

Chapter 2 Screen Line Survey

2.1 Scope of Work

The screen line survey will obtain traffic volume by counting the number of vehicles at several locations along imaginary lines (screenlines) which divide the study area into parts. The traffic volume counted by the screen line survey will be used not only for evaluating traffic congestion at each location but also for calibrating the current trip origin and destination information surveyed by the household interview survey in terms of vehicular and passenger travel. Accordingly, in order to obtain the data, the following three surveys are to be conducted, namely (a) traffic count survey, (b) vehicle occupancy count survey, and, in two cases (c) passenger count survey.

2.1.1 Survey Locations

The screen line survey includes 15 locations at river and railway crossings, as described in Table 2.1.1 and illustrated in Figure 2.1.1. In addition, counts will be conducted on the access road to Nyerere (Dar Es Salaam) International Airport and the (sea) port of Dar Es Salaam. Survey points will be finalized following further discussions with the Study Team.

2.1.2 Survey Duration

The traffic count survey is conducted for 24 hours at three road stations, the airport and seaport; and 14 hours (from 0600 to 2000) at all other stations. The occupancy count is conducted for 12 hours at all locations. All surveys will be conducted on a weekday selected from Monday through Thursday excluding public holidays. The hours of coverage of the screen line survey are summarized in the previous Table 2.1.1.

2.1.3 Vehicle Classifications

The types of vehicles to be counted are classified into the following eleven categories.

- Passenger car
- Taxi.
- Light commodity vehicle (pickup and vans).
- Public buses (Dala-dala).
- Inter-city buses
- Organization buses (school bus, company and tourist bus).

- 2 Axles truck.
- 3 Axles truck.
- Heavy truck (over three axles, trailer, semi-trailer).
- Motorcycle.
- Others (including bicycle)

Table 2.1.1 Listing of Screen Line Survey Locations

Survey Station		Coverage (hours)	
Number	Road Name	Vehicle Count	Vehicle Occupancy
SL1-1	Old Bagamoyo Road	14	12
SL1-2	Bagamoyo Road	14	12
SL1-3	Morogoro Road	14	12
SL1-4	Nyerere Road	14	12
SL1-5	Kilwa Road	14	12
SL2-6	Ali Hassan Mwinyi Road	24	12
SL2-7	Morogoro Road	24	12
SL2-8	Rashid Kawawa Road	14	12
SL2-9	Nelson Mandela Road	14	12
SL3-10	Uhuru Street	14	12
SL3-11	Nyerere Road	24	12
SL3-12	Bandari Road	14	12
SL3-13	Kigamboni Ferry Terminal	14	12
SL-14	Nyerere (DES) Intl. Airport	All counts for 24 hours as determined by operating schedules. Occupancy counts for 12 hours	
SL-15	Seaport of Dar Es Salaam		



Figure 2.1.1 Screen Line Survey Locations

2.1.4 Survey Method

The detailed survey method will be determined after the discussion with the Study Team. However, following general guidelines apply.

A survey team led by a supervisor sets up the survey point at each location.

- The surveyors for the Traffic Count survey count continuously the number of vehicles by direction and by vehicle type at roadside.
- The surveyors record the number of vehicles by direction and by vehicle type on survey sheet every fifteen (15) minutes.
- The surveyors for the Vehicle Occupancy survey observe the occupancy of each vehicle by vehicle type and by direction, and record it to survey sheet every fifteen (15) minutes. This survey is on a sample basis, and as many vehicle occupancies as possible should be surveyed, but certainly not less than 50 percent (one-half) of passing vehicles. This sample must be observed for all vehicle types in both directions of travel.
- The supervisors should pay attention to find out the count mistake of the vehicle type. The counting and observation survey should not be interrupted by meal or rest.
- It is strongly urged that the survey team have, if at all possible, at their disposal mechanical, hand-held, push-button, counting devices (“clickers”) for tabulating vehicles.

2.1.5 Survey Forms

English language survey forms are attached:

- SLS Form 1 is for summarizing recorded vehicle movement counts every 15 minutes.
- SLS Form 2 is for recording vehicle occupancy counts.

The following form is seen as a “fall back” position if availability of hand held counting devices (“clickers”) is not possible.

- SLS Form 3 for continuous vehicle counting (manual check-offs).

2.1.6 Staffing Indication

It is likely that formation of a staffing plan will involve following considerations.

- A single shift for road side screen line surveys will extend over an eight hour period. Thus, a 14 hour count period will require two shift crews, and a 24 hour count three shift crews.
- A single crew at roadside will likely consist of 4 persons: 2 traffic counters, occupancy counter, and a reserve. Two crews are needed each shift, one in each direction of travel, or a total of 8 persons. In addition, one supervisor is needed. Thus, for one roadside station, for one 8 hour shift, a minimum crew of 9 persons is needed. Therefore, a 14 hour survey period (consisting of 2 shifts) will require 18 persons.
- In case of a 24 hour roadside survey station, a smaller crew will be needed for the third shift due to much lower road traffic during overnight hours. The total crew for this is 5, including supervisor.

Thus, for a 24 hour station, a total of 23 persons will be required.

- If more than one station is active per day, the number of staff will increase accordingly. For example, doing a 16 hour and a 24 hour station during the same day requires a total of 41 persons.
- In case of Nyerere (Dar Es Salaam) International Airport and Dar Es Salaam seaport, traffic count surveys extend, in principle, over 24 hours (occupancy surveys over 12 hours). However, the traffic count extent remains to be confirmed and will depend on actual operating hours of these two facilities. The number of survey stations at the airport is expected to be one (the main access road), however, further checking is required at the seaport to determine the number of gates which are open at any one time. Each gate will require a separate survey crew, and all gates at the sea port must be surveyed on the same day.

2.2 Survey Performance

In the survey schedule, the field survey was planned to conduct at five locations in one day: three days complete the fifteen locations. However, the field survey at DES seaport was postponed until the following week because the permission to conduct survey from the authority was not available before the planned survey date in fact.

Furthermore, correct information could not be obtained in the first shift at Ali Hassan Mwinyi road because there was a shortage of survey forms and surveyors so that an extra fourth shift of the survey was decided to conduct, that is, the survey was conducted for 32 hours (from 6:00 to 14:00 in the next day) and the information in 24 hours will be available.

Table 2.2.1 Implementation of Screen Line Survey

Survey Date	Code and Road Name	Location	Survey Hours
19 June, Tuesday	SL2-6 Ali Hassan Mwinyi road	Salender Bridge	32 hours
	SL2-7 Morogoro road	Jangwani Konoike	24 hours
	SL3-11 Nyerere road	Darajani/Shoprite	24 hours
	SL14 DES International Airport	Terminal 1/Terminal 2	24 hours
21 June, Thursday	SL1-1 Old Bagamoyo road	Mlalakuwa Junction	14 hours (6:00-20:00)
	SL1-2 Bagamoyo road	Makongo	14 hours (6:00-20:00)
	SL1-3 Morogoro road	Kibo	14 hours (6:00-20:00)
	SL1-4 Nyerere road	Tazara	14 hours (6:00-20:00)
	SL1-5 Kilwa road	Mbagala Misherni	14 hours (6:00-20:00)
25 June, Monday	SL2-8 Rashid Kawawa road	Kigogo Sambusa	14 hours (6:00-20:00)
	SL2-9 Nelson Mandela road	Sukita	14 hours (6:00-20:00)
	SL3-10 Uguru street	Breweries TLB	14 hours (6:00-20:00)
	SL3-12 Bandari road	Railway Bridge	14 hours (6:00-20:00)
	SL3-13 Kigamboni Ferry	Ferry terminal road	14 hours (6:00-20:00)
3 July, Tuesday	SL15 DES Seaport	Gate 3 and Gate 5	24 hours

The following figures show the particular location determined with the discussion between the JICA Study team and the consultant for the Screen Line survey. In the figures, a number 1 indicates an inbound direction and 2 indicates an outbound direction.

At the DES International Airport, the survey crew was divided into two parties in order to investigate two approach roads to the Airport. DES Seaport has several gates for entering. Gate 3 and gate 5 were selected in consideration for the traffic volume, especially of a heavy vehicle.

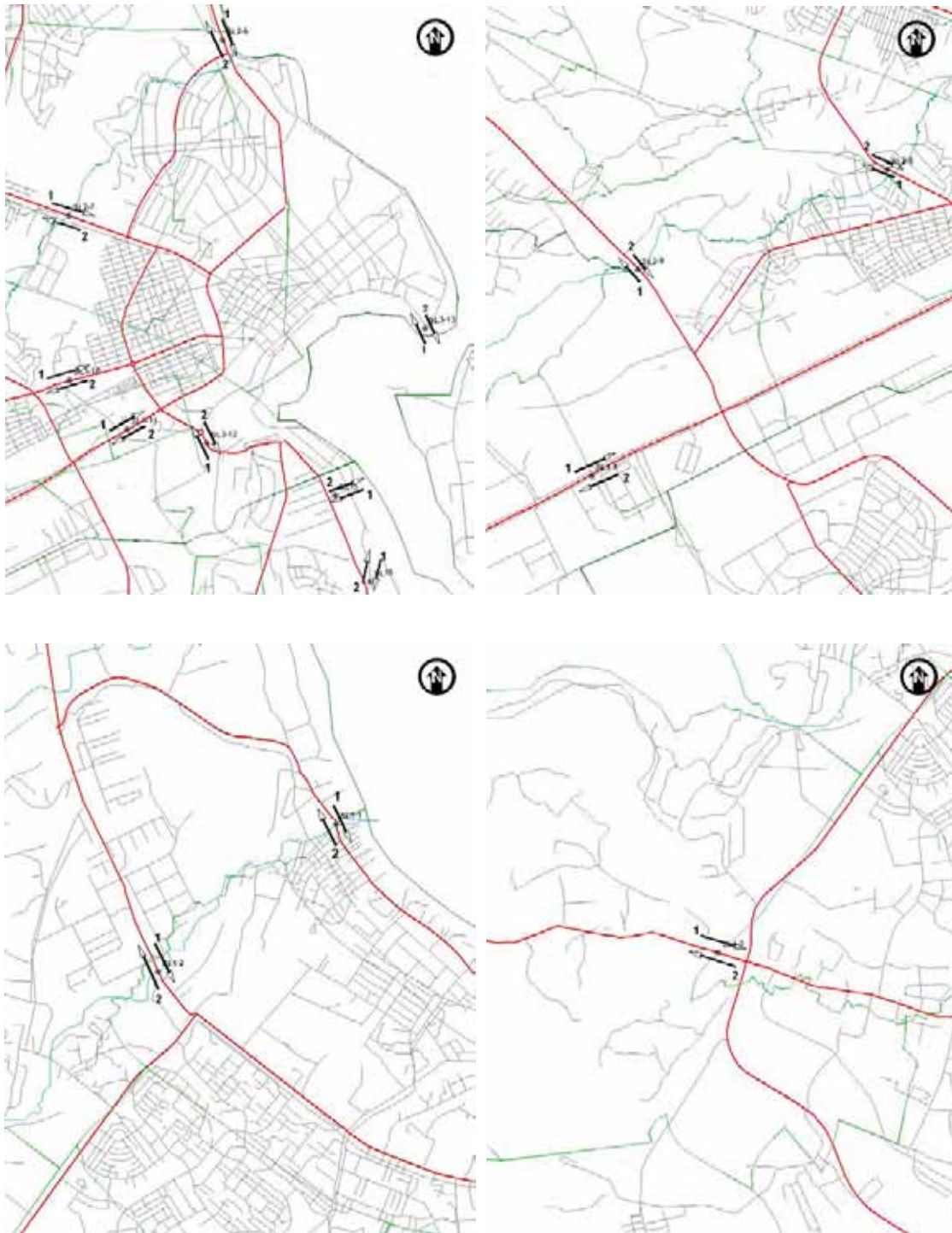


Figure 2.2.1 Particular Location of Screen Line Survey

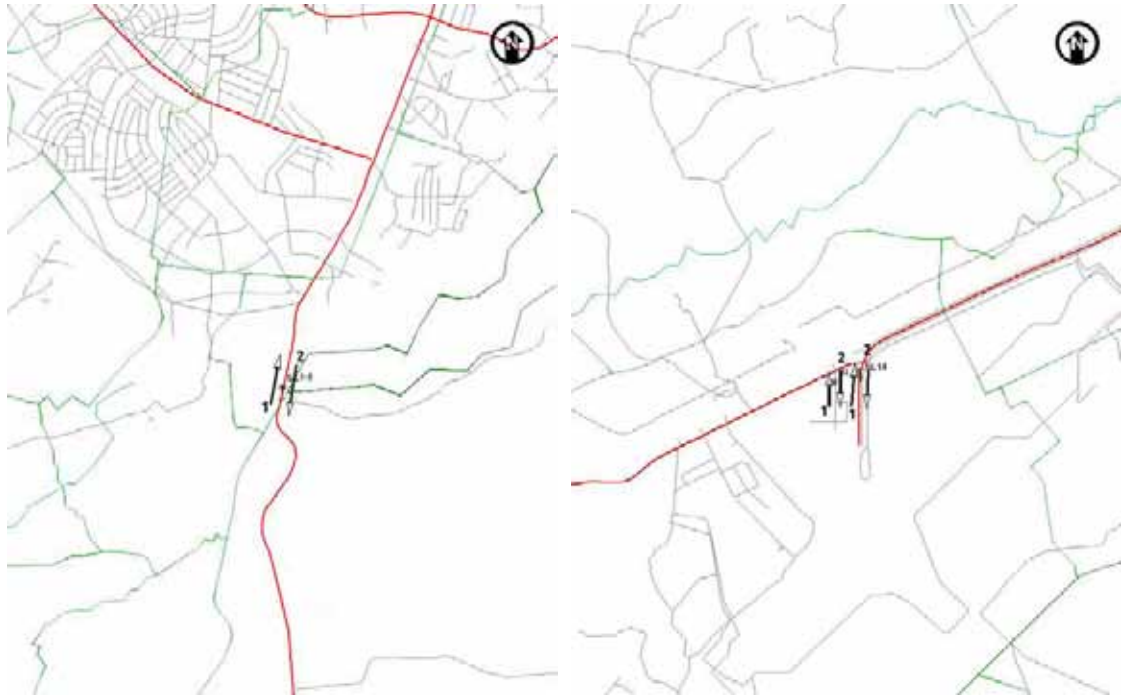


Figure 2.2.1 Particular Location of Screen Line Survey (Cont'd)

2.3 Summary of Survey Result

2.3.1 Overall screen line traffic volumes

A total number of traffics crossing each of the screen lines is summarized in Figure 2.3.1. The heaviest traffic was observed in crossing the Msimbazi River screen line which includes Ali Hassan Mwinyi road and Morogoro road, being accounted at 91.7 thousand vehicles or 448.3 thousand person trips. The average occupancy observed at each station is indicated in Table 2.3.1.

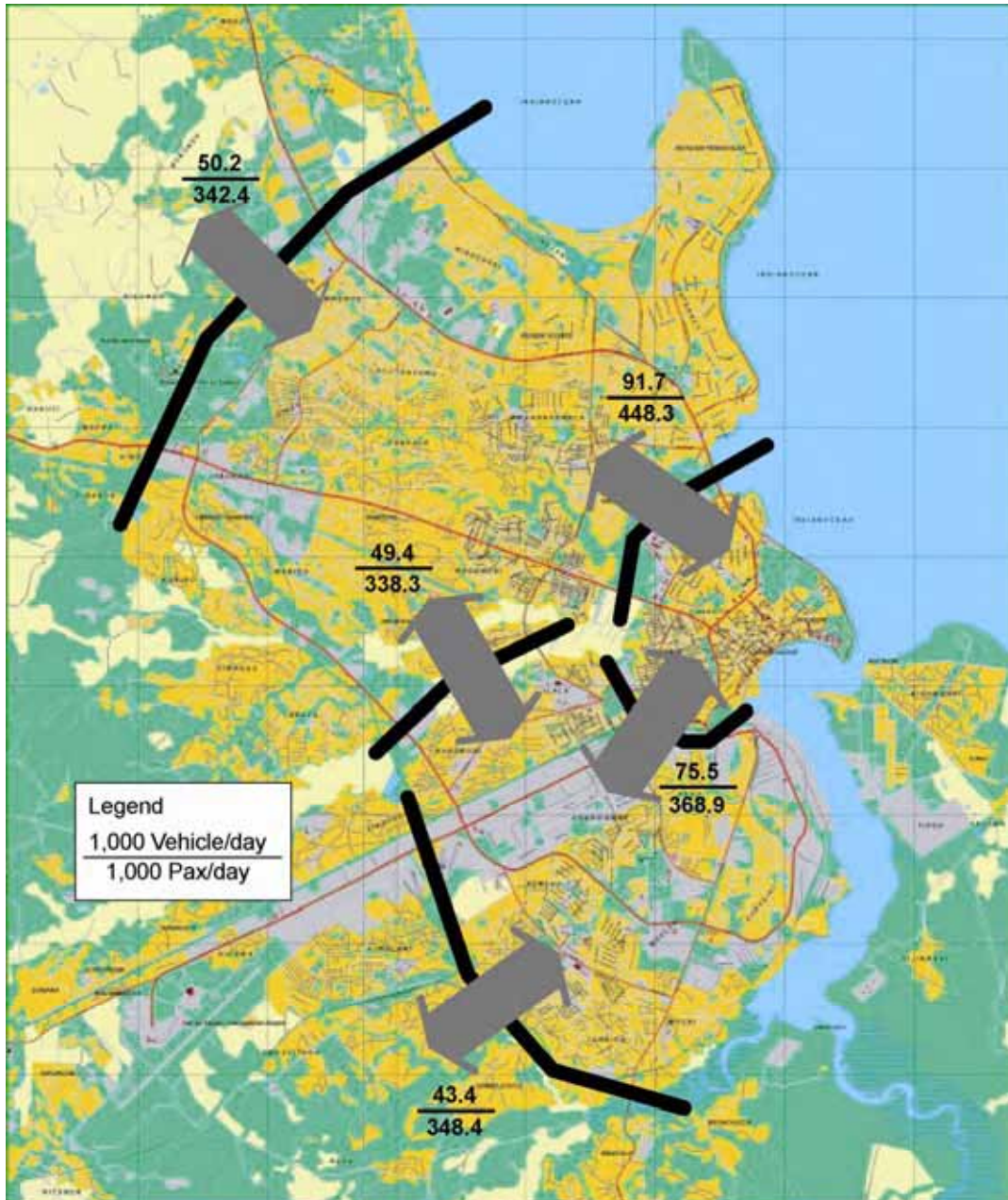


Figure 2.3.1 Traffic Volume Crossing Screen Lines

Table 2.3.1 Average Occupancy Rate by Type of Vehicle

Unit: person per vehicle

Station	Passenger car	Taxi	Pickup, van	Dala dala (small)	Dala dala (medium)	Inter-city bus
SL1-1	1.8	1.8	2.3	14.2	23.2	13.6
SL1-2	2.0	1.9	2.4	17.2	33.5	19.4
SL1-3	2.0	1.9	2.4	14.5	25.6	43.0
SL1-4	1.9	2.0	2.4	13.9	26.0	28.9
SL1-5	2.2	2.1	3.1	15.6	27.1	21.8
SL2-6	2.0	1.9	2.2	13.4	26.1	9.2
SL2-7	2.0	1.9	2.5	18.4	24.9	14.6
SL2-8	1.9	1.8	2.1	14.9	28.4	17.0
SL2-9	1.8	1.9	2.3	17.5	30.8	22.0
SL3-10	1.8	1.7	2.3	15.1	25.1	10.6
SL3-11	2.0	1.9	2.4	15.6	26.1	13.4
SL3-12	1.8	1.8	2.2	16.4	22.8	-

Source: Screen Line Survey in 2007 by JICA Study Team

2.3.2 Characteristics by Location

Essential characteristics of traffic at each survey location are shown in Table 2.3.2. The largest traffic of vehicles were observed at 59.5 thousand crossing Salender Bridge along Ali Hassan Mwinyi road for 24 hours, followed by 40.2 thousand of vehicle trips at Darajani/Shoprite along Nyerere road.

Table 2.3.2 Total Number of Vehicles Counted at Each Location

Survey Station			Survey Hours	Car (000)	Bus (000)	Truck (000)	M/C (000)	Vehicles (000)	Peak		Bus Ratio (%)	Truck Ratio (%)
Code	Road Name	Location							Ratio(%)	Hour		
SL1-1	Old Bagamoyo Road	Mlalakuwa JKT	14	9.4	1.7	0.6	0.3	12.0	9.2	18:00	14.2	4.8
SL1-2	Bagamoyo Road	Makongo	14	8.9	4.6	1.4	0.5	15.3	8.8	7:00	29.8	9.3
SL1-3	Morogoro Road	Kibo	14	12.9	6.0	3.4	0.7	22.9	9.5	7:00	26.0	14.8
SL1-4	Nyerere Road	Tazara	14	15.0	8.3	3.5	1.5	28.2	8.9	17:00	29.3	12.3
SL1-5	Kilwa Road	Mbagala Misheni	14	5.5	6.4	2.0	1.2	15.2	8.3	18:00	42.4	13.3
SL2-6	Ali Hassan Mwinyi Road	Salender Bridge	24	52.3	4.3	1.2	1.7	59.5	9.6	7:00	7.3	2.0
SL2-7	Morogoro Road	Jangwani Konoike	24	17.5	12.0	1.3	1.5	32.2	6.8	15:00	37.3	4.0
SL2-8	Rashid Kawawa Road	Kigogo Sambusa	14	14.7	7.3	2.4	1.1	25.6	9.7	19:00	28.7	9.2
SL2-9	Nelson Mandela Road	Sukita	14	13.9	5.7	3.3	1.0	23.9	8.4	16:00	23.7	14.0
SL3-10	Uhuru Street	Breweries TLB	14	9.2	5.1	0.6	1.3	16.3	8.8	15:00	31.4	4.0
SL3-11	Nyerere Road	Darajani/Shoprite	24	27.9	6.3	3.5	2.5	40.2	8.7	15:00	15.7	8.7
SL3-12	Bandari Road	Railway Bridge	14	12.8	3.8	1.0	1.3	19.0	9.6	16:00	20.3	5.1
SL3-13		Kiganboni Ferry	14	0.9	0.0	0.2	0.3	1.5	11.0	17:00	1.8	10.6
SL-14 (1)		Airport Terminal 1	24	5.6	0.3	0.2	0.2	6.2	10.9	14:00	4.0	3.0
SL-14 (2)		Airport Terminal 2	24	3.8	0.3	0.1	0.1	4.2	14.7	13:00	6.0	2.9
SL-15 (1)		Seaport Gate 3	24	0.8	0.0	0.3	0.2	1.3	11.0	15:00	0.6	22.4
SL-15 (2)		Seaport Gate 5	24	0.6	0.0	0.7	0.2	1.5	8.8	12:00	2.1	47.4

The peak ratio can be calculated by dividing traffic of both direction in peak hour with the total number of vehicle trips counted during the survey period. The peak ratio in the table does not vary, which ranges from 6.8% to 9.7. On the other hand, from Figure 2.3.2, there is a difference of the characteristic with respect to a peak of traffic. The peak of inbound traffic is in the morning while outbound in the evening, at any location of the Survey. Almost the same volume of traffic was observed at both directions during daytime at SL1-2, SL2-7, and SL2-8, while much larger volume was counted in peak hours at SL1-1, SL1-3, and SL2-6.

Figure 2.3.3 exhibits modal share at each survey location. It is two corridors between CBD and north, CBD and DES Airport that the modal share of passenger cars is high. Regarding to the modal share of buses, Morogoro road, Kilwa road, and Uhuru street have higher value comparing with the rest of roads.

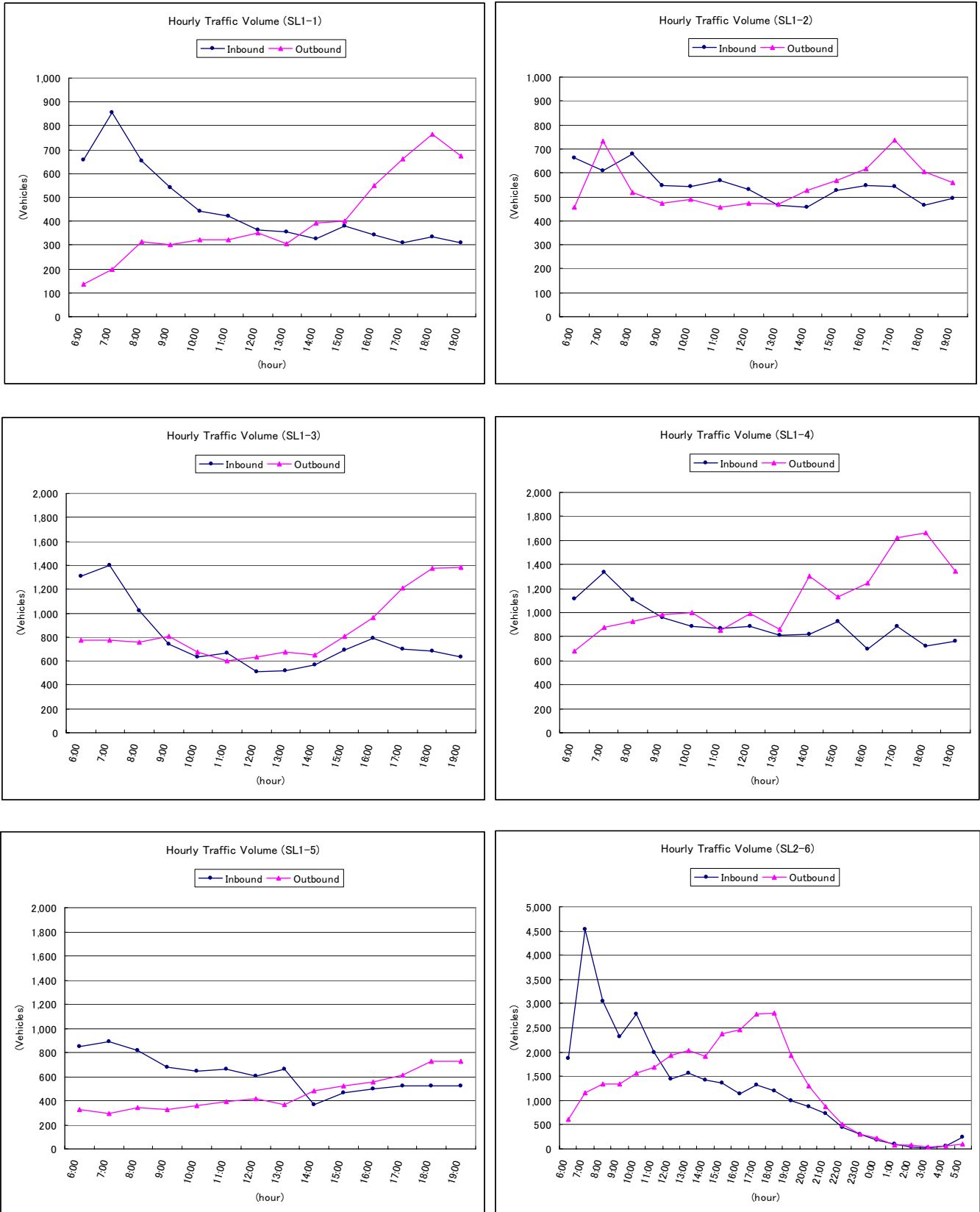


Figure 2.32 Hourly Traffic Volume at Screen Line Station



Figure 2.3.2 Hourly Traffic Volume at Screen Line Station (Cont'd)

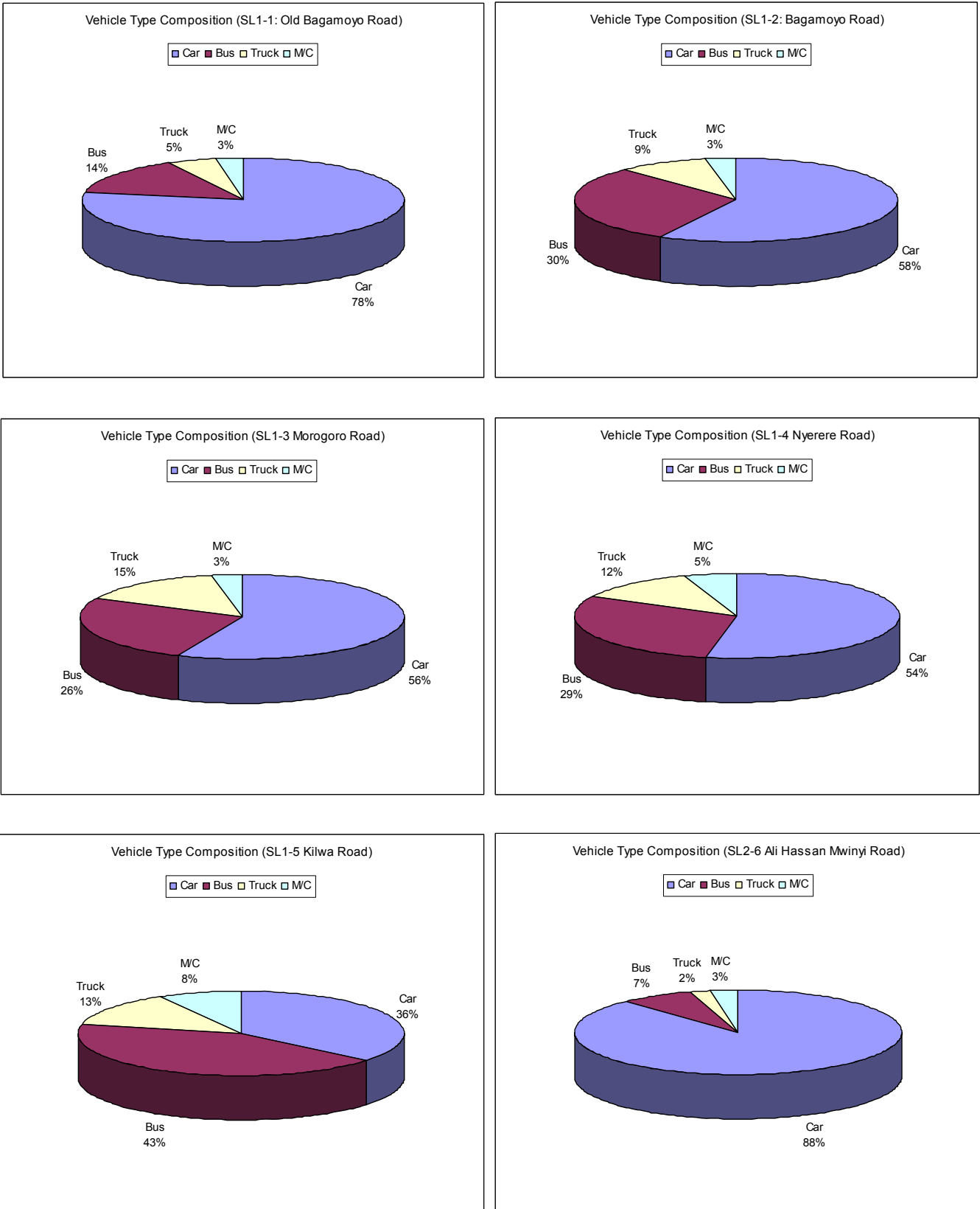


Figure 2.3.3 Modal Share at Screen Line Station

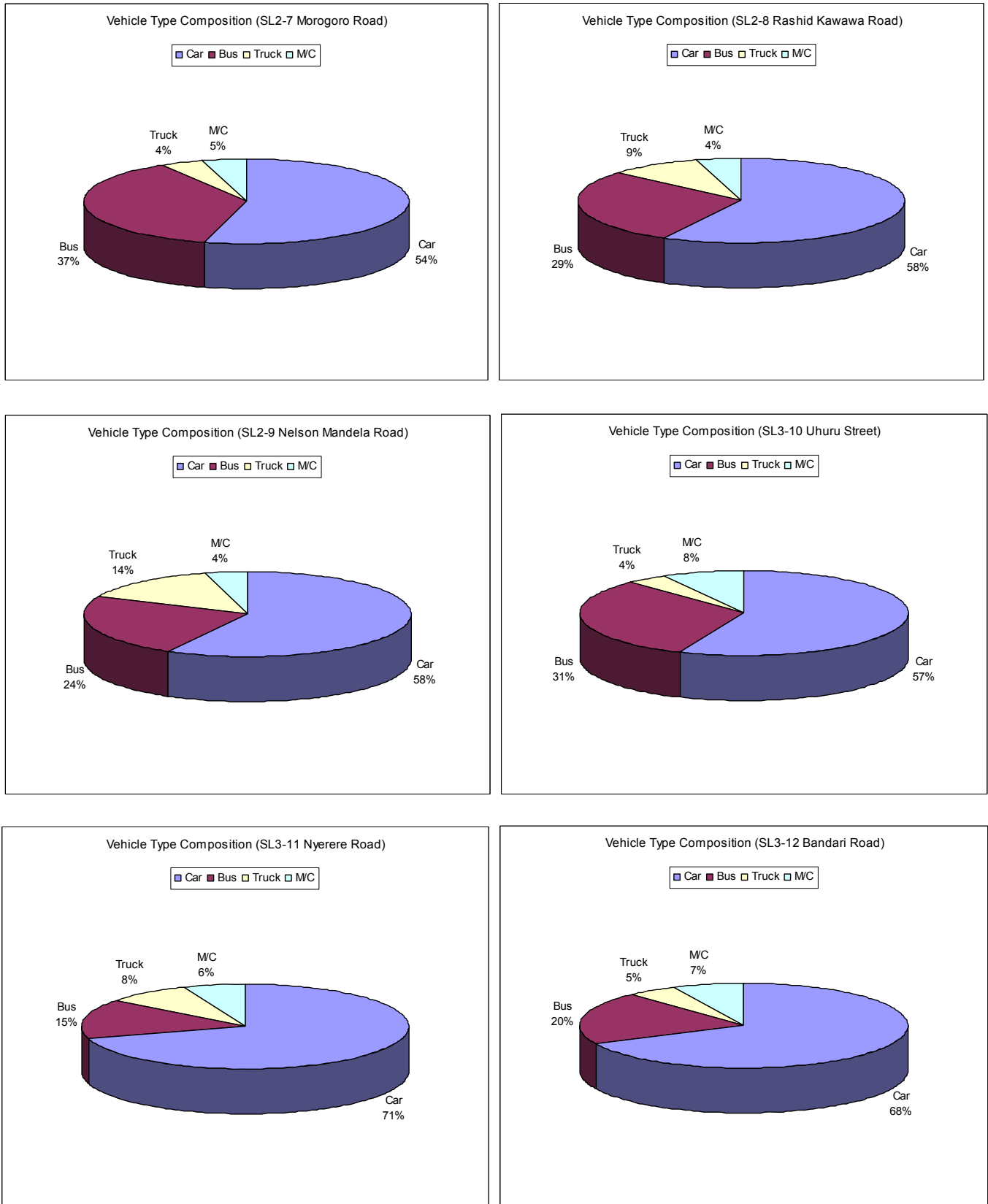


Figure 2.3.3 Modal Share at Screen Line Station (Cont'd)

Appendix-2: Traffic Volumes by Hour and Location

Table A-1a Traffic Volume crossing SL1-1: Old Bagamoyo Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	529	28	86	53	41	0	25	9	0	0	15	5	791	95	886
7:00-8:00	703	50	106	68	29	0	34	21	2	1	30	12	1,056	138	1,194
8:00-9:00	580	63	121	58	39	0	12	32	3	0	31	26	965	88	1,053
9:00-10:00	499	62	95	62	32	0	6	43	2	0	31	9	841	49	890
10:00-11:00	416	64	120	55	26	0	4	46	1	0	24	12	768	48	816
11:00-12:00	389	59	109	62	29	1	5	52	5	0	26	7	744	49	793
12:00-13:00	352	64	104	64	31	0	13	51	9	0	18	9	715	38	753
13:00-14:00	335	56	85	54	23	0	19	47	3	0	26	12	660	34	694
14:00-15:00	362	54	119	58	30	1	24	38	2	0	21	10	719	29	748
15:00-16:00	400	59	120	58	30	0	18	54	4	1	23	13	780	54	834
16:00-17:00	514	81	106	72	20	0	18	43	3	0	22	14	893	75	968
17:00-18:00	594	59	129	70	25	0	12	37	4	0	29	12	971	165	1,136
18:00-19:00	676	76	150	88	22	0	15	36	7	0	24	4	1,098	134	1,232
19:00-20:00	601	82	110	84	28	0	11	22	2	0	19	27	986	53	1,039
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	6,950	857	1,560	906	405	2	216	531	47	2	339	172	11,987	1,049	13,036

Table A-1b Traffic Volume Counted on SL1-1: Old Bagamoyo Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	487	19	68	25	22	0	10	8	0	0	13	4	656	64	720
7:00-8:00	624	38	91	36	16	0	5	13	1	1	24	8	857	85	942
8:00-9:00	430	46	80	26	14	0	4	17	2	0	18	14	651	55	706
9:00-10:00	346	34	60	31	21	0	0	24	1	0	19	5	541	19	560
10:00-11:00	262	34	68	25	12	0	1	24	0	0	12	6	444	25	469
11:00-12:00	234	34	50	34	17	0	3	31	2	0	12	3	420	29	449
12:00-13:00	192	29	58	32	14	0	0	22	4	0	9	4	364	24	388
13:00-14:00	190	33	54	22	14	0	4	19	0	0	14	5	355	18	373
14:00-15:00	147	22	57	28	13	1	17	22	1	0	11	9	328	10	338
15:00-16:00	185	29	46	34	17	0	13	32	3	0	15	5	379	25	404
16:00-17:00	163	34	51	34	11	0	6	22	1	0	12	8	342	37	379
17:00-18:00	140	22	52	38	12	0	8	24	1	0	7	6	310	88	398
18:00-19:00	155	27	54	45	11	0	8	18	6	0	9	2	335	51	386
19:00-20:00	142	38	37	41	13	0	6	11	1	0	7	15	311	21	332
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,697	439	826	451	207	1	85	287	23	1	182	94	6,293	551	6,844

Table A-1c Traffic Volume Counted on SL1-1: Old Bagamoyo Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	42	9	18	28	19	0	15	1	0	0	2	1	135	31	166
7:00-8:00	79	12	15	32	13	0	29	8	1	0	6	4	199	53	252
8:00-9:00	150	17	41	32	25	0	8	15	1	0	13	12	314	33	347
9:00-10:00	153	28	35	31	11	0	6	19	1	0	12	4	300	30	330
10:00-11:00	154	30	52	30	14	0	3	22	1	0	12	6	324	23	347
11:00-12:00	155	25	59	28	12	1	2	21	3	0	14	4	324	20	344
12:00-13:00	160	35	46	32	17	0	13	29	5	0	9	5	351	14	365
13:00-14:00	145	23	31	32	9	0	15	28	3	0	12	7	305	16	321
14:00-15:00	215	32	62	30	17	0	7	16	1	0	10	1	391	19	410
15:00-16:00	215	30	74	24	13	0	5	22	1	1	8	8	401	29	430
16:00-17:00	351	47	55	38	9	0	12	21	2	0	10	6	551	38	589
17:00-18:00	454	37	77	32	13	0	4	13	3	0	22	6	661	77	738
18:00-19:00	521	49	96	43	11	0	7	18	1	0	15	2	763	83	846
19:00-20:00	459	44	73	43	15	0	5	11	1	0	12	12	675	32	707
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,253	418	734	455	198	1	131	244	24	1	157	78	5,694	498	6,192

Table A-2a Traffic Volume crossing SL1-2: Bagamoyo Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	387	51	189	224	59	70	56	27	18	7	27	2	1,117	91	1,208
7:00-8:00	502	72	225	224	71	64	39	58	35	7	36	7	1,340	107	1,447
8:00-9:00	442	63	180	222	63	67	12	60	32	17	35	7	1,200	83	1,283
9:00-10:00	364	71	147	189	49	43	9	69	33	11	33	1	1,019	63	1,082
10:00-11:00	383	51	164	187	52	39	12	66	37	5	31	6	1,033	59	1,092
11:00-12:00	352	33	185	185	44	32	12	75	37	25	30	12	1,022	34	1,056
12:00-13:00	310	43	146	190	50	38	30	98	39	17	38	3	1,002	42	1,044
13:00-14:00	308	42	130	175	65	34	34	69	34	15	28	3	937	29	966
14:00-15:00	364	62	148	164	42	36	13	75	34	13	28	4	983	22	1,005
15:00-16:00	376	55	189	209	59	45	14	69	28	16	30	4	1,094	28	1,122
16:00-17:00	463	63	181	202	42	53	22	60	29	12	33	5	1,165	39	1,204
17:00-18:00	512	80	210	206	56	69	14	51	23	8	38	11	1,278	40	1,318
18:00-19:00	469	51	148	174	55	56	10	43	20	11	23	8	1,068	46	1,114
19:00-20:00	435	87	132	145	74	71	10	32	10	4	40	12	1,052	29	1,081
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5,667	824	2,374	2,696	781	717	287	852	409	168	450	85	15,310	712	16,022

Table A-2b Traffic Volume crossing SL1-2: Bagamoyo Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	245	25	155	133	23	40	10	9	5	1	14	1	661	65	726
7:00-8:00	249	18	121	100	29	26	11	20	3	3	24	3	607	58	665
8:00-9:00	238	33	125	121	41	36	10	21	18	7	26	5	681	44	725
9:00-10:00	203	39	86	100	22	28	3	28	14	4	20	0	547	23	570
10:00-11:00	210	17	110	96	28	16	11	25	12	3	14	2	544	32	576
11:00-12:00	202	17	121	87	22	12	7	39	18	16	16	9	566	15	581
12:00-13:00	152	22	80	106	23	19	18	55	19	7	26	3	530	30	560
13:00-14:00	148	17	84	92	19	16	9	40	12	4	23	2	466	14	480
14:00-15:00	169	32	81	70	14	11	5	34	19	5	15	1	456	11	467
15:00-16:00	141	33	107	103	33	24	3	42	12	11	14	2	525	19	544
16:00-17:00	157	35	116	104	23	21	2	41	21	7	19	2	548	27	575
17:00-18:00	148	45	117	97	24	33	3	32	18	6	14	6	543	20	563
18:00-19:00	150	29	84	79	23	25	1	33	17	9	10	5	465	26	491
19:00-20:00	150	57	77	85	37	33	2	23	4	2	17	7	494	19	513
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2,562	419	1,464	1,373	361	340	95	442	192	85	252	48	7,633	403	8,036

Table A-2c Traffic Volume crossing SL1-2: Bagamoyo Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	142	26	34	91	36	30	46	18	13	6	13	1	456	26	482
7:00-8:00	253	54	104	124	42	38	28	38	32	4	12	4	733	49	782
8:00-9:00	204	30	55	101	22	31	2	39	14	10	9	2	519	39	558
9:00-10:00	161	32	61	89	27	15	6	41	19	7	13	1	472	40	512
10:00-11:00	173	34	54	91	24	23	1	41	25	2	17	4	489	27	516
11:00-12:00	150	16	64	98	22	20	5	36	19	9	14	3	456	19	475
12:00-13:00	158	21	66	84	27	19	12	43	20	10	12	0	472	12	484
13:00-14:00	160	25	46	83	46	18	25	29	22	11	5	1	471	15	486
14:00-15:00	195	30	67	94	28	25	8	41	15	8	13	3	527	11	538
15:00-16:00	235	22	82	106	26	21	11	27	16	5	16	2	569	9	578
16:00-17:00	306	28	65	98	19	32	20	19	8	5	14	3	617	12	629
17:00-18:00	364	35	93	109	32	36	11	19	5	2	24	5	735	20	755
18:00-19:00	319	22	64	95	32	31	9	10	3	2	13	3	603	20	623
19:00-20:00	285	30	55	60	37	38	8	9	6	2	23	5	558	10	568
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,105	405	910	1,323	420	377	192	410	217	83	198	37	7,677	309	7,986

Table A-3a Traffic Volume crossing SL1-3: Morogoro Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	916	97	194	221	68	66	49	382	28	15	41	4	2,081	50	2,131
7:00-8:00	994	102	248	150	54	144	61	303	13	15	84	2	2,170	73	2,243
8:00-9:00	683	85	160	155	72	115	51	304	16	50	83	2	1,776	70	1,846
9:00-10:00	479	90	137	216	39	102	80	319	8	26	50	2	1,548	37	1,585
10:00-11:00	433	96	163	166	32	85	67	176	26	36	30	2	1,312	71	1,383
11:00-12:00	456	90	147	192	38	69	66	114	21	30	41	2	1,266	55	1,321
12:00-13:00	426	85	127	133	26	86	46	112	23	38	34	3	1,139	52	1,191
13:00-14:00	398	58	162	205	34	70	37	131	17	33	42	4	1,191	46	1,237
14:00-15:00	414	77	140	232	43	26	90	105	25	38	26	3	1,219	37	1,256
15:00-16:00	509	93	185	279	44	33	112	133	30	47	29	2	1,496	50	1,546
16:00-17:00	636	104	171	278	46	38	225	139	27	54	35	1	1,754	64	1,818
17:00-18:00	780	112	251	286	42	37	159	123	14	56	53	0	1,913	102	2,015
18:00-19:00	953	113	240	261	42	24	172	106	13	59	74	5	2,062	57	2,119
19:00-20:00	887	152	272	260	42	19	143	107	16	66	50	1	2,015	31	2,046
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	8,964	1,354	2,597	3,034	622	914	1,358	2,554	277	563	672	33	22,942	795	23,737

Table A-3b Traffic Volume crossing SL1-3: Morogoro Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	775	66	167	120	30	2	44	50	5	9	38	3	1,309	41	1,350
7:00-8:00	853	70	193	73	39	16	38	34	5	6	71	2	1,400	50	1,450
8:00-9:00	525	45	109	77	50	7	47	41	9	41	67	2	1,020	17	1,037
9:00-10:00	300	44	77	108	20	4	75	44	3	21	42	0	738	15	753
10:00-11:00	283	49	83	58	13	7	64	49	6	13	12	0	637	12	649
11:00-12:00	247	47	75	101	17	5	62	56	14	15	26	2	667	19	686
12:00-13:00	196	43	57	50	10	12	45	49	8	16	19	2	507	22	529
13:00-14:00	189	29	62	100	10	13	32	43	4	12	25	1	520	15	535
14:00-15:00	196	35	62	119	20	19	40	47	9	11	10	2	570	10	580
15:00-16:00	226	46	74	152	24	26	48	55	13	16	9	1	690	18	708
16:00-17:00	243	55	51	138	20	32	163	45	16	22	7	0	792	25	817
17:00-18:00	234	48	48	151	22	31	96	44	3	15	9	0	701	23	724
18:00-19:00	251	56	39	126	16	22	100	44	4	12	12	2	684	15	699
19:00-20:00	243	66	43	123	17	17	71	26	6	12	9	0	633	4	637
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4,761	699	1,140	1,496	308	213	925	627	105	221	356	17	10,868	286	11,154

Table A-3c Traffic Volume crossing SL1-3: Morogoro Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	141	31	27	101	38	64	5	332	23	6	3	1	772	9	781
7:00-8:00	141	32	55	77	15	128	23	269	8	9	13	0	770	23	793
8:00-9:00	158	40	51	78	22	108	4	263	7	9	16	0	756	53	809
9:00-10:00	179	46	60	108	19	98	5	275	5	5	8	2	810	22	832
10:00-11:00	150	47	80	108	19	78	3	127	20	23	18	2	675	59	734
11:00-12:00	209	43	72	91	21	64	4	58	7	15	15	0	599	36	635
12:00-13:00	230	42	70	83	16	74	1	63	15	22	15	1	632	30	662
13:00-14:00	209	29	100	105	24	57	5	88	13	21	17	3	671	31	702
14:00-15:00	218	42	78	113	23	7	50	58	16	27	16	1	649	27	676
15:00-16:00	283	47	111	127	20	7	64	78	17	31	20	1	806	32	838
16:00-17:00	393	49	120	140	26	6	62	94	11	32	28	1	962	39	1,001
17:00-18:00	546	64	203	135	20	6	63	79	11	41	44	0	1,212	79	1,291
18:00-19:00	702	57	201	135	26	2	72	62	9	47	62	3	1,378	42	1,420
19:00-20:00	644	86	229	137	25	2	72	81	10	54	41	1	1,382	27	1,409
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4,203	655	1,457	1,538	314	701	433	1,927	172	342	316	16	12,074	509	12,583

Table A-4a Traffic Volume crossing SL1-4: Nyerere Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	513	176	147	425	291	3	76	70	13	7	68	5	1,794	253	2,047
7:00-8:00	780	205	244	347	237	0	79	126	16	9	167	1	2,211	340	2,551
8:00-9:00	613	201	187	292	197	0	83	254	24	27	153	7	2,038	316	2,354
9:00-10:00	515	179	213	298	219	2	70	230	47	28	129	7	1,937	203	2,140
10:00-11:00	573	163	229	254	187	0	45	255	30	34	110	12	1,892	182	2,074
11:00-12:00	523	172	188	230	183	1	65	203	30	42	74	11	1,722	129	1,851
12:00-13:00	574	209	172	303	196	2	82	213	23	37	53	8	1,872	155	2,027
13:00-14:00	395	251	173	276	199	1	66	161	18	40	52	33	1,665	108	1,773
14:00-15:00	746	216	289	246	171	2	51	229	38	41	77	14	2,120	135	2,255
15:00-16:00	622	284	251	269	175	0	48	243	30	36	92	9	2,059	146	2,205
16:00-17:00	626	237	227	238	133	0	52	238	38	36	108	9	1,942	147	2,089
17:00-18:00	848	299	262	342	224	0	73	206	25	55	161	11	2,506	260	2,766
18:00-19:00	936	262	150	335	257	1	69	147	29	37	160	4	2,387	223	2,610
19:00-20:00	778	248	119	395	289	0	65	74	19	24	92	1	2,104	109	2,213
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9,042	3,102	2,851	4,250	2,958	12	924	2,649	380	453	1,496	132	28,249	2,706	30,955

Table A-4b Traffic Volume crossing SL1-4: Nyerere Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	330	118	96	276	163	3	15	37	8	2	60	3	1,111	215	1,326
7:00-8:00	444	135	171	213	125	0	23	78	8	7	127	1	1,332	263	1,595
8:00-9:00	277	122	102	180	104	0	27	155	13	15	107	6	1,108	219	1,327
9:00-10:00	204	102	102	175	108	0	25	113	30	19	77	1	956	121	1,077
10:00-11:00	216	80	107	154	102	0	6	118	18	26	54	7	888	129	1,017
11:00-12:00	179	93	133	130	96	0	17	117	21	26	48	7	867	101	968
12:00-13:00	232	100	101	157	76	1	18	127	12	18	35	6	883	97	980
13:00-14:00	165	110	122	124	80	0	20	114	11	16	38	8	808	53	861
14:00-15:00	174	101	134	127	86	1	3	99	19	29	37	8	818	33	851
15:00-16:00	208	162	107	170	83	0	5	110	14	21	39	5	924	45	969
16:00-17:00	146	94	112	129	45	0	5	91	21	14	37	4	698	11	709
17:00-18:00	154	130	106	203	109	0	4	89	17	16	51	6	885	57	942
18:00-19:00	157	97	59	171	130	0	0	46	15	9	39	0	723	19	742
19:00-20:00	172	81	54	230	150	0	4	25	4	8	31	0	759	16	775
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,058	1,525	1,506	2,439	1,457	5	172	1,319	211	226	780	62	12,760	1,379	14,139

Table A-4c Traffic Volume crossing SL1-4: Nyerere Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	183	58	51	149	128	0	61	33	5	5	8	2	683	38	721
7:00-8:00	336	70	73	134	112	0	56	48	8	2	40	0	879	77	956
8:00-9:00	336	79	85	112	93	0	56	99	11	12	46	1	930	97	1,027
9:00-10:00	311	77	111	123	111	2	45	117	17	9	52	6	981	82	1,063
10:00-11:00	357	83	122	100	85	0	39	137	12	8	56	5	1,004	53	1,057
11:00-12:00	344	79	55	100	87	1	48	86	9	16	26	4	855	28	883
12:00-13:00	342	109	71	146	120	1	64	86	11	19	18	2	989	58	1,047
13:00-14:00	230	141	51	152	119	1	46	47	7	24	14	25	857	55	912
14:00-15:00	572	115	155	119	85	1	48	130	19	12	40	6	1,302	102	1,404
15:00-16:00	414	122	144	99	92	0	43	133	16	15	53	4	1,135	101	1,236
16:00-17:00	480	143	115	109	88	0	47	147	17	22	71	5	1,244	136	1,380
17:00-18:00	694	169	156	139	115	0	69	117	8	39	110	5	1,621	203	1,824
18:00-19:00	779	165	91	164	127	1	69	101	14	28	121	4	1,664	204	1,868
19:00-20:00	606	167	65	165	139	0	61	49	15	16	61	1	1,345	93	1,438
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5,984	1,577	1,345	1,811	1,501	7	752	1,330	169	227	716	70	15,489	1,327	16,816

Table A-5a Traffic Volume crossing SL1-5: Kilwa Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	337	79	85	161	188	29	103	45	37	16	85	4	1,169	186	1,355
7:00-8:00	387	84	69	162	125	10	140	41	27	5	137	1	1,188	407	1,595
8:00-9:00	309	69	66	170	170	13	145	76	27	9	100	1	1,155	249	1,404
9:00-10:00	213	65	56	137	146	9	165	84	43	5	81	0	1,004	162	1,166
10:00-11:00	182	56	62	146	148	8	185	104	40	8	60	2	1,001	133	1,134
11:00-12:00	188	69	74	159	143	10	200	131	34	8	41	0	1,057	125	1,182
12:00-13:00	168	63	79	160	165	8	215	90	33	11	35	0	1,027	116	1,143
13:00-14:00	145	53	66	148	164	11	247	107	34	18	28	2	1,023	95	1,118
14:00-15:00	185	87	76	103	174	1	22	87	55	14	46	1	851	95	946
15:00-16:00	200	70	88	157	193	3	44	118	56	2	58	2	991	140	1,131
16:00-17:00	197	67	92	180	182	3	37	147	43	18	79	7	1,052	200	1,252
17:00-18:00	248	89	85	167	210	6	34	95	45	12	140	6	1,137	310	1,447
18:00-19:00	300	93	89	166	208	1	45	100	49	15	184	3	1,253	320	1,573
19:00-20:00	292	109	74	192	231	0	48	79	37	10	170	1	1,243	195	1,438
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,351	1,053	1,061	2,208	2,447	112	1,630	1,304	560	151	1,244	30	15,151	2,733	17,884

Table A-5b Traffic Volume crossing SL1-5: Kilwa Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	278	60	66	93	100	18	98	22	18	11	77	4	845	162	1,007
7:00-8:00	313	63	55	85	72	10	135	21	12	3	121	1	891	351	1,242
8:00-9:00	241	52	36	89	89	11	141	42	18	5	91	1	816	182	998
9:00-10:00	146	42	31	77	72	8	164	46	20	3	68	0	677	93	770
10:00-11:00	108	27	29	81	89	8	180	58	20	4	41	0	645	85	730
11:00-12:00	98	43	36	86	85	9	196	67	19	4	22	0	665	77	742
12:00-13:00	82	34	33	79	82	8	213	40	11	5	21	0	608	71	679
13:00-14:00	81	28	33	70	88	10	243	58	22	9	16	0	658	58	716
14:00-15:00	85	27	33	46	67	1	10	37	39	6	17	1	369	36	405
15:00-16:00	83	39	49	71	98	2	25	57	24	0	18	1	467	44	511
16:00-17:00	55	26	58	90	88	3	27	80	24	15	22	7	495	114	609
17:00-18:00	81	42	37	91	102	3	26	56	39	9	33	4	523	88	611
18:00-19:00	72	25	36	75	88	1	36	68	44	13	65	1	524	83	607
19:00-20:00	105	55	29	89	87	0	40	43	26	9	35	1	519	45	564
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,828	563	561	1,122	1,207	92	1,534	695	336	96	647	21	8,702	1,489	10,191

Table A-5c Traffic Volume crossing SL1-5: Kilwa Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	59	19	19	68	88	11	5	23	19	5	8	0	324	24	348
7:00-8:00	74	21	14	77	53	0	5	20	15	2	16	0	297	56	353
8:00-9:00	68	17	30	81	81	2	4	34	9	4	9	0	339	67	406
9:00-10:00	67	23	25	60	74	1	1	38	23	2	13	0	327	69	396
10:00-11:00	74	29	33	65	59	0	5	46	20	4	19	2	356	48	404
11:00-12:00	90	26	38	73	58	1	4	64	15	4	19	0	392	48	440
12:00-13:00	86	29	46	81	83	0	2	50	22	6	14	0	419	45	464
13:00-14:00	64	25	33	78	76	1	4	49	12	9	12	2	365	37	402
14:00-15:00	100	60	43	57	107	0	12	50	16	8	29	0	482	59	541
15:00-16:00	117	31	39	86	95	1	19	61	32	2	40	1	524	96	620
16:00-17:00	142	41	34	90	94	0	10	67	19	3	57	0	557	86	643
17:00-18:00	167	47	48	76	108	3	8	39	6	3	107	2	614	222	836
18:00-19:00	228	68	53	91	120	0	9	32	5	2	119	2	729	237	966
19:00-20:00	187	54	45	103	144	0	8	36	11	1	135	0	724	150	874
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,523	490	500	1,086	1,240	20	96	609	224	55	597	9	6,449	1,244	7,693

Table A-6a Traffic Volume crossing SL2-6: Ali Hassan Mwinyi Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
14:00-15:00	1,989	540	352	92	67	1	53	95	16	4	111	15	3,335	82	3,417
15:00-16:00	2,176	495	435	154	108	4	67	84	6	1	169	24	3,723	71	3,794
16:00-17:00	2,329	441	335	138	99	1	68	80	2	2	102	13	3,610	118	3,728
17:00-18:00	2,720	479	399	139	100	0	61	68	8	4	121	7	4,106	158	4,264
18:00-19:00	2,733	443	379	130	89	0	37	63	16	4	90	6	3,990	134	4,124
19:00-20:00	2,022	373	254	62	73	0	21	42	13	3	52	4	2,919	49	2,968
20:00-21:00	1,573	278	160	23	37	0	18	26	3	2	35	4	2,159	22	2,181
21:00-22:00	1,163	253	126	9	8	0	12	15	1	0	24	1	1,612	13	1,625
22:00-23:00	651	117	99	11	6	1	44	14	0	0	8	1	952	9	961
23:00-0:00	406	102	67	6	3	0	22	9	0	0	8	0	623	4	627
0:00-1:00	270	50	39	4	9	0	13	7	1	0	10	0	403	1	404
1:00-2:00	129	34	13	6	0	0	5	1	0	0	4	0	192	0	192
2:00-3:00	64	26	7	10	4	0	6	3	0	0	5	0	125	0	125
3:00-4:00	29	9	5	17	4	1	5	3	0	0	2	1	76	1	77
4:00-5:00	60	14	15	10	2	0	6	2	1	0	5	0	115	1	116
5:00-6:00	174	35	27	39	35	3	16	7	1	1	6	0	344	29	373
6:00-7:00	1,543	268	247	125	121	0	74	16	2	1	58	9	2,464	128	2,592
7:00-8:00	3,481	1,014	715	154	116	0	53	28	7	4	108	9	5,689	169	5,858
8:00-9:00	2,562	780	543	138	125	0	13	43	5	2	144	21	4,376	181	4,557
9:00-10:00	2,088	553	537	135	115	0	23	77	5	4	108	15	3,660	89	3,749
10:00-11:00	2,513	674	667	123	99	0	29	109	12	7	104	29	4,366	86	4,452
11:00-12:00	2,148	585	515	107	97	0	7	72	3	0	119	24	3,677	55	3,732
12:00-13:00	2,019	449	447	117	92	0	50	72	6	4	115	16	3,387	47	3,434
13:00-14:00	2,135	513	454	122	101	1	20	76	3	2	146	29	3,602	83	3,685
Total	36,977	8,525	6,837	1,871	1,510	12	723	1,012	111	45	1,654	228	59,505	1,530	61,035

Table A-6b Traffic Volume crossing SL2-6: Ali Hassan Mwinyi Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
14:00-15:00	774	289	141	62	43	1	23	38	1	2	47	8	1,429	35	1,464
15:00-16:00	685	203	172	92	62	4	19	34	2	0	75	6	1,354	23	1,377
16:00-17:00	627	171	109	68	52	1	19	37	2	1	51	5	1,143	34	1,177
17:00-18:00	769	222	118	72	52	0	13	28	5	2	46	3	1,330	50	1,380
18:00-19:00	749	179	106	58	41	0	7	22	8	2	18	2	1,192	45	1,237
19:00-20:00	566	193	117	25	39	0	15	14	9	1	16	0	995	13	1,008
20:00-21:00	579	145	69	11	16	0	10	16	1	0	16	3	866	10	876
21:00-22:00	500	160	50	3	2	0	1	8	0	0	11	0	735	5	740
22:00-23:00	286	68	41	1	1	1	31	7	0	0	6	1	443	1	444
23:00-0:00	193	63	32	0	1	0	15	3	0	0	2	0	309	1	310
0:00-1:00	128	25	15	0	0	0	10	2	1	0	3	0	184	1	185
1:00-2:00	75	18	4	0	0	0	4	0	0	0	1	0	102	0	102
2:00-3:00	25	12	5	0	1	0	3	1	0	0	1	0	48	0	48
3:00-4:00	14	5	2	1	0	1	1	1	0	0	1	1	27	1	28
4:00-5:00	37	8	5	2	0	0	4	1	1	0	1	0	59	1	60
5:00-6:00	132	25	16	18	26	1	9	2	0	1	4	0	234	22	256
6:00-7:00	1,270	191	188	68	61	0	35	10	2	0	35	4	1,864	87	1,951
7:00-8:00	2,821	854	583	78	60	0	25	16	5	3	72	8	4,525	108	4,633
8:00-9:00	1,837	521	410	68	61	0	6	17	2	2	100	16	3,040	109	3,149
9:00-10:00	1,314	374	349	63	62	0	9	51	4	2	75	12	2,315	46	2,361
10:00-11:00	1,610	452	444	65	46	0	9	67	10	7	68	13	2,791	42	2,833
11:00-12:00	1,118	370	281	56	51	0	7	35	1	0	60	7	1,986	17	2,003
12:00-13:00	846	210	176	57	43	0	9	43	4	0	55	4	1,447	12	1,459
13:00-14:00	863	255	188	61	48	1	10	40	0	0	76	19	1,561	45	1,606
Total	17,818	5,013	3,621	929	768	10	294	493	58	23	840	112	29,979	708	30,687

Table A-6c Traffic Volume crossing SL2-6: Ali Hassan Mwinyi Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
14:00-15:00	1,215	251	211	30	24	0	30	57	15	2	64	7	1,906	47	1,953
15:00-16:00	1,491	292	263	62	46	0	48	50	4	1	94	18	2,369	48	2,417
16:00-17:00	1,702	270	226	70	47	0	49	43	0	1	51	8	2,467	84	2,551
17:00-18:00	1,951	257	281	67	48	0	48	40	3	2	75	4	2,776	108	2,884
18:00-19:00	1,984	264	273	72	48	0	30	41	8	2	72	4	2,798	89	2,887
19:00-20:00	1,456	180	137	37	34	0	6	28	4	2	36	4	1,924	36	1,960
20:00-21:00	994	133	91	12	21	0	8	10	2	2	19	1	1,293	12	1,305
21:00-22:00	663	93	76	6	6	0	11	7	1	0	13	1	877	8	885
22:00-23:00	365	49	58	10	5	0	13	7	0	0	2	0	509	8	517
23:00-0:00	213	39	35	6	2	0	7	6	0	0	6	0	314	3	317
0:00-1:00	142	25	24	4	9	0	3	5	0	0	7	0	219	0	219
1:00-2:00	54	16	9	6	0	0	1	1	0	0	3	0	90	0	90
2:00-3:00	39	14	2	10	3	0	3	2	0	0	4	0	77	0	77
3:00-4:00	15	4	3	16	4	0	4	2	0	0	1	0	49	0	49
4:00-5:00	23	6	10	8	2	0	2	1	0	0	4	0	56	0	56
5:00-6:00	42	10	11	21	9	2	7	5	1	0	2	0	110	7	117
6:00-7:00	273	77	59	57	60	0	39	6	0	1	23	5	600	41	641
7:00-8:00	660	160	132	76	56	0	28	12	2	1	36	1	1,164	61	1,225
8:00-9:00	725	259	133	70	64	0	7	26	3	0	44	5	1,336	72	1,408
9:00-10:00	774	179	188	72	53	0	14	26	1	2	33	3	1,345	43	1,388
10:00-11:00	903	222	223	58	53	0	20	42	2	0	36	16	1,575	44	1,619
11:00-12:00	1,030	215	234	51	46	0	0	37	2	0	59	17	1,691	38	1,729
12:00-13:00	1,173	239	271	60	49	0	41	29	2	4	60	12	1,940	35	1,975
13:00-14:00	1,272	258	266	61	53	0	10	36	3	2	70	10	2,041	38	2,079
Total	19,159	3,512	3,216	942	742	2	429	519	53	22	814	116	29,526	822	30,348

Table A-7a Traffic Volume crossing SL2-7: Morogoro Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	478	134	35	639	137	14	38	41	13	3	50	9	1,591	105	1,696
7:00-8:00	588	298	107	752	163	4	31	59	15	4	109	2	2,132	223	2,355
8:00-9:00	628	256	146	566	171	11	24	79	14	11	119	3	2,028	177	2,205
9:00-10:00	555	229	136	562	157	7	28	59	8	6	92	6	1,845	131	1,976
10:00-11:00	684	266	177	527	134	10	23	51	9	0	92	9	1,982	114	2,096
11:00-12:00	656	288	167	604	157	6	29	80	8	1	113	2	2,111	74	2,185
12:00-13:00	756	296	173	567	162	9	19	83	9	1	96	5	2,176	104	2,280
13:00-14:00	694	257	138	555	147	4	19	72	8	2	86	10	1,992	85	2,077
14:00-15:00	714	350	161	483	141	6	34	76	11	10	115	7	2,108	112	2,220
15:00-16:00	754	332	174	590	144	1	27	65	3	2	104	6	2,202	122	2,324
16:00-17:00	769	292	162	557	136	1	31	64	3	1	100	5	2,121	137	2,258
17:00-18:00	718	289	138	394	126	5	40	63	12	5	105	2	1,897	227	2,124
18:00-19:00	669	236	118	411	93	7	58	81	14	4	107	0	1,798	198	1,996
19:00-20:00	458	224	75	434	115	12	24	64	4	1	78	2	1,491	26	1,517
20:00-21:00	472	202	74	326	62	3	27	29	6	5	36	0	1,242	1	1,243
21:00-22:00	504	152	51	159	55	3	11	19	4	0	12	12	982	0	982
22:00-23:00	259	95	29	87	54	2	3	10	0	0	23	0	562	0	562
23:00-0:00	109	64	18	70	25	1	1	9	4	0	4	0	305	0	305
0:00-1:00	83	37	10	48	7	0	1	8	0	1	3	0	198	0	198
1:00-2:00	36	23	3	32	2	0	3	9	0	1	3	0	112	0	112
2:00-3:00	24	20	4	21	1	0	2	6	2	0	0	0	80	0	80
3:00-4:00	20	16	2	43	2	0	0	7	2	1	3	0	96	0	96
4:00-5:00	33	41	10	181	15	5	1	26	1	0	2	0	315	1	316
5:00-6:00	113	134	44	457	63	4	18	19	3	1	11	0	867	3	870
Total	10,774	4,531	2,152	9,065	2,269	115	492	1,079	153	60	1,463	80	32,233	1,840	34,073

Table A-7b Traffic Volume crossing SL2-7: Morogoro Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	403	90	1	338	85	8	15	34	4	1	42	7	1,028	81	1,109
7:00-8:00	408	192	46	349	76	3	19	39	1	0	87	1	1,221	167	1,388
8:00-9:00	401	136	96	288	92	10	6	63	3	4	89	1	1,189	116	1,305
9:00-10:00	323	120	70	307	93	7	3	42	4	2	54	1	1,026	93	1,119
10:00-11:00	347	135	89	284	79	9	7	30	3	0	63	2	1,048	79	1,127
11:00-12:00	325	125	81	333	88	6	9	47	4	1	70	0	1,089	32	1,121
12:00-13:00	405	143	79	302	91	9	6	51	0	1	52	0	1,139	47	1,186
13:00-14:00	308	114	48	311	75	3	2	41	5	2	49	3	961	65	1,026
14:00-15:00	397	169	78	243	66	5	9	35	5	2	65	2	1,076	63	1,139
15:00-16:00	352	173	77	281	66	0	8	23	2	0	53	5	1,040	70	1,110
16:00-17:00	282	148	76	253	55	0	12	19	0	0	48	1	894	85	979
17:00-18:00	239	132	69	231	62	3	6	19	6	3	26	2	798	69	867
18:00-19:00	163	121	49	184	38	3	11	11	4	2	22	0	608	83	691
19:00-20:00	146	106	39	262	65	6	3	9	0	0	22	0	658	4	662
20:00-21:00	145	64	36	185	20	1	3	8	4	2	14	0	482	0	482
21:00-22:00	148	64	25	85	24	1	0	5	3	0	12	0	367	0	367
22:00-23:00	102	44	17	50	28	1	3	7	0	0	7	0	259	0	259
23:00-0:00	53	44	10	37	15	1	1	6	0	0	3	0	170	0	170
0:00-1:00	37	21	2	25	5	0	1	2	0	0	0	0	93	0	93
1:00-2:00	24	14	2	18	1	0	1	5	0	0	2	0	67	0	67
2:00-3:00	8	10	2	10	1	0	2	6	2	0	0	0	41	0	41
3:00-4:00	12	9	2	20	2	0	0	7	2	0	0	0	54	0	54
4:00-5:00	17	25	5	71	3	0	1	23	1	0	2	0	148	0	148
5:00-6:00	61	70	34	227	27	0	8	16	2	1	7	0	453	3	456
Total	5,106	2,269	1,033	4,694	1,157	76	136	548	55	21	789	25	15,909	1,057	16,966

Table A-7c Traffic Volume crossing SL2-7: Morogoro Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	75	44	34	301	52	6	23	7	9	2	8	2	563	24	587
7:00-8:00	180	106	61	403	87	1	12	20	14	4	22	1	911	56	967
8:00-9:00	227	120	50	278	79	1	18	16	11	7	30	2	839	61	900
9:00-10:00	232	109	66	255	64	0	25	17	4	4	38	5	819	38	857
10:00-11:00	337	131	88	243	55	1	16	21	6	0	29	7	934	35	969
11:00-12:00	331	163	86	271	69	0	20	33	4	0	43	2	1,022	42	1,064
12:00-13:00	351	153	94	265	71	0	13	32	9	0	44	5	1,037	57	1,094
13:00-14:00	386	143	90	244	72	1	17	31	3	0	37	7	1,031	20	1,051
14:00-15:00	317	181	83	240	75	1	25	41	6	8	50	5	1,032	49	1,081
15:00-16:00	402	159	97	309	78	1	19	42	1	2	51	1	1,162	52	1,214
16:00-17:00	487	144	86	304	81	1	19	45	3	1	52	4	1,227	52	1,279
17:00-18:00	479	157	69	163	64	2	34	44	6	2	79	0	1,099	158	1,257
18:00-19:00	506	115	69	227	55	4	47	70	10	2	85	0	1,190	115	1,305
19:00-20:00	312	118	36	172	50	6	21	55	4	1	56	2	833	22	855
20:00-21:00	327	138	38	141	42	2	24	21	2	3	22	0	760	1	761
21:00-22:00	356	88	26	74	31	2	11	14	1	0	0	12	615	0	615
22:00-23:00	157	51	12	37	26	1	0	3	0	0	16	0	303	0	303
23:00-0:00	56	20	8	33	10	0	0	3	4	0	1	0	135	0	135
0:00-1:00	46	16	8	23	2	0	0	6	0	1	3	0	105	0	105
1:00-2:00	12	9	1	14	1	0	2	4	0	1	1	0	45	0	45
2:00-3:00	16	10	2	11	0	0	0	0	0	0	0	0	39	0	39
3:00-4:00	8	7	0	23	0	0	0	0	0	1	3	0	42	0	42
4:00-5:00	16	16	5	110	12	5	0	3	0	0	0	0	167	1	168
5:00-6:00	52	64	10	230	36	4	10	3	1	0	4	0	414	0	414
Total	5,668	2,262	1,119	4,371	1,112	39	356	531	98	39	674	55	16,324	783	17,107

Table A-8a Traffic Volume crossing SL2-8: Rashid Kawawa Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	390	128	136	307	199	28	46	45	9	6	16	2	1,312	84	1,396
7:00-8:00	868	230	187	282	184	31	28	68	29	0	73	12	1,992	157	2,149
8:00-9:00	686	228	145	257	174	14	25	112	27	16	67	7	1,758	122	1,880
9:00-10:00	676	209	149	256	202	6	15	93	21	10	77	6	1,720	98	1,818
10:00-11:00	587	185	167	236	187	12	26	139	30	11	44	8	1,632	74	1,706
11:00-12:00	605	192	194	227	185	8	8	157	23	15	66	9	1,689	91	1,780
12:00-13:00	596	182	176	222	167	5	20	168	13	12	73	17	1,651	96	1,747
13:00-14:00	643	174	221	229	186	11	36	175	18	9	55	19	1,776	99	1,875
14:00-15:00	748	223	190	238	178	11	12	200	31	14	110	9	1,964	164	2,128
15:00-16:00	716	157	189	287	187	1	25	190	19	16	94	18	1,899	128	2,027
16:00-17:00	614	236	176	325	229	4	32	217	19	20	103	8	1,983	117	2,100
17:00-18:00	571	171	122	316	212	4	29	147	20	8	137	16	1,753	157	1,910
18:00-19:00	648	199	166	382	203	10	29	128	25	20	145	5	1,960	192	2,152
19:00-20:00	861	446	348	385	251	6	16	58	15	9	73	1	2,469	55	2,524
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9,209	2,960	2,566	3,949	2,744	151	347	1,897	299	166	1,133	137	25,558	1,634	27,192

Table A-8b Traffic Volume crossing SL2-8: Rashid Kawawa Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	216	66	53	194	105	24	18	25	3	5	12	2	723	73	796
7:00-8:00	627	145	125	149	96	24	18	39	23	0	45	9	1,300	136	1,436
8:00-9:00	476	131	92	145	96	11	11	87	21	10	37	4	1,121	93	1,214
9:00-10:00	462	116	84	126	98	5	6	48	12	8	48	1	1,014	71	1,085
10:00-11:00	344	96	69	123	92	7	12	80	21	7	20	4	875	56	931
11:00-12:00	333	85	88	126	99	8	6	69	13	8	34	6	875	70	945
12:00-13:00	297	81	93	131	92	5	8	75	7	3	43	10	845	68	913
13:00-14:00	327	81	105	119	88	11	20	88	11	6	29	8	893	82	975
14:00-15:00	390	99	107	126	94	3	6	86	7	4	36	3	961	87	1,048
15:00-16:00	309	97	100	138	93	0	12	77	6	4	50	11	897	66	963
16:00-17:00	299	131	85	166	110	4	20	126	12	11	47	4	1,015	90	1,105
17:00-18:00	284	105	70	141	98	4	13	72	4	1	55	4	851	80	931
18:00-19:00	321	115	90	174	77	9	15	27	3	3	53	1	888	89	977
19:00-20:00	411	206	166	186	107	6	8	23	2	1	30	1	1,147	44	1,191
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5,096	1,554	1,327	2,044	1,345	121	173	922	145	71	539	68	13,405	1,105	14,510

Table A-8c Traffic Volume crossing SL2-8: Rashid Kawawa Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	174	62	83	113	94	4	28	20	6	1	4	0	589	11	600
7:00-8:00	241	85	62	133	88	7	10	29	6	0	28	3	692	21	713
8:00-9:00	210	97	53	112	78	3	14	25	6	6	30	3	637	29	666
9:00-10:00	214	93	65	130	104	1	9	45	9	2	29	5	706	27	733
10:00-11:00	243	89	98	113	95	5	14	59	9	4	24	4	757	18	775
11:00-12:00	272	107	106	101	86	0	2	88	10	7	32	3	814	21	835
12:00-13:00	299	101	83	91	75	0	12	93	6	9	30	7	806	28	834
13:00-14:00	316	93	116	110	98	0	16	87	7	3	26	11	883	17	900
14:00-15:00	358	124	83	112	84	8	6	114	24	10	74	6	1,003	77	1,080
15:00-16:00	407	60	89	149	94	1	13	113	13	12	44	7	1,002	62	1,064
16:00-17:00	315	105	91	159	119	0	12	91	7	9	56	4	968	27	995
17:00-18:00	287	66	52	175	114	0	16	75	16	7	82	12	902	77	979
18:00-19:00	327	84	76	208	126	1	14	101	22	17	92	4	1,072	103	1,175
19:00-20:00	450	240	182	199	144	0	8	35	13	8	43	0	1,322	11	1,333
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4,113	1,406	1,239	1,905	1,399	30	174	975	154	95	594	69	12,153	529	12,682

Table A-9a Traffic Volume crossing SL2-9: Nelson Mandela Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	552	72	147	303	261	16	36	46	8	50	37	9	1,537	55	1,592
7:00-8:00	762	101	213	175	165	11	19	64	19	51	70	6	1,656	118	1,774
8:00-9:00	662	116	264	241	204	1	15	130	31	54	94	1	1,813	107	1,920
9:00-10:00	564	128	228	164	163	11	22	146	35	108	75	7	1,651	68	1,719
10:00-11:00	575	103	249	182	164	8	7	187	46	83	80	10	1,694	84	1,778
11:00-12:00	495	110	245	187	174	3	14	152	58	74	81	27	1,620	57	1,677
12:00-13:00	614	133	302	171	200	2	7	181	35	55	64	18	1,782	96	1,878
13:00-14:00	531	118	227	153	151	3	9	146	23	72	52	14	1,499	64	1,563
14:00-15:00	501	157	382	172	176	8	10	175	53	57	56	16	1,763	82	1,845
15:00-16:00	597	179	349	180	163	9	20	183	47	67	72	20	1,886	103	1,989
16:00-17:00	639	173	396	186	176	2	43	166	57	81	79	18	2,016	91	2,107
17:00-18:00	482	166	486	194	190	11	40	129	26	69	64	11	1,868	66	1,934
18:00-19:00	617	130	268	133	187	10	21	99	25	84	115	17	1,706	95	1,801
19:00-20:00	467	138	216	156	141	7	12	86	19	72	79	3	1,396	58	1,454
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	8,058	1,824	3,972	2,597	2,515	102	275	1,890	482	977	1,018	177	23,887	1,144	25,031

Table A-9b Traffic Volume crossing SL2-9: Nelson Mandela Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	418	31	87	203	177	3	13	21	6	40	31	5	1,035	30	1,065
7:00-8:00	613	47	144	86	73	1	4	30	10	40	48	1	1,097	52	1,149
8:00-9:00	478	42	196	123	110	1	7	75	24	43	79	0	1,178	51	1,229
9:00-10:00	359	61	143	103	81	0	4	88	21	88	58	5	1,011	33	1,044
10:00-11:00	341	29	151	113	101	1	1	115	33	56	59	9	1,009	52	1,061
11:00-12:00	234	44	139	80	86	2	2	67	20	34	43	6	757	36	793
12:00-13:00	291	58	156	103	101	0	4	94	19	34	42	12	914	57	971
13:00-14:00	245	58	136	95	86	1	2	84	11	37	34	8	797	37	834
14:00-15:00	166	72	268	90	73	5	2	92	31	24	29	9	861	59	920
15:00-16:00	179	84	260	93	90	4	14	79	23	31	27	11	895	67	962
16:00-17:00	149	74	258	92	92	2	10	55	26	28	28	8	822	47	869
17:00-18:00	142	83	229	100	105	3	17	65	9	26	34	6	819	36	855
18:00-19:00	164	53	173	85	95	8	5	37	13	29	40	8	710	43	753
19:00-20:00	136	53	151	72	56	0	0	30	8	36	37	1	580	30	610
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,915	789	2,491	1,438	1,326	31	85	932	254	546	589	89	12,485	630	13,115

Table A-9c Traffic Volume crossing SL2-9: Nelson Mandela Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	134	41	60	100	84	13	23	25	2	10	6	4	502	25	527
7:00-8:00	149	54	69	89	92	10	15	34	9	11	22	5	559	66	625
8:00-9:00	184	74	68	118	94	0	8	55	7	11	15	1	635	56	691
9:00-10:00	205	67	85	61	82	11	18	58	14	20	17	2	640	35	675
10:00-11:00	234	74	98	69	63	7	6	72	13	27	21	1	685	32	717
11:00-12:00	261	66	106	107	88	1	12	85	38	40	38	21	863	21	884
12:00-13:00	323	75	146	68	99	2	3	87	16	21	22	6	868	39	907
13:00-14:00	286	60	91	58	65	2	7	62	12	35	18	6	702	27	729
14:00-15:00	335	85	114	82	103	3	8	83	22	33	27	7	902	23	925
15:00-16:00	418	95	89	87	73	5	6	104	24	36	45	9	991	36	1,027
16:00-17:00	490	99	138	94	84	0	33	111	31	53	51	10	1,194	44	1,238
17:00-18:00	340	83	257	94	85	8	23	64	17	43	30	5	1,049	30	1,079
18:00-19:00	453	77	95	48	92	2	16	62	12	55	75	9	996	52	1,048
19:00-20:00	331	85	65	84	85	7	12	56	11	36	42	2	816	28	844
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4,143	1,035	1,481	1,159	1,189	71	190	958	228	431	429	88	11,402	514	11,916

Table A-10a Traffic Volume crossing SL3-10: Uhuru Street, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	144	72	40	242	140	12	31	14	1	0	7	4	707	89	796
7:00-8:00	347	146	94	245	154	17	15	34	2	0	43	16	1,113	185	1,298
8:00-9:00	325	170	63	215	128	10	10	24	0	1	47	26	1,019	221	1,240
9:00-10:00	349	192	65	209	131	4	6	35	5	4	88	33	1,121	224	1,345
10:00-11:00	350	199	108	155	96	9	8	27	14	9	105	25	1,105	217	1,322
11:00-12:00	380	203	74	172	112	7	12	56	6	0	88	24	1,134	147	1,281
12:00-13:00	356	190	100	209	122	9	26	65	0	0	132	25	1,234	201	1,435
13:00-14:00	378	186	96	227	109	5	36	71	7	0	124	22	1,261	181	1,442
14:00-15:00	508	262	119	221	94	1	19	56	3	2	116	17	1,418	161	1,579
15:00-16:00	486	233	136	225	135	0	9	58	3	0	115	39	1,439	169	1,608
16:00-17:00	422	237	118	225	108	1	14	44	4	1	117	21	1,312	157	1,469
17:00-18:00	492	247	106	190	126	0	17	36	4	0	142	23	1,383	212	1,595
18:00-19:00	408	203	58	156	71	1	17	24	5	3	126	8	1,080	209	1,289
19:00-20:00	302	196	53	250	58	1	11	24	5	0	86	5	991	97	1,088
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5,247	2,736	1,230	2,941	1,584	77	231	568	59	20	1,336	288	16,317	2,470	18,787

Table A-10b Traffic Volume crossing SL3-10: Uhuru Street, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	95	45	25	106	79	11	21	8	1	0	7	4	402	45	447
7:00-8:00	255	85	53	122	77	17	13	10	2	0	36	15	685	134	819
8:00-9:00	215	86	34	100	73	8	10	7	0	0	35	26	594	140	734
9:00-10:00	222	97	35	85	54	4	6	14	5	0	37	26	585	119	704
10:00-11:00	170	90	66	49	39	9	8	17	10	0	47	21	526	121	647
11:00-12:00	174	82	22	58	39	7	12	20	4	0	33	19	470	73	543
12:00-13:00	168	91	49	65	59	9	7	16	0	0	40	9	513	67	580
13:00-14:00	139	64	27	63	35	5	11	11	3	0	31	8	397	73	470
14:00-15:00	211	127	61	109	47	0	1	34	0	1	55	15	661	85	746
15:00-16:00	193	97	52	128	67	0	2	19	2	0	58	30	648	73	721
16:00-17:00	148	96	48	118	55	1	1	21	4	0	49	18	559	69	628
17:00-18:00	132	107	43	106	71	0	2	19	3	0	40	18	541	58	599
18:00-19:00	96	91	23	96	36	1	1	11	5	1	46	6	413	26	439
19:00-20:00	102	74	20	126	27	0	1	11	2	0	27	5	395	23	418
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2,320	1,232	558	1,331	758	72	96	218	41	2	541	220	7,389	1,106	8,495

Table A-10c Traffic Volume crossing SL3-10: Uhuru Street, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	49	27	15	136	61	1	10	6	0	0	0	0	305	44	349
7:00-8:00	92	61	41	123	77	0	2	24	0	0	7	1	428	51	479
8:00-9:00	110	84	29	115	55	2	0	17	0	1	12	0	425	81	506
9:00-10:00	127	95	30	124	77	0	0	21	0	4	51	7	536	105	641
10:00-11:00	180	109	42	106	57	0	0	10	4	9	58	4	579	96	675
11:00-12:00	206	121	52	114	73	0	0	36	2	0	55	5	664	74	738
12:00-13:00	188	99	51	144	63	0	19	49	0	0	92	16	721	134	855
13:00-14:00	239	122	69	164	74	0	25	60	4	0	93	14	864	108	972
14:00-15:00	297	135	58	112	47	1	18	22	3	1	61	2	757	76	833
15:00-16:00	293	136	84	97	68	0	7	39	1	0	57	9	791	96	887
16:00-17:00	274	141	70	107	53	0	13	23	0	1	68	3	753	88	841
17:00-18:00	360	140	63	84	55	0	15	17	1	0	102	5	842	154	996
18:00-19:00	312	112	35	60	35	0	16	13	0	2	80	2	667	183	850
19:00-20:00	200	122	33	124	31	1	10	13	3	0	59	0	596	74	670
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2,927	1,504	672	1,610	826	5	135	350	18	18	795	68	8,928	1,364	10,292

Table A-11a Traffic Volume crossing SL3-11: Nyerere Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	782	160	154	168	58	5	22	19	2	2	54	3	1,429	111	1,540
7:00-8:00	1,897	322	257	360	84	0	19	76	5	2	170	13	3,205	354	3,559
8:00-9:00	1,589	333	268	314	71	2	36	130	10	9	233	12	3,007	333	3,340
9:00-10:00	1,218	251	269	282	58	1	36	146	11	10	188	11	2,481	211	2,692
10:00-11:00	998	286	275	246	53	2	22	180	21	14	166	11	2,274	171	2,445
11:00-12:00	1,063	300	350	235	58	2	21	187	15	6	169	16	2,422	142	2,564
12:00-13:00	1,152	321	290	244	64	1	19	185	12	8	158	14	2,468	115	2,583
13:00-14:00	1,082	314	268	234	56	1	29	155	18	12	142	11	2,322	113	2,435
14:00-15:00	1,086	331	357	195	72	0	34	424	16	7	164	11	2,697	208	2,905
15:00-16:00	1,383	455	466	303	64	4	35	500	24	10	254	21	3,519	120	3,639
16:00-17:00	1,160	298	294	319	69	4	20	363	18	12	198	12	2,767	183	2,950
17:00-18:00	1,417	314	280	273	78	4	12	335	16	6	235	5	2,975	357	3,332
18:00-19:00	1,124	345	361	259	88	3	7	207	21	3	147	6	2,571	213	2,784
19:00-20:00	686	276	129	177	75	7	9	89	3	6	74	2	1,533	123	1,656
20:00-21:00	512	181	87	142	53	3	5	24	5	0	54	7	1,073	48	1,121
21:00-22:00	423	204	97	72	24	1	3	10	3	1	24	3	865	18	883
22:00-23:00	341	114	61	201	121	26	24	50	18	5	19	5	985	24	1,009
23:00-0:00	138	62	30	54	28	19	10	18	9	7	15	1	391	0	391
0:00-1:00	80	32	23	32	8	2	2	11	3	1	3	2	199	6	205
1:00-2:00	36	7	12	6	0	3	4	7	0	0	1	0	76	1	77
2:00-3:00	14	1	9	5	0	3	2	0	1	0	1	0	36	1	37
3:00-4:00	15	3	7	8	1	1	0	8	1	0	1	0	45	4	49
4:00-5:00	38	16	44	46	10	2	4	11	3	0	4	0	178	23	201
5:00-6:00	139	51	167	215	72	4	12	15	6	1	18	7	707	52	759
Total	18,373	4,977	4,555	4,390	1,265	100	387	3,150	241	122	2,492	173	40,225	2,931	43,156

Table A-11b Traffic Volume crossing SL3-11: Nyerere Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	576	119	122	102	35	2	16	9	1	1	44	0	1,027	66	1,093
7:00-8:00	1,283	173	174	215	41	0	8	46	3	1	131	11	2,086	255	2,341
8:00-9:00	868	185	178	189	36	0	21	81	5	9	179	6	1,757	233	1,990
9:00-10:00	590	106	181	167	32	0	13	86	6	7	117	6	1,311	140	1,451
10:00-11:00	442	152	144	159	31	1	7	97	12	7	95	8	1,155	116	1,271
11:00-12:00	645	168	234	146	29	1	1	113	10	2	109	8	1,466	78	1,544
12:00-13:00	621	186	154	157	31	1	0	106	8	4	83	10	1,361	45	1,406
13:00-14:00	633	188	179	145	26	0	1	75	10	4	82	6	1,349	30	1,379
14:00-15:00	541	199	229	115	47	0	0	43	3	1	36	3	1,217	20	1,237
15:00-16:00	806	311	336	207	29	4	15	131	8	7	126	10	1,990	47	2,037
16:00-17:00	486	194	183	202	41	1	13	99	10	5	77	4	1,315	57	1,372
17:00-18:00	572	201	165	156	33	4	3	51	5	2	53	2	1,247	67	1,314
18:00-19:00	361	231	281	139	38	2	0	19	6	2	32	3	1,114	26	1,140
19:00-20:00	286	148	78	102	32	4	0	24	1	2	22	1	700	20	720
20:00-21:00	179	102	38	92	30	1	0	9	2	0	20	1	474	2	476
21:00-22:00	141	64	69	45	14	0	0	5	2	1	3	0	344	0	344
22:00-23:00	32	21	28	54	33	11	21	32	10	1	8	3	254	18	272
23:00-0:00	39	18	20	17	5	4	2	4	3	0	4	0	116	0	116
0:00-1:00	34	12	9	16	1	1	1	4	0	0	2	1	81	2	83
1:00-2:00	15	2	4	5	0	1	0	2	0	0	1	0	30	0	30
2:00-3:00	5	0	3	4	0	0	1	0	1	0	1	0	15	1	16
3:00-4:00	6	3	3	4	1	1	0	2	1	0	0	0	21	4	25
4:00-5:00	19	6	8	30	0	2	0	4	0	0	3	0	72	22	94
5:00-6:00	82	31	22	134	24	2	4	6	5	1	16	7	334	44	378
Total	9,262	2,820	2,842	2,602	589	43	127	1,048	112	57	1,244	90	20,836	1,293	22,129

Table A-11c Traffic Volume crossing SL3-11: Nyerere Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	206	41	32	66	23	3	6	10	1	1	10	3	402	45	447
7:00-8:00	614	149	83	145	43	0	11	30	2	1	39	2	1,119	99	1,218
8:00-9:00	721	148	90	125	35	2	15	49	5	0	54	6	1,250	100	1,350
9:00-10:00	628	145	88	115	26	1	23	60	5	3	71	5	1,170	71	1,241
10:00-11:00	556	134	131	87	22	1	15	83	9	7	71	3	1,119	55	1,174
11:00-12:00	418	132	116	89	29	1	20	74	5	4	60	8	956	64	1,020
12:00-13:00	531	135	136	87	33	0	19	79	4	4	75	4	1,107	70	1,177
13:00-14:00	449	126	89	89	30	1	28	80	8	8	60	5	973	83	1,056
14:00-15:00	545	132	128	80	25	0	34	381	13	6	128	8	1,480	188	1,668
15:00-16:00	577	144	130	96	35	0	20	369	16	3	128	11	1,529	73	1,602
16:00-17:00	674	104	111	117	28	3	7	264	8	7	121	8	1,452	126	1,578
17:00-18:00	845	113	115	117	45	0	9	284	11	4	182	3	1,728	290	2,018
18:00-19:00	763	114	80	120	50	1	7	188	15	1	115	3	1,457	187	1,644
19:00-20:00	400	128	51	75	43	3	9	65	2	4	52	1	833	103	936
20:00-21:00	333	79	49	50	23	2	5	15	3	0	34	6	599	46	645
21:00-22:00	282	140	28	27	10	1	3	5	1	0	21	3	521	18	539
22:00-23:00	309	93	33	147	88	15	3	18	8	4	11	2	731	6	737
23:00-0:00	99	44	10	37	23	15	8	14	6	7	11	1	275	0	275
0:00-1:00	46	20	14	16	7	1	1	7	3	1	1	1	118	4	122
1:00-2:00	21	5	8	1	0	2	4	5	0	0	0	0	46	1	47
2:00-3:00	9	1	6	1	0	3	1	0	0	0	0	0	21	0	21
3:00-4:00	9	0	4	4	0	0	0	6	0	0	1	0	24	0	24
4:00-5:00	19	10	36	16	10	0	4	7	3	0	1	0	106	1	107
5:00-6:00	57	20	145	81	48	2	8	9	1	0	2	0	373	8	381
Total	9,111	2,157	1,713	1,788	676	57	260	2,102	129	65	1,248	83	19,389	1,638	21,027

Table A-12a Traffic Volume crossing SL3-12: Bandari Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	137	52	47	139	41	7	10	25	9	6	20	0	493	39	532
7:00-8:00	293	90	84	155	48	4	13	29	16	2	65	4	803	97	900
8:00-9:00	685	258	161	195	71	6	7	34	10	0	110	4	1,541	139	1,680
9:00-10:00	784	256	149	193	88	3	12	43	6	4	109	10	1,657	91	1,748
10:00-11:00	629	192	189	187	99	4	3	82	12	10	104	6	1,517	73	1,590
11:00-12:00	612	158	173	152	82	1	7	89	14	12	105	7	1,412	58	1,470
12:00-13:00	603	163	185	167	87	2	6	66	6	7	104	3	1,399	50	1,449
13:00-14:00	554	158	161	155	96	4	3	79	9	8	91	5	1,323	45	1,368
14:00-15:00	519	147	235	147	116	1	1	49	4	5	112	7	1,343	51	1,394
15:00-16:00	584	177	240	173	111	0	14	56	7	3	96	9	1,470	43	1,513
16:00-17:00	807	235	269	162	105	0	16	85	10	8	117	10	1,824	72	1,896
17:00-18:00	753	233	223	165	111	1	6	58	11	4	123	2	1,690	148	1,838
18:00-19:00	556	241	185	191	136	4	15	42	12	2	101	3	1,488	84	1,572
19:00-20:00	376	160	123	150	85	4	6	27	5	9	47	1	993	25	1,018
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	7,892	2,520	2,424	2,331	1,276	41	119	764	131	80	1,304	71	18,953	1,015	19,968

Table A-12b Traffic Volume crossing SL3-12: Bandari Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	70	22	23	65	22	0	10	12	1	0	6	0	231	23	254
7:00-8:00	152	45	33	68	16	0	7	7	9	0	27	0	364	63	427
8:00-9:00	437	161	83	102	37	0	4	7	2	0	88	0	921	104	1,025
9:00-10:00	461	162	62	93	51	0	7	8	2	0	63	3	912	56	968
10:00-11:00	266	89	79	99	49	0	1	34	6	2	53	2	680	36	716
11:00-12:00	274	85	78	63	33	0	5	41	5	4	48	3	639	25	664
12:00-13:00	308	93	84	69	33	0	4	26	1	2	59	2	681	21	702
13:00-14:00	299	81	77	59	46	0	0	28	3	3	41	3	640	20	660
14:00-15:00	228	72	144	75	67	0	0	30	3	3	65	5	692	29	721
15:00-16:00	264	86	104	94	60	0	5	24	3	0	51	5	696	21	717
16:00-17:00	371	114	81	71	48	0	7	51	6	5	50	6	810	42	852
17:00-18:00	344	107	67	82	72	0	3	33	4	4	49	1	766	57	823
18:00-19:00	225	118	78	102	61	0	12	26	8	2	35	0	667	43	710
19:00-20:00	169	70	49	70	44	0	3	14	3	3	8	0	433	10	443
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,868	1,305	1,042	1,112	639	0	68	341	56	28	643	30	9,132	550	9,682

Table A-12c Traffic Volume crossing SL3-12: Bandari Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	67	30	24	74	19	7	0	13	8	6	14	0	262	16	278
7:00-8:00	141	45	51	87	32	4	6	22	7	2	38	4	439	34	473
8:00-9:00	248	97	78	93	34	6	3	27	8	0	22	4	620	35	655
9:00-10:00	323	94	87	100	37	3	5	35	4	4	46	7	745	35	780
10:00-11:00	363	103	110	88	50	4	2	48	6	8	51	4	837	37	874
11:00-12:00	338	73	95	89	49	1	2	48	9	8	57	4	773	33	806
12:00-13:00	295	70	101	98	54	2	2	40	5	5	45	1	718	29	747
13:00-14:00	255	77	84	96	50	4	3	51	6	5	50	2	683	25	708
14:00-15:00	291	75	91	72	49	1	1	19	1	2	47	2	651	22	673
15:00-16:00	320	91	136	79	51	0	9	32	4	3	45	4	774	22	796
16:00-17:00	436	121	188	91	57	0	9	34	4	3	67	4	1,014	30	1,044
17:00-18:00	409	126	156	83	39	1	3	25	7	0	74	1	924	91	1,015
18:00-19:00	331	123	107	89	75	4	3	16	4	0	66	3	821	41	862
19:00-20:00	207	90	74	80	41	4	3	13	2	6	39	1	560	15	575
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4,024	1,215	1,382	1,219	637	41	51	423	75	52	661	41	9,821	465	10,286

Table A-13a Traffic Volume crossing SL3-13: Kigamboni Ferry, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	52	3	11	2	0	0	1	7	0	0	13	0	89	192	281
7:00-8:00	46	3	12	0	0	0	0	5	0	0	33	0	99	199	298
8:00-9:00	45	3	18	1	0	0	0	4	0	0	23	0	94	209	303
9:00-10:00	56	7	12	0	0	0	1	9	0	0	20	0	105	212	317
10:00-11:00	44	10	17	0	0	0	0	6	0	0	23	0	100	190	290
11:00-12:00	28	9	16	0	0	0	2	9	0	0	14	0	78	163	241
12:00-13:00	35	6	18	1	0	0	0	7	0	0	5	0	72	123	195
13:00-14:00	32	11	12	1	0	0	0	10	0	0	19	0	85	138	223
14:00-15:00	30	6	20	0	0	0	3	19	0	0	27	0	105	180	285
15:00-16:00	46	4	22	0	0	0	2	9	0	0	21	0	104	138	242
16:00-17:00	45	5	25	1	0	0	2	21	0	0	21	0	120	181	301
17:00-18:00	63	5	18	2	0	0	3	25	0	0	45	0	161	267	428
18:00-19:00	48	8	13	1	2	0	0	9	0	0	39	0	120	181	301
19:00-20:00	55	10	14	0	0	0	0	15	0	0	32	1	127	165	292
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	625	90	228	9	2	0	14	155	0	0	335	1	1,459	2,538	3,997

Table A-13b Traffic Volume crossing SL3-13: Kigamboni Ferry, inbound

Time	Passenger Car	Taxi	Pick-up Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	43	3	9	2	0	0	0	4	0	0	13	0	74	79	153
7:00-8:00	36	3	5	0	0	0	0	2	0	0	31	0	77	71	148
8:00-9:00	31	3	5	1	0	0	0	2	0	0	17	0	59	57	116
9:00-10:00	36	5	6	0	0	0	1	5	0	0	14	0	67	35	102
10:00-11:00	19	2	9	0	0	0	0	3	0	0	12	0	45	47	92
11:00-12:00	17	7	8	0	0	0	2	1	0	0	9	0	44	39	83
12:00-13:00	15	4	7	0	0	0	0	3	0	0	1	0	30	9	39
13:00-14:00	12	3	5	0	0	0	0	5	0	0	6	0	31	17	48
14:00-15:00	9	4	14	0	0	0	2	3	0	0	7	0	39	21	60
15:00-16:00	23	1	16	0	0	0	0	4	0	0	8	0	52	13	65
16:00-17:00	15	1	9	0	0	0	1	8	0	0	2	0	36	34	70
17:00-18:00	21	4	12	0	0	0	3	8	0	0	4	0	52	40	92
18:00-19:00	15	3	5	1	2	0	0	5	0	0	7	0	38	10	48
19:00-20:00	21	2	12	0	0	0	0	13	0	0	4	1	53	7	60
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	313	45	122	4	2	0	9	66	0	0	135	1	697	479	1,176

Table A-13c Traffic Volume crossing SL3-13: Kigamboni Ferry, outbound

Time	Passenger Car	Taxi	Pick-up Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	9	0	2	0	0	0	1	3	0	0	0	0	15	24	39
7:00-8:00	10	0	7	0	0	0	0	3	0	0	2	0	22	29	51
8:00-9:00	14	0	13	0	0	0	0	2	0	0	6	0	35	58	93
9:00-10:00	20	2	6	0	0	0	0	4	0	0	6	0	38	72	110
10:00-11:00	25	8	8	0	0	0	0	3	0	0	11	0	55	43	98
11:00-12:00	11	2	8	0	0	0	0	8	0	0	5	0	34	46	80
12:00-13:00	20	2	11	1	0	0	0	4	0	0	4	0	42	42	84
13:00-14:00	20	8	7	1	0	0	0	5	0	0	13	0	54	36	90
14:00-15:00	21	2	6	0	0	0	1	16	0	0	20	0	66	54	120
15:00-16:00	23	3	6	0	0	0	2	5	0	0	13	0	52	21	73
16:00-17:00	30	4	16	1	0	0	1	13	0	0	19	0	84	27	111
17:00-18:00	42	1	6	2	0	0	0	17	0	0	41	0	109	66	175
18:00-19:00	33	5	8	0	0	0	0	4	0	0	32	0	82	51	133
19:00-20:00	34	8	2	0	0	0	0	2	0	0	28	0	74	31	105
20:00-21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	312	45	106	5	0	0	5	89	0	0	200	0	762	600	1,362

Table A-14a Traffic Volume crossing SL-14: DES Airport Terminal 1, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	105	57	37	0	0	0	5	3	0	0	1	2	210	1	211
7:00-8:00	176	50	36	0	0	0	8	1	0	0	10	0	281	7	288
8:00-9:00	140	55	44	0	0	0	8	7	4	6	8	0	272	12	284
9:00-10:00	133	34	46	0	0	0	5	6	1	0	12	0	237	9	246
10:00-11:00	126	22	49	0	0	0	2	9	2	5	14	1	230	8	238
11:00-12:00	89	40	36	0	0	0	5	5	0	12	15	0	202	9	211
12:00-13:00	153	37	47	1	0	0	11	9	0	1	16	1	276	10	286
13:00-14:00	149	36	54	0	0	0	3	6	0	1	16	1	266	4	270
14:00-15:00	415	101	75	0	0	0	16	56	0	0	15	2	680	0	680
15:00-16:00	225	87	55	0	0	0	19	7	1	2	3	0	399	3	402
16:00-17:00	216	126	103	0	0	0	19	4	0	1	16	0	485	3	488
17:00-18:00	172	93	97	0	0	0	13	2	0	0	14	0	391	4	395
18:00-19:00	183	76	98	0	0	0	13	1	0	0	6	0	377	4	381
19:00-20:00	185	131	94	0	0	0	15	1	0	0	7	0	433	1	434
20:00-21:00	189	214	127	0	0	0	14	5	0	1	3	0	553	0	553
21:00-22:00	158	121	123	0	0	0	22	0	0	0	10	0	434	5	439
22:00-23:00	38	11	16	0	0	0	16	13	0	0	0	0	94	0	94
23:00-0:00	78	66	12	0	0	0	10	0	0	0	0	0	166	0	166
0:00-1:00	12	10	9	0	0	0	13	0	0	0	0	0	44	0	44
1:00-2:00	7	2	4	0	0	0	8	0	0	0	0	0	21	0	21
2:00-3:00	1	1	3	0	0	0	0	0	0	0	0	0	5	0	5
3:00-4:00	3	3	0	0	0	0	0	0	0	0	0	0	6	0	6
4:00-5:00	14	9	2	0	0	0	0	0	0	0	0	0	25	0	25
5:00-6:00	34	44	12	0	0	0	18	13	0	0	9	0	130	0	130
Total	3,001	1,426	1,179	1	0	0	243	148	8	29	175	7	6,217	80	6,297

Table A-14b Traffic Volume crossing SL-14: DES Airport Terminal 1, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	57	41	26	0	0	0	0	3	0	0	0	1	128	1	129
7:00-8:00	57	31	24	0	0	0	1	1	0	0	4	0	118	3	121
8:00-9:00	60	36	20	0	0	0	2	2	1	0	3	0	124	5	129
9:00-10:00	59	25	22	0	0	0	0	0	1	0	9	0	116	3	119
10:00-11:00	54	11	27	0	0	0	1	1	2	2	4	1	103	5	108
11:00-12:00	28	26	13	0	0	0	2	2	0	2	5	0	78	5	83
12:00-13:00	86	20	29	1	0	0	5	5	0	1	9	1	157	3	160
13:00-14:00	74	21	35	0	0	0	1	1	0	1	7	1	141	1	142
14:00-15:00	304	71	70	0	0	0	3	51	0	0	9	0	508	0	508
15:00-16:00	130	39	31	0	0	0	4	3	0	0	1	0	208	1	209
16:00-17:00	57	26	41	0	0	0	2	1	0	0	7	0	134	2	136
17:00-18:00	57	18	39	0	0	0	3	0	0	0	4	0	121	3	124
18:00-19:00	33	18	13	0	0	0	1	0	0	0	2	0	67	2	69
19:00-20:00	62	48	29	0	0	0	3	0	0	0	2	0	144	0	144
20:00-21:00	55	54	27	0	0	0	3	0	0	0	1	0	140	0	140
21:00-22:00	55	26	23	0	0	0	4	0	0	0	5	0	113	3	116
22:00-23:00	22	6	9	0	0	0	12	8	0	0	0	0	57	0	57
23:00-0:00	30	30	6	0	0	0	9	0	0	0	0	0	75	0	75
0:00-1:00	9	9	6	0	0	0	13	0	0	0	0	0	37	0	37
1:00-2:00	5	1	2	0	0	0	8	0	0	0	0	0	16	0	16
2:00-3:00	1	1	2	0	0	0	0	0	0	0	0	0	4	0	4
3:00-4:00	1	3	0	0	0	0	0	0	0	0	0	0	4	0	4
4:00-5:00	10	7	1	0	0	0	0	0	0	0	0	0	18	0	18
5:00-6:00	8	3	2	0	0	0	10	6	0	0	7	0	36	0	36
Total	1,314	571	497	1	0	0	87	84	4	6	79	4	2,647	37	2,684

Table A-14c Traffic Volume crossing SL-14: DES Airport Terminal 1, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	48	16	11	0	0	0	5	0	0	0	1	1	82	0	82
7:00-8:00	119	19	12	0	0	0	7	0	0	0	6	0	163	4	167
8:00-9:00	80	19	24	0	0	0	6	5	3	6	5	0	148	7	155
9:00-10:00	74	9	24	0	0	0	5	6	0	0	3	0	121	6	127
10:00-11:00	72	11	22	0	0	0	1	8	0	3	10	0	127	3	130
11:00-12:00	61	14	23	0	0	0	3	3	0	10	10	0	124	4	128
12:00-13:00	67	17	18	0	0	0	6	4	0	0	7	0	119	7	126
13:00-14:00	75	15	19	0	0	0	2	5	0	0	9	0	125	3	128
14:00-15:00	111	30	5	0	0	0	13	5	0	0	6	2	172	0	172
15:00-16:00	95	48	24	0	0	0	15	4	1	2	2	0	191	2	193
16:00-17:00	159	100	62	0	0	0	17	3	0	1	9	0	351	1	352
17:00-18:00	115	75	58	0	0	0	10	2	0	0	10	0	270	1	271
18:00-19:00	150	58	85	0	0	0	12	1	0	0	4	0	310	2	312
19:00-20:00	123	83	65	0	0	0	12	1	0	0	5	0	289	1	290
20:00-21:00	134	160	100	0	0	0	11	5	0	1	2	0	413	0	413
21:00-22:00	103	95	100	0	0	0	18	0	0	0	5	0	321	2	323
22:00-23:00	16	5	7	0	0	0	4	5	0	0	0	0	37	0	37
23:00-0:00	48	36	6	0	0	0	1	0	0	0	0	0	91	0	91
0:00-1:00	3	1	3	0	0	0	0	0	0	0	0	0	7	0	7
1:00-2:00	2	1	2	0	0	0	0	0	0	0	0	0	5	0	5
2:00-3:00	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
3:00-4:00	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2
4:00-5:00	4	2	1	0	0	0	0	0	0	0	0	0	7	0	7
5:00-6:00	26	41	10	0	0	0	8	7	0	0	2	0	94	0	94
Total	1,687	855	682	0	0	0	156	64	4	23	96	3	3,570	43	3,613

Table A-14d Traffic Volume crossing SL-14: DES Airport Terminal 2, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	176	79	73	3	1	0	9	4	0	0	1	0	346	3	349
7:00-8:00	227	57	57	0	0	0	44	2	0	0	2	0	389	6	395
8:00-9:00	138	52	45	0	0	0	27	5	0	1	2	0	270	1	271
9:00-10:00	133	69	33	1	0	0	18	8	1	0	14	2	279	5	284
10:00-11:00	84	40	40	0	0	0	12	7	1	0	9	0	193	4	197
11:00-12:00	105	64	57	0	0	0	12	10	0	1	6	3	258	0	258
12:00-13:00	184	94	70	0	0	0	19	7	0	0	4	1	379	2	381
13:00-14:00	351	138	75	2	5	0	29	6	0	1	9	3	619	5	624
14:00-15:00	136	44	34	0	0	0	5	4	0	1	5	2	231	4	235
15:00-16:00	176	19	18	0	0	0	7	11	0	1	10	2	244	9	253
16:00-17:00	164	32	52	0	0	0	14	12	1	1	16	1	293	15	308
17:00-18:00	134	29	36	0	0	0	2	10	1	5	5	0	222	19	241
18:00-19:00	91	32	33	0	0	0	4	15	0	0	10	0	185	13	198
19:00-20:00	82	28	22	0	0	0	5	3	0	0	2	0	142	2	144
20:00-21:00	27	3	10	0	0	0	2	2	0	0	1	1	46	2	48
21:00-22:00	12	6	1	0	0	0	3	0	0	0	0	0	22	2	24
22:00-23:00	2	0	2	0	0	0	2	1	0	0	1	0	8	1	9
23:00-0:00	8	1	0	0	0	0	5	0	0	0	0	0	14	0	14
0:00-1:00	6	0	4	0	0	0	1	0	0	0	0	0	11	0	11
1:00-2:00	2	1	9	0	0	0	1	0	0	0	0	0	13	0	13
2:00-3:00	5	0	3	0	0	0	0	0	0	0	0	0	8	0	8
3:00-4:00	4	0	0	0	0	0	1	0	0	0	0	0	5	0	5
4:00-5:00	5	0	3	1	0	0	1	0	0	0	0	0	10	0	10
5:00-6:00	24	6	5	0	0	0	2	0	0	0	1	0	38	2	40
Total	2,276	794	682	7	6	0	225	107	4	11	98	15	4,225	95	4,320

Table A-14e Traffic Volume crossing SL-14: DES Airport Terminal 2, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	111	42	54	3	1	0	3	3	0	0	0	0	217	3	220
7:00-8:00	109	26	35	0	0	0	13	1	0	0	2	0	186	6	192
8:00-9:00	78	23	30	0	0	0	3	1	0	0	1	0	136	0	136
9:00-10:00	43	25	18	0	0	0	5	0	0	0	7	1	99	2	101
10:00-11:00	21	10	25	0	0	0	1	4	0	0	3	0	64	2	66
11:00-12:00	67	30	40	0	0	0	1	6	0	0	3	2	149	0	149
12:00-13:00	106	32	52	0	0	0	9	2	0	0	3	0	204	2	206
13:00-14:00	205	65	51	2	5	0	3	0	0	0	4	1	336	0	336
14:00-15:00	68	27	26	0	0	0	0	4	0	1	5	2	133	4	137
15:00-16:00	108	13	16	0	0	0	2	10	0	1	9	2	161	5	166
16:00-17:00	103	16	30	0	0	0	2	5	0	0	11	1	168	8	176
17:00-18:00	101	17	20	0	0	0	1	5	0	4	3	0	151	14	165
18:00-19:00	68	24	20	0	0	0	1	7	0	0	7	0	127	8	135
19:00-20:00	22	9	8	0	0	0	2	3	0	0	0	0	44	1	45
20:00-21:00	19	2	4	0	0	0	1	1	0	0	1	0	28	2	30
21:00-22:00	9	2	0	0	0	0	0	0	0	0	0	0	11	1	12
22:00-23:00	1	0	0	0	0	0	0	0	0	0	1	0	2	1	3
23:00-0:00	2	0	0	0	0	0	2	0	0	0	0	0	4	0	4
0:00-1:00	3	0	3	0	0	0	1	0	0	0	0	0	7	0	7
1:00-2:00	1	0	6	0	0	0	1	0	0	0	0	0	8	0	8
2:00-3:00	2	0	1	0	0	0	0	0	0	0	0	0	3	0	3
3:00-4:00	2	0	0	0	0	0	1	0	0	0	0	0	3	0	3
4:00-5:00	3	0	2	1	0	0	1	0	0	0	0	0	7	0	7
5:00-6:00	13	4	2	0	0	0	0	0	0	0	0	0	19	0	19
Total	1,265	367	443	6	6	0	53	52	0	6	60	9	2,267	59	2,326

Table A-14f Traffic Volume crossing SL-14: DES Airport Terminal 2, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	65	37	19	0	0	0	6	1	0	0	1	0	129	0	129
7:00-8:00	118	31	22	0	0	0	31	1	0	0	0	0	203	0	203
8:00-9:00	60	29	15	0	0	0	24	4	0	1	1	0	134	1	135
9:00-10:00	90	44	15	1	0	0	13	8	1	0	7	1	180	3	183
10:00-11:00	63	30	15	0	0	0	11	3	1	0	6	0	129	2	131
11:00-12:00	38	34	17	0	0	0	11	4	0	1	3	1	109	0	109
12:00-13:00	78	62	18	0	0	0	10	5	0	0	1	1	175	0	175
13:00-14:00	146	73	24	0	0	0	26	6	0	1	5	2	283	5	288
14:00-15:00	68	17	8	0	0	0	5	0	0	0	0	0	98	0	98
15:00-16:00	68	6	2	0	0	0	5	1	0	0	1	0	83	4	87
16:00-17:00	61	16	22	0	0	0	12	7	1	1	5	0	125	7	132
17:00-18:00	33	12	16	0	0	0	1	5	1	1	2	0	71	5	76
18:00-19:00	23	8	13	0	0	0	3	8	0	0	3	0	58	5	63
19:00-20:00	60	19	14	0	0	0	3	0	0	0	2	0	98	1	99
20:00-21:00	8	1	6	0	0	0	1	1	0	0	0	1	18	0	18
21:00-22:00	3	4	1	0	0	0	3	0	0	0	0	0	11	1	12
22:00-23:00	1	0	2	0	0	0	2	1	0	0	0	0	6	0	6
23:00-0:00	6	1	0	0	0	0	3	0	0	0	0	0	10	0	10
0:00-1:00	3	0	1	0	0	0	0	0	0	0	0	0	4	0	4
1:00-2:00	1	1	3	0	0	0	0	0	0	0	0	0	5	0	5
2:00-3:00	3	0	2	0	0	0	0	0	0	0	0	0	5	0	5
3:00-4:00	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2
4:00-5:00	2	0	1	0	0	0	0	0	0	0	0	0	3	0	3
5:00-6:00	11	2	3	0	0	0	2	0	0	0	1	0	19	2	21
Total	1,011	427	239	1	0	0	172	55	4	5	38	6	1,958	36	1,994

Table A-15a Traffic Volume crossing SL-15: DES Seaport Gate 3, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	14	0	7	0	0	0	0	1	6	19	3	0	50	1	51
7:00-8:00	64	1	15	0	0	0	0	1	1	3	2	1	88	1	89
8:00-9:00	58	0	16	0	0	0	0	6	4	2	3	1	90	6	96
9:00-10:00	49	0	18	0	0	0	0	5	2	4	15	0	93	3	96
10:00-11:00	57	0	18	0	0	0	0	4	0	13	12	1	105	2	107
11:00-12:00	52	0	19	0	0	0	0	6	0	9	12	0	98	0	98
12:00-13:00	27	0	13	0	0	0	0	7	2	19	13	0	81	2	83
13:00-14:00	43	0	17	0	0	0	1	5	2	13	7	1	89	1	90
14:00-15:00	64	0	21	0	0	0	0	8	3	8	19	1	124	12	136
15:00-16:00	76	0	11	0	0	0	0	10	0	14	29	2	142	16	158
16:00-17:00	48	0	6	0	0	0	0	2	1	14	14	0	85	1	86
17:00-18:00	62	0	11	0	0	0	0	1	0	15	9	0	98	1	99
18:00-19:00	18	0	5	0	0	0	0	3	5	18	5	0	54	0	54
19:00-20:00	7	0	1	0	0	0	0	0	3	7	4	0	22	0	22
20:00-21:00	3	0	0	0	0	0	0	0	0	13	5	0	21	0	21
21:00-22:00	4	0	0	0	0	0	0	0	0	9	4	0	17	0	17
22:00-23:00	0	0	1	0	0	0	0	0	0	10	3	0	14	1	15
23:00-0:00	0	0	0	0	0	0	0	0	0	10	4	0	14	0	14
0:00-1:00	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	646	1	179	0	0	0	1	59	29	200	164	7	1,286	47	1,333

Table A-15b Traffic Volume crossing SL-15: DES Seaport Gate 3, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	12	0	7	0	0	0	0	1	0	0	2	0	22	0	22
7:00-8:00	45	0	11	0	0	0	0	1	1	3	2	0	63	0	63
8:00-9:00	30	0	10	0	0	0	0	3	4	2	3	0	52	3	55
9:00-10:00	23	0	8	0	0	0	0	2	2	4	10	0	49	3	52
10:00-11:00	29	0	7	0	0	0	0	1	0	13	8	1	59	0	59
11:00-12:00	31	0	12	0	0	0	0	5	0	9	9	0	66	0	66
12:00-13:00	15	0	5	0	0	0	0	4	2	17	9	0	52	2	54
13:00-14:00	20	0	6	0	0	0	0	2	1	9	2	0	40	0	40
14:00-15:00	37	0	11	0	0	0	0	5	1	1	10	1	66	5	71
15:00-16:00	40	0	3	0	0	0	0	2	0	1	5	0	51	2	53
16:00-17:00	36	0	5	0	0	0	0	2	1	6	4	0	54	1	55
17:00-18:00	41	0	5	0	0	0	0	0	0	4	2	0	52	0	52
18:00-19:00	10	0	1	0	0	0	0	0	2	10	0	0	23	0	23
19:00-20:00	2	0	0	0	0	0	0	0	0	5	2	0	9	0	9
20:00-21:00	2	0	0	0	0	0	0	0	0	7	1	0	10	0	10
21:00-22:00	2	0	0	0	0	0	0	0	0	7	1	0	10	0	10
22:00-23:00	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	375	0	92	0	0	0	0	28	14	98	70	2	679	16	695

Table A-15c Traffic Volume crossing SL-15: DES Seaport Gate 3, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	2	0	0	0	0	0	0	0	6	19	1	0	28	1	29
7:00-8:00	19	1	4	0	0	0	0	0	0	0	0	1	25	1	26
8:00-9:00	28	0	6	0	0	0	0	3	0	0	0	1	38	3	41
9:00-10:00	26	0	10	0	0	0	0	3	0	0	5	0	44	0	44
10:00-11:00	28	0	11	0	0	0	0	3	0	0	4	0	46	2	48
11:00-12:00	21	0	7	0	0	0	0	1	0	0	3	0	32	0	32
12:00-13:00	12	0	8	0	0	0	0	3	0	2	4	0	29	0	29
13:00-14:00	23	0	11	0	0	0	1	3	1	4	5	1	49	1	50
14:00-15:00	27	0	10	0	0	0	0	3	2	7	9	0	58	7	65
15:00-16:00	36	0	8	0	0	0	0	8	0	13	24	2	91	14	105
16:00-17:00	12	0	1	0	0	0	0	0	0	8	10	0	31	0	31
17:00-18:00	21	0	6	0	0	0	0	1	0	11	7	0	46	1	47
18:00-19:00	8	0	4	0	0	0	0	3	3	8	5	0	31	0	31
19:00-20:00	5	0	1	0	0	0	0	0	3	2	2	0	13	0	13
20:00-21:00	1	0	0	0	0	0	0	0	0	6	4	0	11	0	11
21:00-22:00	2	0	0	0	0	0	0	0	0	2	3	0	7	0	7
22:00-23:00	0	0	0	0	0	0	0	0	0	10	3	0	13	1	14
23:00-0:00	0	0	0	0	0	0	0	0	0	10	4	0	14	0	14
0:00-1:00	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	271	1	87	0	0	0	1	31	15	102	94	5	607	31	638

Table A-15d Traffic Volume crossing SL-15: DES Seaport Gate 5, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	9	0	2	0	0	0	0	1	0	11	0	0	23	2	25
7:00-8:00	21	0	9	0	0	0	1	2	2	27	6	0	68	3	71
8:00-9:00	26	0	4	0	0	0	1	8	5	22	12	0	78	0	78
9:00-10:00	20	0	11	0	0	0	2	5	3	29	12	0	82	1	83
10:00-11:00	26	0	8	0	0	0	1	7	8	53	19	0	122	7	129
11:00-12:00	38	0	12	0	0	0	0	2	1	32	14	2	101	8	109
12:00-13:00	25	0	10	0	0	0	1	4	5	60	28	2	135	4	139
13:00-14:00	28	0	4	0	0	0	4	2	0	23	21	1	83	2	85
14:00-15:00	40	0	17	0	0	0	1	4	4	28	9	0	103	3	106
15:00-16:00	40	0	12	0	0	0	0	3	6	26	25	3	115	5	120
16:00-17:00	41	1	15	0	0	0	1	9	1	30	17	5	120	1	121
17:00-18:00	39	0	13	0	0	0	1	3	0	56	16	2	130	1	131
18:00-19:00	26	1	9	0	0	0	1	1	4	47	15	0	104	2	106
19:00-20:00	8	0	5	0	0	0	0	0	2	33	2	0	50	0	50
20:00-21:00	7	1	6	0	0	0	2	0	1	18	3	0	38	0	38
21:00-22:00	10	0	3	0	0	0	0	0	0	36	2	1	52	0	52
22:00-23:00	3	0	2	0	0	0	0	0	2	24	5	0	36	0	36
23:00-0:00	0	0	3	0	0	0	0	0	0	29	1	0	33	0	33
0:00-1:00	0	0	1	0	0	0	0	0	0	17	0	0	18	0	18
1:00-2:00	0	0	3	0	0	0	0	0	0	8	0	0	11	0	11
2:00-3:00	0	0	0	0	0	0	0	0	0	11	0	0	11	0	11
3:00-4:00	2	0	0	0	0	0	0	0	0	0	2	0	4	0	4
4:00-5:00	0	0	4	0	0	0	0	0	0	3	0	0	7	1	8
5:00-6:00	1	0	1	0	0	0	0	0	0	11	1	0	14	1	15
Total	410	3	154	0	0	0	16	51	44	634	210	16	1,538	41	1,579

Table A-15e Traffic Volume crossing SL-15: DES Seaport Gate 5, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	7	0	1	0	0	0	0	1	0	4	0	0	13	2	15
7:00-8:00	17	0	5	0	0	0	0	1	2	21	5	0	51	3	54
8:00-9:00	20	0	4	0	0	0	1	6	2	21	7	0	61	0	61
9:00-10:00	13	0	4	0	0	0	0	4	0	1	10	0	32	0	32
10:00-11:00	11	0	1	0	0	0	0	1	5	12	16	0	46	3	49
11:00-12:00	18	0	5	0	0	0	0	1	0	1	5	2	32	8	40
12:00-13:00	18	0	6	0	0	0	0	3	3	38	17	1	86	4	90
13:00-14:00	20	0	4	0	0	0	3	1	0	6	11	1	46	2	48
14:00-15:00	24	0	4	0	0	0	1	2	2	10	9	0	52	3	55
15:00-16:00	17	0	6	0	0	0	0	2	2	5	22	2	56	3	59
16:00-17:00	17	0	5	0	0	0	0	4	1	3	10	3	43	1	44
17:00-18:00	6	0	3	0	0	0	0	1	0	35	9	1	55	0	55
18:00-19:00	7	0	3	0	0	0	1	1	0	25	6	0	43	0	43
19:00-20:00	3	0	2	0	0	0	0	0	1	0	2	0	8	0	8
20:00-21:00	4	0	3	0	0	0	1	0	0	2	1	0	11	0	11
21:00-22:00	4	0	2	0	0	0	0	0	0	27	2	1	36	0	36
22:00-23:00	1	0	1	0	0	0	0	0	0	2	0	0	4	0	4
23:00-0:00	0	0	2	0	0	0	0	0	0	0	1	0	3	0	3
0:00-1:00	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
1:00-2:00	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:00-5:00	0	0	1	0	0	0	0	0	0	0	0	0	1	1	2
5:00-6:00	1	0	1	0	0	0	0	0	0	0	0	0	2	1	3
Total	209	0	66	0	0	0	7	28	18	213	133	11	685	31	716

Table A-15f Traffic Volume crossing SL-15: DES Seaport Gate 5, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	2	0	1	0	0	0	0	0	0	7	0	0	10	0	10
7:00-8:00	4	0	4	0	0	0	1	1	0	6	1	0	17	0	17
8:00-9:00	6	0	0	0	0	0	0	2	3	1	5	0	17	0	17
9:00-10:00	7	0	7	0	0	0	2	1	3	28	2	0	50	1	51
10:00-11:00	15	0	7	0	0	0	1	6	3	41	3	0	76	4	80
11:00-12:00	20	0	7	0	0	0	0	1	1	31	9	0	69	0	69
12:00-13:00	7	0	4	0	0	0	1	1	2	22	11	1	49	0	49
13:00-14:00	8	0	0	0	0	0	1	1	0	17	10	0	37	0	37
14:00-15:00	16	0	13	0	0	0	0	2	2	18	0	0	51	0	51
15:00-16:00	23	0	6	0	0	0	0	1	4	21	3	1	59	2	61
16:00-17:00	24	1	10	0	0	0	1	5	0	27	7	2	77	0	77
17:00-18:00	33	0	10	0	0	0	1	2	0	21	7	1	75	1	76
18:00-19:00	19	1	6	0	0	0	0	0	4	22	9	0	61	2	63
19:00-20:00	5	0	3	0	0	0	0	0	1	33	0	0	42	0	42
20:00-21:00	3	1	3	0	0	0	1	0	1	16	2	0	27	0	27
21:00-22:00	6	0	1	0	0	0	0	0	0	9	0	0	16	0	16
22:00-23:00	2	0	1	0	0	0	0	0	2	22	5	0	32	0	32
23:00-0:00	0	0	1	0	0	0	0	0	0	29	0	0	30	0	30
0:00-1:00	0	0	0	0	0	0	0	0	0	17	0	0	17	0	17
1:00-2:00	0	0	1	0	0	0	0	0	0	8	0	0	9	0	9
2:00-3:00	0	0	0	0	0	0	0	0	0	11	0	0	11	0	11
3:00-4:00	1	0	0	0	0	0	0	0	0	0	2	0	3	0	3
4:00-5:00	0	0	3	0	0	0	0	0	0	3	0	0	6	0	6
5:00-6:00	0	0	0	0	0	0	0	0	0	11	1	0	12	0	12
Total	201	3	88	0	0	0	9	23	26	421	77	5	853	10	863

Chapter 3 Cordon Line Survey

3.1 Scope of Work

A household interview survey (HIS) will be carried out as part of transport and traffic surveys conducted by the Study Team. This HIS will establish information on trips made by residents of the Study Area. However, on any given day, non-residents of Dar Es Salaam, that is, living outside of the Study Area, will enter the Study Area. These are not interviewed by the HIS. A cordon line survey has therefore been designed to collect trip information of such non-residents as they enter or leave Dar Es Salaam.

The Cordon Line survey, most of which will be conducted along the boundary of the Study Area, consists of several elements:

- A traffic count program;
- A road-side interview survey with a sample of drivers and passengers regarding their trip origin, destination, and purpose;
- A vehicle occupancy survey, that is, counting persons inside vehicles;
- Counts of, and interviews with, domestic and international passengers at Nyerere (Dar Es Salaam) International Airport. The interviews, conducted with passengers in the boarding (leaving) direction, address issues such as trip origin, destination, as well as purpose; and,
- Counts of, and interviews with, passengers at the Zanzibar/Pemba Ferry Terminal. The interviews, conducted with passengers in the boarding (leaving) direction, address issues such as trip origin, destination, as well as purpose.

3.1.1 Survey Locations

Roadside traffic count survey, interview survey, and vehicle occupancy survey

The locations of the surveys are set on all arterial roads crossing the study area boundary. This is referred to as the external cordon. Five locations were selected including Morogoro Road, Kilwa, Road, Bagamoyo Road, Nyerere Road, and Mjimwema Road. The traffic count, interview and occupancy counting surveys are carried out at the same locations and at the same time for each single location.

Passenger count and interview survey at Nyerere (Dar es Salaam) International Airport

The passenger count and the interview survey should be carried out at the departure area in the airport terminal. It is highly recommended that statistics of daily air passengers be obtained from airport authorities first; if such data are available in advance, the passenger count survey may not be necessary. Survey sites will be finalized after preliminary field surveys and further discussions with the Study Team.

Passenger count and interview survey at Zanzibar/Pemba Ferry terminal

The passenger count survey should be carried out at the main entrance gate: the interview survey be carried out onboard the ferries prior to their departure. If the statistics of daily passengers will be available in advance, the passenger count survey should not be necessary. The survey procedures will be confirmed after preliminary field surveys and discussions with the Study team.

Survey locations are shown in Figure 3.1.1.



Figure 3.1.1 Cordon Line Survey Locations

3.1.2 Survey Hours

24 hours for traffic count as well as 12 hours for vehicle occupancy and interview survey (from 0600 to 1800) at the Morogoro Road boundary location. At all other road locations, 16 hours of traffic count as well as 12 hours of vehicle occupancy and interview surveys. Survey hours at Nyerere International Airport and the Zanzibar/Pemba Ferry terminal will be determined based on the operating hours. The survey durations are summarized in Table 3.1.1.

Table 3.1.1 Coverage of Cordon Line Survey

Survey Location		Survey Extent (hours)			
Number	Name	Traffic Count	Vehicle Occupancy	Interview	Passenger Count
CL-1	Bagamoyo Road	16	12	12	
CL-2	Morogoro Road	24	12	12	
CL-3	Nyerere Road	16	12	12	
CL-4	Kilwa Road	16	12	12	
CL-5	Mjimwema Road	16	12	12	
CL-6	Nyerere International Airport	-	-	12	24 ¹⁾
CL-7	Zanzibar/Pemba Ferry Terminal	-	-	12	24 ¹⁾

Note: 1) Survey hours are determined according to business hours.

3.1.3 Survey Days

At each survey location, all three surveys shall be conducted concurrently on one weekday selected from Monday to Thursday. Public holidays must be excluded from the survey.

3.1.4 Sampling

The sampling rates are as follows:

- Number of interviewed drivers/passengers at road side not less than 20 percent for each vehicle type and for each direction of travel.
- Number of interviewed passengers at airport and ferry not less than 10 percent of boarding passengers.
- Traffic counting will be continuous for 100 percent of all vehicles in both directions of travel.
- Vehicle occupancy counting is on a sample basis, and as many vehicle occupancies as possible should be surveyed, but certainly not less than 50 percent (one-half) of passing vehicles. This sample size must be observed for all vehicle types in both directions of travel.

3.1.5 Interview Survey Items

The survey forms require the collection for information on:

- Survey time

- Vehicle type
- Origin and destination of the trip
- Trip purpose
- Address of passengers
- Number of passengers in the vehicle including the driver
- Commodity type and classification (only for trucks)
- Commodity volume and loading condition (only for trucks)
- Access mode to the airport or ferry terminal

3.1.6 Vehicle Types for Counting Survey

The types of vehicles for the counting survey are classified into 10 categories.

- Passenger car
- Taxi
- Light commodity vehicle (pickup and vans).
- Public buses (Dala-dala)
- Inter-city buses
- Organization bus (school bus, company and tourist bus).
- 2 Axles truck
- 3 Axles truck
- Heavy truck (over three axles, trailer, semi-trailer).
- Motorcycle
- Others (including bicycle)

3.1.7 Survey Method

The detailed survey method will be determined after the discussion with the Study Team. However, following general guidelines apply.

Traffic Count Survey

- Surveyors should continuously count the number of vehicles by direction and by type of vehicle.
- Surveyors will count the number of vehicles manually or using traffic counters.
- It is strongly urged that the survey team have, if at all possible, at their disposal mechanical, hand-held, push-button, counting devices (“clickers”) for tabulating vehicles.
- The number of vehicles by direction and by vehicle type will be recorded on a summary form every fifteen (15) minutes.

Vehicle Occupancy Observation Survey

- The surveyors for the Vehicle Occupancy survey observe the occupancy of each vehicle by vehicle type and by direction. This survey is on a sample basis, and as many vehicle

occupancies as possible should be surveyed, but certainly not less than 50 percent (one-half) of passing vehicles. This sample must be observed for all vehicle types in both directions of travel.

Interview Survey

- The survey group led by the supervisor sets up the interview area at specified roadside. This will be done jointly with the traffic police officer.
- The survey will be conducted in both directions of travel.
- Supervisor or team leader selects sampled vehicles at random for interviewing.
- Policemen stop the selected vehicles and direct them to the designated area for roadside interview survey.
- Surveyors interview the drivers and/or passengers and fill in the interview form.
- Military vehicles, police cars, and ambulance will be excluded from the roadside interview survey.

Interview Survey at Airport and Ferry Terminal

- Surveyors interview the selected passengers (sample) who will depart from airport and the ferry terminal at random basis, and fill in the interview form.

Passenger Count Survey

- Surveyors count departing passengers continuously at the airport and the ferry terminal, recording totals on the survey form. This count may not prove necessary if adequate passenger statistics are obtained from relevant authorities.

3.1.8 Survey Forms

English language survey forms are attached:

- CLS Form 1 is for summarizing recorded vehicle movement counts every 15 minutes.
- CLS Form 2 is for conducting the roadside interview survey.
- CLS Form 3 is for recording roadside vehicle occupancies.
- CLS Form 4 is for summarizing person counts every 15 minutes at airport and ferry.
- CLS Form 5 is for conducting the passenger interviews at airport and ferry.

The following form is seen as a “fall back” position if availability of hand held counting devices (“clickers”) is not possible.

- CLS Form 6 for continuous vehicle counting (manual check-offs).

3.1.9 Staffing Indication

It is likely that formation of a staffing plan will involve following considerations.

- A single shift for road side surveys will extend over an eight hour period. Thus, a 16 hour count period will require two shift crews, and a 24 hour count three shift crews. Interviews

and occupancy counts, which extend over 12 hours, will be allocated to two 8 hour shift periods. For the time difference (4 hours) interviewers and occupancy counters can help with vehicle counting.

- A single crew at roadside will likely consist of 6 persons: traffic counter, occupancy counter, 3 interviewers and a reserve. Two crews are needed each shift, one in each direction of travel, or a total of 12 persons. In addition, one supervisor is needed. Thus, for one roadside station, for one 8 hour shift, a total crew of 13 persons is needed. Thus, a 16 hour survey period will require 26 persons.
- In case of a 24 hour roadside survey station, interviews and occupancy counts will not be conducted during the third shift; only vehicle counts. The total crew for this is 5. Thus, for a 24 station, a total of 31 persons will be required.
- If more than one station is active per day, the number of staff will increase accordingly. For example, doing a 16 hour and a 24 hour station during the same day requires a total of 57 persons.
- In case of Nyerere (Dar Es Salaam) International Airport, or the Zanzibar/Pemba Ferry Terminal, less crew will be required since no vehicle counts will be conducted, nor are there two directions of travel to be considered. Thus, a single 8 hour crew at airport and seaport can consist of approximately 7 persons: 4 interviewers, 2 person counters and one supervisor. A 16 hour period would require 14 persons, and a 24 hour period 21 persons. However, the number of interviewers and counters needed at the air and sea ports will be determined after final site inspections.

3.2 Survey Performance

The preparation for the Cordon Line survey started on 28 June. To elaborate a survey program, the contractor and JICA Study team had discussions in the next one week since the start. The Cordon Line survey is different from the Screen Line survey in that an interview survey is included. The interview survey requires knowledge of background information, the understanding of questionnaire meanings and technique of interviewing. In the training course held on 7 July, these issues were explained and mainly teachers were recruited as interviewers. The field survey was conducted on 11 and 12 July, and was planned to conduct on 16 and 17 July, 2007.

The Cordon Line survey was planned to conduct at two locations a day. The survey on Kilwa road and Mjimwema road were made on the first day, 11 July, followed by Bagamoyo road and Nyerere road on 12 July. The survey at Morogoro road was planned on 16 July and at Nyrere International Airport and Zanzibar Ferry were be carried out according to the schedule shown in the table.

Table 3.2.1 Implementation of Cordon Line Survey

Survey Date	Survey Location	Survey Hours	Survey Coverage			
			Traffic Count	Vehicle Occupancy	Interview	Passenger Count
11 July, Wednesday	CL-4 Kilwa road	16 hours (6:00-22:00)	X	X	X	
	CL-5 Mjimwema road	16 hours (6:00-22:00)	X	X	X	
12 July, Thursday	CL-1 Bagamoyo road	16 hours (6:00-22:00)	X	X	X	
	CL-3 Nyerere road	16 hours (6:00-22:00)	X	X	X	
16 July, Monday	CL-2 Morogoro road	24 hours	X	X	X	
	CL-6 DES International Airport	24 hours			X	X
17 July, Tuesday	CL-7 Zanzibar Ferry Terminal	16 hours			X	X

3.3 Summary of Survey Result

3.3.1 Traffic Volume

The traffic count at each location is summarized in Table 3.3.1. The category of cars in the table includes passenger car, pickup, van, and taxi. The buses include dala dala buses (small and medium), inter-city buses, and other buses. The highest traffic volume was observed at the CL-2 survey location (Morogoro road). Hourly traffic count result, in detail, is described in Appendix of this chapter.

Table 3.3.1 Total Number of Vehicles Counted at Each Location

Unit: vehicle per day

Location	Cars	Buses	Others	M/C	Motorized Total	Bicycle	Total
CL-1	764	354	196	39	1,353	658	2,011
CL-2	2,578	1,803	2,312	46	6,739	282	7,021
CL-3	307	231	480	329	1,347	631	1,978
CL-4	771	938	506	130	2,345	1,460	3,805
CL-5	212	112	71	67	462	1,088	1,550

Note: Both of the directions, veh./survey hours.

3.3.2 Average Occupancy

Table 3.3.2 shows the average occupancy rate by type of vehicle, and Figure 3.3.1 shows range of values of the occupancy: maximum, minimum and average. The occupancy varies considerably between the location, between the observation hours and between the types of vehicle. The range of occupancy of buses is larger than that of cars.

Table 3.3.2 Average Occupancy by Type of Vehicle

Unit: person per vehicle

Location	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus
CL-1	2.57	2.29	3.31	-	-	16.85
CL-2	2.62	2.08	3.05	14.00	15.00	31.90
CL-3	2.74	2.22	3.04	20.34	31.55	25.53
CL-4	2.52	2.00	3.98	18.15	28.39	20.06
CL-5	3.13	3.35	4.49	17.41	28.64	-

This variety provably due to the following reasons:

- A frequency of bus service is different between the locations.
- Demand is different between the locations, and between survey hours.
- The criterion of visual observation for counting passengers may vary among the observers.

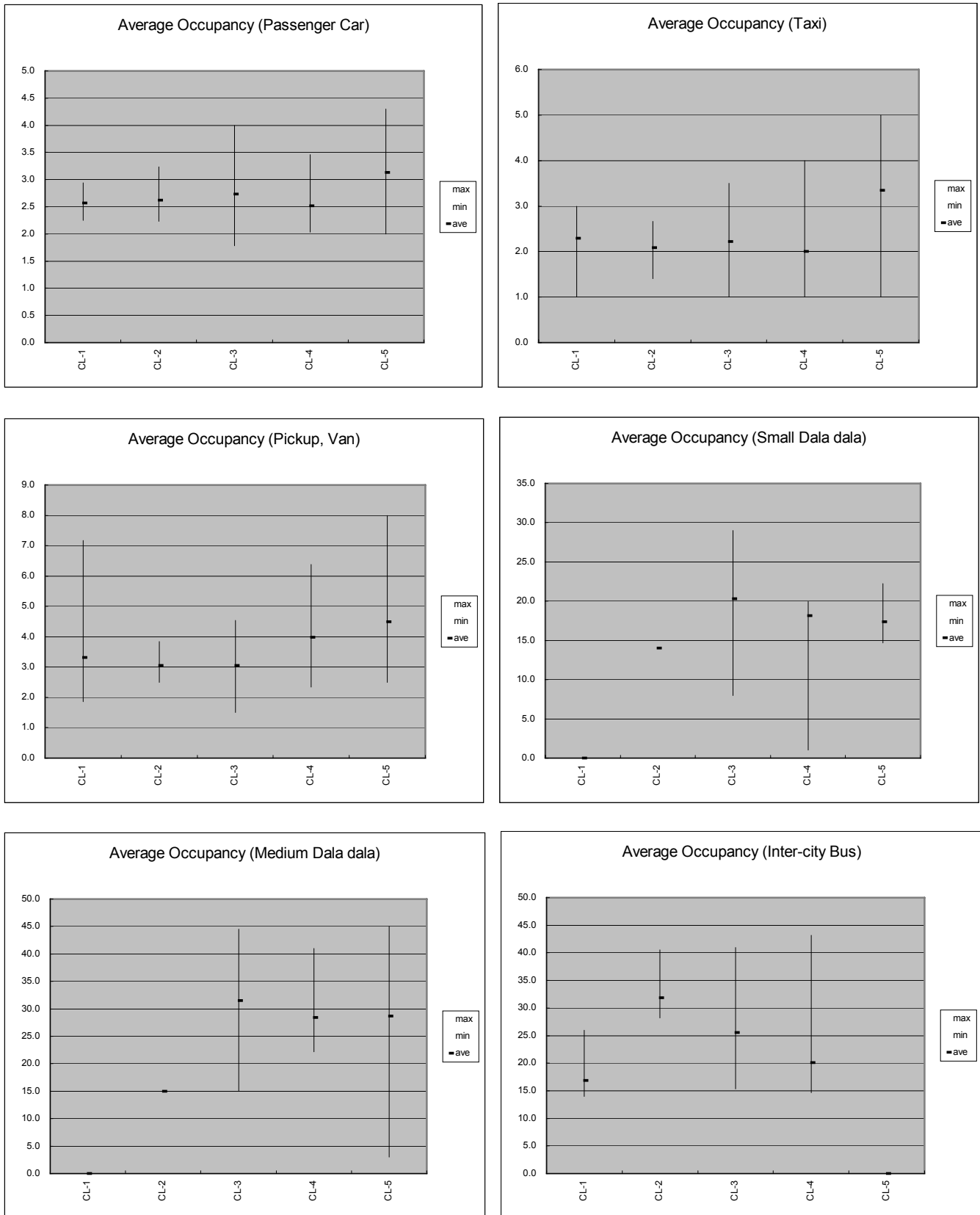


Figure 3.3.1 Vehicle Occupancy Rates

3.3.3 Number of Passengers

The number of passengers crossing the boundary of the Study area daily can be estimated by multiplying the number of vehicles by the associated occupancy rates. The summary of passengers in total is more than 101 thousand persons in both directions.

Table 3.3.3 Number of Passengers Crossing the Boundary

Unit: persons per day

Location	Cars	Buses	Total
CL-1	2,144	5,755	7,899
CL-2	6,950	56,161	63,111
CL-3	851	5,515	6,367
CL-4	2,221	18,889	21,110
CL-5	749	2,080	2,829
Total	12,915	88,401	101,316

3.4 Development of Cordon Line OD Matrix

This section describes how to develop OD matrices of travelers crossing the boundary (cordon line) of the Study area.

3.4.1 Methodology

Cordon line OD matrices were developed by applying the methodology shown in Figure 3.4.1. The information obtained through the interview survey was stored in a database after coding necessary information such as address of origin and destination and error checking. The error-free samples of the interview data were expanded in order to represent the whole travelers crossing the Study area boundary. The expanded samples (OD data) include trips of both the residents and non-residents in the Study area. The OD matrix of the non-residents was combined with the OD matrices of residents obtained by Household Interview Survey to complete the comprehensive OD matrices.

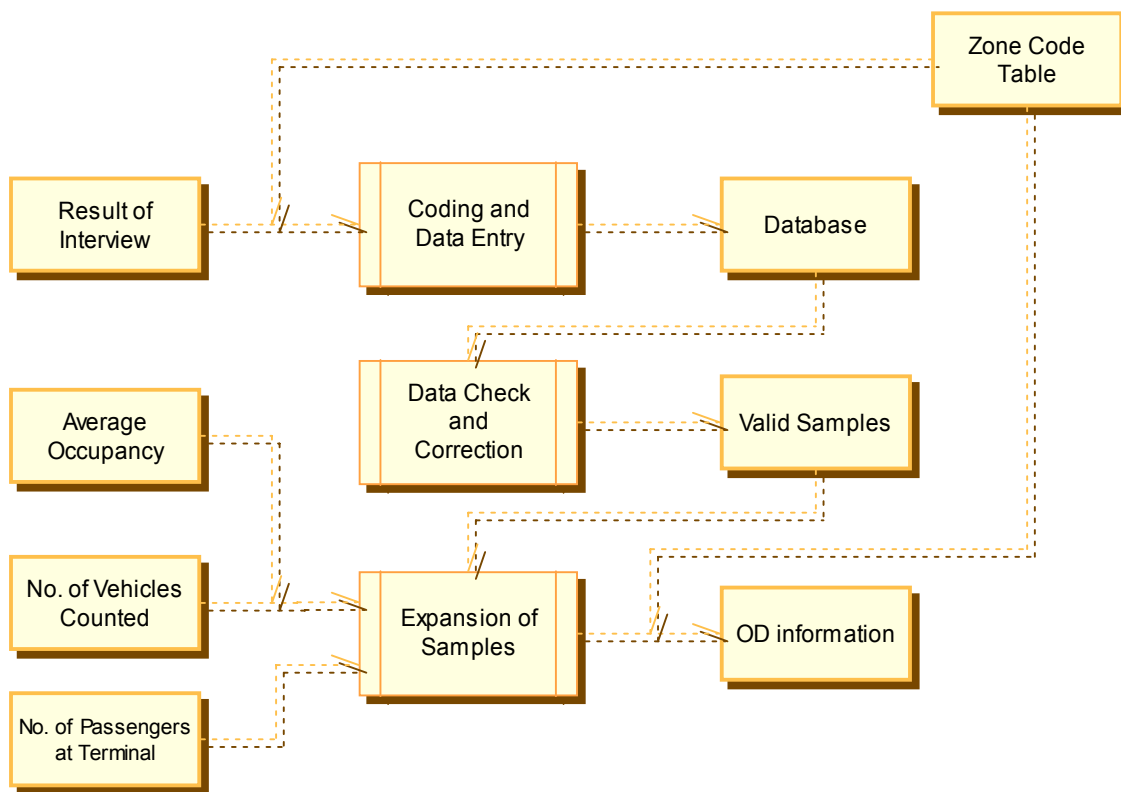


Figure 3.4.1 Methodology to Establish OD Matrix Crossing Cordon Line

3.4.2 Number of Passengers at Ports

Official statistics were used to expand the sample date at the cordon line survey location 6 (Nyerere International Airport) and 7 (Dar es Salaam Port) as described below.

Nyerere Airport: Table 3.4.1 shows annual passenger of Nyerere International Airport. The arrival and departure passenger were taken into consideration for the sample expansion purpose. The annual daily average air passengers, which is used as the control total of expanding the sample, were

calculated by dividing the annual number with 365 days.

Table 3.4.2 shows weekly variation of the number of passengers in one week in 2007 for reference.

Table 3.4.1 Airport Passengers

Year	Annual Total				Daily Average			
	Arrival	Departure	Transit	Total	Arrival	Departure	Transit	Total
2000	283,820	292,211	45,482	621,513	778	801	125	1,703
2001	296,562	307,656	47,784	652,002	812	843	131	1,786
2002	316,778	333,044	53,651	703,473	868	912	147	1,927
2003	371,802	391,895	52,566	816,263	1,019	1,074	144	2,236
2004	473,353	480,818	57,221	1,011,392	1,297	1,317	157	2,771
2005	516,374	519,116	88,745	1,124,235	1,415	1,422	243	3,080
2006	577,099	578,173	94,147	1,249,419	1,581	1,584	258	3,423

Table 3.4.2 Weekly Variation of Airport Passenger

Day	Date	Arrival	Departure	Total
Mon	16/07/2007	1,623	1,581	3,614
Tue	17/07/2007	1,690	1,680	3,766
Wed	18/07/2007	1,756	1,648	3,859
Thu	19/07/2007	1,730	1,680	3,831
Fri	20/07/2007	1,812	1,690	3,964
Sat	21/07/2007	1,762	1,709	3,942
Sun	22/07/2007	1,812	1,678	3,933
Total		12,185	11,666	26,909

In order to estimate the year 2007 annual daily average air passenger (arrival + departure), following equation was estimated by regression analysis using the data from 2000 to 2006.

$$y = 284.2 \cdot (t - 2000) + 1,393.4$$

Where, y : average number of both arrival and departure passengers per day

t : year

By using this equation, the annual daily average of air passengers in 2007 is estimated at 3,383 persons, which is almost same as the average value between Monday through Friday in July 2007 (see Table 3.4.2).

Zanzibar Ferry: Table 3.4.3 shows the ferry boarding passenger statistic in July 2007. The average number of this two weeks is used for expansion of the samples at Zanzibar ferry.

Table 3.4.3 Statistics of Ferry Passenger

Date	Outbound	Inbound	Total
01/07/2007	985	853	1,838
04/07/2007	1,150	1,118	2,268
05/07/2007	1,232	1,188	2,420
06/07/2007	1,272	1,084	2,356
07/07/2007	1,300	1,274	2,574
08/07/2007	1,196	1,266	2,462
09/07/2007	1,340	1,079	2,419
10/07/2007	1,149	885	2,034
11/07/2007	1,079	1,034	2,113
13/07/2007	1,217	897	2,114
14/07/2007	1,343	1,156	2,499
15/07/2007	1,071	952	2,023
16/07/2007	1,284	1,056	2,340
Average	1,201	1,065	2,266

3.4.3 Establishment of OD Matrix

The four important elements in the trip information below were used for data error checking purpose. If any errors or inaccurate information was found in the database, such information was corrected with reference to the original answer sheets.

- Trip purpose
- Vehicle type used
- Origin and destination of the trip
- Address of residence

If such information cannot be corrected even with reference to the original answer sheets, such samples were removed from the database.

After the data correction exercise, a set of valid interview samples of both residents and non-residents was obtained as shown in Table 3.4.4. The number of valid samples for bus passenger at CL-2 and CL-4 is limited after data correction so that the sample rate becomes very small in the end.

Table 3.4.4 Number of Valid Samples

		Type of Survey	No. of Valid Samples	No. of Total Passengers	Sample Rate (%)
CL-1	Bagamoyo road	Passenger car	96	2,144	4.5
		Bus passenger	260	5,755	4.5
CL-2	Morogoro road	Passenger car	219	6,950	3.2
		Bus passenger	788	56,161	1.4
CL-3	Nyerere road	Passenger car	103	851	12.1
		Bus passenger	379	5,515	6.9
CL-4	Kilwa road	Passenger car	102	2,221	4.6
		Bus passenger	355	18,889	1.9
CL-5	Pugu road	Passenger car	111	749	14.8
		Bus passenger	219	2,080	10.5
CL-6	Nyerere Airport	Passenger	364	3,383	10.8
CL-7	Zanzibar Ferry	Passenger	599	2,266	26.4

Source: Cordon Line Survey by JICA Study Team (2007)

Appendix-3.1: Traffic Volumes by Hour and Location Crossing the Cordon Line

Table A-1a Traffic Volume Crossing CL-1: Bagamoyo Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	16	0	6	0	0	6	1	9	1	0	2	0	41	29	70
7:00-8:00	25	0	7	0	0	12	3	5	0	0	0	0	52	34	86
8:00-9:00	24	0	12	0	0	20	0	6	2	1	0	1	66	34	100
9:00-10:00	26	2	6	0	0	24	0	8	2	1	0	0	69	37	106
10:00-11:00	37	2	20	0	0	26	1	7	0	0	1	0	94	48	142
11:00-12:00	31	0	24	0	0	30	0	14	0	0	2	0	101	63	164
12:00-13:00	30	1	14	0	0	27	0	15	0	0	1	0	88	51	139
13:00-14:00	31	1	19	0	0	27	0	9	1	0	1	0	89	46	135
14:00-15:00	34	5	27	0	0	28	2	11	1	0	3	1	112	40	152
15:00-16:00	35	9	33	0	0	22	0	13	1	0	2	0	115	60	175
16:00-17:00	42	6	22	0	3	25	3	20	2	0	10	0	133	70	203
17:00-18:00	43	10	30	1	0	26	3	20	3	0	10	0	146	51	197
18:00-19:00	30	1	16	0	0	25	1	14	2	0	3	0	92	59	151
19:00-20:00	36	0	12	0	0	18	0	11	2	0	3	0	82	26	108
20:00-21:00	13	1	7	0	1	13	0	7	0	0	1	0	43	8	51
21:00-22:00	16	0	2	0	0	5	1	6	0	0	0	0	30	2	32
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	469	38	257	1	4	334	15	175	17	2	39	2	1,353	658	2,011

Table A-1b Traffic Volume Crossing CL-1: Bagamoyo Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	4	0	2	0	0	2	1	6	0	0	1	0	16	13	29
7:00-8:00	6	0	4	0	0	2	2	1	0	0	0	0	15	14	29
8:00-9:00	7	0	8	0	0	11	0	1	1	0	0	1	29	11	40
9:00-10:00	12	0	1	0	0	10	0	4	2	0	0	0	29	24	53
10:00-11:00	13	0	4	0	0	10	0	2	0	0	0	0	29	26	55
11:00-12:00	9	0	9	0	0	17	0	4	0	0	2	0	41	36	77
12:00-13:00	16	0	3	0	0	12	0	9	0	0	1	0	41	32	73
13:00-14:00	11	0	7	0	0	10	0	5	0	0	1	0	34	20	54
14:00-15:00	17	0	12	0	0	12	2	4	0	0	0	0	47	22	69
15:00-16:00	21	2	15	0	0	12	0	2	1	0	2	0	55	52	107
16:00-17:00	25	0	5	0	0	14	3	11	1	0	0	0	59	62	121
17:00-18:00	27	2	14	0	0	17	1	8	2	0	2	0	73	34	107
18:00-19:00	21	0	8	0	0	17	1	11	1	0	1	0	60	30	90
19:00-20:00	23	0	7	0	0	10	0	5	2	0	2	0	49	16	65
20:00-21:00	5	0	4	0	0	7	0	3	0	0	0	0	19	1	20
21:00-22:00	9	0	2	0	0	4	1	1	0	0	0	0	17	1	18
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	226	4	105	0	0	167	11	77	10	0	12	1	613	394	1,007

Table A-1c Traffic Volume Crossing CL-1: Bagamoyo Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajak	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	12	0	4	0	0	4	0	3	1	0	1	0	25	16	41
7:00-8:00	19	0	3	0	0	10	1	4	0	0	0	0	37	20	57
8:00-9:00	17	0	4	0	0	9	0	5	1	1	0	0	37	23	60
9:00-10:00	14	2	5	0	0	14	0	4	0	1	0	0	40	13	53
10:00-11:00	24	2	16	0	0	16	1	5	0	0	1	0	65	22	87
11:00-12:00	22	0	15	0	0	13	0	10	0	0	0	0	60	27	87
12:00-13:00	14	1	11	0	0	15	0	6	0	0	0	0	47	19	66
13:00-14:00	20	1	12	0	0	17	0	4	1	0	0	0	55	26	81
14:00-15:00	17	5	15	0	0	16	0	7	1	0	3	1	65	18	83
15:00-16:00	14	7	18	0	0	10	0	11	0	0	0	0	60	8	68
16:00-17:00	17	6	17	0	3	11	0	9	1	0	10	0	74	8	82
17:00-18:00	16	8	16	1	0	9	2	12	1	0	8	0	73	17	90
18:00-19:00	9	1	8	0	0	8	0	3	1	0	2	0	32	29	61
19:00-20:00	13	0	5	0	0	8	0	6	0	0	1	0	33	10	43
20:00-21:00	8	1	3	0	1	6	0	4	0	0	1	0	24	7	31
21:00-22:00	7	0	0	0	0	1	0	5	0	0	0	0	13	1	14
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	243	34	152	1	4	167	4	98	7	2	27	1	740	264	1,004

Table A-2a Traffic Volume Crossing CL-2: Morogoro Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	103	14	19	0	0	115	9	73	11	20	4	0	368	21	389
7:00-8:00	83	4	29	0	0	131	6	70	5	28	4	0	360	37	397
8:00-9:00	98	5	32	0	0	135	1	78	7	11	3	0	370	31	401
9:00-10:00	113	5	37	0	0	111	1	75	9	10	1	1	363	30	393
10:00-11:00	81	2	37	1	0	102	2	67	9	9	2	0	312	32	344
11:00-12:00	132	3	39	0	0	106	1	93	12	24	8	0	418	29	447
12:00-13:00	154	4	41	0	0	122	0	106	14	24	8	1	474	29	503
13:00-14:00	129	5	24	0	0	117	1	83	17	20	1	0	397	18	415
14:00-15:00	114	5	26	0	1	115	3	74	4	34	3	0	379	16	395
15:00-16:00	147	7	44	0	0	131	1	112	7	42	1	1	493	9	502
16:00-17:00	111	12	55	1	0	147	7	103	9	29	2	1	477	11	488
17:00-18:00	148	9	58	2	0	131	0	92	13	35	4	0	492	8	500
18:00-19:00	109	12	55	0	0	94	0	95	22	39	3	0	429	7	436
19:00-20:00	110	3	26	0	0	61	0	55	14	39	1	0	309	3	312
20:00-21:00	73	2	15	1	0	46	0	64	22	37	0	0	260	1	261
21:00-22:00	46	3	7	0	0	26	0	52	10	22	0	0	166	0	166
22:00-23:00	30	5	8	0	3	14	0	23	8	13	0	0	104	0	104
23:00-0:00	20	7	6	0	0	5	0	26	4	7	0	0	75	0	75
0:00-1:00	13	0	3	0	0	5	0	14	5	12	0	0	52	0	52
1:00-2:00	7	1	1	2	0	0	0	24	5	5	0	0	45	0	45
2:00-3:00	5	0	2	0	0	4	0	32	3	7	0	0	53	0	53
3:00-4:00	7	0	2	0	0	7	0	36	5	7	0	0	64	0	64
4:00-5:00	13	1	7	1	0	7	1	53	9	19	0	0	111	0	111
5:00-6:00	38	0	12	1	2	22	1	52	15	24	1	0	168	0	168
Total	1,884	109	585	9	6	1,754	34	1,552	239	517	46	4	6,739	282	7,021

Table A-2b Traffic Volume Crossing CL-2: Morogoro Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajak	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	43	7	8	0	0	23	3	42	4	16	1	0	147	17	164
7:00-8:00	27	1	15	0	0	38	3	34	2	27	0	0	147	25	172
8:00-9:00	45	1	8	0	0	50	0	36	5	10	1	0	156	11	167
9:00-10:00	59	0	18	0	0	44	0	26	9	9	1	1	167	11	178
10:00-11:00	37	0	18	1	0	43	0	30	5	9	2	0	145	11	156
11:00-12:00	54	1	20	0	0	43	1	44	4	15	2	0	184	11	195
12:00-13:00	74	1	15	0	0	55	0	36	2	14	2	0	199	7	206
13:00-14:00	67	0	15	0	0	57	1	36	5	5	1	0	187	6	193
14:00-15:00	65	2	14	0	0	70	1	30	0	11	1	0	194	0	194
15:00-16:00	71	1	16	0	0	76	0	53	3	14	1	0	235	0	235
16:00-17:00	64	4	21	1	0	95	1	34	2	16	0	1	239	3	242
17:00-18:00	88	6	24	2	0	91	0	35	5	7	3	0	261	1	262
18:00-19:00	52	9	33	0	0	63	0	39	5	11	0	0	212	2	214
19:00-20:00	48	3	14	0	0	38	0	13	4	6	1	0	127	1	128
20:00-21:00	31	2	7	1	0	28	0	14	4	10	0	0	97	1	98
21:00-22:00	19	1	1	0	0	13	0	11	5	4	0	0	54	0	54
22:00-23:00	16	4	4	0	2	12	0	13	5	5	0	0	61	0	61
23:00-0:00	9	7	2	0	0	1	0	19	2	2	0	0	42	0	42
0:00-1:00	4	0	3	0	0	3	0	13	4	10	0	0	37	0	37
1:00-2:00	5	1	1	2	0	0	0	22	4	4	0	0	39	0	39
2:00-3:00	3	0	2	0	0	4	0	30	3	7	0	0	49	0	49
3:00-4:00	2	0	1	0	0	6	0	29	5	7	0	0	50	0	50
4:00-5:00	4	1	5	0	0	5	0	39	8	17	0	0	79	0	79
5:00-6:00	16	0	10	1	2	13	1	27	9	17	0	0	96	0	96
Total	903	52	275	8	4	871	11	705	104	253	16	2	3,204	107	3,311

Table A-2c Traffic Volume Crossing CL-2: Morogoro Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajak	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	60	7	11	0	0	92	6	31	7	4	3	0	221	4	225
7:00-8:00	56	3	14	0	0	93	3	36	3	1	4	0	213	12	225
8:00-9:00	53	4	24	0	0	85	1	42	2	1	2	0	214	20	234
9:00-10:00	54	5	19	0	0	67	1	49	0	1	0	0	196	19	215
10:00-11:00	44	2	19	0	0	59	2	37	4	0	0	0	167	21	188
11:00-12:00	78	2	19	0	0	63	0	49	8	9	6	0	234	18	252
12:00-13:00	80	3	26	0	0	67	0	70	12	10	6	1	275	22	297
13:00-14:00	62	5	9	0	0	60	0	47	12	15	0	0	210	12	222
14:00-15:00	49	3	12	0	1	45	2	44	4	23	2	0	185	16	201
15:00-16:00	76	6	28	0	0	55	1	59	4	28	0	1	258	9	267
16:00-17:00	47	8	34	0	0	52	6	69	7	13	2	0	238	8	246
17:00-18:00	60	3	34	0	0	40	0	57	8	28	1	0	231	7	238
18:00-19:00	57	3	22	0	0	31	0	56	17	28	3	0	217	5	222
19:00-20:00	62	0	12	0	0	23	0	42	10	33	0	0	182	2	184
20:00-21:00	42	0	8	0	0	18	0	50	18	27	0	0	163	0	163
21:00-22:00	27	2	6	0	0	13	0	41	5	18	0	0	112	0	112
22:00-23:00	14	1	4	0	1	2	0	10	3	8	0	0	43	0	43
23:00-0:00	11	0	4	0	0	4	0	7	2	5	0	0	33	0	33
0:00-1:00	9	0	0	0	0	2	0	1	1	2	0	0	15	0	15
1:00-2:00	2	0	0	0	0	0	0	2	1	1	0	0	6	0	6
2:00-3:00	2	0	0	0	0	0	0	2	0	0	0	0	4	0	4
3:00-4:00	5	0	1	0	0	1	0	7	0	0	0	0	14	0	14
4:00-5:00	9	0	2	1	0	2	1	14	1	2	0	0	32	0	32
5:00-6:00	22	0	2	0	0	9	0	25	6	7	1	0	72	0	72
Total	981	57	310	1	2	883	23	847	135	264	30	2	3,535	175	3,710

Table A-3a Traffic Volume Crossing CL-3: Nyerere Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajak	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	14	5	6	0	0	15	11	59	18	12	46	4	190	73	263
7:00-8:00	10	1	9	0	0	16	0	37	26	5	48	19	171	101	272
8:00-9:00	14	1	6	0	0	17	0	38	24	5	56	6	167	79	246
9:00-10:00	6	4	8	0	0	12	1	38	10	3	58	9	149	78	227
10:00-11:00	10	4	11	0	0	11	0	35	5	1	45	8	130	58	188
11:00-12:00	10	0	6	0	0	11	0	17	5	1	22	3	75	53	128
12:00-13:00	11	1	4	0	0	22	0	22	1	0	14	1	76	40	116
13:00-14:00	11	2	6	0	0	30	1	12	1	0	2	1	66	22	88
14:00-15:00	16	3	4	0	0	13	2	4	0	0	1	0	43	2	45
15:00-16:00	9	2	7	0	0	12	0	10	6	0	1	0	47	27	74
16:00-17:00	12	2	4	0	0	10	0	10	1	0	8	0	47	37	84
17:00-18:00	4	1	9	0	0	11	0	6	2	0	13	0	46	24	70
18:00-19:00	10	2	6	0	0	9	0	3	1	0	9	0	40	16	56
19:00-20:00	12	3	8	0	0	14	0	3	1	0	3	0	44	12	56
20:00-21:00	8	5	2	0	0	7	0	1	3	0	2	2	30	9	39
21:00-22:00	14	1	3	0	0	6	0	0	1	0	1	0	26	0	26
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	171	37	99	0	0	216	15	295	105	27	329	53	1,347	631	1,978

Table A-3b Traffic Volume Crossing CL-3: Nyerere Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajak	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	6	2	3	0	0	5	1	7	4	1	0	0	29	5	34
7:00-8:00	2	0	6	0	0	8	0	5	0	0	2	0	23	6	29
8:00-9:00	5	1	1	0	0	8	0	3	3	0	2	0	23	9	32
9:00-10:00	2	3	3	0	0	5	1	3	0	0	0	0	17	12	29
10:00-11:00	4	1	2	0	0	4	0	3	1	0	2	0	17	7	24
11:00-12:00	5	0	3	0	0	6	0	2	0	0	1	0	17	3	20
12:00-13:00	6	1	0	0	0	11	0	6	1	0	1	0	26	6	32
13:00-14:00	7	2	3	0	0	8	1	6	1	0	1	0	29	5	34
14:00-15:00	10	2	2	0	0	8	1	2	0	0	0	0	25	0	25
15:00-16:00	5	0	3	0	0	5	0	6	3	0	1	0	23	11	34
16:00-17:00	6	0	2	0	0	4	0	3	1	0	5	0	21	19	40
17:00-18:00	2	1	5	0	0	5	0	6	2	0	7	0	28	20	48
18:00-19:00	3	0	2	0	0	6	0	0	0	0	6	0	17	10	27
19:00-20:00	7	3	3	0	0	9	0	1	0	0	1	0	24	8	32
20:00-21:00	2	4	2	0	0	2	0	1	3	0	2	0	16	7	23
21:00-22:00	4	0	2	0	0	5	0	0	1	0	1	0	13	0	13
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	76	20	42	0	0	99	4	54	20	1	32	0	348	128	476

Table A-3c Traffic Volume Crossing CL-3: Nyerere Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajak	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	8	3	3	0	0	10	10	52	14	11	46	4	161	68	229
7:00-8:00	8	1	3	0	0	8	0	32	26	5	46	19	148	95	243
8:00-9:00	9	0	5	0	0	9	0	35	21	5	54	6	144	70	214
9:00-10:00	4	1	5	0	0	7	0	35	10	3	58	9	132	66	198
10:00-11:00	6	3	9	0	0	7	0	32	4	1	43	8	113	51	164
11:00-12:00	5	0	3	0	0	5	0	15	5	1	21	3	58	50	108
12:00-13:00	5	0	4	0	0	11	0	16	0	0	13	1	50	34	84
13:00-14:00	4	0	3	0	0	22	0	6	0	0	1	1	37	17	54
14:00-15:00	6	1	2	0	0	5	1	2	0	0	1	0	18	2	20
15:00-16:00	4	2	4	0	0	7	0	4	3	0	0	0	24	16	40
16:00-17:00	6	2	2	0	0	6	0	7	0	0	3	0	26	18	44
17:00-18:00	2	0	4	0	0	6	0	0	0	0	6	0	18	4	22
18:00-19:00	7	2	4	0	0	3	0	3	1	0	3	0	23	6	29
19:00-20:00	5	0	5	0	0	5	0	2	1	0	2	0	20	4	24
20:00-21:00	6	1	0	0	0	5	0	0	0	0	0	2	14	2	16
21:00-22:00	10	1	1	0	0	1	0	0	0	0	0	0	13	0	13
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	95	17	57	0	0	117	11	241	85	26	297	53	999	503	1,502

Table A-4a Traffic Volume Crossing CL-4: Kilwa Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	11	5	5	1	6	24	0	14	9	1	4	0	80	59	139
7:00-8:00	29	2	9	6	6	44	4	21	6	1	15	0	143	81	224
8:00-9:00	33	2	8	2	5	40	1	23	7	1	5	0	127	73	200
9:00-10:00	30	6	12	4	4	38	0	17	13	1	9	0	134	83	217
10:00-11:00	28	4	23	1	6	42	0	15	6	0	3	1	129	93	222
11:00-12:00	30	5	14	8	6	40	0	12	10	1	9	0	135	101	236
12:00-13:00	31	3	22	17	12	45	0	22	8	4	9	0	173	83	256
13:00-14:00	28	9	24	8	12	37	0	27	8	9	2	0	164	72	236
14:00-15:00	27	5	15	5	9	67	4	27	10	4	19	3	195	174	369
15:00-16:00	41	5	13	1	0	88	5	32	4	0	7	0	196	122	318
16:00-17:00	36	3	16	1	0	71	3	24	12	1	4	1	172	141	313
17:00-18:00	44	6	11	1	0	97	1	19	9	12	12	0	212	170	382
18:00-19:00	50	5	21	1	2	68	1	22	5	8	10	0	193	124	317
19:00-20:00	31	1	7	0	1	53	0	25	5	3	10	0	136	61	197
20:00-21:00	32	2	11	0	1	30	1	19	7	0	5	1	109	17	126
21:00-22:00	12	1	3	3	0	5	0	10	5	1	7	0	47	6	53
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	493	64	214	59	70	789	20	329	124	47	130	6	2,345	1,460	3,805

Table A-4b Traffic Volume Crossing CL-4: Kilwa Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajak	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	6	1	1	0	2	8	0	7	5	0	0	0	30	11	41
7:00-8:00	13	2	1	0	1	12	0	10	2	1	5	0	47	9	56
8:00-9:00	16	0	2	1	2	18	0	15	5	0	1	0	60	23	83
9:00-10:00	11	2	6	2	2	16	0	6	5	1	4	0	55	32	87
10:00-11:00	9	2	8	0	2	18	0	7	3	0	0	1	50	60	110
11:00-12:00	9	2	2	5	1	16	0	3	5	1	2	0	46	53	99
12:00-13:00	16	2	13	7	8	20	0	9	2	1	2	0	80	42	122
13:00-14:00	13	6	10	8	6	15	0	7	3	4	0	0	72	29	101
14:00-15:00	12	2	9	0	8	43	3	17	5	2	16	3	120	137	257
15:00-16:00	21	3	5	0	0	55	2	22	2	0	4	0	114	76	190
16:00-17:00	17	1	6	0	0	30	0	12	6	0	2	1	75	86	161
17:00-18:00	20	3	7	0	0	54	0	12	5	12	4	0	117	106	223
18:00-19:00	25	5	13	0	0	26	0	4	3	2	7	0	85	70	155
19:00-20:00	20	1	5	0	0	35	0	13	4	2	4	0	84	36	120
20:00-21:00	16	2	6	0	0	21	0	3	5	0	3	1	57	13	70
21:00-22:00	8	1	1	0	0	4	0	8	3	0	4	0	29	6	35
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	232	35	95	23	32	391	5	155	63	26	58	6	1,121	789	1,910

Table A-4c Traffic Volume Crossing CL-4: Kilwa Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	5	4	4	1	4	16	0	7	4	1	4	0	50	48	98
7:00-8:00	16	0	8	6	5	32	4	11	4	0	10	0	96	72	168
8:00-9:00	17	2	6	1	3	22	1	8	2	1	4	0	67	50	117
9:00-10:00	19	4	6	2	2	22	0	11	8	0	5	0	79	51	130
10:00-11:00	19	2	15	1	4	24	0	8	3	0	3	0	79	33	112
11:00-12:00	21	3	12	3	5	24	0	9	5	0	7	0	89	48	137
12:00-13:00	15	1	9	10	4	25	0	13	6	3	7	0	93	41	134
13:00-14:00	15	3	14	0	6	22	0	20	5	5	2	0	92	43	135
14:00-15:00	15	3	6	5	1	24	1	10	5	2	3	0	75	37	112
15:00-16:00	20	2	8	1	0	33	3	10	2	0	3	0	82	46	128
16:00-17:00	19	2	10	1	0	41	3	12	6	1	2	0	97	55	152
17:00-18:00	24	3	4	1	0	43	1	7	4	0	8	0	95	64	159
18:00-19:00	25	0	8	1	2	42	1	18	2	6	3	0	108	54	162
19:00-20:00	11	0	2	0	1	18	0	12	1	1	6	0	52	25	77
20:00-21:00	16	0	5	0	1	9	1	16	2	0	2	0	52	4	56
21:00-22:00	4	0	2	3	0	1	0	2	2	1	3	0	18	0	18
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	261	29	119	36	38	398	15	174	61	21	72	0	1,224	671	1,895

Table A-5a Traffic Volume Crossing CL-5: Mjimwema Road, both direction

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	1	0	0	1	1	0	0	0	0	0	2	0	5	27	32
7:00-8:00	4	1	0	9	1	0	0	2	1	0	2	0	20	105	125
8:00-9:00	2	1	1	6	1	1	0	4	1	0	8	0	25	72	97
9:00-10:00	10	2	4	6	1	0	0	1	1	0	5	0	30	108	138
10:00-11:00	6	2	4	5	0	0	0	3	0	0	5	0	25	106	131
11:00-12:00	13	6	8	4	2	0	0	9	0	0	0	0	42	98	140
12:00-13:00	10	1	12	9	1	1	0	8	1	0	3	0	46	94	140
13:00-14:00	7	2	4	4	1	0	1	7	1	0	5	0	32	106	138
14:00-15:00	11	1	2	8	1	0	4	2	0	0	5	0	34	13	47
15:00-16:00	18	4	6	11	3	0	0	11	0	0	12	0	65	57	122
16:00-17:00	6	1	4	4	2	0	0	7	0	0	2	0	26	79	105
17:00-18:00	9	3	4	6	1	0	0	4	0	0	2	0	29	73	102
18:00-19:00	8	0	4	4	2	0	0	2	0	0	3	0	23	78	101
19:00-20:00	10	4	0	6	0	0	0	3	0	0	6	0	29	40	69
20:00-21:00	6	3	3	2	1	0	0	1	0	0	7	0	23	26	49
21:00-22:00	2	0	2	2	0	0	0	2	0	0	0	0	8	6	14
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	123	31	58	87	18	2	5	66	5	0	67	0	462	1,088	1,550

Table A-5b Traffic Volume Crossing CL-5: Mjimwema Road, inbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajak	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	0	0	0	0	0	0	0	0	0	0	1	0	1	18	19
7:00-8:00	3	0	0	1	1	0	0	1	1	0	1	0	8	75	83
8:00-9:00	1	1	0	2	0	1	0	1	1	0	4	0	11	48	59
9:00-10:00	1	1	1	3	0	0	0	0	1	0	4	0	11	70	81
10:00-11:00	1	1	2	2	0	0	0	3	0	0	1	0	10	66	76
11:00-12:00	6	2	5	2	0	0	0	6	0	0	0	0	21	68	89
12:00-13:00	4	1	8	4	0	0	0	3	1	0	3	0	24	54	78
13:00-14:00	1	0	1	1	0	0	1	2	1	0	3	0	10	75	85
14:00-15:00	7	1	1	6	0	0	4	0	0	0	5	0	24	4	28
15:00-16:00	10	2	3	5	3	0	0	6	0	0	9	0	38	16	54
16:00-17:00	2	0	4	2	1	0	0	5	0	0	2	0	16	51	67
17:00-18:00	5	3	2	4	0	0	0	1	0	0	0	0	15	43	58
18:00-19:00	7	0	2	2	2	0	0	0	0	0	2	0	15	35	50
19:00-20:00	6	1	0	5	0	0	0	2	0	0	5	0	19	16	35
20:00-21:00	4	0	1	1	1	0	0	1	0	0	4	0	12	7	19
21:00-22:00	1	0	2	2	0	0	0	1	0	0	0	0	6	3	9
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	59	13	32	42	8	1	5	32	5	0	44	0	241	649	890

Table A-5c Traffic Volume Crossing CL-5: Mjimwema Road, outbound

Time	Passenger Car	Taxi	Pick-up, Van	Dala dala (small)	Dala dala (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajaj	Motorized Vehicle Total	Bicycle	Total
6:00-7:00	1	0	0	1	1	0	0	0	0	0	1	0	4	9	13
7:00-8:00	1	1	0	8	0	0	0	1	0	0	1	0	12	30	42
8:00-9:00	1	0	1	4	1	0	0	3	0	0	4	0	14	24	38
9:00-10:00	9	1	3	3	1	0	0	1	0	0	1	0	19	38	57
10:00-11:00	5	1	2	3	0	0	0	0	0	0	4	0	15	40	55
11:00-12:00	7	4	3	2	2	0	0	3	0	0	0	0	21	30	51
12:00-13:00	6	0	4	5	1	1	0	5	0	0	0	0	22	40	62
13:00-14:00	6	2	3	3	1	0	0	5	0	0	2	0	22	31	53
14:00-15:00	4	0	1	2	1	0	0	2	0	0	0	0	10	9	19
15:00-16:00	8	2	3	6	0	0	0	5	0	0	3	0	27	41	68
16:00-17:00	4	1	0	2	1	0	0	2	0	0	0	0	10	28	38
17:00-18:00	4	0	2	2	1	0	0	3	0	0	2	0	14	30	44
18:00-19:00	1	0	2	2	0	0	0	2	0	0	1	0	8	43	51
19:00-20:00	4	3	0	1	0	0	0	1	0	0	1	0	10	24	34
20:00-21:00	2	3	2	1	0	0	0	0	0	0	3	0	11	19	30
21:00-22:00	1	0	0	0	0	0	0	1	0	0	0	0	2	3	5
22:00-23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00-0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:00-1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00-2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00-3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00-4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	64	18	26	45	10	1	0	34	0	0	23	0	221	439	660

Appendix-3.2: Zanzibar Ferry Passenger Count

Table A-6 Zanzibar Ferry Passenger Count

Date	Outbound (Dar es Salaam => Zanzibar)			Inbound (Zanzibar => Dar es Salaam)		
	Boat	Time	Passengers	Boat	Time	Passengers
01/07/2007	Sea Express	7:30	200	Sea Star	7:00	168
	Sea Star	10:30	103	Sea Bus	10:00	72
	Flying Horse	12:30	400	Sea Bus	13:00	161
	Sea Bus	14:00	121	Sea Express	16:00	132
	Sea Bus	16:00	161	Flying Horse	22:00	320
02/07/2007	Sea Express	9:00	78	Sea Star	7:00	nil
	Sepideh	7:30	286	Sea Express	7:00	157
	Sea Star	10:30	nil	Sea Bus	10:00	89
	Sea Express	10:30	145	Sea Bus	13:00	148
	Flying Horse	12:30	398	Sea Express	16:00	156
	Sea Bus	14:00	145	Sepideh	16:00	234
	Sea Bus	16:00	161	Flying Horse	22:00	400
03/07/2007	Sea Express	8:30	100	Sea Star	7:00	nil
	Sepideh	7:30	286	Sea Bus	10:00	135
	Sea Star	10:00	nil	Sea Bus	13:00	145
	Flying Horse	12:30	400	Sea Express	16:00	92
	Sea Bus	14:00	190	Sepideh	16:00	137
	Sea Bus	16:00	160	Flying Horse	22:00	307
04/07/2007	Sepideh	7:00	230	Sea Star	7:00	118
	Sea Express	9:30	70	Sea Bus	10:00	92
	Sea Star	10:30	89	Sea Bus	13:00	161
	Flying Horse	12:30	400	Sea Express	16:00	101
	Sea Bus	14:30	200	Sepideh	16:00	246
	Sea Bus	16:00	161	Flying Horse	22:00	400
05/07/2007	Sea Express	7:30	231	Sea Star	7:00	180
	Sepideh	9:00	146	Sea Bus	10:00	100
	Sea Star	10:30	114	Sea Bus	13:00	155
	Flying Horse	12:30	400	Sea Express	16:00	138
	Sea Bus	14:15	180	Sepideh	16:00	215
	Sea Bus	16:00	161	Flying Horse	22:00	400
06/07/2007	Sepideh	7:00	218	Sea Star	7:00	171
	Sea Express	9:30	62	Sea Bus	10:00	71
	Sea Star	10:30	176	Sea Bus	13:00	136
	Flying Horse	12:30	400	Sea Express	16:00	101
	Sea Bus	14:00	170	Sepideh	16:00	205
	Sea Bus	16:00	246	Flying Horse	22:00	400
07/07/2007	Sea Express	7:30	220	Sea Star	7:00	160
	Sea Star	10:30	179	Sea Bus	13:00	137
	Flying Horse	12:30	400	Sea Express	16:00	164
	Sea Bus	16:00	148	Flying Horse	22:00	400
	Sea Bus	14:00	163	Sea Bus	10:00	163
	Sepideh	9:30	190	Sepideh	16:00	250
08/07/2007	Sea Express	7:30	190	Sea Star	7:00	180
	Sepideh	9:15	173	Sea Bus	10:00	117
	Sea Star	10:30	147	Sea Bus	13:00	162
	Flying Horse	12:30	400	Sea Express	16:00	157
	Sea Bus	14:15	125	Sepideh	16:00	320

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Date	Outbound (Dar es Salaam => Zanzibar)			Inbound (Zanzibar => Dar es Salaam)		
	Boat	Time	Passengers	Boat	Time	Passengers
	Sea Bus	16:00	161	Flying Horse	22:00	330
09/07/2007	Sepideh	7:30	307	Sea Star	7:00	160
	Sea Express	8:15	170	Sea Bus	10:00	75
	Sea Star	10:30	166	Sea Bus	13:00	167
	Flying Horse	12:30	400	Sea Express	16:00	87
	Sea Bus	14:15	136	Sepideh	16:00	215
	Sea Bus	16:00	161	Flying Horse	22:00	375
10/07/2007	Sepideh	7:30	225	Sea Star	7:00	117
	Sea Express	8:15	90	Sea Bus	10:00	89
	Sea Star	10:30	148	Sea Bus	13:00	163
	Flying Horse	12:30	400	Sea Express	16:00	83
	Sea Bus	14:15	133	Sepideh	16:00	133
	Sea Bus	16:00	153	Flying Horse	22:00	300
11/07/2007	Sepideh	7:30	225	Sea Star	7:00	114
	Sea Express	8:15	70	Sea Bus	10:00	94
	Sea Star	10:30	118	Sea Bus	13:00	135
	Flying Horse	12:30	400	Sea Express	16:00	86
	Sea Bus	14:15	129	Sepideh	16:00	205
	Sea Bus	16:00	137	Flying Horse	22:00	400
12/07/2007	Sea Express	7:30	220	Sea Star	-	118
	Sepideh	7:30	nil	Sea Bus	-	65
	Sea Star	10:30	139	Sea Bus	-	124
	Flying Horse	12:30	400	Sea Express	-	90
	Sea Bus	14:15	140	Sepideh	-	nil
	Sea Bus	16:00	200	Flying Horse	-	339
13/07/2007	Sepideh	7:30	229	Sea Star	7:00	143
	Sea Express	8:30	100	Sea Bus	10:00	85
	Sea Star	10:30	127	Sea Bus	13:00	145
	Flying Horse	12:30	400	Sea Express	16:00	75
	Sea Bus	14:15	200	Sepideh	16:00	167
	Sea Bus	16:00	161	Flying Horse	22:00	282
14/07/2007	Sea Express	7:15	220	Sea Star	7:00	146
	Sepideh	7:30	220	Sea Bus	10:00	110
	Sea Star	10:30	181	Sea Bus	13:00	114
	Flying Horse	12:30	400	Sea Express	16:00	189
	Sea Bus	14:15	136	Sepideh	16:00	218
	Sea Bus	16:00	186	Flying Horse	22:00	379
15/07/2007	Sea Express	7:15	150	Sea Star	7:00	155
	Sepideh	7:30	165	Sea Bus	10:00	74
	Sea Star	10:30	115	Sea Bus	13:00	139
	Flying Horse	12:30	400	Sea Express	16:00	119
	Sea Bus	14:15	80	Sepideh	16:00	218
	Sea Bus	16:00	161	Flying Horse	22:00	247
16/07/2007	Sea Express	7:15	110	Sea Star	7:00	152
	Sepideh	7:30	283	Sea Bus	10:00	86
	Sea Star	10:30	181	Sea Bus	13:00	161
	Flying Horse	12:30	400	Sea Express	16:00	92
	Sea Bus	14:15	155	Sepideh	16:00	252
	Sea Bus	16:00	155	Flying Horse	22:00	313

Chapter 4 Cargo Transport Survey

4.1 Scope of Work

The cargo transport survey is carried out at major companies that provide trucking services for cargo, or at locations where activity by large trucks is intense. There are two survey elements, namely (a) interview with management staff regarding activities of the company, and (b) after having obtained approval from management, a series of interviews with drivers to obtain information on trip (cargo pick-up/drop-off) patterns. In addition, a separate survey was carried out with truck drivers at the (sea) Port of Dar es Salaam.

4.1.1 Survey Area

The survey area for the cargo transport survey covers the whole Study Area, but realistically center on the more intermediate parts where trucking companies tend to locate.

4.1.2 Survey Days

The company survey was carried out on a weekday Tuesday through Friday. Since information regarding the previous days trucking activity is obtained from drivers, the resultant trip data is valid for Monday through Thursday. The truck driver interviews at the Port of Dar es Salaam, which is, unlike the company survey, solicit trip information on the day of survey, was carried out on any weekday Monday through Thursday.

The company survey was carried out at any convenient time during the eligible weekdays, and was expected to require 3-4 hours per company including driver interviews. It was suggested company visits be so scheduled as to permit two visits per day (one morning, one afternoon) by a single survey team.

In case of the Port of Dar es Salaam, the interview survey process was extend over 24 hours.

4.1.3 Survey Contents

The cargo transport survey consists of company profile includes basic information and major handling cargo information of the company, and trip information of truck driver who belonging to the company.

4.1.4 Survey Method

There are several elements in the cargo transport survey.

(1) Sample selection and Initial Contact

It is, in the first instance, necessary to identify a sample of candidate companies for interviewing, and establishing contact with selected companies. During this initial contact, it is necessary to confirm a time for the visit by the survey team, and obtain permission to interview drivers on-site. It is also suggested that during this preliminary contact an early indication as to types of information desired from company management be provided, thus allowing some time for assembly of data.

It is concurrently necessary to establish contact with authorities at the (sea) Port of Dar es Salaam, establish a meeting schedule, request port-related information and obtain permission for in-port interviews.

(2) Interview with Company Management

The intent is to obtain an overview of annual activity. Key data in this regard are:

- Company/organization profile.
- Truck fleet used (number, type).
- Annual cargo transported by type of cargo.

(3) Interviews with Company's Drivers

An important element of the cargo survey is to obtain detailed information as to the actual activities (cargo pickups and deliveries) made by a sample of drivers during the previous day. For some companies, this information may be obtainable from truck manifests. This depends upon each company, and can only be determined during the course of the interview with company management. If truck manifest information is available, driver interviews may not be required. This was decided on a case-by-case basis.

The type of information needed for the previous day's activities include:

- Complete record of each trip taken by the driver during the previous day from time of reporting to work to time of leaving work. It is necessary to obtain the information for each stop (cargo pickup or cargo delivery) accurately according to an exact address or the nearest landmark to permit coding to a defined coding system.
- Information (as available) regarding activities at for the company, place or business for each stop at which cargo was picked up or delivered.
- Type and estimated volume of cargo carried.

(4) Interviews with Drivers at Dar es Salaam Seaport

The interview with drivers at the Dar es Salaam seaport uses same survey sheet with company's driver interview including type of truck, ownership, and trip in previous day. The vehicle counting at the gates of the Dar es Salaam seaport is included in the screen line traffic count survey.

4.2 Survey Performances

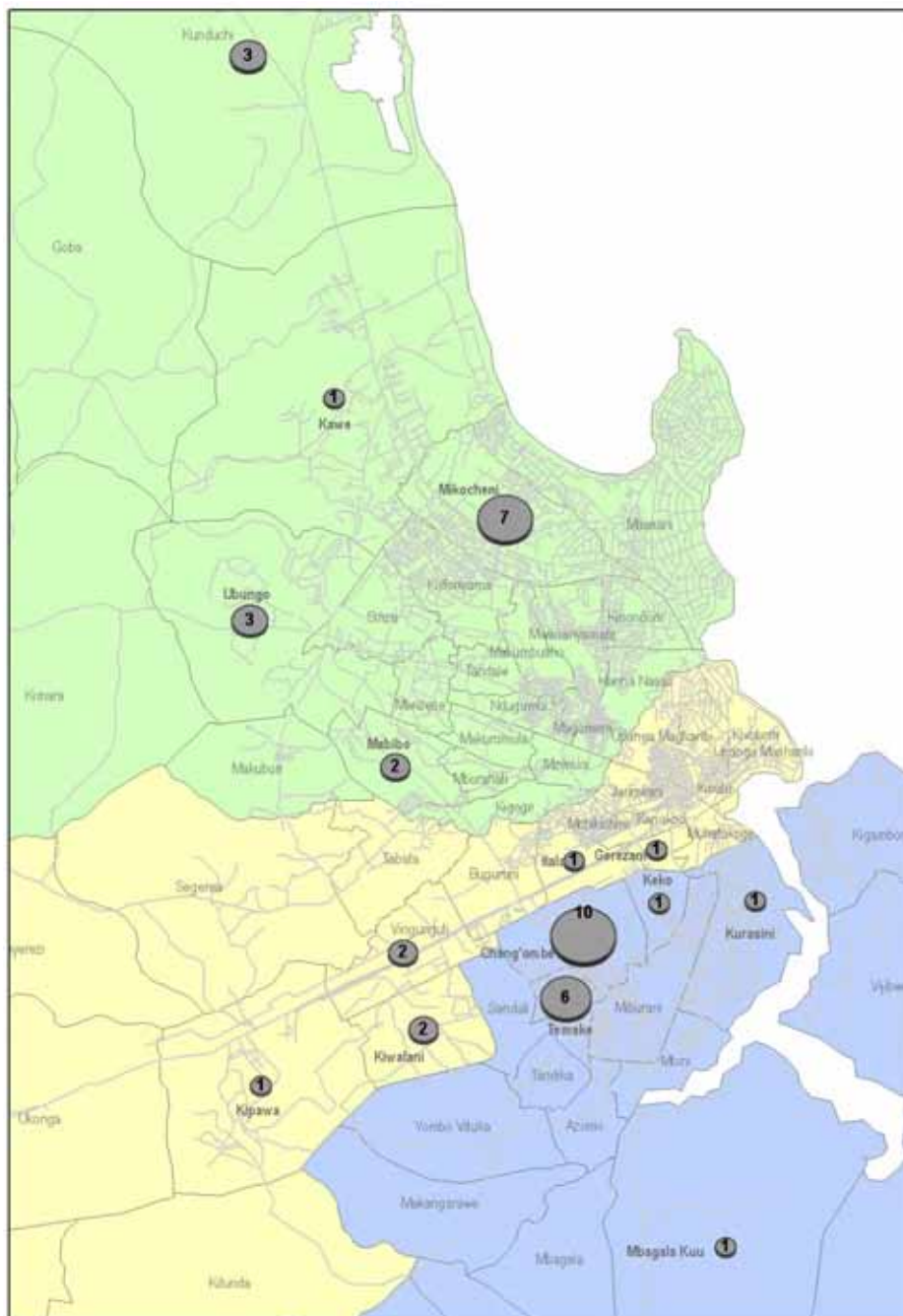
4.2.1 Sample Ratio and Expansion Factor

Table 4.2.1 shows the composition of sample companies by type of business. Almost half of them are located in Chang'ombe, Mikocheni and Temeke as shown in Figure 4.2.1. According to the Annual Survey of Industrial Production Report (NBS, 2003), the number of business establishments in Dar es Salaam is 209 in the year 2000. This cargo transport survey covers 15 wards and 19% of the major business establishment in Dar es Salaam in year 2000.

Table 4.2.1 Number of Company by Industry

Type of Industry	Number of establishment in DAR		Ratio to Year 2000
	Interviewed	in 2000*	
Transport Company	2	-	-
Food beverage and tobacco	7	55	13%
Textile and leather	2	18	11%
Wood and wood products	1	7	14%
Paper and paper products	4	27	15%
Chemical, petroleum, and plastic products	11	31	35%
Pottery, china, glass and non metallic products	-	10	-
Basic metals industries	3	4	75%
Fabricated metal products, Machinery and equipment	4	15	27%
Other manufacturing	8	42	19%
Total	42	209	19%

*Source: Annual Survey of Industrial Production (Sept. 2003, NBS) and JICA Study Team



The number indicates the number of sample companies
 Source: JICA Study Team

Figure 4.2.1 Location of Sample Companies

Table 4.2.2 shows a summary of sampling rate of the company interview survey. As sampling rates of the truck drivers interview is defined as a valuable dividing the number of operated trucks in the previous day by the average number of daily trucks operation obtained through the company interview. Expansion factors for estimation of the year 2007 truck OD matrices based on the company interview survey is estimated by each company and 3 vehicle categories.

Table 4.2.2 Number of Operated Truck in Previous Day by Company Interview

Company Total	2 axles	3 axles	more than 3 axles	Total
Average Operated Vehicle by Company Interview	495	157	140	792
Operated Truck in Previous Day by Driver Interview	234	143	107	484
Sample Factor	47.3%	91.1%	76.4%	61.1%

Note: excluding drivers belong to five companies that.
Source: JICA Study Team

At the Dar es Salaam Seaport, a separates vehicle count survey was conducted in 3rd July at the Gate No. 3 and 5. Expansion factors at the Dar es Salaam seaport are calculated as indicated in Table 4.2.3.

Table 4.2.3 Number of Vehicle Count and Interview at the Dar es Salaam Seaport

		2 axles	3 axles	more than 3 axles	Total
Vehicle Count (Total of Gate No. 3 and 5)	To Seaport	56	32	311	399
	From Seaport	54	41	523	618
	Average	55	37	417	509
Driver Interview at the seaport		13	23	137	173
Sample Ratio		23.6%	62.2%	32.9%	34.0%
Expansion Factor		4.23	1.61	3.04	2.94

Source: JICA Study Team

4.3 Survey Results

4.3.1 Company Profiles

(1) Ownership of Company and Transport Measure

Table 4.3.1 shows the number of interviewed company by type of industry and ownership. Most of the samples are private companies. As shown in Table 4.3.2, 16 companies use their own truck only, while another 16 companies use other outsource in addition to their own trucks.

Table 4.3.1 Number of Establishment by Type of Industry and Ownership

Type of Industry		Private	Public	Government	Others	Total
1	Transport Company	1	-	1	-	2
2	Food Beverage and tobacco	7	-	-	-	7
3	Textile and leather	-	1	-	1	2
4	Wood and wood products	1	-	-	-	1
5	Paper and paper products	4	-	-	-	4
6	Chemical, petroleum, and plastic products	11	-	-	-	11
7	Pottery, china, glass and non metallic products	-	-	-	-	
8	Basic metals industries	3	-	-	-	3
9	Fabricated metal products Machinery and equipment	4	-	-	-	4
10	Other manufacturing	7	1	-	-	8
Total		38	2	1	1	42

Source: JICA Study Team

Table 4.3.2 Ownership of Trucks

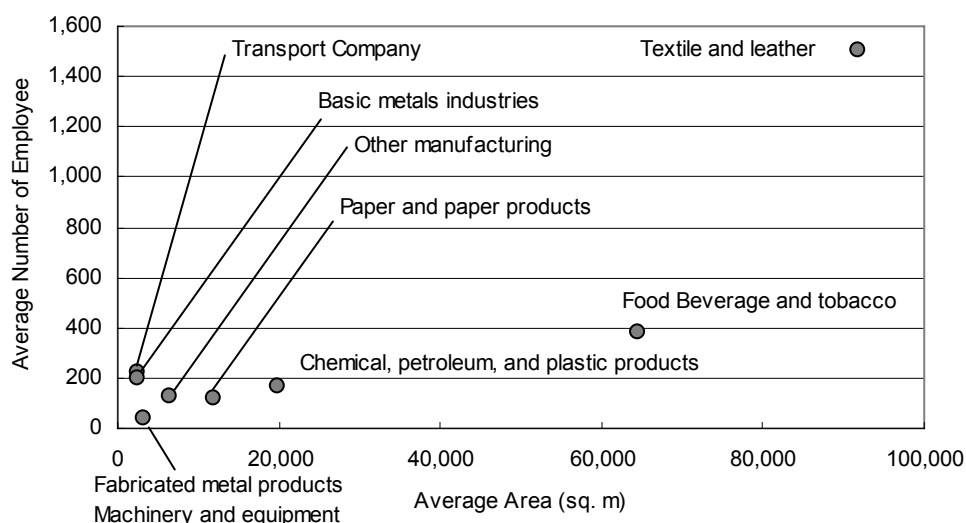
Type of Industry		By Company's own truck	Out-sourcing	Company's truck and out-sourcing	Unknown	Total
1	Transport Company	-	-	2	-	2
2	Food Beverage and tobacco	3	2	2	-	7
3	Textile and leather	1	-	1	-	2
4	Wood and wood products	1	-	-	-	1
5	Paper and paper products	1	-	2	1	4
6	Chemical, petroleum, and plastic products	1	3	6	1	11
8	Basic metals industries	2	-	-	1	3
9	Fabricated metal products Machinery and equipment	1	1	1	1	4
10	Other manufacturing	6	-	2	-	8
Total		16	6	16	4	42

Source: JICA Study Team

(2) Company Scale

Figure 4.3.1 indicates the average land area and the number of employees by type of industry, which are estimated based on the company interview survey. Labor-intensive industries such as Textile and leather, Food Beverage and tobacco have larger factory area and employees.

According to the Annual Survey of Industry Production (2003, NBS), a total number of establishment and employee in Dar es Salaam are 212 (including 3 mining business establishments) and 22,328 respectively as of year 2000, and average employee per establish is 105. On the other hand, an average number of employees in total of interviewed companies is 253, because large-scale companies were selected as the samples.

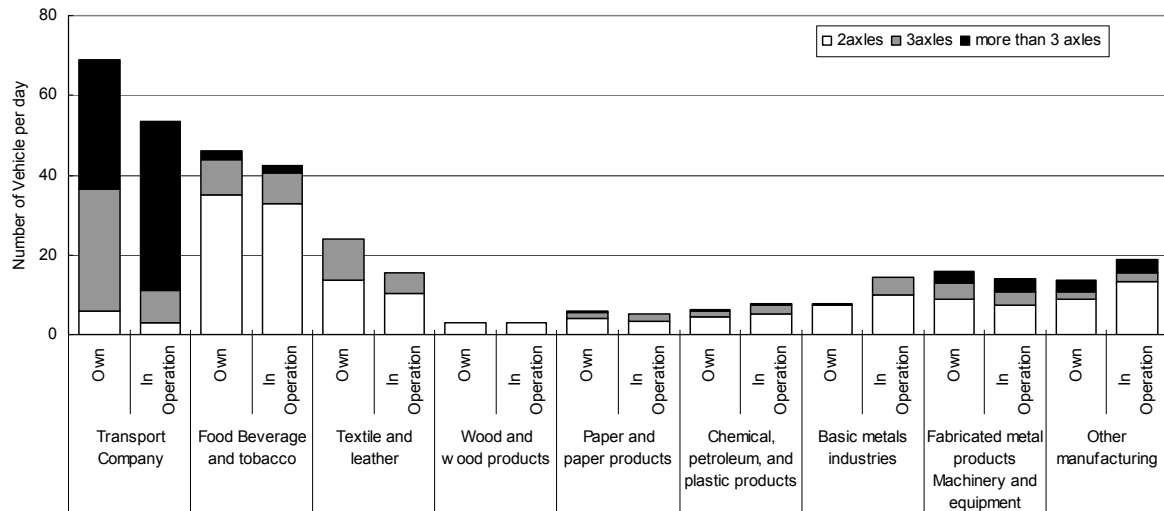


Source: JICA Study Team

Figure 4.3.1 Average Company Scale by Type of Industry

(3) Vehicle Ownership and Operation

Figure 4.3.2 shows the average number of trucks owned and in operation by type of industry. The remarkable high vehicle ownership and operation by type of industry is observed in transport companies and food beverage and tobacco companies. It is especially noted that transport companies own and operate heavy truck such as 3 axles and more.



Source: JICA Study Team

Figure 4.3.2 Average Company Own Truck and in Operation Truck by Type of Industry

(4) Handling Cargo

Annual handling cargo volume information of major items was obtained from 15 companies as shown in Table 4.3.3. Table 4.3.4 and 4.3.5 show a summary of annual handling cargo volume out-going and in-coming respectively.

Concerning out-going cargo, Raw materials and derivation including construction materials such as cement, blocks and tiles by bulk transport are the dominant.

Table 4.3.3 Number of Companies Answered Handling Cargo Volume

	Type of Industry	Interviewed	Effective Sample
1	Transport Company	2	0
2	Food Beverage and tobacco	7	2
3	Textile and leather	2	1
4	Wood and wood products	1	0
5	Paper and paper products	4	3
6	Chemical, petroleum, and plastic products	11	3
8	Basic metals industries	3	0
9	Fabricated metal products Machinery and equipment	4	1
10	Other manufacturing	8	5
	Total	42	15

Note: Effective sample is a number of companies that provide cargo volume in both of in-coming and out-going.

Table 4.3.4 Out-going Annual Cargo Volume ('000 ton)

Commodity Type	Container	Tank	Boxed Products	Bulk	Others	Unknown	Total
Agriculture and livestock	0 (0%)	0 (0%)	1 (0%)	0 (0%)	0 (0%)	240 (14%)	241 (14%)
Food stuff and animal food	0 (0%)	0 (0%)	1 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (0%)
Metallurgical products	0 (0%)	0 (0%)	146 (9%)	0 (0%)	0 (0%)	0 (0%)	146 (9%)
Raw materials and derivations	0 (0%)	0 (0%)	0 (0%)	1,020 (60%)	0 (0%)	100 (6%)	1,120 (66%)
Chemical products	0 (0%)	25 (1%)	0 (0%)	6 (0%)	20 (1%)	0 (0%)	51 (3%)
Machines, vehicle, diverse non-classified cargo	0 (0%)	0 (0%)	1 (0%)	128 (8%)	0 (0%)	0 (0%)	129 (8%)
Total	0 (0%)	25 (1%)	148 (9%)	1,154 (68%)	20 (1%)	340 (20%)	1,688 (100%)

Source: JICA Study Team

Table 4.3.5 In-coming Annual Cargo Volume ('000 ton)

Commodity Type	Container	Tank	Boxed Products	Bulk	Others	Unknown	Total
Agriculture and livestock	0 (0%)	0 (0%)	0 (0%)	4 (0%)	0 (0%)	0 (0%)	4 (0%)
Metal residues and mining products	0 (0%)	0 (0%)	0 (0%)	723 (74%)	0 (0%)	0 (0%)	723 (74%)
Metallurgical products	0 (0%)	0 (0%)	0 (0%)	87 (9%)	0 (0%)	0 (0%)	87 (9%)
Raw materials and derivations	9 (1%)	0 (0%)	81 (8%)	20 (2%)	0 (0%)	0 (0%)	110 (11%)
Chemical products	10 (1%)	21 (2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	31 (3%)
Machines, vehicle, diverse non-classified cargo	0 (0%)	0 (0%)	17 (2%)	0 (0%)	0 (0%)	0 (0%)	17 (2%)
Total	20 (2%)	21 (2%)	97 (10%)	835 (86%)	0 (0%)	0 (0%)	973 (100%)

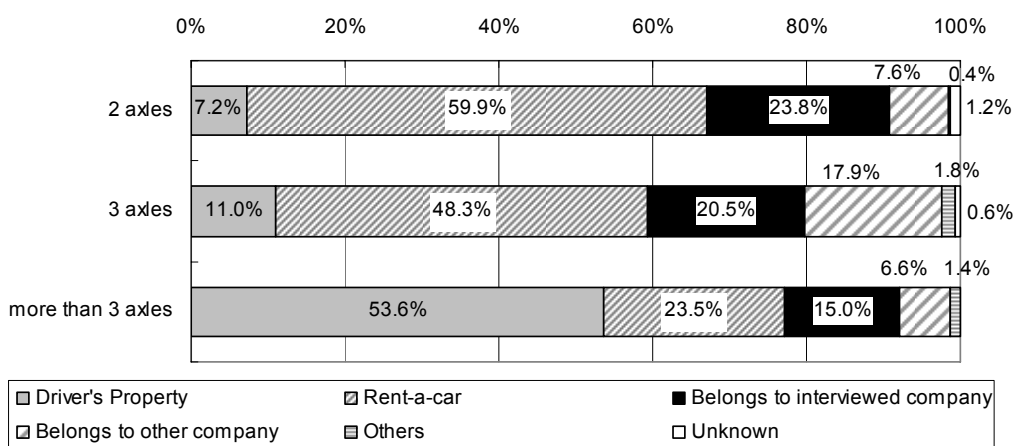
Source: JICA Study Team

4.3.2 Driver Profiles and Trip Information

(1) Vehicle Ownership

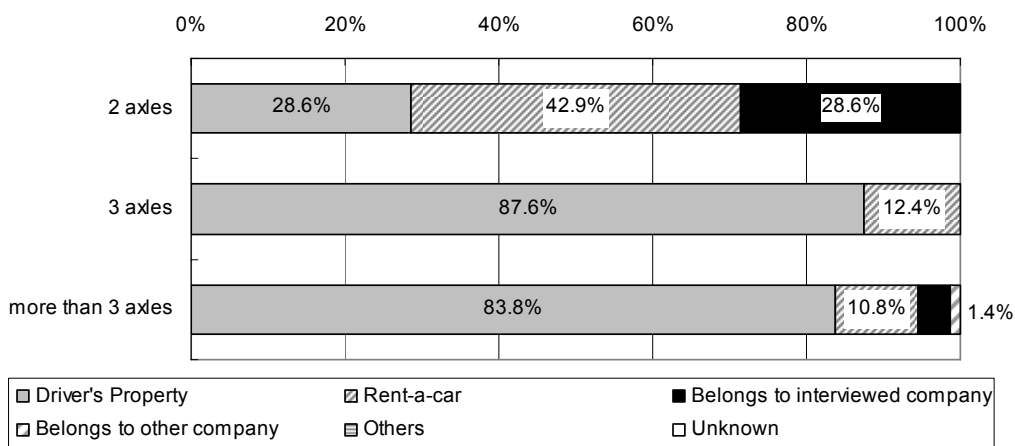
According to the driver interview survey at company, the share of rent-a-car is remarkable, reaching at 60% of 2 axles truck and 48% of 3 axles truck. The share of company's own truck is 15 – 24%, which indicates a considerable number of truck relies on the out-sourcing.

On the other hands, trucks related to the Dar es Salaam seaport is dominated by driver's own truck. Especially, more than 80% of 3 axles and more are owned by individual drivers.



Source: JICA Study Team

Figure 4.3.3 Vehicle Ownership by Driver Interview at Company



Source: JICA Study Team

Figure 4.3.4 Vehicle Ownership by Driver Interview at the Dar es Salaam Seaport

(2) Total Number of Trip

Table 4.3.6 shows the truck trips interviewed company in total of which is expanded by the trip information of the driver interview survey and the average number of trucks in operation by the company interview. Total trip number is 1,851 vehicular trips per day and 64.5% is made by 2 axes trucks. The share of the Dar es Salaam seaport related trip is 4.3% in total of all vehicle type.

Table 4.3.7 shows the estimated number of trips expanded by traffic count at the gates of the Dar es Salaam seaport. The number of daily trip of the Dar es Salaam seaport related vehicle is 980 trips per day and 82% of the trip is made by more than 3 axes truck.

Table 4.3.6 Total Vehicular Trip by Company's Driver Interview

Vehicle Type	Total Vehicular Trip and share	Dar es Salaam Seaport related Trip
2 axles	1,193 (64.5%)	47 (3.9%)
3 axles	370 (20.0%)	11 (2.9%)
more than 3 axles	288 (15.5%)	22 (7.7%)
Total	1,851 (100%)	80 (4.3%)

Source: JICA Study Team

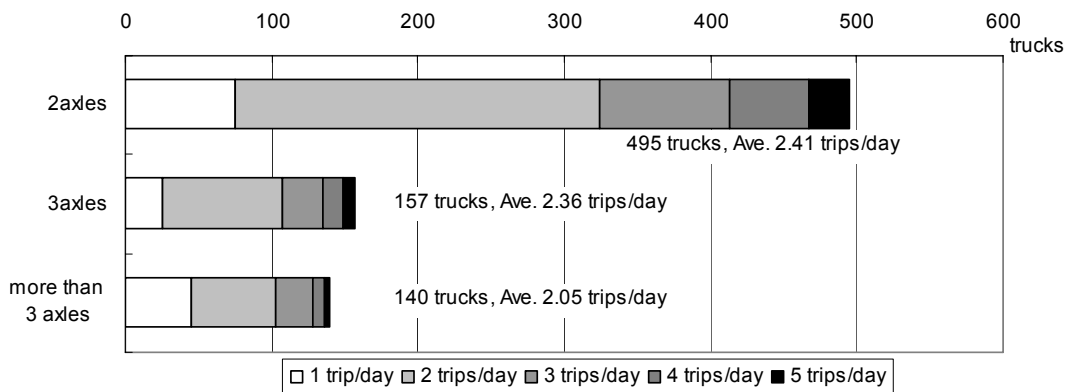
Table 4.3.7 Total Vehicular Trip by the Dar es Salaam Seaport Interview

Vehicle Type	Vehicular Trip and Share
2 axles	118 (12%)
3 axles	55 (6%)
more than 3 axles	806 (82%)
Total	980 (100%)

Source: JICA Study Team

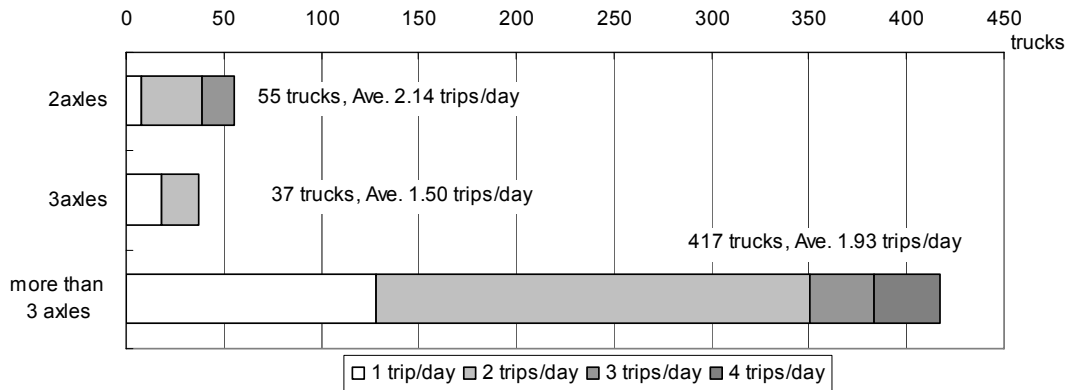
(3) Daily Trip Rate

Figure 4.3.5 and 4.3.6 indicate the trip rate composition by types of trucks of the company interview and the Dar es Salaam seaport survey respectively. The average trip of 2 axles truck of the company interview survey is 2.41 trips/day, 2.36 for 3 axles truck and 2.05 for more than 3 axles truck. The average trip rate of trucks concerning the Dar es Salaam seaport is lower than those of company interview survey, 2axles truck is 2.14 trips/day, 3axles and more than 3 axles are 1.50 and 1.93 trips/day.



Source: JICA Study Team

Figure 4.3.5 Trip Rate Composition (Company Total)



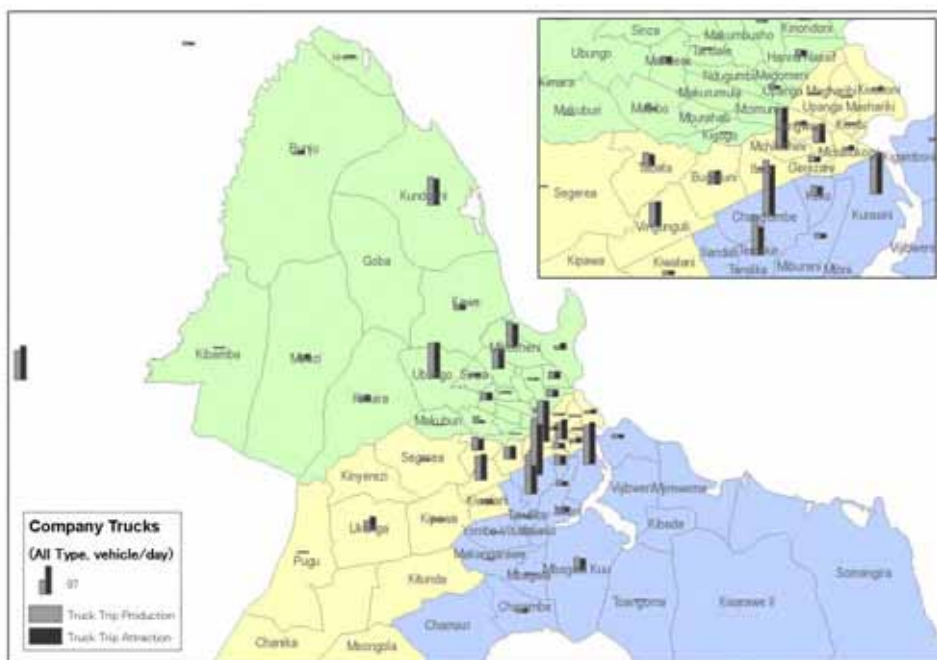
Source: JICA Study Team

Figure 4.3.6 Trip Rate Composition (Dar es Salaam Seaport)

(4) Truck OD and Generation

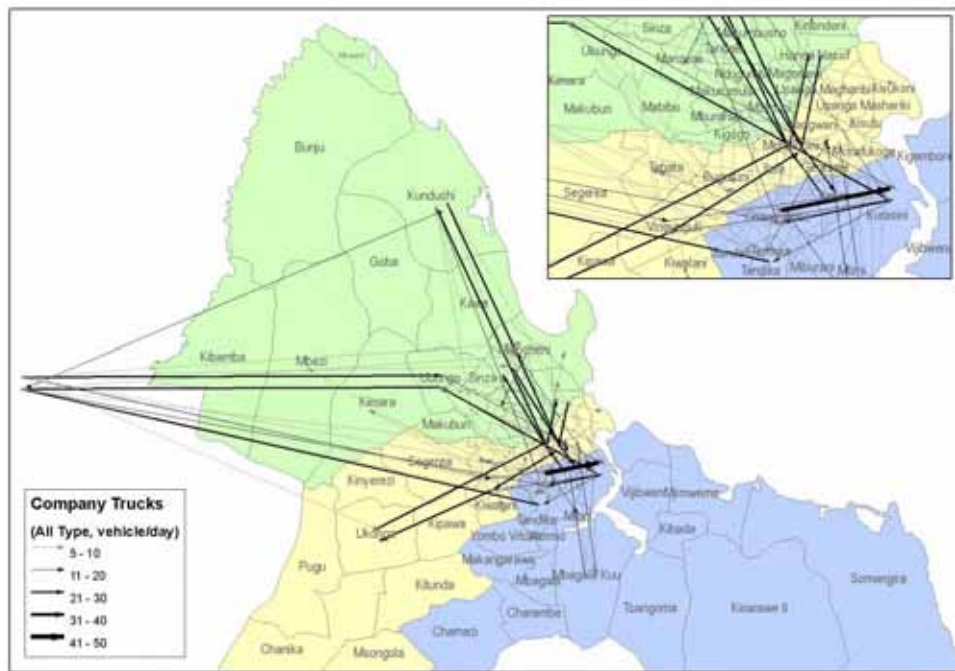
Figure 4.3.7 shows the daily truck trip generation of all type of truck in total by ward. Figure 4.3.8 shows daily truck activity by company’s driver interview. The major truck trip generators (wards) are Chang’ombe, Mchikichini, Temeke, Kurashini, Ubungo wards and western external region. The largest truck flow is observed from Chang’ombe to Kurasini ward including the Dar es Salaam seaport, which is estimated at 42 vehicles per day.

According to the company’s driver interview, most frequently used road is Nelson Mandela Rd. 788 trips a day, or 43% of the trucks use Nelson Mandela Rd. Other frequently used roads are Morogoro Rd. (22%, 404 trips), Kawawa Rd. (19%, 356 trips), Nyerere Rd. (18%, 326 trips), Kilwa Rd. (14%, 258 trips) and Bagamoyo Rd. (11%, 197 trips).



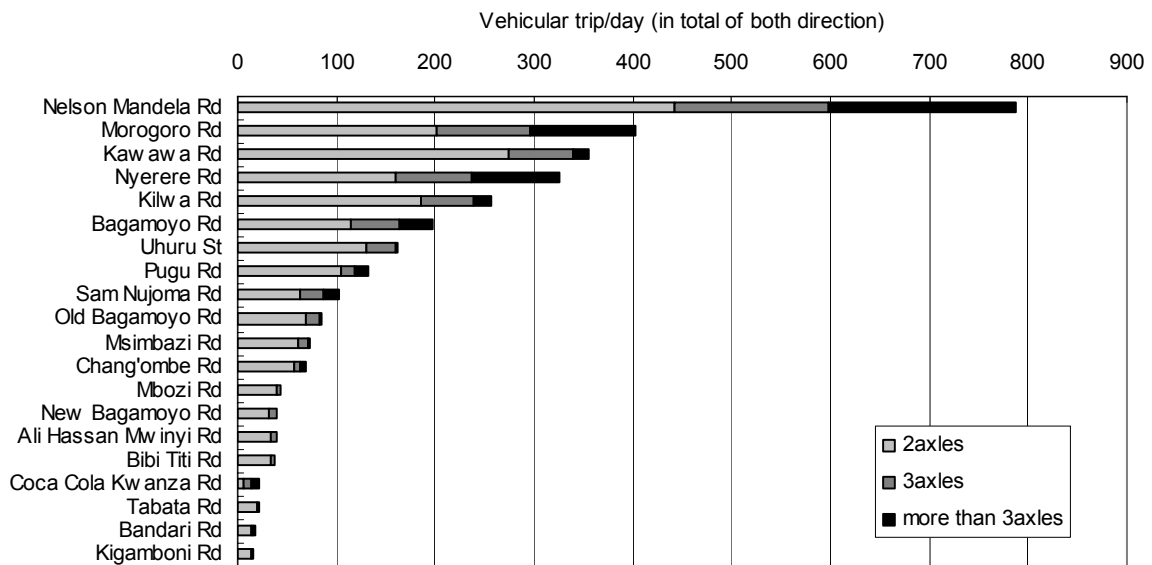
Source: JICA Study Team

Figure 4.3.7 Truck Trip Generation by Company’s Driver Interview



Source: JICA Study Team

Figure 4.3.8 Company Truck Desire Line



Source: JICA Study Team

Figure 4.3.9 Frequently Used Major Roads by Company's Driver Interview

Figure 4.3.10 and 4.3.11 show the truck trip generation and desire line concerning to the Dar es Salaam seaport. The major truck trip generator is Kurasini ward including the Dar es Salaam seaport and the western external region. The truck trip from the Dar es Salaam seaport to the western external region is 238 vehicles per day and 53 vehicles per day in opposite direction. It is dominated by more than 3 axles trucks such as trailers, accounting for 90% of those truck trips.

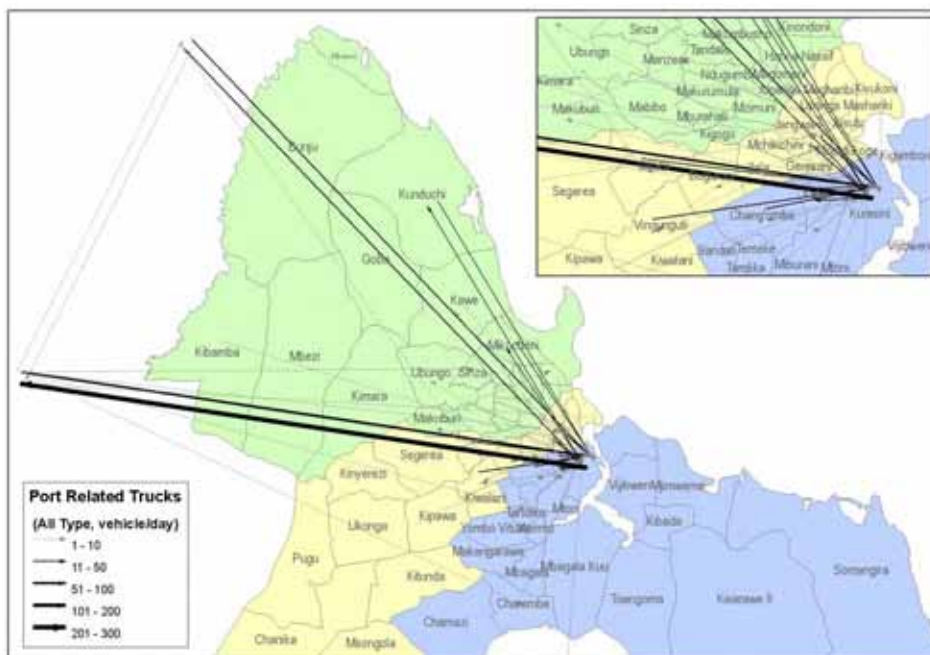
As shown in Figure 4.3.12, a total of 757 trips a day or 77% of the trucks related to the Dar es Salaam

seaport use Nelson Mandela Rd. by the driver interview at the Dar es Salaam seaport. Secondary frequently used road is Morogoro Rd. (37%, 363 trips). In the questionnaire survey only two major roads were suggested by the drivers for their use, therefore, some major roads in the transport route are not appeared in a case that three and more major roads are used such as Nelson Mandela – Nyerere – Morogoro Route for example.



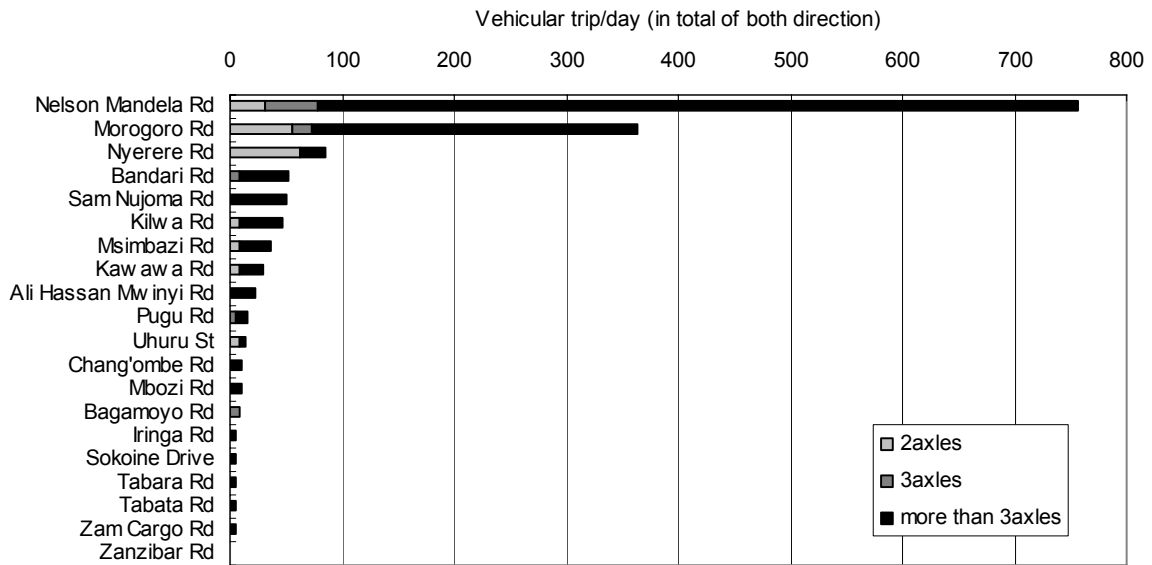
Source: JICA Study Team

Figure 4.3.10 Dar es Salaam Seaport Related Truck Trip Generation



Source: JICA Study Team

Figure 4.3.11 Dar es Salaam Seaport Related Truck Desire Line

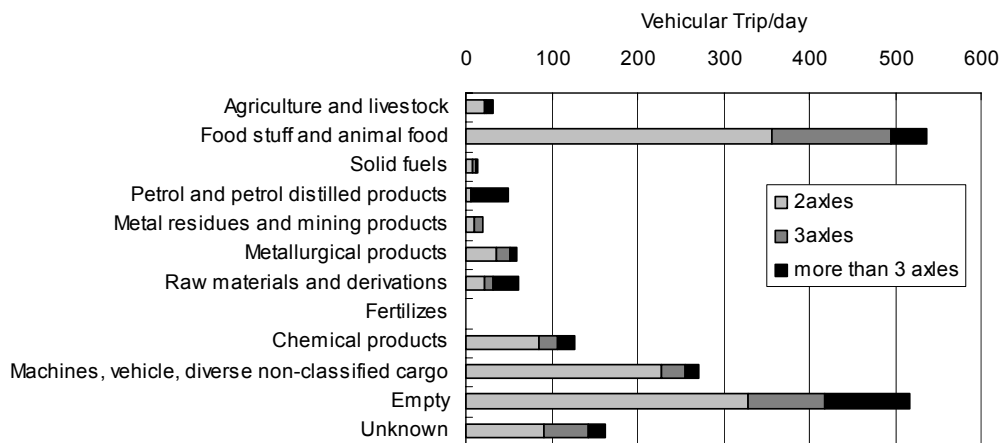


Source: JICA Study Team

Figure 4.3.12 Frequently Used Major Road by the Dar es Salaam Seaport Interview

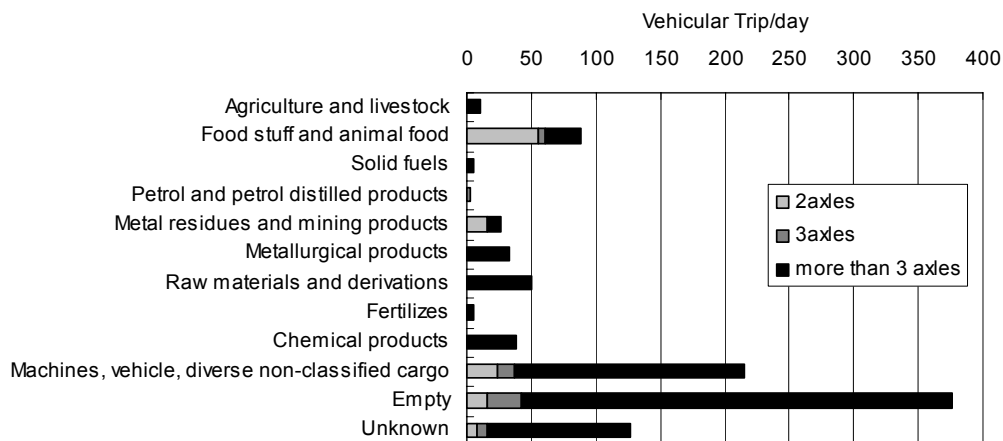
(5) Cargo Transport

Figure 4.3.13 and 4.3.14 indicate the number of vehicular trips a day by loading commodity type. Concerning the company's driver, the 536 trips or 29% of the truck trips carry food stuff and animal food. While 517 trips or 28% is empty. At the Dar es Salaam seaport, 376 trips or 38% is empty and 215 trips (22%) carry machines, vehicle and diverse non-classified cargo.



Source: JICA Study Team

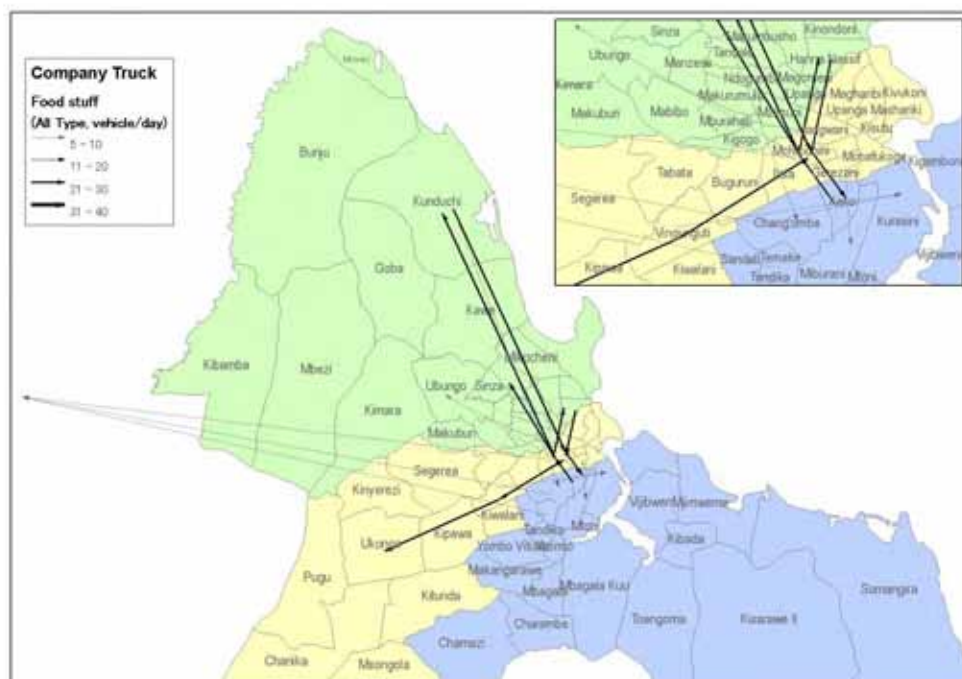
Figure 4.3.13 Vehicular Trip by Loading Commodity (Company's Driver)



Source: JICA Study Team

Figure 4.3.14 Vehicular Trip by Loading Commodity (Dar es Salaam Seaport Related Truck)

Figure 4.3.15 shows the vehicular trip loading foodstuff based on the results of company’s driver interview. Figure 4.3.16 shows the vehicular trip of loading machine, vehicle and non-classified cargo related to the Dar es Salaam seaport. The activity of trucks carrying foodstuff is mainly observed inside of Dar es Salaam and its trip length are short. On the other hands, the Dar es Salaam seaport related trucks loading machine, vehicle and non-classified cargo towards outside of Dar es Salaam, especially western external region.



Source: JICA Study Team

Figure 4.3.15 Vehicular Trip Loading Foodstuff by Company’s Driver Interview

