ACE			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		299	1,000 Sq Ft	798	383	415
Restaurant		299	1,000 Sq Ft	798	383	415
Cinema/Entertainment				0		
Residential		949	Dwelling Unit(s)	531	335	196
Hotel				0		
All Other Land Uses ²				0		
				2,127	1,101	1,026

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					2640	
Restaurant					2640	
Cinema/Entertainment						
Residential		2640	2640			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		111	0	47	0
Restaurant	0	170		0	33	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	4	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	2,127	1,101	1,026
Internal Capture Percentage	35%	34%	36%
External Vehicle-Trips ⁵	1,389	732	657
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	45%	38%
Restaurant	30%	49%
Cinema/Entertainment	N/A	N/A
Residential	24%	4%
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	383	383	1.00	415	415
Restaurant	1.00	383	383	1.00	415	415
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	335	335	1.00	196	196
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	8		120	17	47	21
Restaurant	12	170		33	33	29
Cinema/Entertainment	0	0	0		0	0
Residential	8	8	4	0		6
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		31	8	0	13	0
Retail	0		111	0	154	0
Restaurant	0	192		0	54	0
Cinema/Entertainment	0	15	11		13	0
Residential	0	4	5	0		0
Hotel	0	8	19	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	174	209	383	209	0	0
Restaurant	115	268	383	268	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	80	255	335	255	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	158	257	415	257	0	0
Restaurant	203	212	415	212	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	8	188	196	188	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Livermore Transit Center

ITE Land Use Code		Size	Size		AM Peak			PM Peak		
					Rate	In%	Out%	Rate	In%	Out%
220		Multifamily Housing (Low-Rise)	Dwelling Unit(s)		0.46	0.23	0.77	0.56	0.63	0.37
820		Shopping Center	1,000 Sq Ft		0.66	0.62	0.38	2.67	0.48	0.52
TVTDF Land Use Type	ITE Land Use Code	Land Use	Size	Units	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Multi-Family Residential	220	Multifamily Housing (Low-Rise)	1,030	Dwelling Unit(s)	474	109	365	577	364	213
Retail	820	Shopping Center	493.500	1,000 Sq Ft	325	202	123	1,316	632	684
Total Trips					799	311	488	1,893	996	897
Internal Capture (Retail)					22	12	10	274	143	131
Internal Capture (Restaurant)					38	28	10	263	96	167
Internal Capture (Residential)					28	4	24	73	66	7
Residential Net New Trips					446	105	341	504	298	206
% Trip Reduction					6%	4%	7%	13%	18%	3%
% Trip Reduction (AM/PM Average)					10%					

Source: ITE Trip Generation, 10th Edition

Consistent with 2020 Nexus Study, a 30% reduction was applied to LUC 820 Shopping Center rates to account for pass-by trips.

Internal Capture assumed 50% Retail and 50% Restaurant split for Retail Land Use Type.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	Livermore Transit Center			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		247	1,000 Sq Ft	163	101	62
Restaurant		247	1,000 Sq Ft	163	101	62
Cinema/Entertainment				0		
Residential		1,030	Dwelling Unit(s)	474	109	365
Hotel				0		
All Other Land Uses ²				0		
				799	311	488

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		8	0	2	0
Restaurant	0	8		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	20	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	800	311	489
Internal Capture Percentage	11%	14%	9%
External Vehicle-Trips ⁵	712	267	445
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	12%	16%
Restaurant	28%	16%
Cinema/Entertainment	N/A	N/A
Residential	4%	7%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	101	101	1.00	61.5	62
Restaurant	1.00	101	101	1.00	61.5	62
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	109	109	1.00	365	365
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	18		8	0	9	0
Restaurant	19	9		0	2	2
Cinema/Entertainment	0	0	0		0	0
Residential	7	4	73	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		32	23	0	0	0
Retail	0		51	0	2	0
Restaurant	0	8		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	17	20	0		0
Hotel	0	4	6	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	12	89	101	89	0	0
Restaurant	28	73	101	73	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	105	109	105	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	10	52	62	52	0	0
Restaurant	10	52	62	52	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	24	341	365	341	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	Livermore Transit Center			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		247	1,000 Sq Ft	658	316	342
Restaurant		247	1,000 Sq Ft	658	316	342
Cinema/Entertainment				0		
Residential		1,030	Dwelling Unit(s)	577	364	213
Hotel				0		
All Other Land Uses ²				0		
				1,893	996	897

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					2640	
Restaurant					2640	
Cinema/Entertainment						
Residential		2640	2640			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		92	0	39	0
Restaurant	0	140		0	27	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	4	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,893	996	897
Internal Capture Percentage	32%	31%	34%
External Vehicle-Trips ⁵	1,283	691	592
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	45%	38%
Restaurant	30%	49%
Cinema/Entertainment	N/A	N/A
Residential	18%	3%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	TVTC AB 3177
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	316	316	1.00	342	342
Restaurant	1.00	316	316	1.00	342	342
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	364	364	1.00	213	213
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	7		99	14	39	17
Restaurant	10	140		27	27	24
Cinema/Entertainment	0	0	0		0	0
Residential	9	9	4	0		6
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		25	6	0	15	0
Retail	0		92	0	167	0
Restaurant	0	158		0	58	0
Cinema/Entertainment	0	13	9		15	0
Residential	0	3	4	0		0
Hotel	0	6	16	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	143	173	316	173	0	0
Restaurant	96	220	316	220	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	66	298	364	298	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	131	211	342	211	0	0
Restaurant	167	175	342	175	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	206	213	206	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

South Vasco Rd ACE

ITE Land Use Code		Size	Size		AM Peak			PM Peak		
					Rate	In%	Out%	Rate	In%	Out%
220		Multifamily Housing (Low-Rise)	Dwelling Unit(s)		0.46	0.23	0.77	0.56	0.63	0.37
820		Shopping Center	1,000 Sq Ft		0.66	0.62	0.38	2.67	0.48	0.52
TVTDF Land Use Type	ITE Land Use Code	Land Use	Size	Units	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Multi-Family Residential	220	Multifamily Housing (Low-Rise)	105	Dwelling Unit(s)	48	11	37	59	37	22
Retail	820	Shopping Center	226.500	1,000 Sq Ft	149	92	57	604	290	314
Total Trips					197	103	94	663	327	336
Internal Capture (Retail)					8	4	4	124	65	59
Internal Capture (Restaurant)					16	11	5	112	42	70
Internal Capture (Residential)					8	1	7	24	23	1
Residential Net New Trips					40	10	30	35	14	21
% Trip Reduction					17%	9%	19%	41%	62%	5%
% Trip Reduction (AM/PM Average)					30%					

Source: ITE Trip Generation, 10th Edition

Consistent with 2020 Nexus Study, a 30% reduction was applied to LUC 820 Shopping Center rates to account for pass-by trips.

Internal Capture assumed 50% Retail and 50% Restaurant split for Retail Land Use Type.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	South Vasco Rd ACE			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		113	1,000 Sq Ft	75	46	29
Restaurant		113	1,000 Sq Ft	75	46	29
Cinema/Entertainment				0		
Residential		105	Dwelling Unit(s)	48	11	37
Hotel				0		
All Other Land Uses ²				0		
				197	103	94

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		4	0	0	0
Restaurant	0	4		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	7	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	198	103	95
Internal Capture Percentage	16%	16%	17%
External Vehicle-Trips ⁵	166	87	79
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	9%	14%
Restaurant	24%	17%
Cinema/Entertainment	N/A	N/A
Residential	9%	19%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	46	46	1.00	28.5	29
Restaurant	1.00	46	46	1.00	28.5	29
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	11	11	1.00	37	37
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	8		4	0	4	0
Restaurant	9	4		0	1	1
Cinema/Entertainment	0	0	0		0	0
Residential	1	0	7	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	11	0	0	0
Retail	0		23	0	0	0
Restaurant	0	4		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	8	9	0		0
Hotel	0	2	3	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	4	42	46	42	0	0
Restaurant	11	35	46	35	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	10	11	10	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	4	25	29	25	0	0
Restaurant	5	24	29	24	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	30	37	30	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	TVTC AB 3177			Organization:	Kimley-Horn and Associates, Inc.
Project Location:	South Vasco Rd ACE			Performed By:	
Scenario Description:				Date:	
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail		113	1,000 Sq Ft	302	145	157
Restaurant		113	1,000 Sq Ft	302	145	157
Cinema/Entertainment				0		
Residential		105	Dwelling Unit(s)	59	37	22
Hotel				0		
All Other Land Uses ²				0		
				663	327	336

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					2640	
Restaurant					2640	
Cinema/Entertainment						
Residential		2640	2640			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		42	0	17	0
Restaurant	0	64		0	6	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	663	327	336
Internal Capture Percentage	39%	40%	39%
External Vehicle-Trips ⁵	403	197	206
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	45%	38%
Restaurant	29%	45%
Cinema/Entertainment	N/A	N/A
Residential	62%	5%
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	TVTC AB 3177
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	145	145	1.00	157	157
Restaurant	1.00	145	145	1.00	157	157
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	37	37	1.00	22	22
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	3		46	6	18	8
Restaurant	5	64		13	12	11
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		1
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		12	3	0	1	0
Retail	0		42	0	17	0
Restaurant	0	73		0	6	0
Cinema/Entertainment	0	6	4		1	0
Residential	0	1	2	0		0
Hotel	0	3	7	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	65	80	145	80	0	0
Restaurant	42	103	145	103	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	23	14	37	14	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	59	98	157	98	0	0
Restaurant	70	87	157	87	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	21	22	21	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.