CSTDM09 - California Statewide Travel Demand Model

Model Development

Transportation Analysis Zones

System Documentation: Technical Note

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1. Introduction

This technical note documents the development of the Transportation Analysis Zones (TAZs) for use in the California Statewide Travel Demand Model (CSTDM). The TAZ system for the CSTDM drew on the TAZ used in High Speed Rail (HSR) model networks; however, major modifications were made to those TAZs and networks to suit the specific needs of the CSTDM.

In delineating TAZs for the CSTDM, the effects of TAZ size on both the accuracy and practicality of the model were considered. If TAZs are too large, then forecast accuracy can be compromised due to (1) non-homogenous land uses, (2) too many trips loaded to the network in a small area, (3) loading points that are not representative of the zone, and (4) too many intrazonal trips. On the other hand, numerous small zones can reduce the practicality of the model system by significantly increasing total model run time both in the matrix calculation and trip assignment phases.

Another consideration in the development of the TAZ system was the consistency with both U.S. Census block groups and the zones used in the statewide land use model (California PECAS), which is currently under development. In general, LUZs nest within Counties, TAZs nest within PECAS Land Use Zones (LUZs), and block groups nest within TAZs.

2. TAZ System Development

2.1 Modifying the TAZ System

The modifications of the TAZ system for the CSTDM were guided by a number of criteria. Each TAZ should contain less than 10,000 employees and between 6,000 and 15,000 residents based on the 2030 projections used in the HSR study. These criteria were used to identify the HSR TAZs that needed to be split or expanded. As described above, TAZs should be aggregations of year 2000 census block groups and should respect existing LUZ boundaries.

Table 1 describes the procedure used to identify zones that needed to be split or merged. Using the 2030 zonal total population and employment totals from the HSR study along with the targets stated above (a maximum of 15,000 residents or 10,000 employees), a score value was calculated for each zone. This value was the greater of two figures: total zonal population or employment multiplied by 1.5. Then, based on the score value, each zone was assigned a code (1 to 5), which corresponded to a split or merge decision. TAZs with codes of 4 and 5 were split into an appropriate number of zones. Codes 1 and 2 were combined. An example (from San Diego) of the split-merge identification procedure is shown in Table 2. The split-merge codes assigned to all HSR TAZs in the state are displayed by color in Figure 1.

Table 1: Identification of HSR TAZs to be Split or Merged for CSTDM

Score Value =	Max of 2030 Population OR 1.5 * 2030 Employment	
Code 5	Score > 30,000	Split (into score/15,000)
Code 4	Score between 15,000 & 30,000	Split (into 2)
Code 3	Score between 6,000 & 15,000	No Change
Code 2	Score between 2,000 & 6,000	combine (2 into 1)
Code 1	Score < 2,000	combine (more than 2 into 1)

Table 2: Example of Split-Merge Identification Procedure

County	TAZ	LUZ	Area	2000 Population	2030 Population	2000 Employment	2030 Employment	Score	Code	Split	Num new	Combine
SAN DIEGO	1140	352	27	2,281	24,109	16,592	38,293	57,440	5	4	3	0
SAN DIEGO	1142	325	92	1,628	5,041	360	2,120	5,041	2	0	0	0.5
SAN DIEGO	1143	326	453	5,690	9,949	2,052	4,182	9,949	3	0	0	0
SAN DIEGO	1144	325	70	2,561	2,881	369	552	2,881	2	0	0	0.5
SAN DIEGO	1145	326	157	2,026	2,442	491	1,098	2,442	2	0	0	0.5
SAN DIEGO	1146	309	683	585	1,468	66	177	1,468	1	0	0	0.75
SAN DIEGO	1147	309	575	5,891	8,828	2,075	3,699	8,828	3	0	0	0
SAN DIEGO	1148	309	395	2,498	7,500	1,490	3,306	7,500	3	0	0	0
SAN DIEGO	1149	327	89	4,029	5,111	721	2,133	5,111	2	0	0	0.5
SAN DIEGO	1150	324	6	28,331	31,653	4,119	5,669	31,653	5	3	2	0
SAN DIEGO	1151	354	8	31,764	34,259	3,487	5,086	34,259	5	3	2	0
SAN DIEGO	1152	354	5	41,624	42,789	6,124	11,352	42,789	5	3	2	0
SAN DIEGO	1153	354	6	44,847	49,119	11,037	15,531	49,119	5	4	3	0
SAN DIEGO	1154	353	20	19,667	90,774	6,063	26,938	90,774	5	7	6	0
SAN DIEGO	1155	324	3	2,207	2,469	624	1,312	2,469	2	0	0	0.5
SAN DIEGO	1156	324	6	5,439	9,135	4,475	15,233	22,850	4	2	1	0
SAN DIEGO	1157	357	6	49,560	57,086	19,559	29,209	57,086	5	4	3	0
SAN DIEGO	1158	351	22	53,119	66,033	9,560	23,264	66,033	5	5	4	0
SAN DIEGO	1159	325	118	9,749	28,833	2,499	7,352	28,833	4	2	1	0
SAN DIEGO	1160	324	5	1,499	2,446	23,108	27,859	41,789	5	3	2	0
SAN DIEGO	1161	357	2	26,245	30,303	9,367	10,350	30,303	5	3	2	0
SAN DIEGO	1162	350	11	68,863	79,399	10,098	16,968	79,399	5	6	5	0

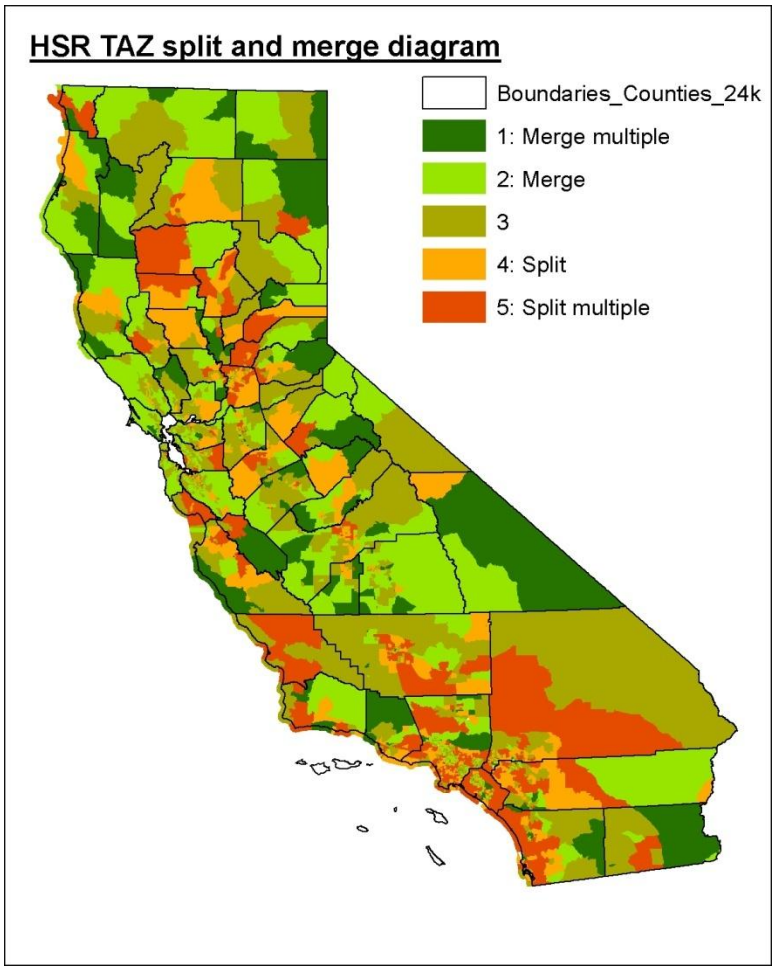

Figure 1: HSR TAZ Split-Merge Codes Displayed by Color

New TAZs were then assembled using year 2000 census block groups (as rereleased by the U.S. Census Bureau in 2008). The choice of blocks to group for TAZs was made based on characteristics of the local geography, transportation network, as well as year 2000 population and employment size. Year 2000 employment was obtained from the Census Transportation Planning Products (CTPP).

In areas that were fully developed, the population totals were allowed closer to 15,000 residents based on the 2000 census. In rural areas likely to be developed (e.g., adjacent to cities), the year 2000 TAZ populations were kept below the 15,000 threshold to allow for population increases. In rural areas and areas distant from high speed rail

stops, revisions to the HSR TAZs were based on accessibility to the road network and total projected population and employment.

The TAZs used in the HSR model appeared to be from two different sources. Some urban regions and areas surrounding proposed HSR stops were likely derived from local Metropolitan Planning Organizations (MPO) travel model TAZs. The rest of the state appears to have originated from the Statewide Travel Model (2004). In both cases, the HSR TAZs were individually reviewed and edited.

The regions that look as if they were from MPO model TAZs are all of the SCAG and MTC counties, downtown Sacramento, downtown Bakersfield, downtown San Diego, La Jolla and Escondido. In many of these areas, the TAZ system met the needs of the CSTDM, but in other areas they did not. In the San Diego region, the TAZs were too dense in the core of downtown, but very rapidly became too large as the distance from the core increased. In the San Francisco Bay Area, the TAZs were approximately well suited. In the Sacramento region the TAZs were slightly too dense in the downtown, but became far too large outside of the core downtown area. In the Los Angeles region, there were many zones that needed to be split. However, there were exceptions to these regional trends.

The areas of the state not mentioned above appear to have originated from the Statewide Travel Model (2004). Broadly stated, many of the TAZs were large in geographic area and varied between the extremes of very low populations and populations that warranted splitting the TAZ into multiple new zones. Regions that were already urban in character but that were based on the Statewide Travel Model (2004) TAZs required extensive splitting of TAZs – notably in Sacramento, the major cities of the San Joaquin Valley, and the suburban areas of San Diego.

2.2 External Zones

The external zones in the HSR network were largely unchanged with the exception of three new external zones, which were added to represent ports in Long Beach, Los

Angeles, and Oakland. The external zones used in the CSTDM are documented in Table 3. The existing external zones use node numbers 1 through 48, and nodes 49 to 51 are the new external zones.

Table 3: External Zones for the CSTDM.

TAZ	External District	Name
1	OR	United States Highway 101 - N. Smith River
2	OR	United States Highway 199 - N. Patrick Creek
3	OR	Indian Creek Road
4	OR	Interstate 5 - N. Hilt
5	OR	United States Highway 97 - N. Dorris
6	OR	State Highway 139 - N. Tulelake
7	OR	State Highway 50 - S.Main (Ore)
8	OR	Muldoon Rd / Westside Rd
9	OR	United States Highway 395 - N. New Pine Creek
10	NV_N	Surprise Valley Road
11	NV_N	State Highway 299 - E.Cedarville
12	NV_N	State Highway 81 - S.Eagleville
13	NV_N	Wendel Rd / Summers Rd E. Wendel / Herlong
14	NV_N	United States Highway 395 - N. Lemmon Valley (Nev)
15	NV_N	Henness Pass Road/ Sierra County Road S860
16	NV_N	Interstate 80 - W.Reno (Nev)
17	NV_N	State Highway 28 - E.Kings Beach
18	NV_N	United States Highway 50 - N. South Lake Tahoe
19	NV_N	State Highway 88 - N.Paynesville
20	NV_N	United States Highway 395 - S.Topaz Lake (Nev)
21	NV_N	State Highway 182 - N.Bridgeport
22	NV_N	State Highway 167 - E.Mono
23	NV_N	United States Highway 6 - N.Benton
24	NV_S	State Highway 266 - N.Oasis
25	NV_S	State Highway 266 - E.Oasis
26	NV_S	N Hwy (State Highway 267) - Death Valley
27	NV_S	Daylight Pass Rd (State Highway 374) - Death Valley
28	NV_S	State Highway 127 - N.Death Valley Junction
29	NV_S	Ash Meadows Rd - E.Death Valley Junction
30	NV_S	State Highway 178 - W.Pahrump (Nv)
31	NV_S	Interstate 15 - N.Mountain Pass
32	NV_S	Nipton Rd (State Highway 164) - E.Nipton
33	NV_S	United States Highway 95 - N.Arrowhead Junction

TAZ	External District	Name
34	NV_S	United States Highway 95 - E. Laughlin!
35	AZ	Interstate 40 - W.Topock (Nev)
36	AZ	Parker Dam (N. Parker)
37	AZ	State Highway 62 - Earp
38	AZ	Agnes Wilson Rd E. 95 (S. of Earp)
39	AZ	Interstate 10 - E.Blythe
40	AZ	E. Laguna Rd at Imperial Reservoir (Imperial Dam)
41	AZ	S. 4th Ave - Yuma
42	MEX	Highway 186 - Mexican Border Yuma
43	MEX	State Highway 111 - Calexico
44	MEX	State Highway 188 - Tecate
45	MEX	Interstate 5 - San Diego
46	AZ	Interstate 8 - Yuma
47	MEX	Collina del Sol (State Highway 905) - San Diego
48	MEX	State Highway 7 - Calexico
49	POLB	Long Beach (Port)
50	POLA	Los Angeles (Port)
51	POOak	Oakland (Port)

3. Implementation Process

Assembling the new TAZ system was completed as documented in the following discussion. The 2008 release of the 2000 census block groups was prepared by adding a joining year 2000 population count aggregated from the block level and employment from the CTPP package to each block group. The HSR TAZ system was also joined to this dataset by census block centroid. In most cases, this provided a good indication of the original HSR TAZ for each block group and eased the creation of TAZs when the HSR TAZs were acceptable. In conjunction with this dataset, a color coded version of the existing HSR TAZ system was used to visually identify which HSR TAZs needed to be split, merged, or left alone. A year 2004 road network was also used as a reference network.

Two custom tools were built in ArcGIS to assist in creating the new TAZ dataset. The first tool grouped selected block groups together and assigned them the TAZ number of an existing HSR TAZ for use when a TAZ was going to be kept intact. The second

grouped selected block groups and assigned them a temporary new TAZ identification number.

A standard working procedure included selecting a county and exporting the block groups for that county into a new dataset, on which all editing was conducted. Block groups were aggregated into TAZs using the procedure described as follows.

1. Existing Boundaries. County boundaries were always respected. All TAZs were aggregations of block groups with exceptions in only one area (see the note on exceptions below). Wherever possible, LUZ boundaries were maintained so that TAZs did not cross them.
2. Population and Employment Totals. As referenced above, the targets were 2030 populations below 15,000 and employment counts below 10,000. Since there were no projections by block group for 2030, the 2000 population and employment counts were used for reference. In existing developed areas, the population and employment totals from 2000 were allowed to approach the upper limits, but in less developed areas the population totals were generally kept below 10,000, and in areas that could expect large growth the totals were kept below 6,000. In several cases, individual block groups had population and/or employment totals that exceeded the targets. These block groups were assigned to a TAZ made up of only the single block group.
3. Access Methods to Road Network. Block groups were assembled into TAZs that had a common access point to the road network.
4. Land Use Homogeneity. Where possible, TAZs had land uses that were homogeneous. In most cases, this goal was achieved naturally by selecting similar adjacent block groups.
5. Regular Shape of Resulting TAZ. When possible, TAZs were assembled to create a regular shape that avoided having a length to width ratio greater than 3 to1. Block group geographies did not always permit this guideline to be followed.

Following a first round of TAZ creation for the entire state, a review session was held with both the HBA Specto and ULTRANS research teams. As a result of these

discussions, some TAZ boundaries were redefined to better match probable growth areas and to remedy some irregular TAZ boundary issues. The final changes to the TAZ system occurred following a California PECAS Peer Advisory group meeting that included a minor modification to the boundary between Merced and Fresno Counties, which reflected the annexation of a small portion of rural Fresno County into Merced County. At the same time the TAZs in the El Dorado County portion of the Lake Tahoe Basin were adjusted to allow the Tahoe Basin to be separated into a distinct set of LUZs.

LUZ boundaries were defined through matching the TAZs to the LUZ boundaries used in the demonstration version of the California PECAS model. In locations where maintaining the integrity of the earlier LUZ system was not possible, TAZs were assigned to the closest possible LUZ based on the TAZ's geographic centroid. The Tahoe Basin was assigned to a set of LUZs to represent the jurisdictional boundary of the Tahoe Regional Planning Agency.

3.1 Numbering Systems

HBA Specto proposed a district system for assigning the TAZs identification numbers (IDs). It was decided that the thousands and hundredths digits of each TAZs ID would be representative of the district it is found in. TAZs were assigned to districts based on their geographic location and with the intention that there be a few potential IDs remaining in each district's number block to allow for the potential of adding new TAZs. Within each district the tens and ones digit of each TAZ was taken from the Object ID field in the GIS dataset. This did not result in a logical numbering sequence for TAZs, but all TAZs are members of districts that each have less than 100 TAZs and are grouped geographically. These districts are intended to ease locating TAZs for transportation modeling purposes and do not explicitly follow LUZ boundaries.

LUZ IDs were assigned through ordering county centroids north to south, assigning a sequential number to the county, and numbering LUZs within the county based on the order in their centroids going from south to north.

3.2 TAZs Exceeding Recommended Targets

In the initial TAZ development, several TAZs emerged that were comprised of single block groups with either population, employment, or both totals exceeding the recommended targets.

After reviewing these TAZs, all of the TAZs that exceeded the totals based solely on population were left unchanged. In almost all cases, these TAZs exceeded the recommended values only slightly, and had either significant geographic constraints, which made splitting the TAZ unlikely to improve the fidelity of the model, or had other effects that made it logical to consider the area as a single TAZ. TAZs between 10,000 and 25,000 employees were left as individual block groups to ease the development of demographic data. All TAZs that had employment exceeding 25,000 employees were individually reviewed and addressed specifically. These were separated into sub-block group level geographies that were aggregations of year 2000 census blocks. Employment totals for the blocks were assumed based on year 2002 OnTheMap 4 synthetic employment data. The employment totals for the block assemblages were targeted at between 10,000 and 15,000, but sometimes totals above or below these targets were accepted due to geographic constraints.

4. Results

Work on delineating the TAZs from block groups began on August 11, 2009, a preliminary review was conducted on August 26, 2009, and a formal review was held on September 2, 2009. The TAZs were provisionally accepted following edits proposed on September 2nd and minor edits that became necessary following the removal of large water bodies from the area covered by TAZs during the LUZ assignment process the first week of October 2009. Further changes to the TAZ system were prompted by the CalPECAS Peer Advisory Meeting November 18, 2009, and were fully implemented on December 7, 2009. The final changes were made in the last week of January 2010, which included dividing some very large employment TAZs into smaller TAZs.

LUZs were initially assigned in the first week of October 2009, and final adjustments, which included the separation of the Lake Tahoe Basin into distinct LUZs, were completed on December 7, 2009.

The resulting TAZ/LUZ system has 5,191 TAZs and 526 LUZs. For a summary of the data please see Table 4 below. There are 31 TAZs with employment totals below 100, and 146 with employment totals above 10,000. The oversized TAZs are almost entirely single block groups in high density downtown areas, industrial parks, airports, prisons, or military bases (Figure 2). Many of the largest single block group TAZs were split into smaller TAZs using the year 2000 census block boundaries.

Table 4: Distribution of TAZ by Population and Employment Size

Total number of TAZs	5,191
TAZs with 2000 Pop below 1,000	294
TAZs with 2000 Pop above 10,000	734
TAZs with 2000 Pop above 15,000	3
Mean TAZ Population	6,524
Minimum TAZ Population	0
Standard Deviation Population	3,150
Maximum TAZ Population	36,146
TAZs with Employment below 100	31
TAZs with Employment above 10,000	146
TAZs with Employment above 15,000	55
TAZs with Employment above 25,000	2
Mean TAZ Employment	2,749
Minimum TAZ Employment	0
Maximum TAZ Employment	34,645
Standard Deviation Employment	3,060

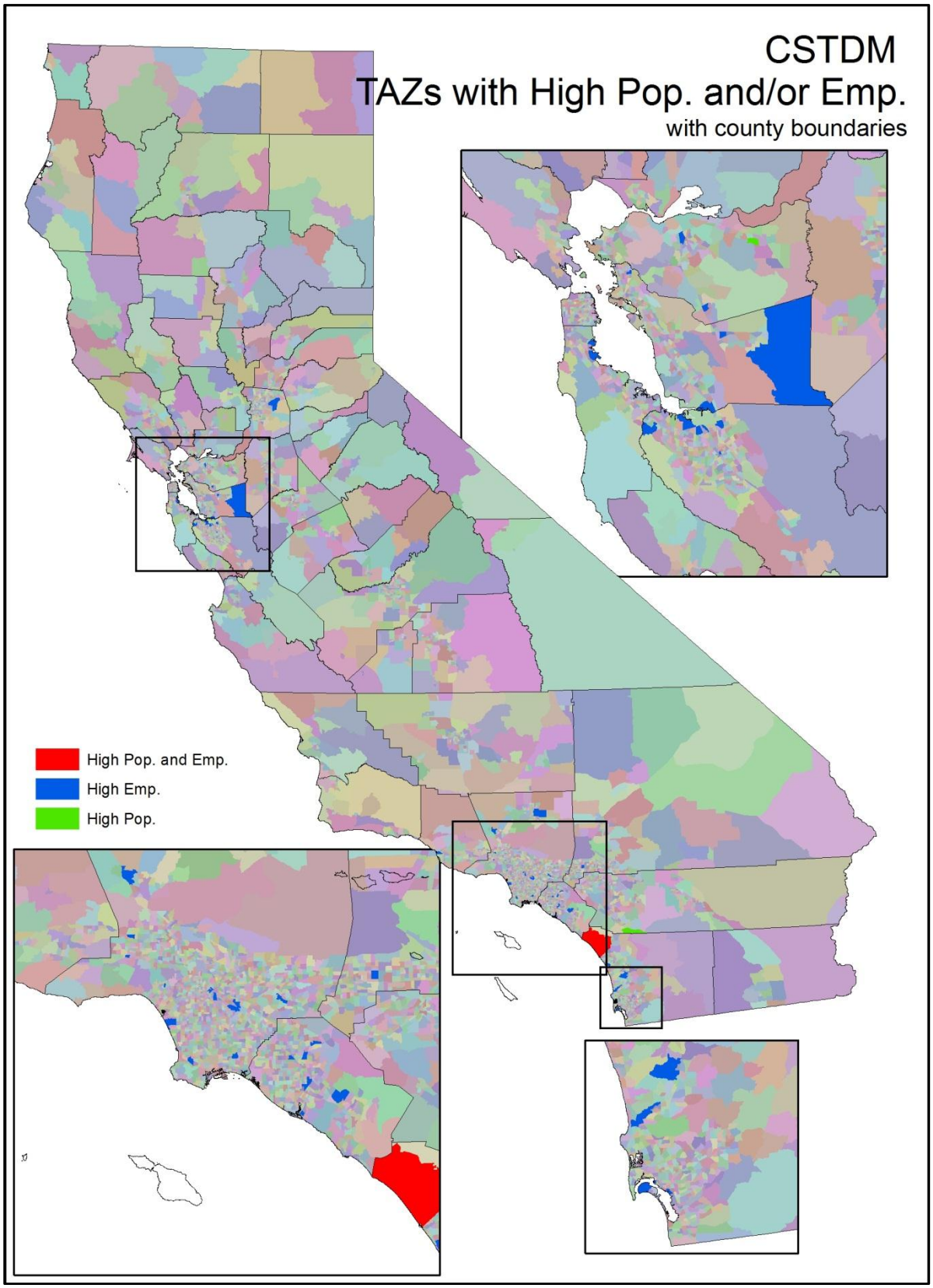

Figure 2: TAZs with Population > 15,000 and/or Employment > 10,000

There are also a few special cases. In Riverside county six block groups were split into multiple TAZs by census block. The six block groups have multiple areas/polygons that are not contiguous and for which grouping all of the sections of the block group into a single TAZ would have severely violated other guidelines for TAZ creation. These disjointed block groups are a result of the 1862 and 1884 Pacific Railroad Acts land grants. Population was assigned to the sections of the block groups through totaling the population by census blocks, and the ratio of section population to block group population was used to assign employment to each section.

Another special case is block group 060730099029 in San Diego Bay, which contained almost zero land area with very low population (63) and moderate employment (685). This block group quite clearly excluded docks and other land areas.

The resulting TAZ system, with 5191 zones, has the broad properties reported in Table 4 and Figure 3. The majority of the TAZs fall within our guidelines for population size, employment totals, shape, and access routes with a few outliers as described above. Because of the large number of TAZs, they are further grouped into 70 Districts (Table 5, Figure 4) for easily identifying where in the state any particular TAZ may be found. The TAZs are also aggregated into 526 Land Use Zones (LUZ) for integration with the California PECAS model (see Figure 5).

Table 5: List of Districts

District	Number of TAZs	Low TAZ	High TAZ	Region	HSR Region	Superdistrict	District
0				Externals	Externals	Externals	Externals
1	74	100	173	North	North	Far North	Del Norte, Humboldt, Trinity, Siskiyou, Shasta, Modoc, Lassen counties
2	85	200	284	North	North	Mid North	Mendocino, Lake, Glenn, Tehama, Colusa, Butte, Plumas, Sierra, Nevada counties
3	48	300	347	SACOG	SACOG	North SACOG	Sutter, Yolo and Yuba counties
4	66	400	465	SACOG	SACOG	North SACOG	Placer and El Dorado counties
5	46	500	545	SACOG	SACOG	Sacramento	Within ~ 5 mi of HSR station (leave room for extra zones)
6	78	600	677	SACOG	SACOG	Sacramento	Sacramento County North of American River
7	74	700	773	SACOG	SACOG	Sacramento	Sacramento County South of American River
8	98	800	897	ABAG	ABAG	North Bay	Northern Sonoma, Napa and Solano counties
9	100	900	999	ABAG	ABAG	North Bay	Marin and Southern Sonoma counties
10	72	1000	1071	ABAG	ABAG	Peninsula	Central San Francisco
11	90	1100	1189	ABAG	ABAG	Peninsula	Rest of SF County and northern San Mateo County
12	93	1200	1292	ABAG	ABAG	Peninsula	Southern portion of San Mateo County
13	92	1300	1391	ABAG	ABAG	East Bay	Eastern Contra Costa County
14	82	1400	1481	ABAG	ABAG	East Bay	Oakland
15	85	1500	1584	ABAG	ABAG	East Bay	West Contra Costa and north Alameda
16	100	1600	1699*	ABAG	ABAG	East Bay	South Alameda County (San Lorenzo,

District	Number of TAZs	Low TAZ	High TAZ	Region	HSR Region	Superdistrict	District
							Hayward, Fremont)
17	99	1700	1798	ABAG	ABAG	South Bay	Northwest Santa Clara (Palo Alto, Sunnyvale, Mountain View)
18	78	1800	1877	ABAG	ABAG	South Bay	Central San Jose
19	98	1900	1997	ABAG	ABAG	South Bay	South and West Santa Clara County
20	47	2000	2046	Central Valley	San Joaquin	San Joaquin	Stockton urban area
21	63	2100	2162	Central Valley	San Joaquin	San Joaquin	Rest of San Joaquin county
22	76	2200	2275	Central Valley	Stanislaus	Stanislaus	Stanislaus county
23	41	2300	2340	Central Valley	Merced	Merced	Merced county
24	96	2400	2495	Central Valley	Fresno Madera	Fresno Madera	Fresno urban area
25	68	2500	2567	Central Valley	Fresno Madera	Fresno Madera	Rest of Fresno county and Madera county
26	27	2600	2626	Central Valley	Kings/Tulare	Kings/Tulare	Kings county
27	79	2700	2778	Central Valley	Kings/Tulare	Kings/Tulare	Tulare county
28	88	2800	2887	Central Valley	Kern	Kern	Bakersfield urban area
29	50	2900	2949	Central Valley	Kern	Kern	Rest of Kern county
30	35	3000	3034	Sierras	Sierras	Sierras	Alpine, Amador, Calaveras, Inyo, Mariposa, Mono and Tuolumne counties
31	42	3100	3141	Coast	Coast	North Coast	Santa Cruz and San Benito counties
32	64	3200	3264	Coast	Coast	North Coast	Monterey county
33	88	3300	3388	Coast	Coast	South Coast	San Luis Obispo and Santa Barbara counties
34	62	3400	3462	SCAG	SCAG	Ventura	North and west Ventura county (inc. Ventura and Oxnard)
35	42	3500	3541	SCAG	SCAG	Ventura	East Ventura county (Thousand Oaks, Simi

District	Number of TAZs	Low TAZ	High TAZ	Region	HSR Region	Superdistrict	District
							Valley)
36	90	3600	3697	SCAG	SCAG	LA North	Lancaster, Palmdale and San Gabriel mountains
37	74	3700	3795	SCAG	SCAG	LA North	North San Fernando valley
38	95	3800	3895	SCAG	SCAG	LA North	South San Fernando valley and Santa Monica mountains
39	96	3900	3997	SCAG	SCAG	LA North	Burbank and Glendale area
40	82	4000	4081	SCAG	SCAG	LA Central	Downtown Los Angeles (inside freeway loop; room for more zones)
41	99	4100	4198	SCAG	SCAG	LA Central	East LA (Monterey Park, Montebello, Commerce)
42	96	4200	4296	SCAG	SCAG	LA Central	South Central area (Compton, Lynwood)
43	71	4300	4372+	SCAG	SCAG	LA Westside	West Central LA inc Beverly Hills, Hollywood
44	72	4400	4471	SCAG	SCAG	LA Westside	West LA inc Santa Monica, Culver City
45	78	4500	4577	SCAG	SCAG	LA South Bay	Inglewood, Lawndale, Manhattan Beach area
46	77	4600	4676	SCAG	SCAG	LA South Bay	Torrance, Lomita area
47	80	4700	4779	SCAG	SCAG	LA Gateway	Long Beach / Seal Beach area
48	95	4800	4899	SCAG	SCAG	LA Gateway	Lakewood, Norwalk, Whittier
49	97	4900	4996	SCAG	SCAG	LA San Gabriel	Pasadena area
50	99	5000	5099	SCAG	SCAG	LA San Gabriel	San Gabriel Valley (Baldwin park, Covina, San Dimas)
51	80	5100	5179	SCAG	SCAG	San Bernadino	North and East San Bernadino
52	90	5200	5289	SCAG	SCAG	San Bernadino	West San Bernadino (Ontario area incl.

District	Number of TAZs	Low TAZ	High TAZ	Region	HSR Region	Superdistrict	District
							industrial areas around I-15 Ontario freeway)
53	97	5300	5399	SCAG	SCAG	San Bernadino	Central San Bernadino (Fontana, San Bernadino, Redlands)
54	95	5400	5496	SCAG	SCAG	Riverside / Imperial	Northwest Riverside county (Riverside, Norco)
55	98	5500	5598	SCAG	SCAG	Riverside / Imperial	Southwest Riverside county (Temecula, Perris, San Jacinto)
56	87	5600	5688	SCAG	SCAG	Riverside / Imperial	Coachella valley (Palm Springs, Indio) and east; Imperial county
57	94	5700	5799* +	SCAG	SCAG	Orange	North Orange County (Orange, Anaheim, Fullerton, Yorba Linda)
58	97	5800	5899	SCAG	SCAG	Orange	West Orange County (SW of Santa Ana Freeway & Santa Ana River; Buena Park, Huntington Beach, Westminster)
59	107	5900	5999*	SCAG	SCAG	Orange	Central Orange county (Newport Beach, Irvine, Santa Ana, Tustin)
60	56	6000	6055	SCAG	SCAG	Orange	East Orange county (Mission Viejo, San Clemente, Laguna Hills)
61	37	6100	6136	SANDAG	SANDAG	San Diego	East county (mountain areas)
62	97	6200	6296	SANDAG	SANDAG	San Diego	North Coast (Oceanside-Escondido corridor)
63	106	6300	6399*	SANDAG	SANDAG	San Diego	Central coast (University City, La Jolla, Miramar)
64	72	6400	6472	SANDAG	SANDAG	San Diego	Central and north

District	Number of TAZs	Low TAZ	High TAZ	Region	HSR Region	Superdistrict	District
							San Diego
65	87	6500	6586	SANDAG	SANDAG	San Diego	Eastern San Diego suburbs (Lemon Grove, El Cajon)
66	63	6601	6665	SANDAG	SANDAG	San Diego	South San Diego suburbs (Chula Vista, Imperial Beach)
67	1	6700	6700	ABAG	ABAG	Overflow	Bay Area overflow
68	8	6800	6807	SCAG	SCAG	Overflow	SCAG overflow
69	6	6900	6905	Other	Other	Overflow	Overflow for remainder of state

*: The district's TAZ range extends into one of the overflow districts 67-69

+: TAZ numbers are not consecutive due to TAZs that were created and numbered but retired from use because they did not meet minimum criteria.

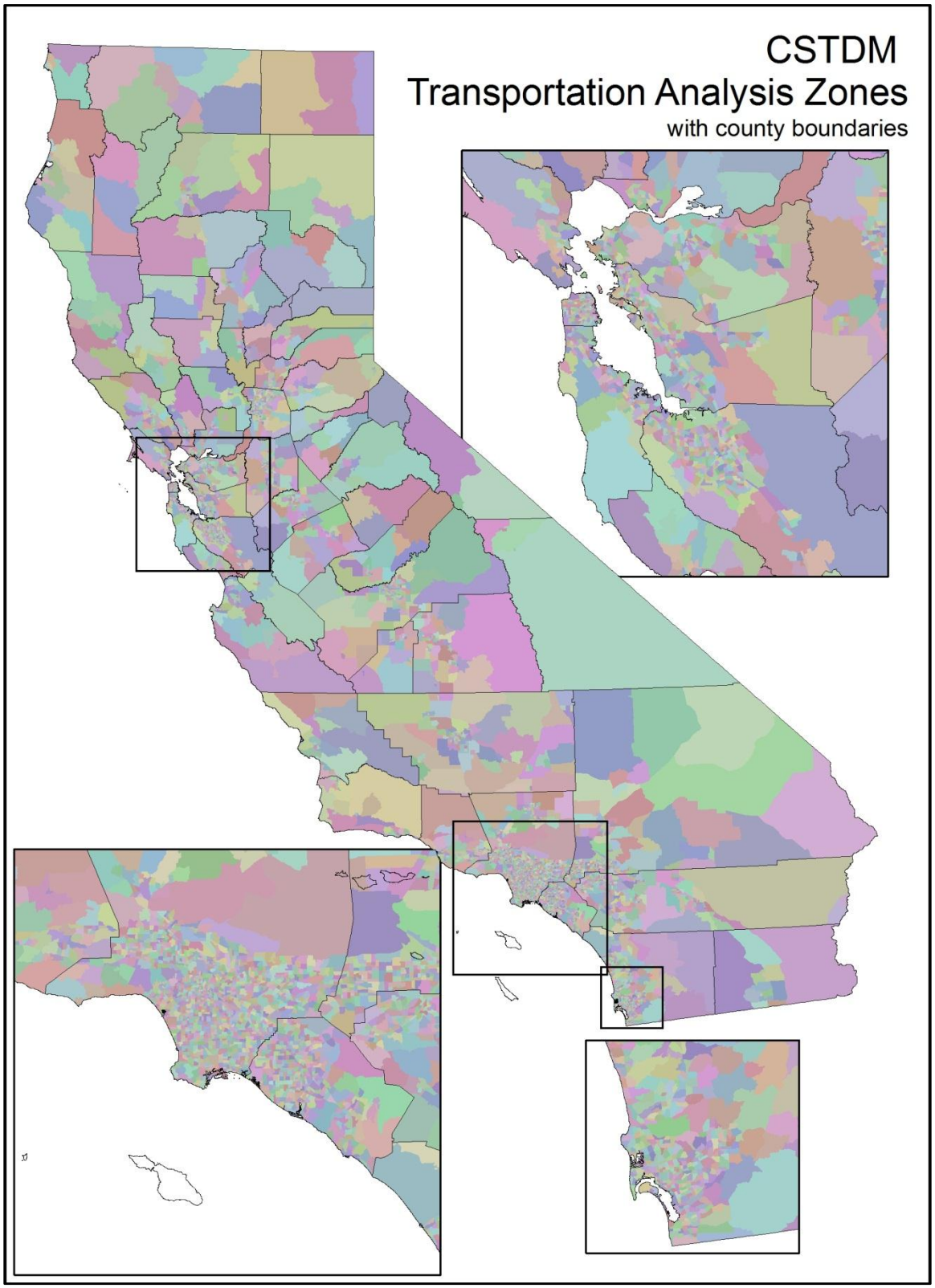

Figure 3: Transportation Analysis Zones

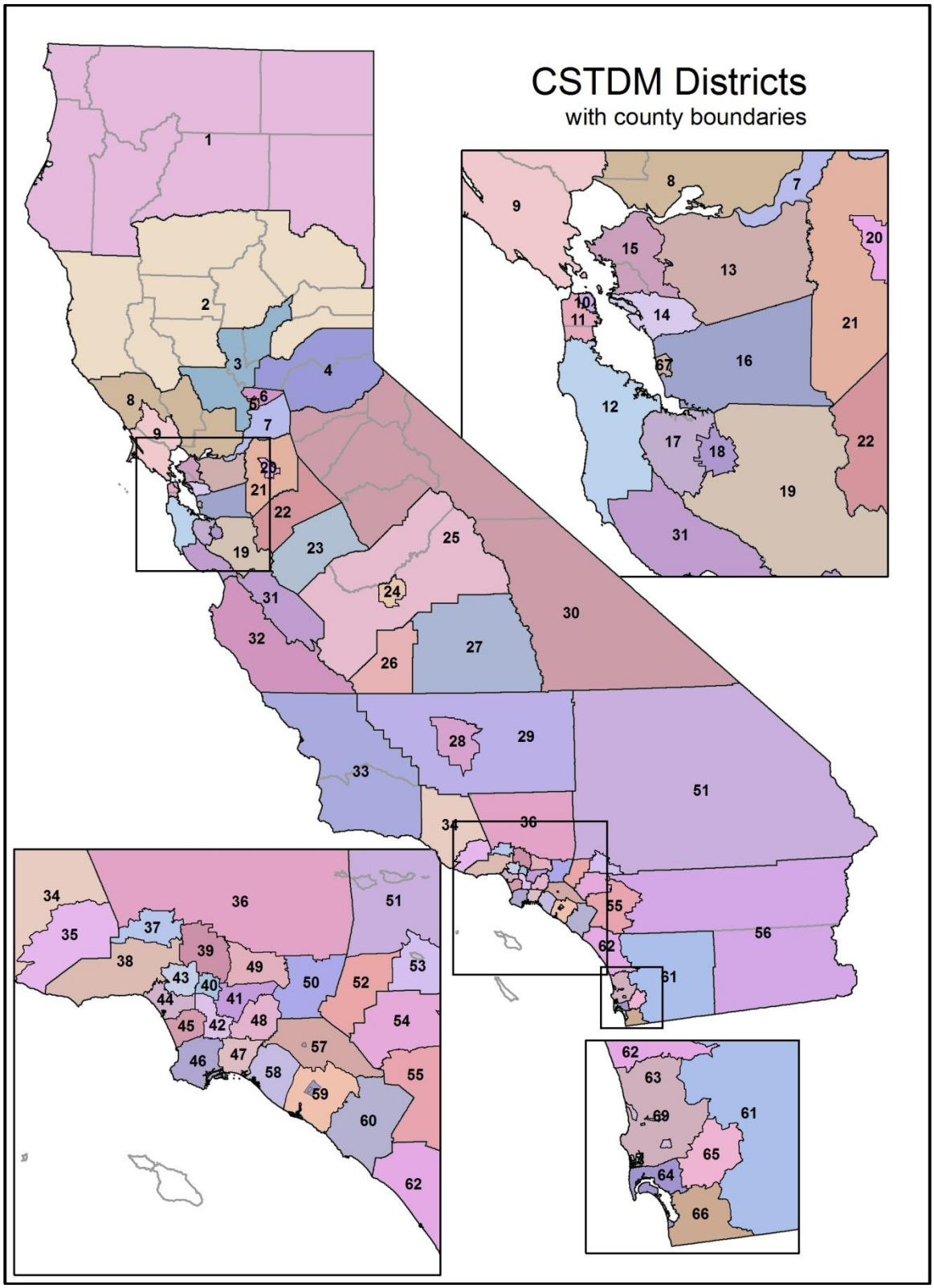

Figure 4: TAZ Districts

5. File Names and Descriptions

All files are located in the GIS directory within the installation of CSTDM:

CSTDM2009_TAZ.shp: TAZ, LUZ, District, County. Fields with a summation of CorrPop are based on block population sums for 2000 and CorrEmp are based either on the 2000 CTPP or the 2002 OnTheMap4 data where block groups were divided. **CSTDM2009_blocks_withTAZ.shp**: These are the 2008 rerelease of the 2000 US Census Blocks with a listing of which TAZ and LUZ they belong to.

CSTDM2009_DIST: District boundaries.

CSTDM2009_TAZCentroids.shp: This includes centroids extracted from the CSTDM TAZ system. These are the centroids used within the transportation model, not geographic centroids of the TAZ polygons.