

Table 3.3.5 Average Travel Time (for Other Purposes)

(Unit: minutes)

Mode	Business		Shopping		Visiting friends/family		Other private	
	Average	STDEV	Average	STDEV	Average	STDEV	Average	STDEV
Walk	23.6	47.0	25.5	102.5	22.6	49.4	34.2	88.7
Motorcycle	36.2	17.4	32.8	111.4	34.9	37.2	56.9	76.6
Car	39.1	52.6	18.4	9.3	21.3	11.4	71.2	70.1
Public Transportation	110.0	69.3	-	-	-	-	-	-

Source: 2009 Trip Diary Survey, JICA Study Team

3.4 Origin and Destination

1) Commuters' Trip Production and Attraction

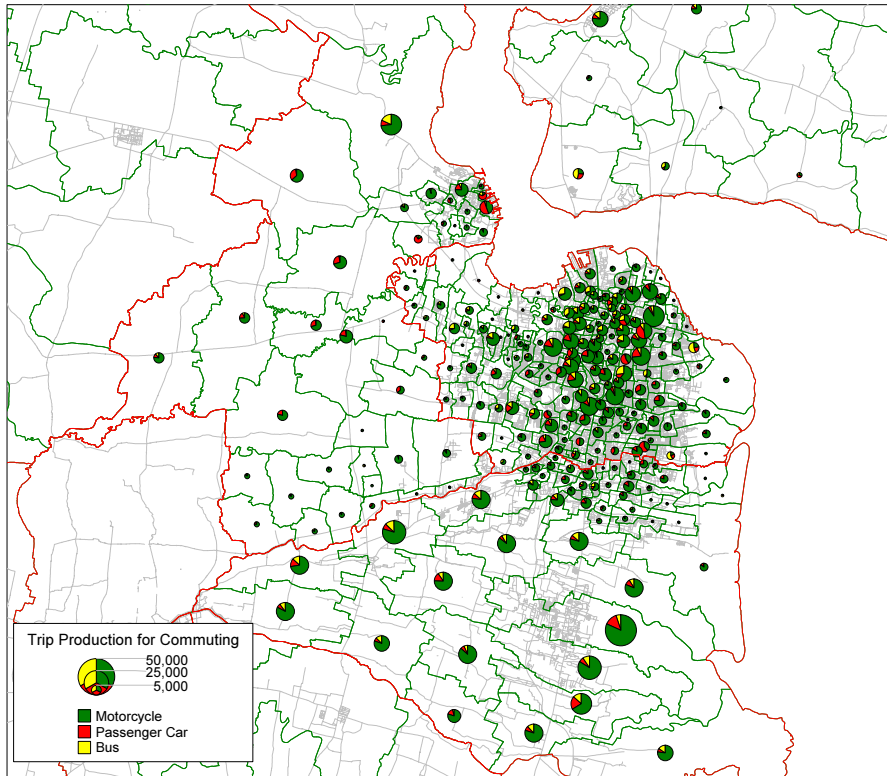
Figures 3.4.1 to 3.4.4 display where commuters started their travel (trip production), where they arrived (trip attraction), and by which mode they traveled by traffic analysis zone. The size of the pie chart indicates the number of trips and the color shows the share of a particular travel mode: green for motorcycle, red for passenger car, and yellow for public transportation. The findings based on these figures are as follows:

(1) GKS (Outside Kota Surabaya)

- The starting areas of commuting trips were dispersed, depending on the size of the population where the trip makers live;
- On the other hand, commuting trips concentrated in particular zones such as Kecamatan Gresik, Manyar, Sidoarjo, and Krian; and
- The share of the modal choice, which was public transportation, bus in particular, was slightly higher outside Kota Surabaya than inside.

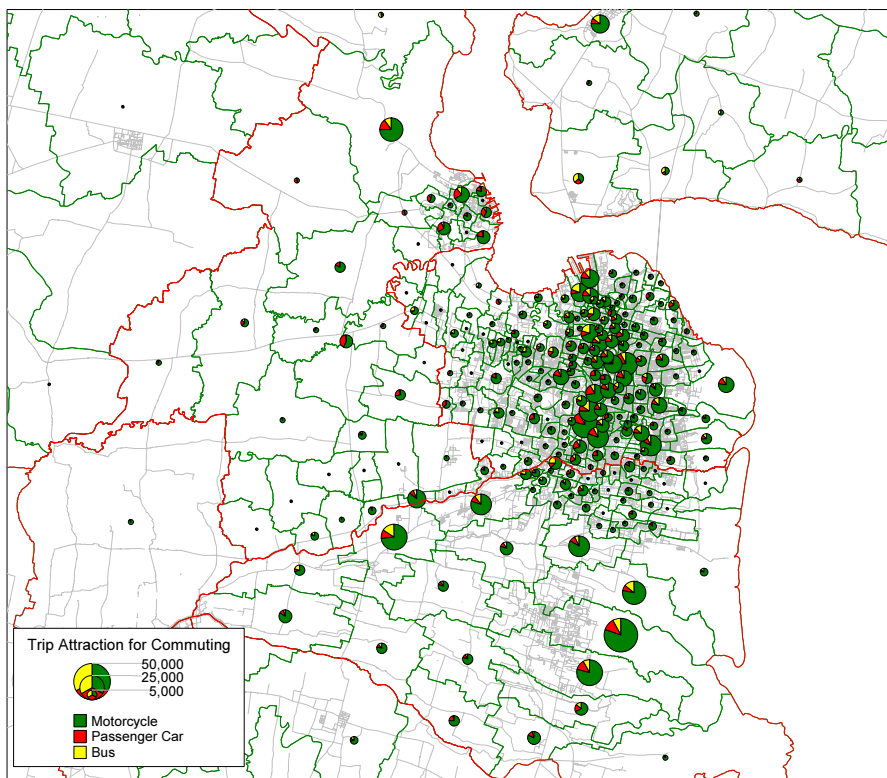
(2) Kota Surabaya

- Inside Kota Surabaya, TAZs which produced a large number of commuting trips, were distributed around central Kota Surabaya;
- Areas that attract trips were located along the north and south corridor which included Tanjung Perak Port, Kecamatan Krembangan, Genteng, Gubeng, Wonokromo, and Gayungan; and
- Attracted trips with a high share of bus use appeared in areas where major terminals were located such as Joyoboyo and Tanjung Perak.



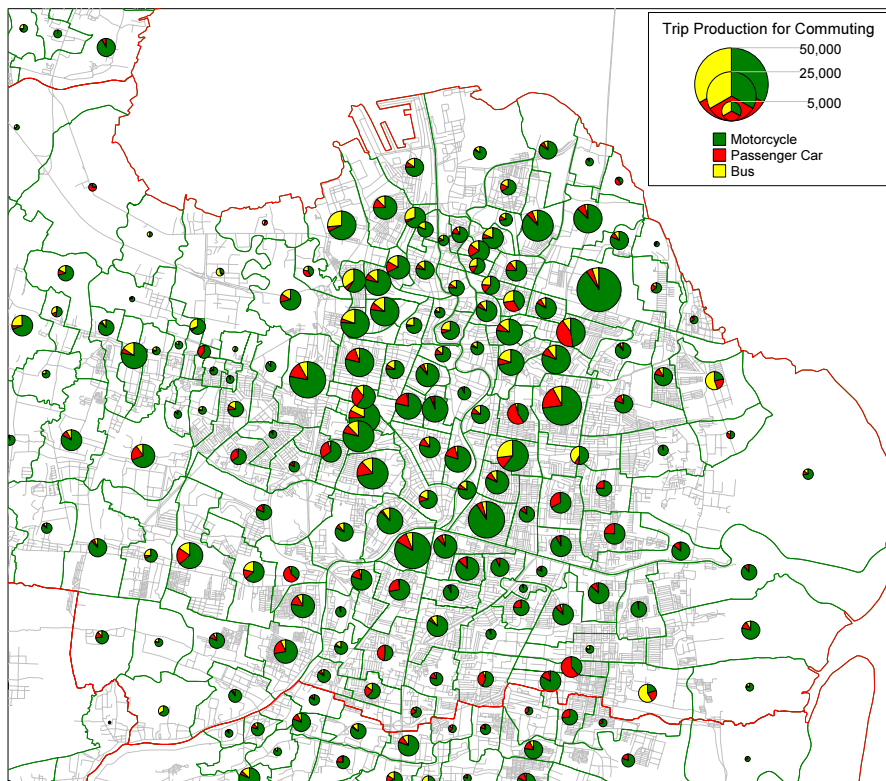
Source: 2009 Commuter Survey, JICA Study Team

Figure 3.4.1 Commuters' Trip Production in the Study Area



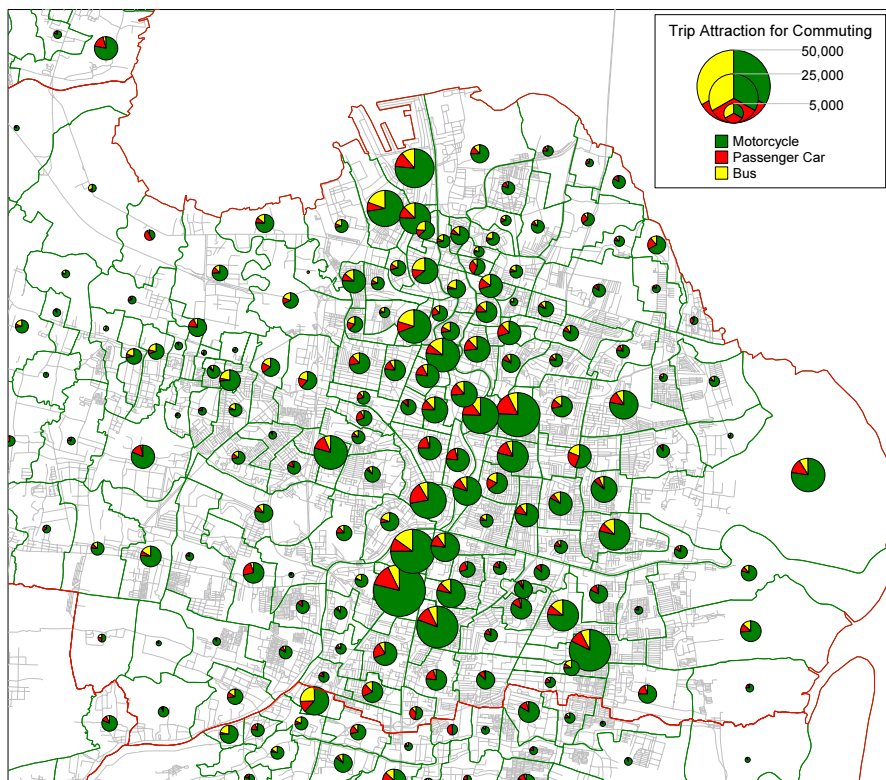
Source: 2009 Commuter Survey, JICA Study Team

Figure 3.4.2 Commuters' Trip Attraction in the Study Area



Source: 2009 Commuter Survey, JICA Study Team

Figure 3.4.3 Commuters' Trip Production in Kota Surabaya

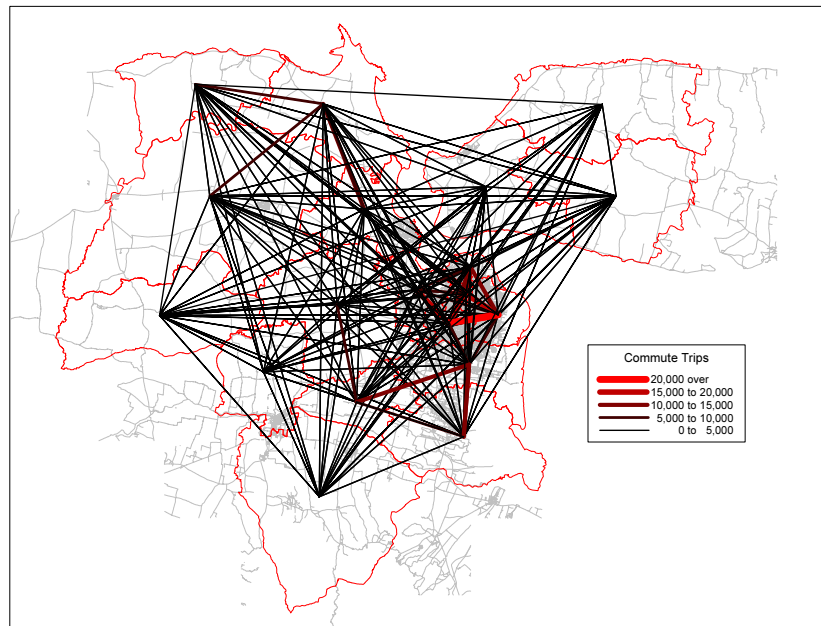


Source: 2009 Commuter Survey, JICA Study Team

Figure 3.4.4 Commuters' Trip Attraction in Kota Surabaya

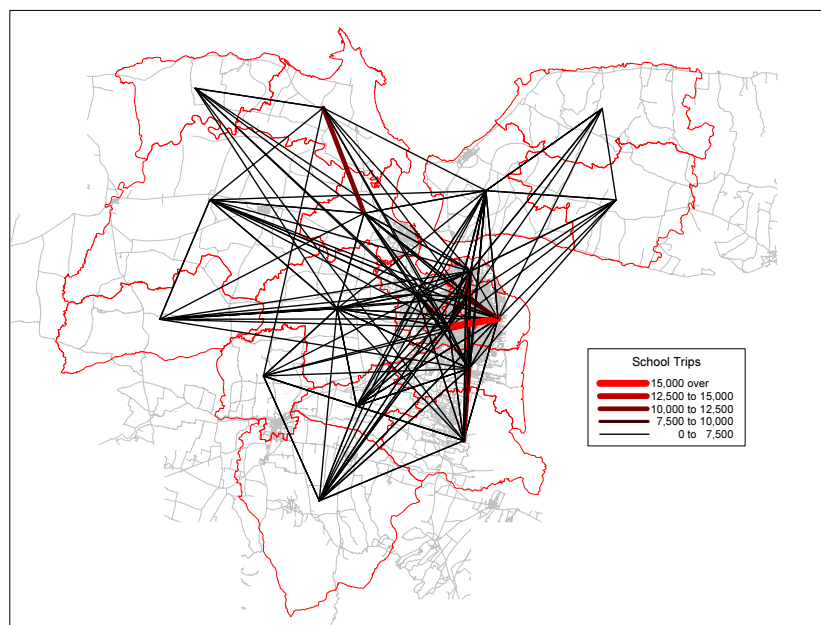
2) OD Matrices by TAZ

Figure 3.4.5 and Figure 3.4.6 illustrate the distribution of commuting and to-school trips between the TAZs. A heavy movement among the TAZs inside Kota Surabaya could be seen; the same can be said with that from neighboring areas to Kota Surabaya. OD matrices are presented in Table 3.4.1 and Table 3.4.2.



Source: 2009 Commuter Survey, JICA Study Team

Figure 3.4.5 Commuting Trips by TAZ



Source: 2009 Commuter Survey, JICA Study Team

Figure 3.4.6 School Trips by TAZ

Table 3.4.1 OD Matrix for Commuting Trips by TAZ

ITAZ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	OS	Total
1	88,578	12,330	15,948	6,874	6,819	56	367	250	1,510	198	262	332	16	36	34	126	9	58	377	195	134,375
2	12,783	182,876	18,160	4,219	24,195	8	492	376	7,221	552	1,663	221	9	25	10	107	18	66	262	172	253,435
3	14,524	16,761	78,730	6,276	16,007	12	177	329	2,427	560	468	163	3	27	26	53	5	31	163	43	136,785
4	10,064	8,795	6,621	78,674	16,280	41	953	1,737	2,315	406	378	126	2	19	43	114	31	51	302	42	126,994
5	10,150	34,233	16,734	13,896	153,615	30	390	1,400	9,467	1,102	2,206	181	5	18	28	99	25	112	321	309	244,321
6	659	322	493	538	529	70,257	3,236	627	182	119	346	92	0	7	341	173	41	74	147	0	78,183
7	334	387	235	763	118	865	71,623	2,496	88	96	72	89	2	45	109	726	84	71	165	0	78,338
8	625	1,472	447	1,729	1,341	206	4,963	114,643	824	1,128	359	30	2	3	36	248	181	448	475	249	129,409
9	1,542	5,609	1,220	621	7,366	46	90	1,286	147,513	2,969	13,152	85	2	7	26	39	6	157	473	308	182,517
10	749	1,867	496	576	1,782	14	209	6,811	10,384	70,740	6,657	58	2	7	19	22	6	398	2,055	282	103,134
11	2,129	3,697	650	455	3,119	43	89	577	14,628	2,919	167,797	86	1	7	12	33	12	74	1,152	9,681	207,161
12	881	234	607	156	344	6	65	29	163	21	35	95,153	112	85	2	23	7	3	39	67	98,032
13	527	203	592	172	290	0	75	7	118	17	9	3,158	87,584	80	8	20	0	0	67	0	92,927
14	1,154	215	914	343	674	19	46	15	249	22	63	1,664	42	85,434	5	17	0	18	50	0	90,944
15	331	455	424	557	421	928	658	526	164	199	123	44	0	11	69,881	123	0	21	59	0	74,925
16	1,845	1,740	1,451	2,789	1,509	933	4,854	1,795	516	185	244	128	5	6	41	264,205	9	22	66	0	282,343
17	295	269	152	790	253	80	323	1,483	99	25	26	15	0	3	2	15	55,305	18	21	0	59,174
18	418	583	220	473	781	32	186	3,317	557	1,359	297	5	0	0	3	13	24	104,239	328	0	112,835
19	1,798	1,736	1,031	1,163	1,906	134	416	1,639	3,239	3,631	3,035	93	1	18	22	45	21	490	221,557	0	241,975
Total	149,386	273,784	145,125	121,064	237,349	73,710	89,212	139,343	201,664	86,248	197,192	101,723	87,788	85,808	70,648	266,201	55,784	106,351	228,079	11,348	2,727,807

Source: 2009 Commuter Survey, JICA Study Team

Table 3.4.2 OD Matrix of To-school Trips by TAZ

ITAZ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	OS	Total
1	90,502	9,672	11,090	1,259	3,794	1	14	130	119	6	80	39	2	1	0	0	0	0	3	518	117,230
2	6,759	153,351	9,733	1,376	15,161	0	32	39	827	34	279	13	1	1	0	1	0	0	5	291	187,903
3	11,171	10,982	60,435	2,045	9,105	0	87	0	193	71	56	43	0	0	0	0	0	0	3	237	94,428
4	4,591	5,333	2,994	66,436	9,897	0	300	460	546	0	151	10	0	0	0	3	0	0	1	250	90,972
5	1,823	20,052	6,354	6,153	115,578	0	67	133	2,495	5	481	22	0	0	0	0	0	0	1	227	153,391
6	0	0	275	0	842	60,668	690	0	0	0	0	40	0	0	5	0	0	4	0	0	62,524
7	72	1,226	77	159	883	160	63,407	3,315	0	0	0	4	0	0	0	18	4	0	1	0	69,326
8	88	656	35	1,765	647	0	498	98,781	288	1,930	105	2	0	0	1	2	3	38	9	59	104,907
9	150	4,095	223	148	5,699	0	45	42	115,594	805	10,556	2	0	0	0	0	0	0	6	165	137,530
10	55	851	0	104	1,031	0	0	78	3,065	81,431	6,464	1	0	0	0	0	0	18	38	0	93,136
11	36	1,080	79	210	1,570	0	0	0	4,397	2,182	163,935	3	0	0	0	0	0	1	13	3,415	176,921
12	170	403	53	54	1,506	0	8	0	40	0	12	71,695	170	3	0	0	0	0	0	448	74,562
13	163	0	0	0	80	0	0	0	0	0	0	1,801	72,334	1	0	0	0	0	0	0	74,379
14	295	0	297	0	342	0	0	0	145	0	0	758	0	70,912	0	0	0	0	0	0	72,749
15	0	0	0	0	525	79	264	0	0	0	546	0	0	0	58,449	0	0	0	0	0	59,863
16	484	1,041	922	399	907	26	1,398	437	0	0	0	133	0	0	220,041	0	0	0	0	0	225,792
17	36	37	71	210	365	0	0	467	41	0	0	0	0	0	46,100	1	46,100	0	0	0	47,328
18	119	753	0	0	430	0	0	540	142	462	0	0	0	0	0	0	0	87,781	11	0	90,238
19	557	534	1,348	0	1,482	0	0	0	354	301	379	26	0	0	0	0	0	75	188,457	0	193,513
Total	117,071	210,066	93,986	80,318	169,844	60,934	66,810	104,422	128,246	87,227	183,044	74,592	72,507	70,918	58,455	220,066	46,111	87,917	188,548	5,610	2,126,692

Source: 2009 Commuter Survey, JICA Study Team