Time & Motion Study Organization: City Bins Trip- 1 Date: 18 November 1997

Vehicle No. KAE636H Loading Capacity: 7TON Researcher's name: Masha Mapenzi

No. of Crew: 3 Estimated Volume: $12m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	5990.7	40	11 : 25	1		Kolobot Rd
	out			11 : 27		2	
Loading-45	in	5991	300	11 : 28	1		Forest Rd
	out			11 : 31		3	
Loading-46	in	5991.4	400	11 : 32	1		Parklands Rd
	out			11 : 35		3	
Loading-47	in	5991.5	100	11 : 35	0		Parklands Rd
	out			11 : 45		10	
Loading-48	in	5991.8	300	11 : 46	1		Wambugu Rd
	out			11 : 46		0	
Loading-49	in	5992.1	300	11 : 49	3		Wambugu Rd
	out			11 : 49		0	
Loading-50	in	5992.2	100	11 : 50	1		Wambugu Rd
	out			11 : 50		0	
Loading-51	in	5992.3	100	11 : 50	0		Wambugu Rd
	out			11 : 52		2	
Loading-52	in	5992.4	100	11 : 52	0		Wambugu Rd
	out			11 : 54		2	
Loading-53	in	5992.4	0	11 : 55	1		Wambugu Rd
	out			11 : 56		1	
Loading-54	in	5992.5	100	11 : 56	0		Wambugu Rd
	out			11 : 57		1	
Loading-55	in	5992.55	50	11 : 57	0		Wambugu Rd
	out			11 : 58		1	
Loading-56	in	5992.6	50	11 : 58	0		Wambugu Rd
	out			12 : 3		5	
Loading-57	in	5992.7	100	12 : 4	1		Wambugu Rd
	out			12 : 12		8	
Loading-58	in	5992.8	100	12 : 13	1		Wambugu Rd
	out			12 : 28		15	
Loading-59	in	5993.4	600	12 : 33	5		Wambugu Rd
	out			12 : 35		2	
Loading-60	in	5993.8	400	12 : 37	2		1st Parklands Ave
	out			12 : 42		5	
Loading-61	in	5994	200	12 : 44	2		1st Parklands Ave
	out			12 : 44		0	
Loading-62	in	5994.2	200	12 : 45	1		1st Parklands Ave
	out			12 : 45		0	
Loading-63	in	5994.3	100	12 : 47	2		1st Parklands Ave
	out			12 : 47		0	
Loading-64	in	5994.5	200	12 : 50	3		1st Parklands Ave
	out			12 : 51		1	
Loading-65	in	5994.6	100	12 : 53	2		1st Parklands Ave
	out			12 : 58		5	

Time & Motion Study Organization: City Bins Trip- 1 Date: 18 November 1997

Vehicle No. KAE636H Loading Capacity: 7TON Researcher's name: Masha Mapenzi

No. of Crew: 3 Estimated Volume: $12m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-66	in	5995	400	13 : 0	2		Ita RD
	out			13 : 2		2	
Loading-67	in	5995.2	200	13 : 2	0		2nd Parklands Ave
	out			13 : 2		0	
Loading-68	in	5995.4	200	13 : 4	2		2nd Parklands Ave
	out			13 : 5		1	
Loading-69	in	5995.5	100	13 : 6	1		2nd Parklands Ave
	out			13 : 6		0	
Loading-70	in	5995.7	200	13 : 7	1		2nd Parklands Ave
	out			13 : 8		1	
Loading-71	in	5995.9	200	13 : 9	1		Batu Batu Rd
	out			13 : 11		2	
Loading-72	in	5996	100	13 : 11	0		Batu Batu Rd
	out			13 : 19		8	
Loading-73	in	5996.1	100	13 : 20	1		1st Parklands Ave
	out			13 : 24		4	
Loading-74	in	5996.2	100	13 : 25	1		1st Parklands Ave
	out			13 : 26		1	
Loading-75	in	5996.4	200	13 : 27	1		1st Ave Parklands
	out			13 : 35		8	
Loading-76	in	5996.5	100	13 : 36	1		1st Ave Parklands
	out			13 : 38		2	
Loading-77	in	5996.7	200	13 : 40	2		1st Ave Parklands
	out			13 : 41		1	
Loading-78	in	5997.3	600	13 : 44	3		Masari Rd
	out			13 : 45		1	
Loading-79	in	5997.6	300	13 : 46	1		Masari Rd
	out			13 : 48		2	
Loading-80	in	5997.8	200	13 : 49	1		Bhanderi Rd
	out			:			
Loading-81	in	5999.1	1300	13 : 57	8		Forces Lane
	out			14 : 2		5	
Loading-82	in	5999.7	600	14 : 4	2		2nd Parklands Ave
	out			14 : 8		4	
Loading-83	in	6000.1	400	14 : 9	1		2nd Parklands Ave
	out			14 : 11		2	
Loading-84	in	6000.4	300	14 : 13	2		2nd Parklands Ave
	out			14 : 15		2	
Loading-85	in	6000.5	100	14 : 15	0		2nd Parklands Ave
	out			14 : 16		1	
Loading-86	in	6000.7	200	14 : 16	0		2nd Parklands Ave
	out			14 : 17		1	
Loading-87	in	6000.9	200	14 : 20	3		2nd Parklands Ave
	out			14 : 22		2	

Time & Motion Study Organization: City Bins Trip- 1 Date: 18 November 1997

Vehicle No. KAE636H Loading Capacity: 7TON Researcher's name: Masha Mapenzi

No. of Crew: 3 Estimated Volume: $12m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-88	in	6001.2	300	14 : 24	2		2nd Parklands Ave
	out			14 : 25		1	
Loading-89	in	6001.5	300	14 : 27	2		Ndovu Ahamed Lane
	out			14 : 29		2	
Loading-90	in	6001.7	200	14 : 30	1		Msanaka Rd
	out			14 : 32		2	
Loading-91	in	6001.8	100	14 : 33	1		2nd Parklands Ave
	out			14 : 33		0	
Loading-92	in	6001.85	50	14 : 33	0		2nd Parklands Ave
	out			14 : 38		5	
Loading-93	in	6002.1	250	14 : 40	2		2nd Ave Parklands
	out			14 : 42		2	
Loading-94	in	6002.7	600	14 : 45	3		2nd Ave Parklands
	out			14 : 51		6	
Loading-95	in	6003.6	900	14 : 54	3		5th Ave Parklands
	out			15 : 0		6	
Loading-96	in	6003.7	100	15 : 1	1		5th Ave Parklands
	out			15 : 1		0	
Loading-97	in	6003.9	200	15 : 2	1		5th Ave Parklands
	out			15 : 3		1	
Loading-98	in	6004.6	700	15 : 7	4		6th Ave Parklands
	out			15 : 9		2	
Loading-99	in	6004.7	100	15 : 13	4		6th Ave Parklands
	out			15 : 13		0	
Loading-100	in	6004.8	100	15 : 14	1		6th Ave Parklands
	out			15 : 15		1	
Loading-101	in	6005.2	400	15 : 17	2		6th Ave Parklands
	out			15 : 18		1	
Loading-102	in	6005.4	200	15 : 18	0		6th Ave Parklands
	out			15 : 25		7	
Loading-103	in	6006.4	1000	15 : 29	4		Limuru Rd
	out			15 : 31		2	
Loading-104	in	6007.5	1100	15 : 36	5		Off Limuru Rd
	out			15 : 38		2	
Loading-105	in	6007.6	100	15 : 41	3		Off Limuru Rd
	out			15 : 42		1	
Loading-106	in	6007.7	100	15 : 43	1		Off Limuru Rd
	out			15 : 45		2	
Loading-107	in	6007.7	0	15 : 45	0		Off Limuru Rd
	out			15 : 49		4	
Loading-108	in	6007.8	100	15 : 58	9		Off Limuru Rd
	out			16 : 18		20	Idling time
Loading-109	in	6008.4	600	16 : 19	1		Off Limuru Rd
	out			16 : 20		1	

Time & Motion Study Organization: City Bins Trip- 1 Date: 18 November 1997

Vehicle No. KAE636H Loading Capacity: 7TON Researcher's name: Masha Mapenzi

No. of Crew: 3 Estimated Volume: $12m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-110	in	6013.2	4800	16 : 33	13		Nyerere Rd
	out			16 : 58		25	
Dumping site	in			:			No dumping took place
Start dumping				:			due to rain and traffic jam
Finish dumping				:			
Dumping site	out			:			
Reach to workshop	in	6017.4	4200	17 : 38	40		
Total			48300		264	290	Total min.: 554 min.
Collection			38700		212	290	
Transportation			9600		52		
Inside the dumping site			0		0	0	Dumping time.: min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 19 November 1997

Vehicle No. KAE636H Loading Capacity: 7TON Researcher's name: Masha Mapenzi

No. of Crew: 3 Estimated Volume:

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	6017.4		8 : 24			Shimo La Tewa Rd
							Vehicle had refuse
Dumping site	in	6031.9	14500	8 : 55	31		Komorok Rd
Start dumping		6032	100	8 : 58	3		To Dandora
Finish dumping		6032	0	10 : 3		65	
Dumping site	out	6032.3	300	10 : 5	2		Komorok Rd
Reach to workshop	in			:			
Total			14900		36	65	Total min.: 101 min.
Collection			0		0	0	No collection
Transportation			14500		31		
Inside the dumping site			400		5	65	Dumping time.: 70 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 2 Date: 19 November 1997

Vehicle No. KAE636H Loading Capacity: 7TON Researcher's name: Masha Mapenzi

No. of Crew: 3 Estimated Volume: $8m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from dumping site	out	6032.3		10 : 5			
Loading-1	in	6046.4	14100	10 : 59	54		Riverside Drive
	out			12 : 0		61	
Loading-2	in	6046.41	10	12 : 0	0		Riverside Drive
	out			12 : 10		10	
Loading-3	in	6049.4	2990	12 : 20	10		Nyerere Rd
	out			12 : 30		10	
Loading-4	in	6055	5600	12 : 53	23		Muhoho Ave
	out			12 : 57		4	
Loading-5	in	6055.2	200	13 : 0	3		Muhoho Ave
	out			13 : 10		10	
Loading-6	in	6055.5	300	13 : 11	1		Muhoho Ave
	out			13 : 18		7	
Loading-7	in	6055.6	100	13 : 19	1		Muhoho Ave
	out			13 : 19		0	
Loading-8	in	6055.7	100	13 : 20	1		Muhoho Ave
	out			13 : 23		3	
Loading-9	in	6055.75	50	13 : 23	0		Muhoho Ave
	out			13 : 24		1	
Loading-10	in	6055.8	50	13 : 24	0		Muhoho Ave
	out			13 : 25		1	
Loading-11	in	6055.8	0	13 : 25	0		Mtelo Rd
	out			13 : 27		2	
Loading-12	in	6055.9	100	13 : 27	0		Mtelo Rd
	out			13 : 29		2	
Loading-13	in	6056	100	13 : 30	1		Mtelo Rd
	out			13 : 30		0	
Loading-14	in	6056.1	100	13 : 30	0		Mtelo Rd
	out			13 : 32		2	
Loading-15	in	6056.3	200	13 : 33	1		Ole Shapara Ave
	out			13 : 34		1	
Loading-16	in	6056.6	300	13 : 36	2		Ole Shapara Ave
	out			13 : 37		1	
Loading-17	in	6056.9	300	13 : 39	2		Ole Shapara Ave
	out			13 : 39		0	
Loading-18	in	6057.1	200	13 : 41	2		Ole Shapara Ave
	out			13 : 41		0	
Loading-19	in	6057.3	200	13 : 42	1		Ole Shapara Ave
	out			13 : 48		6	
Loading-20	in	6057.5	200	13 : 48	0		Ole Shapara Ave
	out			13 : 50		2	
Loading-21	in	6057.7	200	13 : 52	2		Ole Shapara Ave
	out			13 : 54		2	

Time & Motion Study Organization: City Bins Trip- 2 Date: 19 November 1997

Vehicle No. KAE636H Loading Capacity: 7TON Researcher's name: Masha Mapenzi

No. of Crew: 3 Estimated Volume: $8m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	6057.71	10	13 : 55	1		Ole Shapara Ave
	out			13 : 55		0	
Loading-23	in	6057.9	190	13 : 59	4		Ole Shapara Ave
	out			14 : 0		1	
Loading-24	in	6058.5	600	14 : 5	5		Ole Shapara Ave
	out			14 : 9		4	
Loading-25	in	6058.7	200	14 : 10	1		Kabiyet St
	out			14 : 11		1	
Loading-26	in	6058.9	200	14 : 11	0		Kabiyet St
	out			14 : 14		3	
Loading-27	in	6059.2	300	14 : 15	1		Mai Mahiu Rd
	out			14 : 17		2	
Loading-28	in	6059.3	100	14 : 17	0		Mai Mahiu Rd
	out			14 : 20		3	
Loading-29	in	6059.4	100	14 : 22	2		Mai Mahiu Rd
	out			14 : 23		1	
Loading-30	in	6059.45	50	14 : 24	1		Mai Mahiu Rd
	out			14 : 25		1	
Loading-31	in	6059.6	150	14 : 26	1		Mai Mahiu Rd
	out			14 : 27		1	
Loading-32	in	6059.9	300	14 : 28	1		Muhoho Ave
	out			14 : 31		3	
Loading-33	in	6060.2	300	14 : 32	1		Kodi Rd
	out			14 : 39		7	
Loading-34	in	6060.4	200	14 : 39	0		Kodi Rd
	out			14 : 40		1	
Loading-35	in	6060.5	100	14 : 40	0		Kodi Rd
	out			14 : 41		1	
Loading-36	in	6060.6	100	14 : 41	0		Kodi Rd
	out			14 : 42		1	
Loading-37	in	6060.7	100	14 : 42	0		Kodi Rd
	out			14 : 43		1	
Loading-38	in	6060.8	100	14 : 43	0		Kodi Rd
	out			14 : 47		4	
Loading-39	in	6060.81	10	14 : 47	0		Kodi Rd
	out			14 : 51		4	
Loading-40	in	6060.9	90	14 : 51	0		Kodi Rd
	out			14 : 53		2	
Loading-41	in	6061.1	200	14 : 54	1		Ghande Ave
	out			14 : 55		1	
Loading-42	in	6061.7	600	15 : 0	5		Mutati Rd
	out			15 : 3		3	
Loading-43	in	6061.75	50	15 : 3	0		Bukani Rd
	out			15 : 5		2	

Time & Motion Study Organization: City Bins Trip- 2 Date: 19 November 1997

Vehicle No. KAE636H Loading Capacity: 7TON Researcher's name: Masha Mapenzi

No. of Crew: 3 Estimated Volume: $8m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	6061.9	150	15 : 7	2		Niamey Rd
	out			15 : 7		0	
Loading-45	in	6062.1	200	15 : 9	2		Niamey Rd
	out			15 : 9		0	
Loading-46	in	6062.5	400	15 : 11	2		Bukani Rd
	out			15 : 11		0	
Loading-47	in	6063.1	600	15 : 14	3		Bhande Ave
	out			15 : 20		6	
Loading-48	in	6063.2	100	15 : 20	0		Kisauni
	out			15 : 33		13	
Dumping site	in	6078.1	14900	16 : 0	27		Komorok
Start dumping		6078.4	300	16 : 3	3		
Finish dumping		6078.4	0	16 : 50		47	
Dumping site	out	6089	10600	16 : 55	5		
Reach to workshop	in	6103.1	14100	17 : 25	30		Shimo La Tewa
Total			70800		202	238	Total min.: 440 min.
Collection			16800		83	191	
Transportation			43100		111		
Inside the dumping site			10900		8	47	Dumping time.: 55 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 12th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	81826.4		8 : 31			
Loading-1	in	81827.8	1400	8 : 37	6		South B
	out			8 : 39		2	
Loading-2	in	81829.1	1300	8 : 42	3		South B - Kariba Estate
	out			8 : 49		7	(Aoko Rd)
Loading-3	in	81829.9	800	8 : 54	5		South B - Rajdip Estate
	out			8 : 58		4	
Loading-4	in	81830	100	8 : 59	1		South B - Rajdip Estate
	out			9 : 1		2	
Loading-5	in	81830.1	100	9 : 2	1		South B - Rajdip Estate
	out			9 : 7		5	
Loading-6	in	81832	1900	9 : 13	6		Mombasa Rd Estate
	out			9 : 14		1	
Loading-7	in	81833.4	1400	9 : 16	2		Mombasa Rd Estate
	out			9 : 18		2	
Loading-8	in	81838.2	4800	9 : 30	12		South C - KMA Estate
	out			9 : 33		3	
Loading-9	in	81838.8	600	9 : 36	3		South C - Mugoya Est
	out			9 : 39		3	
Loading-10	in	81838.9	100	9 : 40	1		South C - Mugoya Est
	out			9 : 41		1	
Loading-11	in	81839.6	700	9 : 43	2		South C - Mugoya Est
	out			9 : 45		2	
Loading-12	in	81840.4	800	10 : 0	15		
	out			10 : 1		1	
Loading-13	in	81840.8	400	10 : 2	1		South C - M.O.W.
	out			10 : 5		3	
Loading-14	in	81841	200	10 : 6	1		South C - M.O.W.
	out			10 : 7		1	
Loading-15	in	81841.1	100	10 : 9	2		South C - M.O.W.
	out			10 : 11		2	
Loading-16	in	81841.2	100	10 : 12	1		South C - M.O.W.
	out			10 : 13		1	
Loading-17	in	81841.3	100	10 : 14	1		South C - Kaisungut Rd
	out			10 : 15		1	
Loading-18	in	81841.4	100	10 : 18	3		South C - Kaisungut Rd
	out			10 : 20		2	
Loading-19	in	81841.5	100	10 : 21	1		South C - Kaisungut Rd
	out			10 : 23		2	
Loading-20	in	81841.8	300	10 : 24	1		South C - Kaisungut Rd
	out			10 : 25		1	
Loading-21	in	81841.9	100	10 : 26	1		South C - Sungura Rd
	out			10 : 28		2	

Time & Motion Study Organization: City Bins Trip- 1 Date: 12th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	81842	100	10 : 29	1		South C - Muhoho Rd
	out			10 : 30		1	
Loading-23	in	81842.2	200	10 : 33	3		South C - Punda Mila Crescent
	out			10 : 35		2	
Loading-24	in	81842.5	300	10 : 37	2		South C - Mukarati Rd
	out			10 : 38		1	
Loading-25	in	81842.7	200	10 : 40	2		South C - Mukarati Rd
	out			10 : 43		3	
Loading-26	in	81843.1	400	10 : 44	1		South C - Sungura Rd
	out			10 : 45		1	
Loading-27	in	81843.3	200	10 : 46	1		South C - Sungura Rd
	out			10 : 49		3	
Loading-28	in	81843.4	100	10 : 52	3		South C - Ole Shapara Rd
	out			10 : 54		2	
Loading-29	in	81843.5	100	10 : 55	1		South C - Rumi Road
	out			10 : 56		1	
Loading-30	in	81843.9	400	11 : 1	5		South C - Ndekwa Ave
	out			11 : 4		3	
Loading-31	in	81844.4	500	11 : 5	1		South C - Ndekwa Ave
	out			11 : 9		4	
Loading-32	in	81844.5	100	11 : 10	1		South C - Ndekwa Ave
	out			11 : 13		3	
Loading-33	in	81844.6	100	11 : 33	20		South C - Ngara Sports Club
	out			11 : 15		-18	
Loading-34	in	81844.9	300	11 : 16	1		South C - Ngara Sports Club
	out			11 : 18		2	
Loading-35	in	81845	100	11 : 19	1		South C - Ole Shapara Rd
	out			11 : 20		1	
Loading-36	in	81845.1	100	11 : 23	3		South C - Ole Shapara Rd
	out			11 : 28		5	
Loading-37	in	81845.4	300	11 : 29	1		South C - Ole Shapara Rd
	out			11 : 31		2	
Loading-38	in	81845.5	100	11 : 32	1		South C - Ole Shapara Rd
	out			11 : 33		1	
Loading-39	in	81845.6	100	11 : 34	1		South C - Ole Shapara Rd
	out			11 : 36		2	
Loading-40	in	81846	400	11 : 38	2		South C - Ole Shapara Rd
	out			11 : 39		1	
Loading-41	in	81846.1	100	11 : 40	1		South C - Ole Shapara Rd
	out			11 : 42		2	
Loading-42	in	81846.3	200	11 : 44	2		South C - Ole Shapara Rd
	out			11 : 45		1	
Loading-43	in	81846.6	300	11 : 47	2		South C - Ole Shapara Rd
	out			11 : 47		0	

Time & Motion Study Organization: City Bins Trip- 1 Date: 12th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	81846.8	200	11 : 49	2		South C - Ole Shapara Rd
	out			11 : 50		1	
Loading-45	in	81846.9	100	11 : 52	2		South C - Ole Shapara Rd
	out			11 : 53		1	
Loading-46	in	81847	100	11 : 54	1		South C - Ole Shapara Rd
	out			11 : 56		2	
Loading-47	in	81847.3	300	11 : 57	1		South C - Ole Shapara Rd
	out			11 : 58		1	
Loading-48	in	81847.5	200	11 : 59	1		South C - Ole Shapara Rd
	out			12 : 1		2	
Loading-49	in	81847.6	100	12 : 2	1		South C
	out			12 : 6		4	
Loading-50	in	81847.7	100	12 : 8	2		South C
	out			12 : 11		3	
Loading-51	in	81848.2	500	12 : 14	3		South C
	out			12 : 17		3	
Loading-52	in	81848.4	200	12 : 19	2		South C - Y.M.C.A hostels
	out			12 : 22		3	
Loading-53	in	81848.8	400	12 : 28	6		South C
	out			12 : 29		1	
Loading-54	in	81849	200	12 : 30	1		South C
	out			12 : 32		2	
Loading-55	in	81849.3	300	12 : 34	2		South C
	out			12 : 37		3	
Loading-56	in	81850	700	12 : 40	3		South C
	out			12 : 43		3	
Loading-57	in	81850.3	300	12 : 45	2		South C
	out			12 : 47		2	
Loading-58	in	81850.5	200	12 : 48	1		South C
	out			12 : 50		2	
Loading-59	in	81850.8	300	12 : 52	2		South C
	out			12 : 56		4	
Loading-60	in	81850.9	100	12 : 57	1		South C
	out			12 : 59		2	
Loading-61	in	81851	100	13 : 1	2		South C
	out			13 : 2		1	
Loading-62	in	81851.2	200	13 : 3	1		South C
	out			13 : 5		2	
Loading-63	in	81851.9	700	13 : 7	2		South C - Kifaru Est
	out			13 : 11		4	
Loading-64	in	81852.3	400	13 : 13	2		South C - Kifaru Est
	out			13 : 14		1	
Loading-65	in	81853	700	13 : 17	3		South C
	out			13 : 19		2	

Time & Motion Study Organization: City Bins Trip- 1 Date: 12th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-66	in	81853.1	100	13 : 20	1		South C
	out			13 : 21		1	
Loading-67	in	81853.5	400	13 : 24	3		South C
	out			13 : 30		6	
Dumping site	in	81868.6	15100	14 : 3	33		Dumping site Dandora
Start dumping				:			
Finish dumping				:			
Dumping site	out	81869.3	700	15 : 2	59		
Reach to workshop	in	81884.3	15000	15 : 30	28		
Total			57900		292	127	Total min.: 419 min.
Collection			25700		166	127	
Transportation			31500		67		
Inside the dumping site			700		59	0	Dumping time.: 59 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 13th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	81883.7		8 : 10			
Loading-1	in	81888.5	4,800	8 : 24	14		Serena Hotel - Nyerere Rd
	out			8 : 39		15	
Loading-2	in	81893.5	5,000	8 : 47	8		Hurlingham -
	out			8 : 51		4	Arwings Khodek Rd
Loading-3	in	81893.7	200	8 : 53	2		Hurlingham -
	out			8 : 54		1	Arwings Khodek Rd
Loading-4	in	81893.7	0	8 : 55	1		Hurlingham -
	out			8 : 56		1	Arwings Khodek Rd
Loading-5	in	81894.3	600	8 : 59	3		Hurlingham - Mtito Andei Rd
	out			9 : 1		2	
Loading-6	in	81895	700	9 : 3	2		Hurlingham - Mtito Andei Rd
	out			9 : 5		2	
Loading-7	in	81895.7	700	9 : 7	2		Hurlingham - Jabavu Rd
	out			9 : 14		7	
Loading-8	in	81896.4	700	9 : 15	1		Arwings Khodek Rd -
	out			9 : 22		7	Hurlingham
Loading-9	in	81896.7	300	9 : 24	2		Arwings Khodek Rd -
	out			9 : 25		1	Hurlingham
Loading-10	in	81897.1	400	9 : 26	1		Arwings Khodek Rd -
	out			9 : 28		2	Turbo Rd
Loading-11	in	81897.8	700	9 : 32	4		Arwings Khodek Rd -
	out			9 : 33		1	Turbo Rd
Loading-12	in	81897.9	100	9 : 34	1		Arwings Khodek Rd -
	out			9 : 35		1	Turbo Rd
Loading-13	in	81898	100	9 : 36	1		Arwings Khodek Rd -
	out			9 : 38		2	Turbo Rd
Loading-14	in	81899.1	1,100	9 : 42	4		Arwings Khodek Rd -
	out			9 : 44		2	Turbo Rd
Loading-15	in	81899.5	400	9 : 46	2		Arwings Khodek Rd -
	out			9 : 47		1	Turbo Rd
Loading-16	in	81899.6	100	9 : 49	2		Arwings Khodek Rd -
	out			9 : 50		1	Turbo Rd
Loading-17	in	81899.7	100	9 : 51	1		Hurlingham - Ndemi close
	out			9 : 59		8	
Loading-18	in	81900	300	10 : 0	1		Hurlingham - Ndemi close
	out			10 : 3		3	
Loading-19	in	81900.1	100	10 : 4	1		Hurlingham - Ole Odume Rd
	out			10 : 6		2	
Loading-20	in	81900.3	200	10 : 7	1		Hurlingham -
	out			10 : 12		5	Elgeyo Marakwet Rd
Loading-21	in	81900.5	200	10 : 15	3		Hurlingham -
	out			10 : 15		0	Elgeyo Marakwet Rd

Time & Motion Study Organization: City Bins Trip- 1 Date: 13th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	81900.9	400	10 : 17	2		Hurlingham -
	out			10 : 18		1	Elgeyo Marakwet Rd
Loading-23	in	81901.5	600	10 : 21	3		Hurlingham -
	out			10 : 22		1	Elgeyo Marakwet Rd
Loading-24	in	81902.8	1,300	10 : 28	6		Hurlingham -
	out			10 : 29		1	Elgeyo Marakwet Rd
Loading-25	in	81903.1	300	10 : 31	2		Hurlingham - Kindaruma Rd
	out			10 : 35		4	
Loading-26	in	81903.5	400	10 : 39	4		Hurlingham - Kindaruma Rd
	out			10 : 41		2	
Loading-27	in	81903.9	400	10 : 43	2		Hurlingham - Kindaruma Rd
	out			10 : 46		3	
Loading-28	in	81906.8	2,900	10 : 53	7		Hurlingham - Kindaruma Rd
	out			10 : 54		1	
Loading-29	in	81907.7	900	10 : 56	2		Hurlingham - Kindaruma Rd
	out			11 : 1		5	
Loading-30	in	81908.7	1,000	11 : 3	2		Muthangari Estate
	out			11 : 6		3	
Loading-31	in	81909.4	700	11 : 8	2		Muthangari Estate -
	out			11 : 9		1	Muthangari Rd
Loading-32	in	81909.7	300	11 : 10	1		Muthangari Estate -
	out			11 : 13		3	Muthangari Rd
Loading-33	in	81909.9	200	11 : 13	0		Muthangari Estate
	out			11 : 14		1	
Loading-34	in	81910.5	600	11 : 19	5		Muthangari Estate -
	out			11 : 19		0	Kaputai Rd
Loading-35	in	81914.8	4,300	11 : 30	11		Lavington
	out			11 : 33		3	
Loading-36	in	81914.9	100	11 : 34	1		Lavington
	out			11 : 35		1	
Loading-37	in	81916.7	1,800	11 : 41	6		Lavington
	out			11 : 41		0	
Loading-38	in	81917.6	900	11 : 44	3		Lavington
	out			11 : 45		1	
Loading-39	in	81917.7	100	11 : 45	0		Lavington
	out			11 : 46		1	
Loading-40	in	81918	300	11 : 47	1		Lavington
	out			11 : 48		1	
Loading-41	in	81919.8	1,800	11 : 54	6		Lavington -
	out			11 : 54		0	Oleguruone Drive
Loading-42	in	81920.9	1,100	11 : 57	3		Lavington -
	out			11 : 57		0	Isaac Gatharigu Drive
Loading-43	in	81921	100	11 : 58	1		Lavington -
	out			11 : 58		0	Chalbi Drive

Time & Motion Study Organization: City Bins Trip- 1 Date: 13th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	81921.5	500	12 : 0	2		Lavington -
	out			12 : 4		4	Njumbi Rd
Loading-45	in	81923.5	2,000	12 : 10	6		Lavington -
	out			12 : 10		0	Convent Rd
Loading-46	in	81923.7	200	12 : 11	1		Lavington -
	out			12 : 14		3	James Gichuru Rd
Loading-47	in	81924.8	1,100	12 : 16	2		Lavington -
	out			12 : 17		1	Jacaranda Ave
Loading-48	in	81925.8	1,000	12 : 20	3		Lavington -
	out			12 : 22		2	Jacaranda Ave
Loading-49	in	81925.9	100	12 : 23	1		Lavington - Hatheru Rd
	out			12 : 25		2	
Loading-50	in	81926	100	12 : 26	1		Lavington - Riara Rd
	out			12 : 31		5	
Loading-51	in	81927.7	1,700	12 : 34	3		Lavington - Dagoretti Corner
	out			12 : 35		1	
Loading-52	in	81929.1	1,400	12 : 40	5		Ngong Rd Pertol Station
	out			12 : 42		2	
Loading-53	in	81944.9	15,800	13 : 11	29		Karen
	out			13 : 12		1	
Loading-54	in	81955.1	10,200	13 : 28	16		Karen - Mbogani Rd
	out			13 : 29		1	
Loading-55	in	81966.4	11,300	13 : 47	18		Karen - Mbogani Rd
	out			13 : 48		1	
Loading-56	in	81977	10,600	14 : 2	14		Dam Estate - Langata Rd
	out			14 : 2		0	
Dumping site	in	81995.6	18,600	14 : 39	37		Dumping site (Dandora)
Start dumping				:			
Finish dumping				:			
Dumping site	out	81996.4	800	15 : 10	31		
Reach to workshop	in	82011.4	15,000	15 : 45	35		
Total			127,700		331	124	Total min.: 455 min.
Collection			88,500		214	124	
Transportation			38,400		86		
Inside the dumping site			800		31	0	Dumping time.: 31 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 14th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	82010.7		8 : 24			
Loading-1	in	82022.4	11,700	8 : 47	23		Waiyaki way Estate
	out			8 : 49		2	
Loading-2	in	82025.9	3,500	8 : 56	7		Msongari Estate
	out			8 : 58		2	
Loading-3	in	82027.2	1,300	9 : 1	3		Msongari Estate
	out			9 : 6		5	
Loading-4	in	82029.2	2,000	9 : 10	4		Msongari Estate
	out			9 : 11		1	
Loading-5	in	82032.1	2,900	9 : 14	3		Mountain View Estate
	out			9 : 19		5	
Loading-6	in	82032.6	500	9 : 21	2		Mountain View Estate
	out			9 : 23		2	
Loading-7	in	82032.9	300	9 : 25	2		Mountain View Estate
	out			9 : 30		5	
Loading-8	in	82033.4	500	9 : 32	2		Mountain View Estate
	out			9 : 35		3	
Loading-9	in	82034	600	9 : 37	2		Mountain View Estate
	out			9 : 40		3	
Loading-10	in	82037.9	3,900	9 : 48	8		Loresho Estate
	out			9 : 49		1	
Loading-11	in	82038.9	1,000	9 : 51	2		Loresho Estate
	out			9 : 54		3	
Loading-12	in	82039.3	400	9 : 55	1		Loresho Estate
	out			9 : 55		0	
Loading-13	in	82039.7	400	9 : 58	3		Loresho Estate
	out			9 : 59		1	
Loading-14	in	82039.8	100	10 : 1	2		Loresho Estate
	out			10 : 3		2	
Loading-15	in	82040.2	400	10 : 4	1		Loresho Estate
	out			10 : 6		2	
Loading-16	in	82040.6	400	10 : 7	1		Loresho Estate
	out			10 : 9		2	
Loading-17	in	82040.6	0	10 : 10	1		Loresho Estate
	out			10 : 10		0	
Loading-18	in	82042.2	1,600	10 : 14	4		Loresho Estate
	out			10 : 15		1	
Loading-19	in	82043.1	900	10 : 17	2		Loresho Estate
	out			10 : 19		2	
Loading-20	in	82043.7	600	10 : 20	1		Loresho Estate
	out			10 : 21		1	
Loading-21	in	82046.2	2,500	10 : 27	6		Loresho Estate
	out			10 : 28		1	

Time & Motion Study Organization: City Bins Trip- 1 Date: 14th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	82047	800	10 : 30	2		Kyuna Estate
	out			10 : 30		0	
Loading-23	in	82048.7	1,700	10 : 36	6		Kyuna Estate
	out			10 : 37		1	
Loading-24	in	82050.9	2,200	10 : 44	7		Kyuna Estate
	out			10 : 45		1	
Loading-25	in	82052.4	1,500	10 : 49	4		Kyuna Estate
	out			10 : 52		3	
Loading-26	in	82052.9	500	10 : 55	3		Kyuna Estate
	out			10 : 57		2	
Loading-27	in	82053.7	800	11 : 0	3		Westlands
	out			11 : 2		2	
Loading-28	in	82054.7	1,000	11 : 3	1		Westlands
	out			11 : 4		1	
Loading-29	in	82054.8	100	11 : 6	2		Westlands
	out			11 : 7		1	
Loading-30	in	82055.5	700	11 : 10	3		Westlands
	out			11 : 11		1	
Loading-31	in	82056.1	600	11 : 13	2		Westlands
	out			11 : 17		4	
Loading-32	in	82056.9	800	11 : 21	4		Westlands
	out			11 : 21		0	
Loading-33	in	82057	100	11 : 23	2		Brookside Estate
	out			11 : 26		3	
Loading-34	in	82057.5	500	11 : 28	2		Brookside Estate
	out			11 : 32		4	
Loading-35	in	82057.6	100	11 : 34	2		Brookside Villas
	out			11 : 35		1	
Loading-36	in	82057.9	300	11 : 37	2		Brookside Villas
	out			11 : 38		1	
Loading-37	in	82058.1	200	11 : 39	1		Brookside Drive Villas
	out			11 : 42		3	
Loading-38	in	82058.4	300	11 : 45	3		Brookside Drive Villas
	out			11 : 47		2	
Loading-39	in	82059.2	800	11 : 50	3		General Mathenge Rd
	out			11 : 52		2	
Loading-40	in	82059.6	400	11 : 55	3		General Mathenge Rd
	out			11 : 57		2	
Loading-41	in	82059.9	300	11 : 58	1		General Mathenge Rd
	out			11 : 58		0	
Loading-42	in	82060.2	300	12 : 1	3		General Mathenge Rd
	out			12 : 2		1	
Loading-43	in	82060.8	600	12 : 6	4		General Mathenge Rd
	out			12 : 8		2	

Time & Motion Study Organization: City Bins Trip- 1 Date: 14th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	82061	200	12 : 10	2		General Mathenge Rd
	out			12 : 11		1	
Loading-45	in	82062.2	1,200	12 : 13	2		General Mathenge Rd
	out			12 : 14		1	
Loading-46	in	82063.2	1,000	12 : 18	4		Peponi Road
	out			12 : 20		2	
Loading-47	in	82064.7	1,500	12 : 25	5		Peponi Road
	out			12 : 28		3	
Loading-48	in	82065.3	600	12 : 30	2		Peponi Road
	out			12 : 31		1	
Loading-49	in	82065.4	100	12 : 34	3		General Mathenge Drive
	out			12 : 37		3	
Loading-50	in	82065.8	400	12 : 40	3		General Mathenge Drive
	out			12 : 49		9	
Loading-51	in	82072	6,200	12 : 58	9		Kitisuru
	out			13 : 2		4	
Loading-52	in	82075.5	3,500	13 : 12	10		Kitisuru
	out			13 : 13		1	
Loading-53	in	82076	500	13 : 16	3		Kitisuru
	out			13 : 17		1	
Loading-54	in	82078.8	2,800	13 : 27	10		Kitisuru
	out			13 : 30		3	
Loading-55	in	82080.1	1,300	13 : 33	3		Spring Valley
	out			13 : 34		1	
Loading-56	in	82080.5	400	13 : 35	1		Spring Valley
	out			13 : 37		2	
Loading-57	in	82082.3	1,800	13 : 41	4		Spring Valley
	out			13 : 43		2	
Loading-58	in	82082.8	500	13 : 46	3		Spring Valley
	out			13 : 46		0	
Loading-59	in	82087.5	4,700	13 : 57	11		Red hill
	out			13 : 58		1	
Loading-60	in	82093	5,500	14 : 9	11		Whispers Estate
	out			14 : 10		1	
Loading-61	in	82093.4	400	14 : 12	2		Whispers Estate
	out			14 : 15		3	
Loading-62	in	82096.6	3,200	14 : 22	7		Whispers Estate
	out			14 : 26		4	
Loading-63	in	82097.8	1,200	14 : 30	4		Whispers Estate
	out			14 : 30		0	
Loading-64	in	82098.9	1,100	14 : 33	3		Whispers Estate
	out			14 : 34		1	
Loading-65	in	82099.8	900	14 : 39	5		Whispers Estate
	out			14 : 43		4	

Time & Motion Study Organization: City Bins Trip- 1 Date: 14th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-66	in	82103.7	3,900	14 : 55	12		German School Gigiri
	out			14 : 59		4	
Loading-67	in	82110.1	6,400	15 : 15	16		Runda
	out			15 : 17		2	
Loading-68	in	82113.8	3,700	15 : 26	9		Ridgeways Estate
	out			15 : 28		2	
Loading-69	in	82114.5	700	15 : 30	2		Ridgeways Estate
	out			15 : 31		1	
Loading-70	in	82115.7	1,200	15 : 34	3		Ridgeways Estate
	out			15 : 38		4	
Dumping site	in	82128.1	12,400	16 : 7	29		Dumping site (Dandora)
Start dumping				:			
Finish dumping				:			
Dumping site	out	82129.1	1,000	16 : 29	22		
Reach to workshop	in			:			Breakdown after coming out
							of dumping
Total			118,400		343	142	Total min.: 485 min.
Collection			93,300		269	142	
Transportation			24,100		52		
Inside the dumping site			1,000		22	0	Dumping time.: 22 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 18th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	82143.1		10 : 58			
Loading-1	in	82152.9	9800	11 : 26	28		ABC Place - Waiyaki Way
	out			11 : 28		2	
Loading-2	in	82157.7	4800	11 : 38	10		Muthangari Estate
	out			11 : 41		3	
Loading-3	in	82159	1300	11 : 42	1		Muthangari Estate
	out			11 : 46		4	
Loading-4	in	82160.4	1400	11 : 49	3		Muthangari Estate
	out			11 : 56		7	
Loading-5	in	82164.1	3700	12 : 4	8		Mountain View
	out			12 : 5		1	
Loading-6	in	82164.4	300	12 : 7	2		Mountain View
	out			12 : 8		1	
Loading-7	in	82164.7	300	12 : 9	1		Mountain View
	out			12 : 11		2	
Loading-8	in	82164.9	200	12 : 12	1		Mountain View
	out			12 : 16		4	
Loading-9	in	82165.5	600	12 : 18	2		Mountain View
	out			12 : 22		4	
Loading-10	in	82166.1	600	12 : 24	2		Mountain View
	out			12 : 27		3	
Loading-11	in	82170.8	4700	12 : 36	9		Loresho Estate
	out			12 : 39		3	
Loading-12	in	82171.2	400	12 : 42	3		Loresho Estate
	out			12 : 42		0	
Loading-13	in	82171.6	400	12 : 44	2		Loresho Estate
	out			12 : 46		2	
Loading-14	in	82171.7	100	12 : 48	2		Loresho Estate
	out			12 : 49		1	
Loading-15	in	82172.5	800	12 : 51	2		Loresho Estate
	out			12 : 53		2	
Loading-16	in	82172.5	0	12 : 54	1		Loresho Estate
	out			12 : 55		1	
Loading-17	in	82172.9	400	12 : 58	3		Loresho Estate
	out			13 : 1		3	
Loading-18	in	82175.1	2200	13 : 7	6		Loresho Estate
	out			13 : 8		1	
Loading-19	in	82175.4	300	13 : 10	2		Loresho Estate
	out			13 : 11		1	
Loading-20	in	82175.9	500	13 : 12	1		Loresho Estate
	out			13 : 14		2	
Loading-21	in	82176.7	800	13 : 18	4		Loresho Estate
	out			13 : 18		0	

Time & Motion Study Organization: City Bins Trip- 1 Date: 18th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	82177.7	1000	13 : 19	1		Loresho Estate
	out			13 : 20		1	
Loading-23	in	82181.4	3700	13 : 28	8		Kyuna Estate
	out			13 : 29		1	
Loading-24	in	82183.1	1700	13 : 32	3		Kyuna Estate
	out			13 : 34		2	
Loading-25	in	82185	1900	13 : 38	4		Kyuna Estate
	out			13 : 38		0	
Loading-26	in	82185.3	300	13 : 39	1		Kyuna Estate
	out			13 : 41		2	
Loading-27	in	82186	700	13 : 43	2		Kyuna Estate
	out			13 : 44		1	
Loading-28	in	82186.8	800	13 : 46	2		Kyuna Estate
	out			13 : 49		3	
Loading-29	in	82187.5	700	13 : 51	2		Kyuna Estate
	out			13 : 52		1	
Loading-30	in	82188.3	800	13 : 55	3		Kyuna Estate
	out			13 : 57		2	
Loading-31	in	82188.5	200	13 : 58	1		Kyuna Estate
	out			13 : 59		1	Idling time 14:00-14:16 16min
Loading-32	in	82189.3	800	14 : 19	20		Westlands
	out			14 : 20		1	
Loading-33	in	82189.4	100	14 : 21	1		Westlands
	out			14 : 26		5	
Loading-34	in	82190	600	14 : 28	2		Westlands
	out			14 : 29		1	
Loading-35	in	82190.6	600	14 : 32	3		Westlands
	out			14 : 35		3	
Loading-36	in	82191.4	800	14 : 38	3		Westlands
	out			14 : 39		1	
Loading-37	in	82191.9	500	14 : 41	2		Brookside - Westlands
	out			14 : 43		2	
Loading-38	in	82192	100	14 : 43	0		Brookside - Westlands
	out			14 : 47		4	
Loading-39	in	82192.3	300	15 : 3	16		Brookside - Westlands
	out			15 : 5		2	
Loading-40	in	82192.6	300	15 : 8	3		Brookside - Westlands
	out			15 : 10		2	
Loading-41	in	82192.9	300	15 : 12	2		General Mathenge Road
	out			15 : 18		6	
Loading-42	in	82193.8	900	15 : 23	5		General Mathenge Road
	out			15 : 24		1	
Loading-43	in	82194.1	300	15 : 27	3		General Mathenge Road
	out			15 : 29		2	

Time & Motion Study Organization: City Bins Trip- 1 Date: 18th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	82194.6	500	15 : 34	5		General Mathenge Road
	out			15 : 35		1	
Loading-45	in	82195.3	700	15 : 39	4		General Mathenge Road
	out			15 : 46		7	
Dumping site	in			:			No dumping
Start dumping				:			
Finish dumping				:			
Dumping site	out			:			
Reach to workshop	in	82208.1	12800	16 : 30	44		Workshop
Total			65000		233	99	Total min.: 332 min.
Collection			42400		145	99	
Transportation			22600		72		
Inside the dumping site			0		0	0	Dumping time.: min.
Idling time					16		

Time & Motion Study Organization: City Bins Trip- 1 Date: 19th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	82208.1		8 : 27			
Loading-1	in	82209.6	1500	8 : 33	6		Garage Rd
	out			8 : 35		2	
Loading-2	in	82211.2	1600	8 : 43	8		South B
	out			8 : 44		1	
Loading-3	in	82212.4	1200	8 : 50	6		Kanba Estate - Aoko Rd
	out			9 : 1		11	
Loading-4	in	82213.3	900	9 : 5	4		
	out			9 : 10		5	
Loading-5	in	82216.1	2800	9 : 21	11		Akiba Estate - Monbasa Rd
	out			9 : 23		2	
Loading-6	in	82216.8	700	9 : 26	3		
	out			9 : 28		2	
Loading-7	in	82221.6	4800	9 : 41	13		KMA Estate - South C
	out			9 : 42		1	
Loading-8	in	82222.2	600	9 : 45	3		Mugoya - South C
	out			9 : 48		3	
Loading-9	in	82222.3	100	9 : 51	3		Mugoya - South C
	out			9 : 52		1	
Loading-10	in	82223	700	9 : 54	2		Mugoya - South C
	out			9 : 56		2	
Loading-11	in	82223	0	9 : 58	2		Mugoya - South C
	out			9 : 59		1	
Loading-12	in	82223.8	800	10 : 3	4		MOW - South C
	out			10 : 4		1	
Loading-13	in	82224.1	300	10 : 10	6		MOW - South C
	out			10 : 12		2	
Loading-14	in	82224.3	200	10 : 15	3		South C - Kaisungur Rd
	out			10 : 19		4	
Loading-15	in	82224.4	100	10 : 19	0		
	out			10 : 20		1	
Loading-16	in	82224.5	100	10 : 22	2		
	out			10 : 24		2	
Loading-17	in	82224.7	200	10 : 27	3		South C
	out			10 : 28		1	
Loading-18	in	82224.8	100	10 : 29	1		South C - Sungura Rd
	out			10 : 33		4	
Loading-19	in	82225.1	300	10 : 36	3		Muhoho Rd - South C
	out			10 : 38		2	
Loading-20	in	82225.2	100	10 : 40	2		Punda Milig Crescent -
	out			10 : 42		2	South C
Loading-21	in	82225.4	200	10 : 43	1		Mukarati Rd - South C
	out			10 : 45		2	

Time & Motion Study Organization: City Bins Trip- 1 Date: 19th November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	82225.6	200	10 : 47	2		Mukarati Rd - South C
	out			10 : 48		1	
Loading-23	in	82226	400	10 : 52	4		Sungura Rd - South C
	out			10 : 53		1	
Loading-24	in	82226.2	200	10 : 54	1		Sungura Rd - South C
	out			10 : 57		3	
Loading-25	in	82226.5	300	11 : 1	4		Ole Shapara Rd - South C
	out			11 : 3		2	
Loading-26	in	82226.7	200	11 : 4	1		Rumi Rd - South C
	out			11 : 5		1	
Loading-27	in	82226.8	100	11 : 6	1		Ndekwa Ave - South C
	out			11 : 8		2	
Loading-28	in	82226.9	100	11 : 12	4		Ndekwa Ave - South C
	out			11 : 13		1	
Loading-29	in	82227	100	11 : 13	0		Ndekwa Ave - South C
	out			11 : 14		1	
Loading-30	in	82227.3	300	11 : 15	1		Ngara Sports Club - South C
	out			11 : 16		1	
Loading-31	in	82227.8	500	11 : 17	1		Ngara Sports Club - South C
	out			11 : 20		3	
Loading-32	in	82228	200	11 : 22	2		Ngara Sports Club - South C
	out			11 : 23		1	
Loading-33	in	82228.2	200	11 : 28	5		Ole Shapara Ave - South C
	out			11 : 29		1	
Loading-34	in	82231	2800	12 : 10	41		Garage Rd
	out			12 : 10		0	
Loading-35	in	82235.9	4900	12 : 24	14		Lunga Lunga Rd
	out			12 : 31		7	Idling time 12:35-12:55 20
Dumping site	in	82246	10100	13 : 10	39		Dandora
Start dumping				:			
Finish dumping				:			
Dumping site	out	82253	7000	13 : 32	22		
Reach to workshop	in	82268	15000	15 : 0	88		
Total			59900		316	77	Total min.: 393 min.
Collection			26300		161	77	
Transportation			26600		113		
Inside the dumping site			7000		22	0	Dumping time.: 22 min.
Idling time					20		

Time & Motion Study Organization: City Bins Trip- 1 Date: 20th November 1997

Vehicle No. KAH850S Loading Capacity: 2.6t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: $9m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	16984.2		8 : 49			From workshop
Dumping site	in	16998	13800	9 : 16	27		Dandora
Start dumping				:			
Finish dumping				:			
Dumping site	out	16998.7	700	10 : 10	54		
Reach to workshop	in			:			
Total			14500		81	0	Total min.: 81 min.
Collection						0	No collection
Transportation							
Inside the dumping site			700		54	0	Dumping time.: 54 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 2 Date: 20th November 1997

Vehicle No. KAH850S Loading Capacity: 2.6t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: $9m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from dumping site	out	16998.7		10 : 10			
Loading-1	in	17015.4	16,700	10 : 39	29		Dam Estate - Langata Rd
	out			10 : 40		1	
Loading-2	in	17023.5	8,100	10 : 50	10		Karen - Langata Rd
	out			10 : 52		2	
Loading-3	in	17027.8	4,300	10 : 59	7		Bogari Rd - Karen
	out			10 : 59		0	
Loading-4	in	17048.2	20,400	11 : 34	35		Karen - Langata Rd
	out			11 : 35		1	
Loading-5	in	17055.5	7,300	11 : 48	13		Karen - Langata Rd
	out			11 : 48		0	
Loading-6	in	17063.2	7,700	11 : 57	9		Ngong Rd Petrol Station
	out			11 : 59		2	
Loading-7	in	17064	800	12 : 1	2		Dagoretti Corner
	out			12 : 3		2	
Loading-8	in	17064.5	500	12 : 5	2		Riara Rd
	out			12 : 7		2	
Loading-9	in	17066.7	2,200	12 : 14	7		Hatheru Rd
	out			12 : 14		0	
Loading-10	in	17067.8	1,100	12 : 20	6		
	out			12 : 22		2	
Loading-11	in	17067.9	100	12 : 25	3		
	out			12 : 27		2	
Loading-12	in	17068.5	600	12 : 31	4		Jacaranda Ave - Lavington
	out			12 : 33		2	
Loading-13	in	17070.4	1,900	12 : 39	6		James Gichuru Rd -
	out			12 : 41		2	Lavington
Loading-14	in	17071	600	12 : 42	1		Convent Rd - Lavington
	out			12 : 43		1	
Loading-15	in	17072	1,000	12 : 45	2		
	out			12 : 46		1	
Loading-16	in	17072.6	600	12 : 50	4		
	out			12 : 52		2	
Loading-17	in	17073.1	500	12 : 53	1		Njumbi Rd - Lavington
	out			12 : 54		1	
Loading-18	in	17074.1	1,000	12 : 57	3		Chalbi Drive
	out			12 : 58		1	
Loading-19	in	17074.3	200	12 : 59	1		Isaac Gathanju Drive
	out			12 : 59		0	
Loading-20	in	17075.9	1,600	13 : 5	6		
	out			13 : 5		0	
Loading-21	in	17076	100	13 : 6	1		Ole nguruone Drive
	out			13 : 6		0	

Time & Motion Study Organization: City Bins Trip- 2 Date: 20th November 1997

Vehicle No. KAH850S Loading Capacity: 2.6t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: $9m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	17076.8	800	13 : 9	3		Muthangari
	out			13 : 11		2	
Loading-23	in	17080.5	3,700	13 : 23	12		Muthangari
	out			13 : 24		1	
Loading-24	in	17081.4	900	13 : 27	3		Muthangari
	out			13 : 27		0	
Loading-25	in	17081.9	500	13 : 29	2		Muthangari
	out			13 : 29		0	
Loading-26	in	17082.6	700	13 : 32	3		Muthangari Rd
	out			13 : 32		0	
Loading-27	in	17083.7	1,100	13 : 35	3		
	out			13 : 37		2	
Loading-28	in	17084.6	900	13 : 39	2		Kaputei Rd
	out			13 : 40		1	
Loading-29	in	17084.7	100	13 : 41	1		
	out			13 : 42		1	
Loading-30	in	17085	300	13 : 42	0		
	out			13 : 43		1	
Loading-31	in	17086.8	1,800	13 : 48	5		Hurlingham -
	out			13 : 49		1	
Loading-32	in	17087.4	600	13 : 53	4		Ndemi Close - Hurlingham
	out			13 : 54		1	
Loading-33	in	17087.9	500	13 : 56	2		Ole Odume Rd
	out			13 : 59		3	
Loading-34	in	17088.3	400	14 : 1	2		Elgeyo Marakwet Rd
	out			14 : 2		1	
Loading-35	in	17089	700	14 : 6	4		
	out			14 : 8		2	
Loading-36	in	17090.4	1,400	14 : 14	6		
	out			14 : 15		1	
Loading-37	in	17090.9	500	14 : 19	4		
	out			14 : 19		0	
Loading-38	in	17091.4	500	14 : 21	2		
	out			14 : 22		1	
Loading-39	in	17091.5	100	14 : 23	1		
	out			14 : 24		1	
Loading-40	in	17091.6	100	14 : 28	4		
	out			14 : 29		1	
Loading-41	in	17091.7	100	14 : 30	1		Kindaruma Rd
	out			14 : 30		0	
Loading-42	in	17091.8	100	14 : 33	3		
	out			14 : 36		3	
Loading-43	in	17091.9	100	14 : 37	1		
	out			14 : 38		1	

Time & Motion Study Organization: City Bins Trip- 2 Date: 20th November 1997

Vehicle No. KAH850S Loading Capacity: 2.6t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: $9m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	17092	100	14 : 39	1		
	out			14 : 40		1	
Loading-45	in	17092.3	300	14 : 42	2		
	out			14 : 44		2	
Loading-46	in	17092.7	400	14 : 46	2		
	out			14 : 47		1	
Loading-47	in	17092.9	200	14 : 49	2		
	out			14 : 52		3	
Loading-48	in	17093.2	300	14 : 53	1		
	out			14 : 54		1	
Loading-49	in	17093.6	400	14 : 56	2		Hurlingham -
	out			14 : 57		1	
Loading-50	in	17094.6	1,000	15 : 1	4		Chania Ave
	out			15 : 2		1	
Loading-51	in	17094.7	100	15 : 3	1		Komo Lane
	out			15 : 3		0	
Loading-52	in	17095	300	15 : 7	4		Argwings Khodek Rd
	out			15 : 11		4	
Loading-53	in	17095.6	600	15 : 13	2		
	out			15 : 16		3	
Loading-54	in	17095.9	300	15 : 18	2		
	out			15 : 20		2	
Loading-55	in	17096.2	300	15 : 22	2		Turbo Rd - Hurlingham
	out			15 : 29		7	
Loading-56	in	17096.8	600	15 : 32	3		
	out			15 : 39		7	
Loading-57	in	17098	1,200	15 : 43	4		Chaka Rd - Hurlingham
	out			15 : 46		3	
Loading-58	in	17098.4	400	15 : 48	2		Jabavu Rd - Hurlingham
	out			15 : 50		2	
Loading-59	in	17098.9	500	15 : 53	3		
	out			15 : 59		6	
Loading-60	in	17099.2	300	16 : 1	2		
	out			16 : 3		2	
Loading-61	in	17099.3	100	16 : 12	9		
	out			16 : 13		1	
Loading-62	in	17099.9	600	16 : 17	4		Mtito Andei Rd -
	out			16 : 17		0	Hurlingham
Loading-63	in	17100.5	600	16 : 28	11		
	out			16 : 28		0	
Loading-64	in	17100.8	300	16 : 30	2		Jabavu Rd
	out			16 : 33		3	
Loading-65	in	17101.6	800	16 : 39	6		Argwings Khodek Rd
	out			16 : 43		4	

Time & Motion Study Organization: City Bins Trip- 2 Date: 20th November 1997

Vehicle No. KAH850S Loading Capacity: 2.6t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: $9m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-66	in	17101.9	300	16 : 46	3		
	out			16 : 49		3	
Loading-67	in	17102.1	200	16 : 52	3		
	out			16 : 55		3	
Dumping site	in			:			No dumping
Start dumping				:			
Finish dumping				:			
Dumping site	out			:			
Reach to workshop	in	17108.1	6,000	17 : 12	17		
Total			109,400		314	108	Total min.: 422 min.
Collection			86,700		268	108	
Transportation			22,700		46		
Inside the dumping site			0		0	0	Dumping time.: min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 21st November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	82272.7		8 : 53			
Loading-1	in	82283.5	10,800	9 : 21	28		Waiyaki Way
	out			9 : 22		1	
Loading-2	in	82285.9	2,400	9 : 27	5		ABC Place - Waiyaki Way
	out			9 : 28		1	
Loading-3	in	82288.6	2,700	9 : 36	8		Manyani Rd West
	out			9 : 36		0	
Loading-4	in	82290.9	2,300	9 : 40	4		Waiyaki Way
	out			9 : 41		1	
Loading-5	in	82293.7	2,800	9 : 45	4		Mountain View -
	out			9 : 46		1	Waiyaki Way
Loading-6	in	82294.3	600	9 : 50	4		Mountain View -
	out			9 : 52		2	Waiyaki Way
Loading-7	in	82294.4	100	9 : 52	0		Mountain View -
	out			9 : 53		1	Waiyaki Way
Loading-8	in	82294.5	100	9 : 54	1		Mountain View -
	out			9 : 55		1	Waiyaki Way
Loading-9	in	82295.1	600	9 : 57	2		Mountain View -
	out			9 : 58		1	Waiyaki Way
Loading-10	in	82295.2	100	9 : 58	0		Mountain View -
	out			9 : 59		1	Waiyaki Way
Loading-11	in	82295.7	500	10 : 3	4		Mountain View -
	out			10 : 6		3	Waiyaki Way
Loading-12	in	82296.1	400	10 : 8	2		Mountain View -
	out			10 : 10		2	Waiyaki Way
Loading-13	in	82300.4	4,300	10 : 19	9		Loresho - Waiyaki Way
	out			10 : 19		0	
Loading-14	in	82300.8	400	10 : 21	2		
	out			10 : 22		1	
Loading-15	in	82301.1	300	10 : 23	1		
	out			10 : 24		1	
Loading-16	in	82301.3	200	10 : 26	2		Thego Rd - Loresho Estate
	out			10 : 26		0	
Loading-17	in	82301.7	400	10 : 28	2		Loresho Estate -
	out			10 : 30		2	
Loading-18	in	82301.8	100	10 : 31	1		Loresho Estate -
	out			10 : 32		1	
Loading-19	in	82302	200	10 : 33	1		Thego Close - Loresho
	out			10 : 34		1	
Loading-20	in	82302.1	100	10 : 34	0		Kaptagat Grove - Loresho
	out			10 : 35		1	
Loading-21	in	82302.2	100	10 : 36	1		Kaunaoni Close - Loresho
	out			10 : 38		2	

Time & Motion Study Organization: City Bins Trip- 1 Date: 21st November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	82304.4	2,200	10 : 43	5		Mweigo Rd - Loresho
	out			10 : 44		1	
Loading-23	in	82304.7	300	10 : 47	3		
	out			10 : 48		1	
Loading-24	in	82305.5	800	10 : 52	4		Loresho close - Loresho
	out			10 : 54		2	
Loading-25	in	82308.6	3,100	11 : 4	10		
	out			11 : 5		1	
Loading-26	in	82310.3	1,700	11 : 9	4		Kyuna Lane -Kyuna
	out			11 : 10		1	
Loading-27	in	82312.5	2,200	11 : 16	6		
	out			11 : 19		3	
Loading-28	in	82313.7	1,200	11 : 22	3		
	out			11 : 22		0	
Loading-29	in	82314	300	11 : 23	1		
	out			11 : 25		2	
Loading-30	in	82314.5	500	11 : 29	4		
	out			11 : 29		0	
Loading-31	in	82314.8	300	11 : 31	2		Grenvilla Grove - Kyuna
	out			11 : 34		3	
Loading-32	in	82314.9	100	11 : 34	0		
	out			11 : 35		1	
Loading-33	in	82315.2	300	11 : 36	1		
	out			11 : 37		1	
Loading-34	in	82315.9	700	11 : 38	1		Brookside Rd - Westlands
	out			11 : 39		1	
Loading-35	in	82316.1	200	11 : 40	1		Matundu Close - Westlands
	out			11 : 41		1	
Loading-36	in	82316.6	500	11 : 48	7		
	out			11 : 49		1	
Loading-37	in	82317.2	600	11 : 51	2		
	out			11 : 54		3	
Loading-38	in	82318	800	11 : 58	4		School Lane - Westlands
	out			11 : 59		1	
Loading-39	in	82318.5	500	12 : 0	1		Brookside Grove -
	out			12 : 2		2	Westlands
Loading-40	in	82318.6	100	12 : 2	0		Brookside Grove -
	out			12 : 6		4	Westlands
Loading-41	in	82318.9	300	12 : 7	1		Brookside Grove -
	out			12 : 10		3	Westlands
Loading-42	in	82319.1	200	12 : 12	2		Brookside Grove -
	out			12 : 15		3	Westlands

Time & Motion Study Organization: City Bins Trip- 1 Date: 21st November 1997

Vehicle No. KAD554J Loading Capacity: 3.75t Researcher's name: Antony Wanjohi M

No. of Crew: 3 Estimated Volume: 6.75m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Dumping site	in	82338.1	19,000	13 : 15	60		Dandora
Start dumping				:			
Finish dumping				:			
Dumping site	out	82345.1	7,000	14 : 0	45		
Reach to workshop	in	82360.1	15,000	14 : 30	30		
Total			87,400		278	59	Total min.: 337 min.
Collection			35,600		115	59	
Transportation			44,800		118		
Inside the dumping site			7,000		45	0	Dumping time.: 45 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 19th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akomu

No. of Crew: Estimated Volume: 6.25m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	6902.5		8 : 27			Chambeke Hse off
							Shimo La Tewa
Dumping site	in	6927.4	24900	9 : 20	53		Dandora
Start dumping		6927.4	0	9 : 21	1		
Finish dumping				9 : 55		34	
Dumping site	out			10 : 0	5		
Reach to workshop	in			:			
Total			24900		59	34	Total min.: 93 min.
Collection			0		0	0	
Transportation			24900		53		
Inside the dumping site			0		6	34	Dumping time.: 40 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 2 Date: 19th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akomu

No. of Crew: Estimated Volume: 4.5m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from dumping site	out	6927.4		10 : 0			
Loading-1	in	6930.2	2,800	10 : 24	24		Limuru Rd
	out			10 : 29		5	
Loading-2	in	6930.3	100	10 : 30	1		Limuru Rd
	out			10 : 36		6	
Loading-3	in	6930.4	100	10 : 39	3		Limuru Rd
	out			10 : 41		2	
Loading-4	in	6930.6	200	10 : 45	4		Githuli Rd
	out			10 : 45		0	
Loading-5	in	6931.2	600	10 : 47	2		Masari Rd
	out			10 : 47		0	
Loading-6	in	6931.4	200	10 : 49	2		Masari Rd
	out			10 : 52		3	
Loading-7	in	6932	600	10 : 54	2		Masari Rd
	out			10 : 55		1	
Loading-8	in	6932.1	100	10 : 56	1		Masari Rd
	out			10 : 57		1	
Loading-9	in	6932.5	400	10 : 58	1		Masari Rd
	out			11 : 1		3	
Loading-10	in	6932.6	100	11 : 4	3		Masari Rd
	out			11 : 21		17	
Loading-11	in	6932.8	200	11 : 23	2		Masari Rd
	out			11 : 23		0	
Loading-12	in	6932.9	100	11 : 24	1		Ngao Rd
	out			11 : 24		0	
Loading-13	in	6933.1	200	11 : 26	2		Ngao Rd
	out			11 : 27		1	
Loading-14	in	6933.3	200	11 : 30	3		Ngao Rd
	out			11 : 40		10	
Loading-15	in	6933.6	300	11 : 41	1		Ngao Rd
	out			11 : 45		4	
Loading-16	in	6934.1	500	11 : 46	1		Ngao Rd
	out			11 : 49		3	
Loading-17	in	6935.2	1,100	11 : 53	4		Ngao Rd
	out			11 : 53		0	
Loading-18	in	6935.3	100	11 : 54	1		Ngao Rd Idling for lunch
	out			11 : 57		3	12:00-12:20 (20mins)
Loading-19	in	6935.5	200	12 : 21	24		Ngao Rd
	out			12 : 23		2	
Loading-20	in	6935.8	300	12 : 25	2		Ngao Rd
	out			12 : 25		0	
Loading-21	in	6935.9	100	12 : 27	2		Eldama Ravine Rd
	out			12 : 27		0	

Time & Motion Study Organization: City Bins Trip- 2 Date: 19th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akomu

No. of Crew: Estimated Volume: 4.5m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	6936.1	200	12 : 28	1		Eldama Ravine Rd
	out			12 : 29		1	
Loading-23	in	6936.5	400	12 : 34	5		Eldama Ravine Rd
	out			12 : 34		0	
Loading-24	in	6936.6	100	12 : 35	1		Ring Rd Parklands
	out			12 : 35		0	
Loading-25	in	6936.7	100	12 : 36	1		Ring Rd Parklands
	out			12 : 40		4	
Loading-26	in	6937.7	1,000	12 : 42	2		Ring Rd Parklands
	out			12 : 44		2	
Loading-27	in	6938.3	600	12 : 46	2		Ring Rd Parklands
	out			12 : 47		1	
Loading-28	in	6938.5	200	12 : 48	1		General Mathenge Drive
	out			12 : 50		2	
Loading-29	in	6938.8	300	12 : 53	3		General Mathenge Drive
	out			12 : 53		0	
Loading-30	in	6938.9	100	12 : 55	2		General Mathenge Drive
	out			12 : 55		0	
Loading-31	in	6939.3	400	12 : 58	3		General Mathenge Drive
	out			13 : 0		2	
Loading-32	in	6941	1,700	13 : 8	8		Parklands Rd
	out			13 : 8		0	
Loading-33	in	6942	1,000	13 : 18	10		Parklands Rd
	out			13 : 23		5	
Loading-34	in	6942.5	500	13 : 57	34		Ngong Rd
	out			15 : 50		113	Karen
Dumping site	in			:			
Start dumping				:			
Finish dumping				:			
Dumping site	out			:			
Reach to workshop	in	6984.2	41,700	16 : 55	65		No dumping
Total			56,800		224	191	Total min.: 415 min.
Collection			12,300		115	191	
Transportation			44,500		89		
Inside the dumping site			0		0	0	Dumping time.: min.
Idling time					20		

Time & Motion Study Organization: City Bins Trip- 1 Date: 12th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume:

Location	Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop out	6419		8 : 30			Chambeke Hse off
						Shimo La Tewa
						Lusaka Rd
						Jogoo Rd
						Outering Rd
						Mutarakwa Rd
						Komorok Rd
Dumping site in	6434	15000	9 : 0	30		Dandora
Start dumping			9 : 3	3		
Finish dumping			9 : 34		31	
Dumping site out	6434		9 : 40	6		
Reach to workshop in			:	0		
Total		15000		39	31	Total min.: 70 min.
Collection		0		0	0	No collection
Transportation		15000		30		
Inside the dumping site		0		9	31	Dumping time.: 40 min.
Idling time						

Time & Motion Study Organization: City Bins Trip- 2 Date: 12th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 6.25m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	6434		9 : 40			
Loading-1	in	6446.5	12500	10 : 6	26		Garden Estate Rd
	out			10 : 9		3	
Loading-2	in	6447	500	10 : 12	3		Garden Estate Rd
	out			10 : 13		1	
Loading-3	in	6447.5	500	10 : 13	0		Garden Estate Rd
	out			10 : 14		1	
Loading-4	in	6448	500	10 : 17	3		Garden Estate Rd
	out			10 : 19		2	
Loading-5	in	6448.7	700	10 : 20	1		Ridgeways Rd
	out			10 : 22		2	
Loading-6	in	6464	15300	10 : 53	31		Limuru Rd
	out			11 : 3		10	
Loading-7	in	6464.7	700	11 : 6	3		Limuru Rd
	out			11 : 8		2	
Loading-8	in	6467.1	2400	11 : 13	5		Ruaraka Rd
	out			11 : 13		0	
Loading-9	in	6467.6	500	11 : 13	0		Ruaraka Rd
	out			11 : 14		1	
Loading-10	in	6470	2400	11 : 22	8		Limuru Rd
	out			11 : 24		2	
Loading-11	in	6481.2	11200	11 : 41	17		Limuru Rd
	out			11 : 41		0	
Loading-12	in	6482	800	11 : 42	1		Limuru Rd
	out			11 : 46		4	
Loading-13	in	6482.5	500	11 : 47	1		Limuru Rd
	out			11 : 50		3	
Loading-14	in	6482.6	100	11 : 52	2		Limuru Rd
	out			11 : 53		1	
Loading-15	in	6482.7	100	11 : 53	0		Limuru Rd
	out			11 : 54		1	
Loading-16	in	6482.8	100	11 : 55	1		Limuru Rd
	out			11 : 58		3	
Loading-17	in	6482.9	100	12 : 0	2		Githuri Rd
	out			12 : 2		2	
Loading-18	in	6483	100	12 : 4	2		Githuri Rd
	out			12 : 4		0	
Loading-19	in	6483.4	400	12 : 6	2		Githuri Rd
	out			12 : 6		0	
Loading-20	in	6483.7	300	12 : 7	1		Githuri Rd
	out			12 : 7		0	
Loading-21	in	6483.8	100	12 : 9	2		Githuri Rd
	out			12 : 10		1	

Time & Motion Study Organization: City Bins Trip- 2 Date: 12th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 6.25m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	6484	200	12 : 11	1		Githuri Rd
	out			12 : 11		0	
Loading-23	in	6484.2	200	12 : 13	2		Githuri Rd
	out			12 : 15		2	Mutaji Rd
Loading-24	in	6484.5	300	12 : 15	0		Mutaji Rd
	out			12 : 18		3	
Loading-25	in	6484.9	400	12 : 20	2		Mutaji Rd
	out			12 : 20		0	
Loading-26	in	6485.2	300	12 : 54	34		Mutaji Rd
	out			12 : 57		3	
Loading-27	in	6485.3	100	12 : 57	0		Mutaji Rd
	out			12 : 58		1	
Loading-28	in	6485.5	200	12 : 58	0		Mutaji Rd
	out			12 : 59		1	
Loading-29	in	6485.6	100	13 : 1	2		Mutaji Rd
	out			13 : 1		0	
Loading-30	in	6485.6	0	13 : 1	0		Mutaji Rd
	out			13 : 2		1	
Loading-31	in	6485.8	200	13 : 6	4		Mutaji Rd
	out			13 : 7		1	
Loading-32	in	6486	200	13 : 11	4		Mutaji Rd
	out			13 : 15		4	
Loading-33	in	6486.7	700	13 : 18	3		Ngao Rd
	out			13 : 21		3	
Loading-34	in	6486.8	100	13 : 21	0		Ngao Rd
	out			13 : 22		1	
Loading-35	in	6486.9	100	13 : 23	1		Ngao Rd
	out			13 : 23		0	
Loading-36	in	6487.1	200	13 : 25	2		Ngao Rd
	out			13 : 30		5	Masari Rd
Loading-37	in	6487.2	100	13 : 30	0		Masari Rd
	out			13 : 32		2	
Loading-38	in	6487.3	100	13 : 34	2		Masari Rd
	out			13 : 35		1	
Loading-39	in	6491	3700	13 : 46	11		Nyerere Rd
	out			14 : 16		30	
Loading-40	in	6496	5000	14 : 40	24		Garage Rd
	out			16 : 52		132	
Loading-41	in	6497	1000	16 : 57	5		Garage Rd
	out			17 : 0		3	

Time & Motion Study Organization: City Bins Trip- 2 Date: 12th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 6.25m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Dumping site	in			:			No dumping
Start dumping				:			
Finish dumping				:			
Dumping site	out			:			
Reach to workshop	in	6499.3	2300	17 : 9	9		
Total			65300		217	232	Total min.: 449 min.
Collection			50500		182	232	
Transportation			14800		35		
Inside the dumping site			0		0	0	Dumping time.: min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 13th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume:

Location	Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop out	6499.3		8 : 17			Chambeke Hse Off
						Shimo La Tewa Rd
Dumping site in	6513	13700	8 : 46	29		Dandora
Start dumping			8 : 48	2		
Finish dumping			9 : 22		34	
Dumping site out			:			
Reach to workshop in			:			
Total		13700		31	34	Total min.: 65 min.
Collection		0		0	0	
Transportation		13700		29		
Inside the dumping site		0		2	34	Dumping time.: 36 min.
Idling time						

Time & Motion Study Organization: City Bins Trip- 2 Date: 13th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 5.3m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from dumping site	out	6513		9 : 22			
Loading-1	in	6531.2	18200	10 : 1	39		Ralph Banch Rd
	out			10 : 1		0	
Loading-2	in	6532.3	1100	10 : 7	6		Argwing Kodhek Close
	out			10 : 16		9	
Loading-3	in	6532.5	200	10 : 19	3		Argwing Kodhek Close
	out			10 : 19		0	
Loading-4	in	6532.6	100	10 : 19	0		Argwing Kodhek Close
	out			10 : 21		2	
Loading-5	in	6532.9	300	10 : 24	3		Argwing Kodhek Close
	out			10 : 28		4	
Loading-6	in	6533	100	10 : 31	3		Jabavu Court Close
	out			10 : 40		9	
Loading-7	in	6533.2	200	10 : 44	4		Jabavu Court Close
	out			10 : 44		0	
Loading-8	in	6533.4	200	10 : 44	0		Jabavu Court Close
	out			10 : 45		1	
Loading-9	in	6533.5	100	10 : 46	1		Jabavu Court Close
	out			10 : 46		0	
Loading-10	in	6533.7	200	10 : 47	1		Jabavu Court Close
	out			10 : 48		1	
Loading-11	in	6533.9	200	10 : 48	0		Jabavu Court Close
	out			10 : 48		0	
Loading-12	in	6534	100	10 : 51	3		Jabavu Court Close
	out			10 : 55		4	
Loading-13	in	6534.5	500	10 : 56	1		Jabavu Court Close
	out			10 : 57		1	
Loading-14	in	6534.7	200	10 : 59	2		Jabavu Court Close
	out			11 : 0		1	
Loading-15	in	6535.2	500	11 : 5	5		Jabavu Court Close
	out			11 : 6		1	
Loading-16	in	6535.3	100	11 : 8	2		Jabavu Court Close
	out			11 : 8		0	
Loading-17	in	6535.4	100	11 : 9	1		Jabavu
	out			11 : 9		0	
Loading-18	in	6535.6	200	11 : 11	2		Jabavu
	out			11 : 15		4	
Loading-19	in	6535.9	300	11 : 17	2		Jabavu
	out			11 : 17		0	
Loading-20	in	6536.6	700	11 : 22	5		Jabavu
	out			11 : 22		0	
Loading-21	in	6536.7	100	11 : 24	2		Jabavu
	out			11 : 40		16	

Time & Motion Study Organization: City Bins Trip- 2 Date: 13th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 5.3m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	6536.8	100	11 : 41	1		Jabavu
	out			11 : 44		3	
Loading-23	in	6536.9	100	11 : 45	1		Jabavu
	out			11 : 46		1	
Loading-24	in	6537	100	11 : 47	1		Jabavu
	out			11 : 47		0	
Loading-25	in	6537.4	400	11 : 49	2		Jabavu
	out			11 : 49		0	
Loading-26	in	6537.6	200	11 : 50	1		Jabavu
	out			11 : 51		1	
Loading-27	in	6537.8	200	11 : 52	1		Jabavu
	out			11 : 52		0	
Loading-28	in	6537.9	100	11 : 54	2		Jabavu
	out			11 : 54		0	
Loading-29	in	6538	100	11 : 56	2		Jabavu
	out			11 : 56		0	
Loading-30	in	6538.2	200	11 : 57	1		Jabavu
	out			11 : 59		2	
Loading-31	in	6538.7	500	12 : 1	2		Jabavu
	out			12 : 5		4	
Loading-32	in	6539.2	500	12 : 7	2		Jabavu
	out			12 : 9		2	
Loading-33	in	6539.3	100	12 : 9	0		
	out			12 : 10		1	
Loading-34	in	6539.6	300	12 : 14	4		Kindaruma Rd
	out			12 : 19		5	
Loading-35	in	6539.8	200	12 : 20	1		Kindaruma Rd
	out			12 : 20		0	
Loading-36	in	6540	200	12 : 22	2		Kindaruma Rd
	out			12 : 22		0	
Loading-37	in	6540.1	100	12 : 23	1		Kindaruma Rd
	out			12 : 28		5	
Loading-38	in	6540.2	100	12 : 31	3		Kindaruma Rd
	out			12 : 32		1	
Loading-39	in	6540.6	400	12 : 32	0		Kindaruma Rd
	out			12 : 52		20	
Loading-40	in	6540.8	200	13 : 1	9		Ngong Rd
	out			13 : 4		3	
Loading-41	in	6541	200	13 : 7	3		Ngong Rd
	out			13 : 12		5	
Loading-42	in	6541.2	200	13 : 16	4		Ngong Rd
	out			13 : 16		0	Idling(Repair) 13:16-13:17 1m
Loading-43	in	6541.3	100	13 : 19	3		Ngong Rd
	out			13 : 19		0	

Time & Motion Study Organization: City Bins Trip- 2 Date: 13th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 5.3m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	6541.3	0	13 : 20	1		Ngong Rd
	out			13 : 20		0	
Loading-45	in	6541.4	100	13 : 20	0		Ngong Rd
	out			13 : 21		1	
Loading-46	in	6542.7	1300	13 : 28	7		Ngong Rd
	out			13 : 31		3	
Loading-47	in	6543.2	500	13 : 35	4		Ngong Rd
	out			13 : 39		4	
Loading-48	in	6544.3	1100	13 : 43	4		Ndemi Rd
	out			13 : 44		1	
Loading-49	in	6545.4	1100	13 : 47	3		Ndemi Rd
	out			13 : 50		3	
Loading-50	in	6545.6	200	13 : 50	0		Riara Rd
	out			13 : 51		1	
Loading-51	in	6545.7	100	13 : 53	2		Riara Rd
	out			13 : 54		1	
Loading-52	in	6545.8	100	13 : 56	2		Riara Rd
	out			13 : 58		2	
Loading-53	in	6546.1	300	13 : 59	1		Riara Rd
	out			13 : 59		0	
Loading-54	in	6546.6	500	14 : 2	3		Riara Rd
	out			14 : 3		1	
Loading-55	in	6546.9	300	14 : 5	2		Riara Rd
	out			14 : 6		1	
Loading-56	in	6547	100	14 : 10	4		Riara Rd
	out			14 : 11		1	
Loading-57	in	6547.1	100	14 : 11	0		Riara Rd
	out			14 : 11		0	
Loading-58	in	6547.4	300	14 : 15	4		Riara Rd
	out			14 : 18		3	
Loading-59	in	6549.7	2300	14 : 21	3		Riara Rd
	out			14 : 22		1	
Loading-60	in	6551.4	1700	14 : 27	5		Riara Rd
	out			14 : 29		2	
Loading-61	in	6551.5	100	14 : 34	5		Riara Rd
	out			14 : 35		1	
Dumping site	in	6571.1	19600	15 : 20	45		Dandora D site
Start dumping		6571.2	100	15 : 22	2		
Finish dumping		6571.2	0	15 : 41		19	
Dumping site	out	6571.4	200	15 : 43	2		
Reach to workshop	in	6585	13600	16 : 13	30		

Time & Motion Study Organization: City Bins Trip- 2 Date: 13th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 5.3m^3

Location	Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Total		72000		260	151	Total min.: 411 min.
Collection		20300		141	132	
Transportation		51400		114		
Inside the dumping site		300		4	19	Dumping time.: 23 min.
Idling time				1		

Time & Motion Study Organization: City Bins Trip- 1 Date: 14th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 9.3m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	6585		8 : 30			
Loading-1	in	6589.5	4500	8 : 41	11		Nyerere Rd
	out			8 : 53		12	
Loading-2	in	6591.9	2400	8 : 58	5		Chiromo Rd
	out			9 : 4		6	
Loading-3	in	6592	100	9 : 7	3		Ring Rd Westlands
	out			9 : 7		0	
Loading-4	in	6592.9	900	9 : 11	4		Ring Rd Westlands
	out			9 : 11		0	
Loading-5	in	6593.1	200	9 : 13	2		Ring Rd Westlands
	out			9 : 13		0	
Loading-6	in	6593.4	300	9 : 14	1		Ring Rd Westlands
	out			9 : 15		1	
Loading-7	in	6593.6	200	9 : 17	2		Ring Rd Westlands
	out			9 : 18		1	
Loading-8	in	6594.2	600	9 : 20	2		Ring Rd Westlands
	out			9 : 20		0	
Loading-9	in	6594.9	700	9 : 23	3		Ring Rd Westlands
	out			9 : 23		0	
Loading-10	in	6595.2	300	9 : 25	2		Ring Rd Westlands
	out			9 : 25		0	
Loading-11	in	6595.4	200	9 : 26	1		Ring Rd Westlands
	out			9 : 26		0	
Loading-12	in	6595.5	100	9 : 28	2		Sports Rd
	out			9 : 29		1	
Loading-13	in	6595.6	100	9 : 30	1		Sports Rd
	out			9 : 31		1	
Loading-14	in	6595.7	100	9 : 32	1		Sports Rd
	out			9 : 33		1	
Loading-15	in	6595.8	100	9 : 34	1		Sports Rd
	out			9 : 35		1	
Loading-16	in	6595.8	0	9 : 36	1		Sports Rd
	out			9 : 38		2	
Loading-17	in	6595.9	100	9 : 38	0		Sports Rd
	out			9 : 38		0	
Loading-18	in	6596.1	200	9 : 40	2		Sports Rd
	out			9 : 41		1	
Loading-19	in	6596.5	400	9 : 42	1		Sports Rd
	out			9 : 45		3	
Loading-20	in	6596.7	200	9 : 49	4		Sports Rd
	out			9 : 50		1	
Loading-21	in	6596.8	100	9 : 52	2		Church Rd
	out			9 : 55		3	

Time & Motion Study Organization: City Bins Trip- 1 Date: 14th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 9.3m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	6597.2	400	9 : 57	2		Church Rd
	out			9 : 57		0	
Loading-23	in	6597.8	600	9 : 59	2		Church Rd
	out			10 : 4		5	
Loading-24	in	6598	200	10 : 6	2		Muvuli Rd
	out			10 : 11		5	
Loading-25	in	6599.2	1200	10 : 11	0		Muvuli Rd
	out			10 : 15		4	
Loading-26	in	6599.7	500	10 : 17	2		Muvuli Rd
	out			10 : 18		1	
Loading-27	in	6600.1	400	10 : 20	2		Muvuli Rd
	out			10 : 21		1	
Loading-28	in	6600.3	200	10 : 21	0		Muvuli Rd
	out			10 : 24		3	
Loading-29	in	6600.4	100	10 : 24	0		Muvuli Rd
	out			10 : 28		4	
Loading-30	in	6600.7	300	10 : 33	5		Muvuli Rd
	out			10 : 33		0	
Loading-31	in	6601.6	900	10 : 37	4		Mimosa Rd
	out			10 : 37		0	
Loading-32	in	6602.4	800	10 : 43	6		Mimosa Rd
	out			10 : 49		6	
Loading-33	in	6605	2600	10 : 55	6		Ring Rd Westlands
	out			11 : 7		12	
Loading-34	in	6605.2	200	11 : 9	2		Ring Rd Westlands
	out			11 : 9		0	
Loading-35	in	6607.2	2000	11 : 16	7		Ring Rd Westlands
	out			11 : 17		1	
Loading-36	in	6607.5	300	11 : 19	2		Ring Rd Westlands
	out			11 : 20		1	
Loading-37	in	6607.7	200	11 : 21	1		Ring Rd Westlands
	out			11 : 22		1	
Loading-38	in	6607.9	200	11 : 23	1		Ring Rd Westlands
	out			11 : 23		0	
Loading-39	in	6608	100	11 : 25	2		Ring Rd Westlands
	out			11 : 27		2	
Loading-40	in	6608.3	300	11 : 29	2		Muthithi Rd
	out			11 : 31		2	
Loading-41	in	6608.5	200	11 : 33	2		Muthithi Rd
	out			11 : 38		5	
Loading-42	in	6608.6	100	11 : 40	2		Muthithi Rd
	out			11 : 42		2	
Loading-43	in	6608.7	100	11 : 42	0		Muthithi Rd
	out			12 : 0		18	

Time & Motion Study Organization: City Bins Trip- 1 Date: 14th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 9.3m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	6609.1	400	12 : 5	5		Muthithi Rd
	out			12 : 11		6	
Loading-45	in	6610.6	1500	12 : 15	4		Muthithi Rd
	out			12 : 19		4	
Loading-46	in	6611.3	700	12 : 22	3		Muthithi Rd
	out			12 : 24		2	
Loading-47	in	6611.6	300	12 : 25	1		Muthithi Rd
	out			12 : 25		0	
Loading-48	in	6611.8	200	12 : 28	3		Muthithi Rd
	out			12 : 30		2	
Loading-49	in	6611.9	100	12 : 32	2		Muthithi Close
	out			12 : 32		0	
Loading-50	in	6612	100	12 : 33	1		Muthithi Close
	out			12 : 35		2	
Loading-51	in	6612.1	100	12 : 36	1		Muthithi Close
	out			12 : 41		5	
Loading-52	in	6612.3	200	12 : 41	0		Mpaka Rd
	out			12 : 43		2	
Loading-53	in	6612.9	600	12 : 47	4		Parkland Rd
	out			12 : 50		3	
Loading-54	in	6613.3	400	12 : 52	2		Parkland Rd
	out			12 : 53		1	
Loading-55	in	6613.4	100	12 : 53	0		Parkland Rd
	out			12 : 56		3	
Loading-56	in	6614	600	12 : 56	0		Parkland Rd
	out			12 : 56		0	
Loading-57	in	6614.1	100	13 : 0	4		Parkland Rd
	out			13 : 0		0	
Loading-58	in	6614.5	400	13 : 3	3		General Mathenge Drive
	out			13 : 4		1	
Loading-59	in	6615.8	1300	13 : 10	6		General Mathenge Drive
	out			13 : 11		1	
Loading-60	in	6615.9	100	13 : 11	0		General Mathenge Drive
	out			13 : 12		1	
Loading-61	in	6616	100	13 : 12	0		General Mathenge Drive
	out			13 : 13		1	
Loading-62	in	6616.2	200	13 : 14	1		General Mathenge Drive
	out			13 : 18		4	
Loading-63	in	6616.5	300	13 : 18	0		General Mathenge Drive
	out			13 : 22		4	
Loading-64	in	6617.1	600	13 : 26	4		General Mathenge Drive
	out			13 : 26		0	
Loading-65	in	6617.4	300	13 : 30	4		General Mathenge Drive
	out			13 : 30		0	

Time & Motion Study Organization: City Bins Trip- 1 Date: 14th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 9.3m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-66	in	6618	600	13 : 34	4		General Mathenge Drive
	out			13 : 36		2	
Loading-67	in	6619.2	1200	13 : 43	7		General Mathenge Drive
	out			13 : 43		0	
Loading-68	in	6619.4	200	13 : 44	1		General Mathenge Drive
	out			13 : 45		1	
Loading-69	in	6619.8	400	13 : 50	5		General Mathenge Drive
	out			14 : 13		23	
Loading-70	in	6619.9	100	14 : 15	2		General Mathenge Drive
	out			14 : 19		4	
Loading-71	in	6619.9	0	14 : 20	1		General Mathenge Drive
	out			14 : 20		0	
Loading-72	in	6620	100	14 : 21	1		General Mathenge Drive
	out			14 : 21		0	
Loading-73	in	6620.1	100	14 : 22	1		General Mathenge Drive
	out			14 : 22		0	
Loading-74	in	6620.6	500	14 : 26	4		General Mathenge Drive
	out			14 : 29		3	
Loading-75	in	6621.2	600	14 : 34	5		General Mathenge Drive
	out			14 : 36		2	
Loading-76	in	6621.5	300	14 : 37	1		General Mathenge Drive
	out			14 : 38		1	
Loading-77	in	6621.7	200	14 : 40	2		Masari Rd
	out			14 : 41		1	
Loading-78	in	6621.8	100	14 : 41	0		Masari Rd
	out			14 : 42		1	
Loading-79	in	6621.9	100	14 : 42	0		Masari Rd
	out			14 : 43		1	
Loading-80	in	6622	100	14 : 44	1		Masari Rd
	out			14 : 50		6	
Loading-81	in	6622.2	200	14 : 51	1		Masari Rd
	out			14 : 54		3	
Loading-82	in	6622.4	200	14 : 56	2		Masari Rd
	out			14 : 57		1	
Loading-83	in	6623.1	700	14 : 59	2		Masari Rd
	out			14 : 59		0	
Loading-84	in	6623.3	200	15 : 1	2		Masari Rd
	out			15 : 2		1	
Loading-85	in	6623.6	300	15 : 4	2		Masari Rd
	out			15 : 5		1	
Loading-86	in	6624.1	500	15 : 8	3		Masari Rd
	out			15 : 10		2	
Loading-87	in	6624.3	200	15 : 11	1		Elegi Rd
	out			15 : 17		6	

Time & Motion Study Organization: City Bins Trip- 1 Date: 14th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 3 Estimated Volume: 9.3m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-88	in	6624.6	300	15 : 17	0		Elegi Rd
	out			15 : 19		2	
Dumping site	in	6638.1	13500	15 : 40	21		Dandora
Start dumping		6638.3	200	15 : 44	4		
Finish dumping		6638.4	100	16 : 15		31	
Dumping site	out	6638.6	200	16 : 20	5		
Reach to workshop	in	6677	38400	16 : 50	30		
Total			92000		259	241	Total min.: 500 min.
Collection			35100		188	210	
Transportation			56400		62		
Inside the dumping site			500		9	31	Dumping time.: 40 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 15th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 4 Estimated Volume: 3.9m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	6677		9 : 0			
Loading-1	in	6679.2	2200	9 : 7	7		Garage Rd
	out			:			
Loading-2	in	6684.8	5600	9 : 20	13		Enterprise Rd
	out			9 : 29		9	
Loading-3	in	6684.9	100	9 : 30	1		Enterprise Rd
	out			12 : 10		160	
Loading-4	in	6695.3	10400	12 : 32	22		Enterprise Rd
	out			12 : 36		4	
Loading-5	in	6695.7	400	12 : 38	2		Biashara St
	out			12 : 44		6	
Loading-6	in	6696.1	400	12 : 46	2		Mundi Mbingu St
	out			12 : 52		6	
Loading-7	in	6698.7	2600	13 : 2	10		Westlands Rd
	out			13 : 5		3	
Loading-8	in	6699.2	500	13 : 7	2		Westlands Rd
	out			13 : 12		5	
Loading-9	in	6702.3	3100	13 : 21	9		Nyerere Rd
	out			13 : 34		13	
Dumping site	in	6721.3	19000	14 : 38	64		Dandora
Start dumping		6721.7	400	14 : 40	2		
Finish dumping		6721.8	100	16 : 0		80	
Dumping site	out	6722.2	400	16 : 5	5		
Reach to workshop	in	6738.2	16000	16 : 35	30		
Total			61200		169	286	Total min.: 455 min.
Collection			23100		61	206	
Transportation			37200		101		
Inside the dumping site			900		7	80	Dumping time.: 87 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 17th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 4 Estimated Volume: 3.9m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	6738.2		8 : 44			
Loading-1	in	6743.4	5200	8 : 54	10		Langata Rd
	out			8 : 55		1	
Loading-2	in	6751.5	8100	9 : 9	14		Langata Rd
	out			9 : 13		4	
Loading-3	in	6755	3500	9 : 22	9		Ngont View Rise
	out			9 : 23		1	
Loading-4	in	6766	11000	9 : 37	14		Dagoretti Rd
	out			9 : 38		1	Ressurection Rd
Loading-5	in	6776.1	10100	9 : 52	14		Dagoretti Rd
	out			9 : 53		1	
Loading-6	in	6783.5	7400	10 : 6	13		Dagoretti Rd
	out			10 : 6		0	
Loading-7	in	6791.2	7700	10 : 16	10		Ngong Rd
	out			10 : 19		3	
Loading-8	in	6792	800	10 : 23	4		Ngong Rd
	out			10 : 24		1	
Loading-9	in	6792.5	500	10 : 26	2		Riara Rd
	out			10 : 30		4	
Loading-10	in	6792.6	100	10 : 31	1		Riara Rd
	out			10 : 31		0	
Loading-11	in	6794.7	2100	10 : 36	5		Hatheru Rd
	out			10 : 36		0	
Loading-12	in	6795.8	1100	10 : 42	6		Hatheru Rd
	out			10 : 44		2	
Loading-13	in	6795.9	100	10 : 44	0		Hatheru Rd
	out			10 : 45		1	
Loading-14	in	6796	100	10 : 46	1		Hatheru Rd
	out			10 : 46		0	
Loading-15	in	6796.1	100	10 : 49	3		Hatheru Rd
	out			10 : 49		0	
Loading-16	in	6796.5	400	10 : 52	3		Hatheru Rd
	out			10 : 53		1	
Loading-17	in	6796.6	100	10 : 54	1		Hatheru Rd
	out			10 : 54		0	
Loading-18	in	6797.2	600	10 : 55	1		Hatheru Rd
	out			10 : 55		0	
Loading-19	in	6798.4	1200	10 : 59	4		Muthangari
	out			11 : 3		4	
Loading-20	in	6799	600	11 : 5	2		Conventory Drive
	out			11 : 6		1	
Loading-21	in	6799.4	400	11 : 8	2		O Washilca Rd
	out			11 : 9		1	

Time & Motion Study Organization: City Bins Trip- 1 Date: 17th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 4 Estimated Volume: 3.9m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	6800	600	11 : 11	2		O Washilca Rd
	out			11 : 12		1	
Loading-23	in	6801.2	1200	11 : 14	2		O Washilca Rd
	out			11 : 18		4	
Loading-24	in	6802.1	900	11 : 21	3		O Washilca Rd
	out			11 : 22		1	
Loading-25	in	6803.1	1000	11 : 28	6		Isaac Githanju
	out			11 : 29		1	
Loading-26	in	6803.2	100	11 : 30	1		Isaac Githanju
	out			11 : 30		0	
Loading-27	in	6804.7	1500	11 : 36	6		Isaac Githanju
	out			11 : 40		4	
Loading-28	in	6804.8	100	11 : 40	0		Isaac Githanju
	out			11 : 41		1	
Loading-29	in	6804.9	100	11 : 43	2		Isaac Githanju
	out			11 : 43		0	
Loading-30	in	6805	100	11 : 46	3		Olengruone Ave
	out			11 : 47		1	
Loading-31	in	6807.8	2800	11 : 51	4		Olengruone Ave
	out			11 : 51		0	
Loading-32	in	6809.4	1600	11 : 58	7		Mageto Rd
	out			11 : 59		1	
Loading-33	in	6810	600	12 : 2	3		Gitangta Rd
	out			12 : 3		1	
Loading-34	in	6810.6	600	12 : 4	1		Gitangta Rd
	out			12 : 4		0	
Loading-35	in	6811.7	1100	12 : 11	7		Gitangta Rd
	out			12 : 13		2	
Loading-36	in	6812.5	800	12 : 15	2		Othaya Rd
	out			12 : 16		1	
Loading-37	in	6812.7	200	12 : 17	1		Othaya Rd
	out			12 : 18		1	
Loading-38	in	6812.9	200	12 : 18	0		Othaya Rd
	out			12 : 19		1	
Loading-39	in	6814.8	1900	12 : 22	3		Elgeyo Marakwet Rd
	out			12 : 24		2	
Loading-40	in	6815.1	300	12 : 25	1		Elgeyo Marakwet Rd
	out			12 : 25		0	
Loading-41	in	6815.4	300	12 : 27	2		Ndemi Rd
	out			12 : 27		0	
Loading-42	in	6815.8	400	12 : 32	5		Ndemi Rd
	out			12 : 33		1	
Loading-43	in	6817.5	1700	12 : 42	9		Kirichwa Rd
	out			12 : 43		1	

Time & Motion Study Organization: City Bins Trip- 1 Date: 17th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 4 Estimated Volume: 3.9m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	6818	500	12 : 47	4		Kirichwa Rd
	out			12 : 47		0	
Loading-45	in	6818.5	500	12 : 49	2		Kirichwa Rd
	out			12 : 49		0	
Loading-46	in	6818.6	100	12 : 50	1		Kirichwa Rd
	out			12 : 52		2	
Loading-47	in	6818.7	100	12 : 52	0		Kirichwa Rd
	out			12 : 54		2	
Loading-48	in	6818.9	200	12 : 56	2		Kirichwa Rd
	out			12 : 58		2	
Loading-49	in	6819	100	13 : 0	2		Kirichwa Rd
	out			13 : 2		2	
Loading-50	in	6819.1	100	13 : 6	4		Kirichwa Rd
	out			13 : 7		1	
Loading-51	in	6819.5	400	13 : 10	3		Kirichwa Rd
	out			13 : 11		1	
Loading-52	in	6819.6	100	13 : 13	2		Kirichwa Rd
	out			13 : 13		0	
Loading-53	in	6819.9	300	13 : 15	2		Kirichwa Rd
	out			13 : 16		1	
Loading-54	in	6820.4	500	13 : 19	3		Kirichwa Rd
	out			13 : 20		1	
Loading-55	in	6820.7	300	13 : 21	1		Kirichwa Rd
	out			13 : 22		1	
Loading-56	in	6821.6	900	13 : 26	4		Kirichwa Rd
	out			13 : 27		1	
Loading-57	in	6822	400	13 : 33	6		Argwing Kodhek
	out			13 : 35		2	
Loading-58	in	6822.4	400	13 : 38	3		Argwing Kodhek
	out			13 : 38		0	
Loading-59	in	6822.9	500	13 : 42	4		Spanish Villas
	out			13 : 49		7	
Loading-60	in	6823.2	300	13 : 51	2		Spanish Villas
	out			14 : 2		11	
Loading-61	in	6823.4	200	14 : 4	2		Spanish Villas
	out			14 : 14		10	
Loading-62	in	6824	600	14 : 17	3		Spanish Villas
	out			14 : 18		1	
Loading-63	in	6824.2	200	14 : 20	2		Nyangumi Rd
	out			14 : 21		1	
Loading-64	in	6824.3	100	14 : 22	1		Nyangumi Rd
	out			14 : 23		1	
Loading-65	in	6824.4	100	14 : 23	0		Chaka Rd
	out			14 : 24		1	

Time & Motion Study Organization: City Bins Trip- 1 Date: 17th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 4 Estimated Volume: 3.9m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-66	in	6825.2	800	14 : 26	2		Tigoni Rd
	out			14 : 28		2	
Loading-67	in	6825.7	500	14 : 30	2		Jabavu Rd
	out			14 : 32		2	
Loading-68	in	6826.2	500	14 : 36	4		Jabavu Rd
	out			14 : 39		3	
Loading-69	in	6826.5	300	14 : 44	5		Jabavu Rd
	out			14 : 52		8	
Loading-70	in	6826.7	200	14 : 57	5		Mtito Andei Rd
	out			14 : 57		0	
Loading-71	in	6827	300	15 : 0	3		Mtito Andei Rd
	out			15 : 2		2	
Loading-72	in	6827.3	300	15 : 3	1		Mtito Andei Rd
	out			15 : 5		2	
Loading-73	in	6827.7	400	15 : 9	4		Mtito Andei Rd
	out			15 : 9		0	
Loading-74	in	6827.9	200	15 : 11	2		Mtito Andei Rd
	out			15 : 12		1	
Loading-75	in	6828	100	15 : 14	2		Mtito Andei Rd
	out			15 : 14		0	
Loading-76	in	6828.6	600	15 : 19	5		Mtito Andei Rd
	out			15 : 24		5	
Loading-77	in	6828.7	100	15 : 25	1		Mtito Andei Rd
	out			15 : 30		5	
Loading-78	in	6829	300	15 : 35	5		Mtito Andei Rd
	out			:			
Dumping site	in	6847.9	18900	16 : 19	44		Dandora
Start dumping		6848.1	200	16 : 21	2		
Finish dumping		6848.2	100	17 : 0		39	
Dumping site	out	6848.4	200	17 : 3	3		
Reach to workshop	in	6862.1	13700	17 : 38	35		
Total			123900		367	167	Total min.: 534 min.
Collection			85600		273	128	
Transportation			37800		89		
Inside the dumping site			500		5	39	Dumping time.: 44 min.
Idling time							

Time & Motion Study Organization: City Bins Trip- 1 Date: 18th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 4 Estimated Volume: 6.25m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out	6862.1		8 : 26			
Loading-1	in	6864.4	2300	8 : 33	7		Bamburi Rd
	out			8 : 52		19	
Loading-2	in	6864.5	100	8 : 52	0		
	out			10 : 10		78	
Loading-3	in	6866	1500	10 : 20	10		Dar-salam Rd
	out			10 : 29		9	
Loading-4	in	6872.3	6300	10 : 47	18		Chiromo Rd
	out			10 : 52		5	
Loading-5	in	6872.5	200	10 : 53	1		Ring Rd Westlands
	out			11 : 8		15	
Loading-6	in	6872.9	400	11 : 11	3		Ring Rd Westlands
	out			11 : 14		3	
Loading-7	in	6873.3	400	11 : 16	2		Lantana Rd
	out			11 : 17		1	
Loading-8	in	6873.7	400	11 : 19	2		Lantana Rd
	out			11 : 23		4	
Loading-9	in	6874.2	500	11 : 28	5		Sports Rd
	out			11 : 31		3	
Loading-10	in	6875.3	1100	11 : 36	5		Sports Rd
	out			11 : 36		0	
Loading-11	in	6875.6	300	11 : 38	2		Sports Rd
	out			11 : 42		4	
Loading-12	in	6875.9	300	11 : 44	2		Sports Rd
	out			11 : 48		4	
Loading-13	in	6876	100	11 : 52	4		Sports Rd
	out			11 : 52		0	
Loading-14	in	6876.1	100	11 : 53	1		Sports Rd
	out			11 : 55		2	
Loading-15	in	6876.2	100	11 : 57	2		Sports Rd
	out			11 : 59		2	
Loading-16	in	6876.5	300	12 : 1	2		Sports Rd
	out			12 : 2		1	
Loading-17	in	6876.6	100	12 : 3	1		Sports Rd
	out			12 : 6		3	
Loading-18	in	6876.7	100	12 : 7	1		Sports Rd
	out			12 : 8		1	
Loading-19	in	6877.2	500	12 : 10	2		Mvuli Rd
	out			12 : 10		0	
Loading-20	in	6877.3	100	12 : 13	3		Church Rd
	out			12 : 16		3	
Loading-21	in	6878.4	1100	12 : 20	4		Waiyaki Way
	out			12 : 21		1	

Time & Motion Study Organization: City Bins Trip- 1 Date: 18th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 4 Estimated Volume: 6.25m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in	6879.3	900	12 : 27	6		Waiyaki Way
	out			12 : 30		3	
Loading-23	in	6879.4	100	12 : 31	1		Waiyaki Way
	out			12 : 38		7	
Loading-24	in	6880.1	700	12 : 38	0		Waiyaki Way
	out			12 : 42		4	
Loading-25	in	6880.6	500	12 : 44	2		Waiyaki Way
	out			12 : 45		1	
Loading-26	in	6880.9	300	12 : 47	2		Waiyaki Way
	out			12 : 48		1	
Loading-27	in	6881	100	12 : 50	2		Waiyaki Way
	out			12 : 52		2	
Loading-28	in	6882.1	1100	12 : 56	4		Waiyaki Way
	out			12 : 58		2	
Loading-29	in	6882.7	600	13 : 2	4		Waiyaki Way
	out			13 : 5		3	
Loading-30	in	6883.1	400	13 : 8	3		Waiyaki Way
	out			13 : 17		9	
Loading-31	in	6886	2900	13 : 23	6		Waiyaki Way
	out			13 : 25		2	
Loading-32	in	6886.2	200	13 : 30	5		Waiyaki Way
	out			13 : 41		11	
Loading-33	in	6888.4	2200	13 : 47	6		Museum Hill Rd
	out			13 : 50		3	
Loading-34	in	6888.6	200	13 : 51	1		Museum Hill Rd
	out			13 : 53		2	
Loading-35	in	6888.7	100	13 : 54	1		Museum Hill Rd
	out			13 : 58		4	
Loading-36	in	6889	300	13 : 59	1		Chiromo Lane
	out			14 : 1		2	
Loading-37	in	6889.2	200	14 : 2	1		Chiromo Lane
	out			14 : 3		1	
Loading-38	in	6889.5	300	14 : 7	4		Chiromo Lane
	out			14 : 10		3	
Loading-39	in	6889.6	100	14 : 11	1		Chiromo Lane
	out			14 : 11		0	
Loading-40	in	6889.8	200	14 : 13	2		Chiromo Lane
	out			14 : 23		10	
Loading-41	in	6889.9	100	15 : 25	62		Chiromo Lane
	out			15 : 25		0	
Loading-42	in	6890.1	200	15 : 29	4		Westlands Close
	out			15 : 31		2	
Loading-43	in	6890.6	500	15 : 34	3		Westlands Close
	out			15 : 36		2	

Time & Motion Study Organization: City Bins Trip- 1 Date: 18th November 1997

Vehicle No. AH850S Loading Capacity: 3.3t Researcher's name: Veronicah Akumu

No. of Crew: 4 Estimated Volume: 6.25m3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in	6890.9	300	15 : 38	2		Westlands Close
	out			15 : 38		0	
Loading-45	in	6891	100	15 : 40	2		Westlands Close
	out			15 : 42		2	
Loading-46	in	6891.1	100	15 : 45	3		Muthithi Rd
	out			15 : 50		5	
Loading-47	in	6891.2	100	15 : 52	2		Muthithi Rd
	out			15 : 52		0	
Loading-48	in	6892	800	15 : 55	3		Muthithi Rd
	out			15 : 57		2	
Loading-49	in	6892.2	200	15 : 59	2		Muthithi Rd
	out			16 : 4		5	
Loading-50	in	6892.4	200	16 : 5	1		Mpaka Rd
	out			16 : 6		1	
Loading-51	in	6893.3	900	16 : 16	10		Parklands Rd
	out			:			
Dumping site	in			:			
Start dumping				:			
Finish dumping				:			
Dumping site	out			:			
Reach to workshop	in	6902.5	9200	16 : 33	17		No dumping due to rain
Total			40400		240	247	Total min.: 487 min.
Collection			28900		216	247	
Transportation			11500		24		
Inside the dumping site			0		0	0	Dumping time.: min.
Idling time							

DOMESTIC REFUSE DISPOSAL (K) LIMITED
(DRDS)

Time & Motion Study Organization: DRDS Trip- 1 Date: 12/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: $6m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from depot	out			6 : 45			From Depot
Loading-1	in		15,000	10 : 59	254		State House Avenue
	out		0	11 : 0		1	
Loading-2	in		2,700	11 : 4	4		Lenana Rd.(Sports Bar &
	out		0	11 : 18		14	Restaurant)
Loading-3	in		3,500	11 : 24	6		Royal Nairobi Golf Club
	out		0	11 : 25		1	(on Mucai Drive off Ngong Rd.)
Loading-4	in		500	11 : 26	1		Sunview Academy(on
	out		0	11 : 28		2	Bagamoyo Rd.)
Loading-5	in		550	11 : 29	1		Mbaruku Rd.
	out		0	11 : 30		1	
Loading-6	in		1,500	11 : 33	3		Magiwa Estate(on
	out		0	11 : 38		5	Mbagethi Rd.)
Loading-7	in		8,400	11 : 51	13		Strathmore College(on Ole
	out			12 : 1		10	Sangale Road)
Loading-8	in		6,500	12 : 12	11		The Halls(on Baricho Rd.)
	out		0	12 : 20		8	
Loading-9	in		5,000	12 : 27	7		Muhoho Avenue
	out		0	12 : 28		1	
Loading-10	in		13,500	12 : 41	13		Smoothline Motor Dealers
	out		0	12 : 49		8	& Garage(Falcon Rd.)
Loading-11	in		2,400	12 : 54	5		United States Mission
	out			13 : 32		38	Warehouse Complex
							(Enterprise Rd.)
Dumping site	in		10,000	15 : 0	88		Dandora
Start dumping				15 : 7	7		
Finish dumping				16 : 9		62	
Dumping site	out			16 : 13	4		
Reach to workshop	in		15,000	16 : 59	46		
Total			84,550		463	151	Total min.: 614 min.
Collection			44,550		64	89	
Transportation			40,000		388		
Inside the dumping site			0		11	62	Dumping time.: 73 min.
Idling time							

Time & Motion Study Organization: DRDS Trip- 1 Date: 13/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 6,1875m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 26			From Workshop
Loading-1	in		14,000	8 : 43	17		Westlands Rd.
	out		0	8 : 45		2	
Loading-2	in		600	8 : 47	2		
	out		0	8 : 49		2	
Loading-3	in		600	8 : 51	2		Mukinduri Close
	out		0	8 : 54		3	
Loading-4	in		600	8 : 56	2		Mogotio Rd.
	out		0	8 : 57		1	
Loading-5	in		600	8 : 59	2		Ojijo Rd.
	out		0	9 : 4		5	
Loading-6	in		300	9 : 5	1		Parklands Rd.
	out		0	9 : 7		2	
Loading-7	in		300	9 : 8	1		Wambugu Grove
	out		0	9 : 9		1	
Loading-8	in		300	9 : 10	1		Wambugu Rd.
	out		0	9 : 11		1	
Loading-9	in		1,200	9 : 15	4		Bhanderi Rd.
	out		0	9 : 16		1	
Loading-10	in		300	9 : 17	1		
	out		0	9 : 21		4	
Loading-11	in		600	9 : 23	2		M. P. Shah Flats
	out		0	9 : 27		4	
Loading-12	in		300	9 : 28	1		Shivachi Rd.
	out		0	9 : 29		1	
Loading-13	in		300	9 : 30	1		Parklands Rd.
	out		0	9 : 32		2	
Loading-14	in		1,500	9 : 35	3		Parklands Rd.
	out		0	9 : 37		2	
Loading-15	in		2,000	9 : 41	4		Westlands Ave.
	out		0	9 : 42		1	
Loading-16	in		1,500	9 : 45	3		Ring Rd. Westlands Lane
	out		0	9 : 47		2	
Loading-17	in		500	9 : 50	3		Lantana Rd.
	out		0	9 : 51		1	
Loading-18	in		500	9 : 52	1		David Osieli Rd.
	out		0	9 : 54		2	
Loading-19	in		500	9 : 55	1		Rhapta Rd.
	out		0	9 : 56		1	
Loading-20	in		500	9 : 57	1		Mvuli Rd.
	out		0	9 : 59		2	
Loading-21	in		500	10 : 0	1		Liza Apartments(Rhapta Rd.)
	out		0	10 : 5		5	

Time & Motion Study Organization: DRDS Trip- 1 Date: 13/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 6,1875m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in		500	10 : 6	1		David Osieli Rd.
	out		0	10 : 7		1	
Loading-23	in		100	10 : 8	1		Sports Rd.
	out		0	10 : 9		1	
Loading-24	in		100	10 : 10	1		Sports Rd.
	out		0	10 : 15		5	
Loading-25	in		200	10 : 16	1		Tasneem Terrace
	out		0	10 : 17		1	
Loading-26	in		400	10 : 19	2		Muvuli Flats
	out		0	10 : 20		1	
Loading-27	in		400	10 : 22	2		Hampton House
	out		0	10 : 24		2	
Loading-28	in		200	10 : 25	1		American Refugee Committee
	out		0	10 : 29		4	
Loading-29	in		600	10 : 32	3		Mahiga Mairu Ave.
	out		0	10 : 33		1	
Loading-30	in		400	10 : 35	2		Brookside Grove
	out		0	10 : 37		2	
Loading-31	in		400	10 : 39	2		School Lane
	out		0	10 : 42		3	
Loading-32	in		600	10 : 45	3		KP & LC Staff Quarters
	out		0	10 : 49		4	
Loading-33	in		400	10 : 51	2		Karuna Rd.
	out		0	10 : 52		1	
Loading-34	in		600	10 : 55	3		General Mathenge Drive
	out		0	10 : 56		1	
Loading-35	in		200	10 : 57	1		General Mathenge Drive
	out		0	10 : 58		1	
Loading-36	in		400	10 : 59	1		
	out		0	11 : 3		4	Oshwal Jain Primary School
Loading-37	in		600	11 : 5	2		Masanaka Rd.
	out		0	11 : 8		3	
Loading-38	in		300	11 : 9	1		Ndovu Ahmed Rd.
	out		0	11 : 15		6	
Loading-39	in		400	11 : 17	2		1st Avenue Parklands
	out		0	11 : 19		2	
Loading-40	in		400	11 : 21	2		Bantu Gardens
	out		0	11 : 23		2	
Loading-41	in		200	11 : 24	1		2nd Avenue Parklands
	out		0	11 : 27		3	
Loading-42	in		200	11 : 28	1		2nd Avenue Parklands
	out		0	11 : 35		7	
Loading-43	in		200	11 : 36	1		2nd Avenue Parklands
	out		0	11 : 40		4	

Time & Motion Study Organization: DRDS Trip- 1 Date: 13/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 6,1875m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in		200	11 : 41	1		2nd Avenue Parklands
	out		0	11 : 42		1	
Dumping site	in		15,000	12 : 57	75		Got stock in Mud
Start dumping				13 : 14	17		(12:59-13:09) 10min.
Finish dumping				13 : 37		23	Dandora
Dumping site	out			13 : 43	6		
Reach to workshop	in			:			
Total			50,500		189	128	Total min.: 317 min.
Collection			21,500		74	105	
Transportation			29,000		92		
Inside the dumping site			0		13	23	Dumping time.: 36 min.
Idling time					10		

Time & Motion Study Organization: DRDS Trip- 2 Date: 13/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 3.375m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from dumping site	out			13 : 43			
Loading-1	in		15,000	14 : 44	61		Jainsala Rd.
	out		0	15 : 6		22	
Loading-2	in		400	15 : 15	9		Jainsala Rd.
	out		0	15 : 29		14	
Dumping site	in		15,000	16 : 34	65		Dandora
Start dumping				16 : 37	3		
Finish dumping				16 : 45		8	
Dumping site	out			16 : 54	9		
Reach to workshop	in		15,000	17 : 51	57		
Total			45,400		204	44	Total min.: 248 min.
Collection			400		9	36	
Transportation			45,000		183		
Inside the dumping site			0		12	8	Dumping time.: 20 min.
Idling time							

Time & Motion Study Organization: DRDS Trip- 1 Date: 14/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: $6m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 37			(From Workshop) Lenana Rd.
Loading-1	in		600	8 : 47	10		Dennis Pritt Rd.
	out		0	8 : 50		3	
Loading-2	in		200	8 : 51	1		Dennis Pritt Rd.
	out		0	8 : 52		1	
Loading-3	in		400	8 : 54	2		Lenana Rd.
	out		0	8 : 56		2	
Loading-4	in		400	8 : 58	2		Jabavu Rd.
	out		0	8 : 59		1	
Loading-5	in		200	9 : 0	1		Jabavu Rd.
	out		0	9 : 4		4	
Loading-6	in		200	9 : 5	1		Jabavu Rd.
	out		0	9 : 7		2	
Loading-7	in		800	9 : 11	4		Argwing Kodher Rd.
	out		0	9 : 18		7	
Loading-8	in		2,400	9 : 30	12		Mtito Andei Rd.
	out		0	9 : 31		1	
Loading-9	in		200	9 : 32	1		Lenana Rd.
	out		0	9 : 33		1	
Loading-10	in		200	9 : 34	1		Makuyu Lane
	out		0	9 : 35		1	
Loading-11	in		1,400	9 : 41	6		Theta Lane
	out		0	9 : 42		1	
Loading-12	in		200	9 : 43	1		Lenana Rd.
	out		0	9 : 44		1	
Loading-13	in		400	9 : 46	2		Dennis Pritt Rd.
	out		0	9 : 48		2	(Rose Ave.)
Loading-14	in		400	9 : 50	2		Dennis Pritt Rd.
	out		0	9 : 52		2	(Kitale Lane)
Loading-15	in		200	9 : 53	1		Dennis Pritt Rd.
	out		0	9 : 54		1	
Loading-16	in		200	9 : 55	1		Dennis Pritt Rd.
	out		0	10 : 4		9	
Loading-17	in		200	10 : 5	1		Dennis Pritt Rd.
	out		0	10 : 6		1	
Loading-18	in		200	10 : 7	1		Dennis Pritt Rd.
	out		0	10 : 10		3	(Likoni Lane)
Loading-19	in		400	10 : 12	2		Nyangumi Rd.
	out		0	10 : 14		2	
Loading-20	in		200	10 : 15	1		
	out		0	10 : 16		1	
Loading-21	in		200	10 : 17	1		
	out		0	10 : 18		1	

Time & Motion Study Organization: DRDS Trip- 1 Date: 14/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: $6m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in		200	10 : 19	1		Galana Rd.
	out		0	10 : 21		2	
Loading-23	in		200	10 : 22	1		Galana Rd.
	out		0	10 : 23		1	
Loading-24	in		200	10 : 24	1		Lenana Rd.
	out		0	10 : 25		1	
Loading-25	in		200	10 : 26	1		Lenana Rd.
	out		0	10 : 27		1	
Loading-26	in		1,000	10 : 32	5		Turbo Rd.
	out		0	10 : 36		4	
Loading-27	in		400	10 : 38	2		Lenana Rd.
	out		0	10 : 39		1	
Loading-28	in		200	10 : 40	1		Kasuku Rd.
	out		0	10 : 42		2	
Loading-29	in		200	10 : 43	1		
	out		0	10 : 45		2	
Loading-30	in		200	10 : 46	1		Chaka Rd.
	out		0	10 : 53		7	
Loading-31	in		200	10 : 54	1		Chaka Rd.
	out		0	10 : 56		2	
Loading-32	in		200	10 : 57	1		Chaka Rd.
	out		0	10 : 58		1	
Loading-33	in		200	10 : 59	1		Tigoni Rd.
	out		0	11 : 1		2	
Loading-34	in		200	11 : 2	1		Tigoni Rd.
	out		0	11 : 3		1	
Loading-35	in		250	11 : 4	1		Argwings Kodhek Rd.
	out		0	11 : 5		1	
Loading-36	in		1,000	11 : 11	6		Argwings Kodhek Rd.
	out		0	11 : 13		2	
Loading-37	in		400	11 : 15	2		Argwings Kodhek Rd.
	out		0	11 : 19		4	
Loading-38	in		600	11 : 22	3		Kabarnet Rd.
	out		0	11 : 23		1	
Loading-39	in		200	11 : 24	1		Kabarnet Rd.
	out		0	11 : 26		2	
Loading-40	in		200	11 : 27	1		Kabarnet Rd.
	out		0	11 : 28		1	
Loading-41	in		600	11 : 31	3		Kindaruma Rd.
	out		0	11 : 34		3	
Loading-42	in		200	11 : 35	1		Kindaruma Rd.
	out		0	11 : 40		5	
Loading-43	in		200	11 : 41	1		Kindaruma Rd.
	out		0	11 : 42		1	

Time & Motion Study Organization: DRDS Trip- 1 Date: 14/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: $6m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in		400	11 : 44	2		Ring Rd. kilimani
	out		0	11 : 46		2	
Loading-45	in		400	11 : 48	2		Ring Rd. kilimani
	out		0	11 : 50		2	
Loading-46	in		200	11 : 51	1		Ring Rd. kilimani
	out		0	11 : 52		1	
Loading-47	in		200	11 : 53	1		Wood Avenue
	out			11 : 54		1	
Dumping site	in		15,000	13 : 45	111		Dandora
Start dumping				13 : 54	9		
Finish dumping				14 : 25		31	
Dumping site	out			14 : 34	9		
Reach to workshop	in		15,000	19 : 30	296		Vehicle in Garage from
							15:00-19:00 240min.
Total			48,050		522	131	Total min.: 653 min.
Collection			17,450		87	100	
Transportation			30,600		177		
Inside the dumping site			0		18	31	Dumping time.: 49 min.
Idling time					240		

Time & Motion Study Organization: DRDS Trip- 1 Date: 15/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 5.6m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 27			
Loading-1	in		2,000	8 : 53	26		Mpaka Rd.
	out		0	9 : 11		18	
Loading-2	in		10,000	9 : 33	22		Komorock Rd.
	out		0	9 : 37		4	
Loading-3	in		50	9 : 38	1		Komorock Rd.
	out		0	9 : 39		1	
Loading-4	in		100	9 : 42	3		Komorock Rd.
	out		0	10 : 3		21	
Dumping site	in		5,000	10 : 9	6		Dandora
Start dumping				10 : 11	2		
Finish dumping				10 : 35		24	
Dumping site	out			10 : 36	1		
Reach to workshop	in						
Total			17,150		61	68	Total min.: 129 min.
Collection			10,150		26	44	
Transportation			7,000		32		
Inside the dumping site			0		3	24	Dumping time.: 27 min.
Idling time							

Time & Motion Study Organization: DRDS Trip- 2 Date: 15/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 1.6875m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from dumping site	out			10 : 36			
Loading-1	in		15,000	11 : 1	25		Mpaka Rd.
	out		0	12 : 44		103	
Loading-2	in		200	12 : 49	5		Mpaka Rd.
	out		0	13 : 38		49	
Dumping site	in		200	13 : 48	10		Opposite Holiday Inn
Start dumping				14 : 8	20		Mayfair
Finish dumping				14 : 49		41	
Dumping site	out			14 : 51	2		
Reach to workshop	in		15,000	15 : 2	11		
Total			30,400		73	193	Total min.: 266 min.
Collection			200		5	152	
Transportation			30,200		46		
Inside the dumping site			0		22	41	Dumping time.: 63 min.
Idling time							

Time & Motion Study Organization: DRDS Trip- 1 Date: 17/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 4.5m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 29			From Workshop
Loading-1	in		12,500	8 : 43	14		Oshwal Rd.
	out		0	9 : 10		27	
Loading-2	in		300	9 : 11	1		Limuru Rd.
	out		0	9 : 12		1	
Loading-3	in		12,000	9 : 30	18		Karura Rd.
	out		0	9 : 32		2	
Loading-4	in		3,000	9 : 35	3		Muthaiga Rd.
	out		0	9 : 36		1	
Loading-5	in		1,000	9 : 38	2		Muthaiga Rd.
	out		0	9 : 39		1	
Loading-6	in		3,000	9 : 42	3		Mutundu Rd.
	out		0	9 : 43		1	
Loading-7	in		750	9 : 44	1		Mutundu Rd.
	out		0	9 : 45		1	
Loading-8	in		500	9 : 47	2		Muthaiga Rd.
	out		0	9 : 52		5	
Loading-9	in		12,000	10 : 4	12		Kasarani Rd.
	out		0	10 : 9		5	
Loading-10	in		15,000	10 : 23	14		Garden Estate Rd.
	out		0	10 : 36		13	
Loading-11	in		4,000	10 : 44	8		Ridgeways Rd.
	out		0	10 : 46		2	
Loading-12	in		500	10 : 47	1		Ridgeways Rd.
	out		0	10 : 49		2	
Loading-13	in		1,000	10 : 51	2		Kambu Rd.
	out		0	10 : 53		2	
Loading-14	in		300	10 : 54	1		Kambu Rd.
	out		0	10 : 55		1	
Loading-15	in		5,000	11 : 3	8		New Runda Estate
	out		0	11 : 5		2	
Loading-16	in		1,000	11 : 7	2		New Runda Estate
	out		0	11 : 8		1	
Loading-17	in		500	11 : 9	1		New Runda Estate
	out		0	11 : 10		1	
Loading-18	in		15,000	11 : 41	31		Ruaka Rd.
	out		0	11 : 42		1	
Loading-19	in		2,000	11 : 48	6		
	out		0	11 : 56		8	
Loading-20	in		1,000	11 : 59	3		Limuru Rd.
	out		0	12 : 0		1	
Loading-21	in		500	12 : 2	2		Limuru Rd.
	out		0	12 : 3		1	

Time & Motion Study Organization: DRDS Trip- 1 Date: 17/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 4.5m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in		2,000	12 : 8	5		Limuru Rd.
	out		0	12 : 18		10	
Loading-23	in		5,000	12 : 26	8		Tri-Estate Rd.
	out		0	12 : 29		3	
Loading-24	in		3,000	12 : 35	6		United Nation Ave.
	out		0	12 : 36		1	
Loading-25	in		200	12 : 37	1		United Nation Ave.
	out		0	12 : 39		2	
Loading-26	in		2,000	12 : 45	6		Gardenia Rd.
	out		0	12 : 46		1	
Loading-27	in		1,000	12 : 48	2		Lobella Drive
	out		0	12 : 50		2	
Loading-28	in		1,000	12 : 52	2		Wispers Ave.
	out		0	12 : 58		6	
Loading-29	in		4,000	13 : 5	7		Red Hill Rd.
	out		0	13 : 6		1	
Loading-30	in		500	13 : 8	2		
	out		0	13 : 9		1	
Loading-31	in		500	13 : 10	1		
	out		0	13 : 11		1	
Loading-32	in		500	13 : 12	1		
	out		0	13 : 13		1	
Loading-33	in		500	13 : 15	2		Thigiri Ridge Rd.
	out		0	13 : 16		1	
Loading-34	in		500	13 : 17	1		Thigiri Ridge Rd.
	out		0	13 : 18		1	
Loading-35	in		400	13 : 19	1		
	out		0	13 : 20		1	
Loading-36	in		500	13 : 21	1		
	out		0	13 : 23		2	
Loading-37	in		500	13 : 24	1		
	out		0	13 : 25		1	
Loading-38	in		500	13 : 26	1		
	out		0	13 : 28		2	
Loading-39	in		200	13 : 29	1		
	out		0	13 : 31		2	
Loading-40	in		500	13 : 33	2		
	out		0	13 : 34		1	
Loading-41	in		500	13 : 36	2		Peponi Rd.
	out		0	13 : 37		1	
Loading-42	in		1,000	13 : 49	12		Rhapta Rd.
	out		0	14 : 1		12	

Time & Motion Study Organization: DRDS Trip- 1 Date: 17/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 4.5m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Dumping site	in		15,000	15 : 37	96		
Start dumping				15 : 41	4		
Finish dumping				16 : 27		46	
Dumping site	out			16 : 30	3		
Reach to workshop	in		15,000	17 : 5	35		
Total			145,650		338	178	Total min.: 516 min.
Collection			103,150		186	132	
Transportation			42,500		145		
Inside the dumping site			0		7	46	Dumping time.: 53 min.
Idling time							

Time & Motion Study Organization: DRDS Trip- 1 Date: 18/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 6.1m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 42			From Workshop
Loading-1	in		10,000	8 : 57	15		Riverside Drive
	out		0	9 : 1		4	
Loading-2	in		100	9 : 2	1		Riverside Drive
	out		0	9 : 3		1	
Loading-3	in		100	9 : 4	1		Riverside Drive
	out		0	9 : 5		1	
Loading-4	in		100	9 : 6	1		Riverside Drive
	out		0	9 : 7		1	
Loading-5	in		200	9 : 9	2		Riverside Drive
	out		0	9 : 11		2	
Loading-6	in		100	9 : 12	1		Riverside Drive
	out		0	9 : 13		1	
Loading-7	in		100	9 : 14	1		Riverside Drive
	out		0	9 : 15		1	
Loading-8	in		100	9 : 16	1		Riverside Drive
	out		0	9 : 22		6	
Loading-9	in		100	9 : 23	1		Riverside Drive
	out		0	9 : 24		1	
Loading-10	in		100	9 : 25	1		Riverside Drive
	out		0	9 : 26		1	
Loading-11	in		100	9 : 27	1		Riverside Drive
	out		0	9 : 28		1	
Loading-12	in		100	9 : 29	1		Riverside Drive
	out		0	9 : 30		1	
Loading-13	in		200	9 : 32	2		Riverside Drive
	out		0	9 : 34		2	
Loading-14	in		200	9 : 36	2		Riverside Drive
	out		0	9 : 38		2	
Loading-15	in		100	9 : 39	1		Riverside Drive
	out		0	9 : 41		2	
Loading-16	in		200	9 : 43	2		Riverside Drive
	out		0	9 : 46		3	
Loading-17	in		100	9 : 47	1		Riverside Drive
	out		0	9 : 52		5	
Loading-18	in		100	9 : 53	1		Riverside Drive
	out		0	9 : 54		1	
Loading-19	in		100	9 : 55	1		Riverside Drive
	out		0	10 : 1		6	
Loading-20	in		400	10 : 5	4		Riverside Drive
	out		0	10 : 6		1	
Loading-21	in		200	10 : 8	2		Riverside Drive
	out		0	10 : 10		2	

Time & Motion Study Organization: DRDS Trip- 1 Date: 18/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 6.1m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in		100	10 : 11	1		Riverside Drive
	out		0	10 : 12		1	
Loading-23	in		200	10 : 14	2		Riverside Drive
	out		0	10 : 15		1	
Loading-24	in		200	10 : 17	2		Riverside Drive
	out		0	10 : 23		6	
Loading-25	in		100	10 : 24	1		Riverside Drive
	out		0	10 : 25		1	
Loading-26	in		100	10 : 26	1		Riverside Drive
	out		0	10 : 27		1	
Loading-27	in		100	10 : 28	1		Riverside Drive
	out		0	10 : 29		1	
Loading-28	in		500	10 : 34	5		Laikipia Rd.
	out		0	10 : 36		2	
Loading-29	in		100	10 : 37	1		Laikipia Rd.
	out		0	10 : 39		2	
Loading-30	in		100	10 : 40	1		Laikipia Rd.
	out		0	10 : 42		2	
Loading-31	in		200	10 : 44	2		Laikipia Rd.
	out		0	10 : 45		1	
Loading-32	in		100	10 : 46	1		Laikipia Rd.
	out		0	10 : 49		3	
Loading-33	in		400	10 : 53	4		Migori Rd.
	out		0	10 : 54		1	
Loading-34	in		100	10 : 55	1		Riverside Ring Rd.
	out		0	11 : 0		5	
Loading-35	in		200	11 : 2	2		Riverside Ring Rd.
	out		0	11 : 6		4	
Loading-36	in		500	11 : 9	3		Mandera Rd.
	out		0	11 : 10		1	
Loading-37	in		500	11 : 13	3		
	out		0	11 : 14		1	
Loading-38	in		1,500	11 : 27	13		
	out		0	11 : 28		1	
Loading-39	in		200	11 : 30	2		
	out		0	11 : 39		9	
Loading-40	in		100	11 : 40	1		Elite Homes
	out		0	11 : 49		9	
Loading-41	in		500	11 : 52	3		
	out		0	11 : 53		1	
Loading-42	in		200	11 : 55	2		Mandera Lane
	out		0	11 : 56		1	

Time & Motion Study Organization: DRDS Trip- 1 Date: 18/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 6.1m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-43	in		500	11 : 57	1		Dik Dik Gardens
	out		0	11 : 58		1	
Loading-44	in		100	11 : 59	1		
	out		0	12 : 0		1	
Loading-45	in		100	12 : 1	1		
	out		0	12 : 2		1	
Loading-46	in		100	12 : 3	1		
	out		0	12 : 4		1	
Loading-47	in		1,000	12 : 9	5		
	out			12 : 10		1	
Loading-48	in		100	12 : 11	1		Siaya Rd.
	out			12 : 12		1	
Loading-49	in		500	12 : 15	3		Gatundu Rd.
	out		0	12 : 16		1	
Loading-50	in		100	12 : 17	1		Vihiga Rd.
	out		0	12 : 19		2	
Loading-51	in		100	12 : 20	1		Vihiga Rd.
	out			12 : 21		1	
Loading-52	in		100	12 : 22	1		
	out		0	12 : 24		2	
Loading-53	in		400	12 : 28	4		
	out		0	12 : 29		1	
Loading-54	in		400	12 : 33	4		Othaya Rd.
	out		0	12 : 35		2	
Loading-55	in		200	12 : 37	2		Othaya Rd.
	out		0	12 : 39		2	
Loading-56	in		100	12 : 40	1		Mugoiri Rd.
	out			12 : 44		4	
Loading-57	in		200	12 : 46	2		
	out		0	12 : 48		2	
Loading-58	in		100	12 : 49	1		Kaputei Rd.
	out		0	12 : 50		1	
Loading-59	in		100	12 : 51	1		Kaputei Rd.
	out		0	12 : 52		1	

Time & Motion Study Organization: DRDS Trip- 1 Date: 18/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: 6.1m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Dumping site	in		15,000	15 : 9	137		Dandora
Start dumping				15 : 13	4		
Finish dumping				15 : 58		45	
Dumping site	out			16 : 3	5		
Reach to workshop	in		15,000	16 : 50	47		
Total			53,000		319	169	Total min.: 488 min.
Collection			13,000		111	124	
Transportation			40,000		199		
Inside the dumping site			0		9	45	Dumping time.: 54 min.
Idling time							

Time & Motion Study Organization: DRDS Trip- 1 Date: 19/11/97

Vehicle No. KAG 975R Loading Capacity: 2.20t Researcher's name: Edward M. Gitan

No. of Crew: 3 Estimated Volume: $6m^3$

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			7 : 0			From Workshop
Loading-1	in		15,000	10 : 45	225		State House Ave.
	out		0	10 : 47		2	
Loading-2	in		2,000	10 : 52	5		Lenana Rd.
	out		0	11 : 6		14	
Loading-3	in		3,500	11 : 25	19		Ngong Rd.(Mucai Drive)
	out		0	11 : 27		2	
Loading-4	in		500	11 : 28	1		Mucai Drive
	out		0	11 : 29		1	
Loading-5	in		1,000	11 : 35	6		Bagamoyo Rd.
	out		0	11 : 36		1	
Loading-6	in		2,000	11 : 41	5		Mbagathi Rd.
	out		0	11 : 44		3	
Loading-7	in		8,500	11 : 55	11		Ole Sangale Rd.
	out		0	12 : 10		15	
Loading-8	in		7,000	12 : 17	7		Baricho Rd.
	out		0	12 : 24		7	
Loading-9	in		1,000	12 : 30	6		Dunga Rd.
	out		0	12 : 39		9	
Loading-10	in		5,000	12 : 48	9		Muhoho Ave.
	out		0	12 : 49		1	
Loading-11	in		15,000	13 : 0	11		Enterprise Rd.
	out		0	13 : 5		5	
Loading-12	in		100	13 : 6	1		Enterprise Rd.
	out		0	13 : 10		4	
Loading-13	in		250	13 15	5		Enterprise Rd.
	out		0	13 25		10	
Loading-14	in		100	13 26	1		Enterprise Rd.
	out		0	13 30		4	
Loading-15	in		200	13 33	3		Enterprise Rd.
	out		0	14 4		31	
Dumping site	in		10,000	15 : 36	92		Dandora
Start dumping				15 : 39	3		
Finish dumping				17 : 0		81	
Dumping site	out			17 : 4	4		
Reach to workshop	in		15,000	17 : 34	30		
Total			86,150		444	190	Total min.: 634 min.
Collection			46,150		90	109	
Transportation			40,000		347		
Inside the dumping site			0		7	81	Dumping time.: 88 min.
Idling time							

Time & Motion Study Organization: DRDS Trip- 1 Date: 12th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 3t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 29			
Loading-1	in		9,500	9 : 4	35		Karen
	out		0	9 : 4		0	
Loading-2	in		6,250	9 : 20	16		Masaba
	out		0	9 : 26		6	
Loading-3	in		5,300	9 : 42	16		Kileleshwa
	out		0	9 : 44		2	
Loading-4	in		5,000	10 : 1	17		Pargani
	out		0	10 : 6		5	
Loading-5	in		8,550	10 : 23	17		Industrial Area
	out		0	10 : 33		10	
Loading-6	in		100	10 : 35	2		Industrial Area
	out		0	10 : 56		21	
Loading-7	in		10,500	11 : 10	14		South B.
	out		0	11 : 15		5	
Loading-8	in		6,000	11 : 34	19		Embakasi
	out			12 : 26		52	
Loading-9	in		100	12 : 29	3		Embakasi
	out			12 : 35		6	
							To dumping site followed
							Outer ring rd. - Komorock rd.
Dumping site	in		13,750	13 : 8	33		
Start dumping				13 : 9	1		
Finish dumping				13 : 47		38	
Dumping site	out			13 : 49	2		
Reach to workshop	in			:			
Total			65,050		175	145	Total min.: 320 min.
Collection			41,800		104	107	
Transportation			23,250		68		
Inside the dumping site			0		3	38	Dumping time.: 41 min.
Idling time							

Time & Motion Study Organization: DRDS Trip- 2 Date: 12th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 3t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from dumping site	out			13 : 49			14:05 - 14:40 Lunc Break
Loading-1	in		10,500	14 : 52	63		From dumping site to
	out			16 : 7		75	Industrial Area
							16:25 - 16:35 Idoling Time
							From Industrial Area to
							Dumpingsite took the
							Following Route:
							Enterprise Rd.-Lusaka Rd.-
							Jogoo Rd.-Mumias Rd.-
							Outering Rd. then to
							Dumpingsite
Dumping site	in		10,500	17 : 1	54		
Start dumping			0	17 : 7	6		
Finish dumping			0	17 : 20		13	
Dumping site	out		0	17 : 28	8		
Reach to workshop	in		0	18 : 0	32		
Total			21,000		163	88	Total min.: 251 min.
Collection			0		0	75	
Transportation			21,000		104		
Inside the dumping site			0		14	13	Dumping time.: 27 min.
Idling time					45		

Time & Motion Study Organization: DRDS Trip- 1 Date: 13th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 25			
Loading-1	in		9,500	8 : 49	24		Loresho
	out		0	8 : 52		3	
Loading-2	in		150	8 : 54	2		Loresho
	out		0	8 : 57		3	
Loading-3	in		150	8 : 59	2		Loresho
	out		0	9 : 0		1	
Loading-4	in		100	9 : 1	1		Loresho
	out		0	9 : 1		0	
Loading-5	in		150	9 : 2	1		Loresho
	out		0	9 : 2		0	
Loading-6	in		100	9 : 4	2		Loresho
	out		0	9 : 4		0	
Loading-7	in		100	9 : 5	1		Loresho
	out		0	9 : 5		0	
Loading-8	in		100	9 : 6	1		Loresho
	out		0	9 : 7		1	
Loading-9	in		150	9 : 7	0		Loresho
	out			9 : 8		1	
Loading-10	in		100	9 : 8	0		Loresho
	out			9 : 9		1	
Loading-11	in		400	9 : 11	2		Loresho
	out		0	9 : 11		0	
Loading-12	in		100	9 : 12	1		Loresho
	out		0	9 : 12		0	
Loading-13	in		300	9 : 15	3		Loresho
	out		0	9 : 16		1	
Loading-14	in		200	9 : 17	1		Loresho
	out		0	9 : 18		1	
Loading-15	in		100	9 : 20	2		Loresho
	out		0	9 : 20		0	
Loading-16	in		150	9 : 21	1		Loresho
	out		0	9 : 22		1	
Loading-17	in		100	9 : 23	1		Loresho
	out		0	9 : 24		1	
Loading-18	in		150	9 : 25	1		Loresho
	out		0	9 : 25		0	
Loading-19	in		250	9 : 27	2		Loresho
	out		0	9 : 28		1	
Loading-20	in		200	9 : 29	1		Loresho
	out		0	9 : 29		0	
Loading-21	in		300	9 : 30	1		Loresho
	out		0	9 : 31		1	

Time & Motion Study Organization: DRDS Trip- 1 Date: 13th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in		50	9 : 31	0		Loresho Kibagare Way
	out		0	9 : 31		0	
Loading-23	in		50	9 : 32	1		Loresho Kibagare Way
	out		0	9 : 32		0	
Loading-24	in		100	9 : 33	1		Loresho Kibagare Way
	out		0	9 : 33		0	
Loading-25	in		150	9 : 35	2		Loresho Kibagare Way
	out		0	9 : 35		0	
Loading-26	in		150	9 : 37	2		Loresho Kibagare Way
	out		0	9 : 37		0	
Loading-27	in		300	9 : 42	5		Loresho Kibagare Way
	out		0	9 : 42		0	
Loading-28	in		200	9 : 44	2		Loresho
	out		0	9 : 45		1	
Loading-29	in		1,000	9 : 49	4		Hill View
	out		0	9 : 49		0	
Loading-30	in		300	9 : 50	1		Hill View
	out		0	9 : 52		2	
Loading-31	in		50	9 : 53	1		Hill View
	out		0	9 : 53		0	
Loading-32	in		50	9 : 54	1		Hill View
	out		0	9 : 56		2	
Loading-33	in		200	9 : 59	3		Hill View
	out		0	9 : 59		0	
Loading-34	in		100	10 : 0	1		Hill View
	out		0	10 : 0		0	
Loading-35	in		300	10 : 1	1		Lake View
	out		0	10 : 4		3	
Loading-36	in		100	10 : 6	2		Lake View
	out		0	10 : 6		0	
Loading-37	in		150	10 : 8	2		Lake View
	out		0	10 : 8		0	
Loading-38	in		1,000	10 : 11	3		Lower Kabeta
	out		0	10 : 12		1	
Loading-39	in		50	10 : 12	0		Lower Kabeta
	out		0	10 : 15		3	
Loading-40	in		300	10 : 19	4		Lower Kabeta
	out		0	10 : 19		0	
Loading-41	in		50	10 : 20	1		Lower Kabeta
	out		0	10 : 20		0	
Loading-42	in		900	10 : 24	4		Lower Kabeta
	out		0	10 : 24		0	
Loading-43	in		1,200	10 : 28	4		kitisuru
	out		0	10 : 28		0	

Time & Motion Study Organization: DRDS Trip- 1 Date: 13th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in		800	10 : 30	2		kitisuru
	out		0	10 : 31		1	
Loading-45	in		400	10 : 33	2		kitisuru
	out		0	10 : 33		0	
Loading-46	in		50	10 : 34	1		kitisuru
	out		0	10 : 35		1	
Loading-47	in		100	10 : 37	2		kitisuru
	out		0	10 : 38		1	
Loading-48	in		1,200	10 : 42	4		kitisuru
	out		0	10 : 42		0	
Loading-49	in		50	10 : 43	1		kitisuru
	out		0	10 : 43		0	
Loading-50	in		300	10 : 44	1		kitisuru
	out		0	10 : 45		1	
Loading-51	in		800	10 : 51	6		kitisuru
	out		0	10 : 51		0	
Loading-52	in		500	10 : 53	2		kitisuru
	out		0	10 : 53		0	
Loading-53	in		400	10 : 54	1		Spring Valley
	out		0	10 : 55		1	
Loading-54	in		400	10 : 56	1		Spring Valley
	out		0	10 : 56		0	
Loading-55	in		400	10 : 57	1		Spring Valley
	out		0	10 : 57		0	
							11:00-13:21 Truck
							Broke Down
Loading-56	in		50	13 : 29	152		Spring Valley
	out		0	13 : 30		1	
Loading-57	in		25	13 : 30	0		Spring Valley
	out		0	13 : 31		1	
Loading-58	in		50	13 : 31	0		Spring Valley
	out		0	13 : 32		1	
Loading-59	in		100	13 : 34	2		Spring Valley
	out		0	13 : 35		1	
Loading-60	in		150	13 : 36	1		Spring Valley
	out		0	13 : 37		1	
Loading-61	in		800	13 : 43	6		peponi
	out		0	13 : 45		2	
Loading-62	in		400	13 : 50	5		peponi
	out		0	13 : 54		4	
Loading-63	in		100	13 : 58	4		peponi
	out		0	14 : 0		2	
Loading-64	in		150	14 : 4	4		peponi
	out		0	14 : 4		0	

Time & Motion Study Organization: DRDS Trip- 1 Date: 13th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-65	in		500	14 : 9	5		Kyura
	out		0	14 : 9		0	
Loading-66	in		400	14 : 16	7		Kyura
	out		0	14 : 16		0	
Loading-67	in		300	14 : 19	3		Kyura
	out		0	14 : 19		0	
Loading-68	in		200	14 : 21	2		Kyura
	out		0	14 : 21		0	
Loading-69	in		150	14 : 23	2		Kyura
	out		0	14 : 24		1	
Loading-70	in		200	14 : 30	6		Kyura
	out		0	14 : 31		1	
Loading-71	in		400	14 : 32	1		Kyura
	out		0	14 : 32		0	
Loading-72	in		450	14 : 40	8		Grevellia Grove
	out		0	14 : 40		0	
Loading-73	in		700	14 : 44	4		Brookside Close
	out		0	14 : 44		0	
Loading-74	in		300	14 : 47	3		Brookside Grove
	out		0	14 : 51		4	
							Route taken to Dumping Site
							Ring Rd. Westlands-
							Parklands Rd.-Forest Rd.-
							Muranga Rd.-Thika Rd.-
Dumping site	in		4,300	15 : 25	34		Outering Rd.-Komorock Rd.
Start dumping				15 : 30	5		
Finish dumping				16 : 20		50	
Dumping site	out			16 : 29	9		
Reach to workshop	in			17 : 18	49		
Total			34,725		431	102	Total min.: 533 min.
Collection			20,925		169	52	
Transportation			13,800		107		
Inside the dumping site			0		14	50	Dumping time.: 64 min.
Idling time					141		

Time & Motion Study Organization: DRDS Trip- 1 Date: 14th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 36			
Loading-1	in		800	8 : 48	12		Milimani
	out		0	8 : 49		1	
Loading-2	in		1,400	8 : 58	9		Milimani
	out		0	9 : 0		2	
Loading-3	in		1,200	9 : 5	5		Milimani
	out		0	9 : 9		4	
Loading-4	in		25	9 : 10	1		Milimani
	out		0	9 : 10		0	
Loading-5	in		25	9 : 11	1		Milimani
	out		0	9 : 13		2	
Loading-6	in		25	9 : 15	2		Milimani
	out		0	9 : 17		2	
Loading-7	in		100	9 : 20	3		Milimani
	out		0	9 : 21		1	
Loading-8	in		80	9 22	1		Milimani
	out		0	9 22		0	
Loading-9	in		10	9 : 23	1		Milimani
	out		0	9 : 23		0	
Loading-10	in		5	9 : 24	1		Milimani
	out		0	9 : 25		1	
Loading-11	in		20	9 : 27	2		Milimani
	out		0	9 : 31		4	
Loading-12	in		150	9 : 39	8		Benard
	out		0	9 : 39		0	
Loading-13	in		400	9 : 40	1		Benard
	out		0	9 : 40		0	
Loading-14	in		1,000	9 : 44	4		Benard
	out		0	9 : 44		0	
Loading-15	in		250	9 : 48	4		Benard
	out		0	9 : 49		1	
Loading-16	in		400	9 : 50	1		Benard
	out		0	9 : 50		0	
Loading-17	in		700	10 : 0	10		Benard
	out		0	10 : 0		0	
Loading-18	in		10	10 : 1	1		Benard
	out		0	10 : 1		0	
Loading-19	in		25	10 : 2	1		Benard
	out		0	10 : 2		0	
Loading-20	in		300	10 : 4	2		Benard
	out		0	10 : 4		0	
Loading-21	in		100	10 : 6	2		Benard
	out		0	10 : 7		1	

Time & Motion Study Organization: DRDS Trip- 1 Date: 14th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in		350	10 : 11	4		Benard
	out		0	10 : 12		1	
Loading-23	in		100	10 : 13	1		Benard
	out		0	10 : 14		1	
Loading-24	in		200	10 : 15	1		Benard
	out		0	10 : 16		1	
Loading-25	in		300	10 : 19	3		Larington
	out		0	10 : 19		0	
Loading-26	in		400	10 : 24	5		Larington
	out		0	10 : 24		0	
Loading-27	in		600	10 : 29	5		Larington
	out		0	10 : 30		1	
Loading-28	in		500	10 : 34	4		Larington
	out		0	10 : 35		1	
Loading-29	in		1,000	10 : 40	5		Larington
	out		0	10 : 50		10	
Loading-30	in		1,200	11 : 7	17		Kingara
	out		0	11 : 8		1	
Loading-31	in		200	11 : 10	2		Kingara
	out		0	11 : 10		0	
Loading-32	in		400	11 : 19	9		Kingara
	out		0	11 : 20		1	
Loading-33	in		500	11 : 24	4		Riara
	out		0	11 : 29		5	
Loading-34	in		100	11 : 30	1		Riara
	out		0	11 : 30		0	
Loading-35	in		100	11 : 31	1		Riara
	out		0	11 : 31		0	
Loading-36	in		200	11 : 37	6		Riara
	out		0	11 : 37		0	
Loading-37	in		100	11 : 39	2		Riara
	out		0	11 : 39		0	
Loading-38	in		200	11 : 41	2		Riara
	out		0	11 : 43		2	
Loading-39	in		300	11 : 45	2		Oledume
	out		0	11 : 46		1	
Loading-40	in		100	11 : 49	3		Oledume
	out		0	11 : 54		5	
Loading-41	in		200	12 : 4	10		Oledume
	out		0	12 : 6		2	
Loading-42	in		300	12 : 10	4		Oledume
	out		0	12 : 11		1	
Loading-43	in		200	12 : 15	4		Kilungu
	out		0	12 : 15		0	

Time & Motion Study Organization: DRDS Trip- 1 Date: 14th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in		100	12 : 16	1		Kilungu
	out		0	12 : 17		1	
Loading-45	in		100	12 : 17	0		Kilungu
	out		0	12 : 18		1	
Loading-46	in		100	12 : 19	1		Kilungu
	out		0	12 : 19		0	
Loading-47	in		400	12 : 21	2		Ndemi
	out		0	12 : 24		3	
Loading-48	in		250	12 : 29	5		Ndemi
	out			12 : 30		1	
Loading-49	in		200	12 : 32	2		Ndemi
	out		0	12 : 32		0	
Loading-50	in		100	12 : 40	8		Ndemi
	out		0	12 : 40		0	
Loading-51	in		200	12 : 44	4		Kirichwa
	out		0	12 : 44		0	
Loading-52	in		50	12 : 45	1		Kirichwa
	out		0	12 : 46		1	
Loading-53	in		100	12 : 49	3		Kirichwa
	out		0	12 : 49		0	
Loading-54	in		100	12 : 50	1		Kirichwa
	out		0	12 : 50		0	
Loading-55	in		200	12 : 54	4		Kirichwa
	out		0	12 : 58		4	
Loading-56	in		150	13 : 1	3		Kirichwa
	out		0	13 : 1		0	
							13:15-13:25 Workshop
							13:35-14:15 Idling Time
							Lenana Rd.-State House Rd.-
							University Way-Uhuru
							Highway-Museum Hill Rd.-
							Parklands Rd.-Forest Rd.-
							Muranga Rd.-Thika Rd.-

Time & Motion Study Organization: DRDS Trip- 1 Date: 14th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location	Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Dumping site in		10,900	14 : 48	107		Outering Rd.
Start dumping			14 : 50	2		
Finish dumping			15 : 26		36	
Dumping site out			15 : 29	3		
Reach to workshop in			16 : 15	46		
Total		27,525		360	99	Total min.: 459 min.
Collection		15,825		190	63	
Transportation		11,700		125		
Inside the dumping site		0		5	36	Dumping time.: 41 min.
Idling time				40		

Time & Motion Study Organization: DRDS Trip- 1 Date: 15th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 4.218m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 25			
Loading-1	in		2,000	8 : 53	28		Riara
	out		0	8 : 58		5	
Loading-2	in		7,000	9 : 26	28		River Side
	out		0	9 : 29		3	
Loading-3	in		5,000	9 : 46	17		Tin-Tin Restaurant
	out		0	9 : 55		9	(Harambee Ave.)
Loading-4	in		500	10 : 0	5		Hotel Country
	out		0	10 : 5		5	(Parliament Rd.)
Loading-5	in		1,000	10 : 9	4		Tamarind
	out		0	10 : 15		6	
Loading-6	in		400	10 : 17	2		American Embassy Main
	out		0	11 : 21		64	(Haile Salassie Ave.)
Loading-7	in		4,000	11 : 38	17		Industrial Area(Road A)
	out		0	12 : 25		47	
Loading-8	in		7,000	12 : 44	19		Embakasi
	out		0	12 : 47		3	
Loading-9	in		100	12 : 48	1		Embakasi
	out		0	12 : 48		0	
Loading-10	in		50	12 : 50	2		Embakasi
	out		0	12 : 51		1	
Loading-11	in		100	12 : 52	1		Embakasi
	out		0	12 : 53		1	
Loading-12	in		50	12 : 54	1		Embakasi
	out		0	12 : 55		1	
Loading-13	in		150	12 : 59	4		Embakasi
	out		0	13 : 0		1	
Loading-14	in		200	13 : 4	4		Embakasi
	out		0	13 : 6		2	
Loading-15	in		600	13 : 13	7		Embakasi
	out		0	13 : 15		2	
Loading-16	in		50	13 : 16			Embakasi
	out		0	13 : 18			
Dumping site	in		13,700	13 : 48	33		Airport North Rd.-Outering
Start dumping				13 : 52	4		Rd.-Komorok Rd.
Finish dumping				14 : 50		58	
Dumping site	out			14 : 54	4		
Reach to workshop	in			15 : 30	36		
Total			41,900		217	208	Total min.: 425 min.
Collection			26,200		112	150	Embakasi
Transportation			15,700		97		
Inside the dumping site			0		8	58	Dumping time.: 66 min.
Idling time							

Time & Motion Study Organization: DRDS Trip- 1 Date: 17th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			11 : 45			
Loading-1	in		4,000	11 : 56	11		Golf Club(Golf Course)
	out		0	12 : 0		4	
Loading-2	in		6,000	12 : 10	10		Uppr Hill
	out		0	12 : 12		2	
Loading-3	in		10,000	12 : 30	18		Ngara
	out		0	12 : 35		5	
							12:55-13:10 Idling Time
Loading-4	in		15,000	13 : 26	51		Airport
	out		0	14 : 27		61	
							14:50-15:15 Idling Time
							Airport North Rd.-Outering
Dumping site	in		13,900	15 : 20	53		Rd.-Komorok Rd.
Start dumping				15 : 30	10		
Finish dumping				17 : 12		102	
Dumping site	out			17 : 19	7		
Reach to workshop	in			18 : 0	41		
Total			48,900		201	174	Total min.: 375 min.
Collection			31,000		64	72	
Transportation			17,900		80		
Inside the dumping site			0		17	102	Dumping time.: 119 min.
Idling time					40		

Time & Motion Study Organization: DRDS Trip- 1 Date: 18th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625.m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Start from workshop	out			8 : 40			
Loading-1	in		1,000	8 : 50	10		Kilimani
	out		0	9 : 0		10	
Loading-2	in		200	9 : 2	2		Kilimani
	out		0	9 : 6		4	
Loading-3	in		800	9 : 9	3		Kilimani
	out		0	9 : 10		1	
Loading-4	in		300	9 : 12	2		Kilimani
	out		0	9 : 16		4	
Loading-5	in		50	9 : 17	1		Kilimani
	out		0	9 : 17		0	
Loading-6	in		1,200	9 : 21	4		Golf Course
	out		0	9 : 44		23	
Loading-7	in		1,500	9 : 56	12		Masaba
	out		0	9 : 57		1	
Loading-8	in		150	9 : 59	2		Masaba
	out		0	10 : 0		1	
Loading-9	in		100	10 : 1	1		Masaba
	out			10 : 2		1	
Loading-10	in		1,300	10 : 6	4		Kitimani
	out		0	10 : 11		5	
Loading-11	in		1,000	10 : 16	5		Berard
	out		0	10 : 16		0	
Loading-12	in		100	10 : 17	1		Berard
	out		0	10 : 18		1	
Loading-13	in		150	10 : 18	0		Berard
	out		0	10 : 19		1	
Loading-14	in		200	10 : 19	0		Berard
	out		0	10 : 21		2	
Loading-15	in		200	10 : 22	1		Berard
	out		0	10 : 22		0	
Loading-16	in		1,000	10 : 28	6		Muthangari
	out		0	10 : 30		2	
Loading-17	in		2,100	10 : 31	1		Mageta
	out		0	10 : 33		2	
Loading-18	in		100	10 : 34	1		Mageta
	out		0	10 : 35		1	
Loading-19	in		800	10 : 37	2		Olenguruone
	out		0	10 : 38		1	
Loading-20	in		400	10 : 39	1		Olenguruone
	out		0	10 : 40		1	
Loading-21	in		700	10 : 42	2		Olenguruone
	out		0	10 : 44		2	

Time & Motion Study Organization: DRDS Trip- 1 Date: 18th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625.m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-22	in		1,200	10 : 46	2		Tende
	out		0	10 : 46		0	
Loading-23	in		600	10 : 47	1		Tende
	out		0	10 : 49		2	
Loading-24	in		100	10 : 49	0		Tende
	out		0	10 : 50		1	
Loading-25	in		500	10 : 51	1		Tende
	out		0	10 : 51		0	
Loading-26	in		100	10 : 52	1		Tende
	out		0	11 : 0		8	
Loading-27	in		100	11 : 0	0		Tende
	out		0	11 : 1		1	
Loading-28	in		700	11 : 4	3		Tende
	out		0	11 : 5		1	
Loading-29	in		1,000	11 : 7	2		Mugumo
	out		0	11 : 7		0	
Loading-30	in		800	11 : 9	2		Mugumo
	out		0	11 : 14		5	
Loading-31	in		300	11 : 15	1		Jacaranda
	out		0	11 : 15		0	
Loading-32	in		100	11 : 16	1		Jacaranda
	out		0	11 : 16		0	
Loading-33	in		1,000	11 : 20	4		James Gichuru
	out		0	11 : 21		1	
Loading-34	in		100	11 : 22	1		James Gichuru
	out		0	11 : 23		1	
Loading-35	in		500	11 : 24	1		Gitanga
	out		0	11 : 24		0	
Loading-36	in		300	11 : 26	2		Amboseli
	out		0	11 : 32		6	
Loading-37	in		200	11 : 35	3		Amboseli
	out		0	11 : 35		0	
Loading-38	in		700	11 : 39	4		Amboseli
	out		0	11 : 39		0	
Loading-39	in		1,200	11 : 42	3		Amboseli
	out		0	11 : 42		0	
Loading-40	in		1,000	11 : 47	5		Amboseli
	out		0	11 : 47		0	
Loading-41	in		1,200	11 : 53	6		Njumbi
	out		0	11 : 55		2	
Loading-42	in		100	11 : 55	0		Njumbi
	out		0	12 : 0		5	
Loading-43	in		100	12 : 0	0		Njumbi
	out		0	12 : 1		1	

Time & Motion Study Organization: DRDS Trip- 1 Date: 18th Nov. 1997

Vehicle No. KUZ 647 Loading Capacity: 2.55t Researcher's name: Mercy S. Nyauira

No. of Crew: 3 Estimated Volume: 5.625.m^3

Location		Mileage (km)	Distance (m)	Time	Moving time (min.)	Loading time (min.)	Remarks (route)
Loading-44	in		200	12 : 2	1		Njumbi
	out		0	12 : 4		2	
Loading-45	in		400	12 : 13	9		Njumbi
	out		0	12 : 13		0	
Loading-46	in		500	12 : 19	6		Elmolo
	out		0	12 : 27		8	
Loading-47	in		700	12 : 32	5		Maji Mazuri
	out		0	12 : 32		0	
Loading-48	in		200	12 : 35	3		Maji Mazuri
	out		0	12 : 36		1	
Loading-49	in		500	12 : 38	2		Maji Mazuri
	out		0	12 : 38		0	
Loading-50	in		400	12 : 40	2		Maji Mazuri
	out		0	12 : 42		2	
Loading-51	in		100	12 : 43	1		Maji Mazuri
	out		0	12 : 43		0	
Loading-52	in		800	12 : 49	6		Manyani
	out		0	12 : 50		1	
Loading-53	in		100	12 : 51	1		Manyani
	out		0	12 : 51		0	
Loading-54	in		900	12 : 55	4		Manyani
	out		0	12 : 56		1	
Loading-55	in		300	12 : 59	3		Manyani
	out		0	12 : 59		0	
Loading-56	in		1,500	13 : 7	8		Elite Homes
	out		0	13 : 9		2	
Loading-57	in		100	13 : 9	0		Elite Homes
	out		0	13 : 14		5	
Loading-58	in		3,000	13 : 20	6		Kabasirani
	out		0	13 : 30		10	
							13:45-14:30 Idling time
Loading-59	in		15,000	14 : 44	74		Forest
	out		0	14 : 50		6	
							14:55-15:25 Lunch Break
							15:25-16:10 Truck Broke
							Down
							Juja Rd.-Komorok Rd.