APPENDIX 21

INSTITUTIONAL PLAN

APPENDIX 21 INSTITUTIONAL PLAN

The following information including historical background and current position of the road sector institutional reform in Kenya, and opinions for its direction are provided by KRB.

21.1 INTRODUCTION

21.1.1 Overview of the Road Network

The country's road network consists of classified and unclassified roads. The classified network is 64,000 km while the unclassified is about 130,000 km. According to the latest data the condition of the classified network indicates that 19% is in good condition, with another 49% is in fair condition. About 26% is in poor condition and 6% has failed.

For the unclassified network, both urban and rural, no reliable data on their condition exists but it estimated that about 40% of the network is in good or fair condition while the rest is in poor or failed condition.

21.1.2 Historical background of the Road Sector in Kenya

Immediately after independence, the Kenya Government embarked on development of roads to serve economic activities including farming and industrial production. However, little attention was paid to maintenance of the roads and by 1990, Kenya was losing as much length of road as the length of new roads it was constructing.

Concerned by the alarming state of deterioration of roads in Sub-Saharan Africa, the World Bank in association with the United Nations Economic Commission for Africa (ECA) together with several primary donors developed the Sub-Saharan Africa Transport Programme (SSATP) in 1989. The main objective of the Programme was to improve transport efficiency through major policy reforms. The SSATP had a Road Maintenance Initiative - now known as Road Management Initiative - (RMI) component which was designed to assist Sub-Saharan Africa countries to define and resolve road maintenance policy issues.

The Government of Kenya (GOK) convened a national (RMI) Policy Seminar in June 1992 to address the poor state of the road network.

The seminar identified several constraints to improved road maintenance and recommended some action.

The constraints included the following:

- Inappropriate institutional framework,
- Uncoordinated Planning / inadequate planning framework,
- Inadequate funding of Road Maintenance,
- Inappropriate Delivery Methods / non availability of equipment,
- Inappropriate Staff utilization, training and motivation,
- Overloading by Heavy Goods Vehicles, and
- Inadequate donor co-ordination.

21.1.3 The four main RMI building blocks

In order to solve the above problems the following building blocks were proposed:

- Road ownership to be created by involving road users in funding and management of roads to generate support for adequate road funding;
- An adequate and stable flow of funding, based on dedicated user charges should be secured;
- Clear specifications for all road management responsibilities should be established. The responsibilities should then be assigned in an appropriate manner with matching authority; and
- The management of roads should be strengthened by introducing sound businesslike practices to obtain value for money.

In response to these findings and recommendations, the GOK started the reform process.

21.2 STATUS OF IMPLEMENTATION OF REFORMS

21.2.1 Establishment of Road Maintenance Levy Fund

In an effort to secure an adequate and sustainable source of funding, the government established the Road Maintenance Levy Fund (RMLF) in 1993/94. This RMLF is made up of the accruals from the Fuel Levy Fund and from the Transit Tolls collections. Although this Fund has grown from KShs.1.5 billion (US $19 million) at inception to about Kshs. 9.0 billion (US $110 million) in Financial year 2003/2004, it is not enough for the maintenance and rehabilitation of Kenya's network. The fund is the largest in Sub-Saharan Africa. The establishment of RMLF addressed the second RMI building block of sustainable funding.

21.2.2 Formation of the Kenya Roads Board

Between 1995 and 1998, the GOK, assisted by the European Union, undertook a Road Sector Institutional Study to identify the most appropriate institutional framework for the management of Kenya's Road Network. The study recommended the establishment of a Roads Board and Road Agencies.

The Study recommendations were partially implemented when the Kenya Roads Board was established by the KRB Act 1999. The KRB was operationalised in July 2000.

The formation of the requisite Road Agencies however, as recommended by the study has not yet materialised. Therefore, while the formation of KRB went some distance to provide the first RMI building block, (creating ownership, involving users in funding and management) and to a certain extent the third one, a lot more remains to be done.

There is therefore little to show for the third and fourth RMI building blocks (assignment of responsibilities, matching authority, and introduction of sound businesslike practice). More important however, Kenya's Road network is still in a dilapidated state ten (10) years after the RMI starting of the reform process.

21.3 EFFORTS MADE TO COMPLETE ROAD SECTOR REFORMS

21.3.1 Current Roles of Various Players in the Roads Sector

TABLE 21.3-1 CURRENT PLAYERS AND THEIR ROLES IN THE ROAD SECTOR

PLAYER	MAIN ROLE
Ministry of Roads, Public Works and Housing	➢ Policy Formulation on the Provision and Maintenance of Roads other than adopted streets
Ministry of Transport and Communications	➢ Policy Formulation on the use of road (This includes roads policy at the macro level)
Ministry of Local Government	➢ Policy Formulation on the Provision and Maintenance of roads in the Local Authorities.
Kenya Roads Board	➢ Coordination function, eyes on, hands off i.e. • Oversight of the Road Network including Technical Compliance and Performance Audits • Coordination of Road Maintenance, Development and Rehabilitation • Administration of KRB Fund (including RMLF). Financial Audits on all Road Agencies
Roads Department in MORPW&H	➢ Implementation of road works i.e • The actual delivery of Roads and Road maintenance for Class A,B, & C roads
District Roads Committees	➢ Advisory and oversight role i.e. • Selection and prioritization for Roads in Class D,E & others
Kenya Wildlife Service	➢ Implementation of road works i.e. • The actual delivery of Roads and Road maintenance for roads in National Parks & Game Reserves
"Big Five" Cities /Municipalities: (Nairobi, Mombasa, Kisumu, Nakuru, & Eldoret)	➢ Implementation of road works i.e. • The actual delivery of Roads and Road maintenance for roads within their respective jurisdiction using RMLF and other sources of funds such as LATF, Rates, Bill Boards etc

The following are the problems of the current arrangements:

- There is no clarity of responsibilities;
- DRCs can not work independently as they are both under the Roads Department and KRB;
- Roads Department can not be able to concentrate on its core network of A, B, and C classes of roads;
- Local Authorities are under the Ministry of Local Government as well as sub-agencies of Roads Department of Ministry of Roads and Public Works; and
- Kenya Roads Board is not able to discharge its mandate effectively as the Roads Department is part of the Ministry of Roads and Public Works. There is therefore conflict and overlaps of responsibilities.

21.3.2 Recommendations of the Roads Sector Review and Stock Take Conference

The RMI/SSATP funded the Road Sector Strategy Review and Stock Take conference which was held on 21st to 23rd May 2002. The Conference recognized three broad road categories i.e. Main roads (≈ 15,000 Km, A, B, & C roads), Urban roads (≈ 3,000 Km) and Rural roads (the rest, ≈ 132,000 Km, classified and unclassified roads).

The Conference proposed the formation of the following Road Agencies:

- Highway Management Agency (HMA) for the main Roads,
- Urban Roads Agency (URA) for urban Roads,
- Rural and Small Towns Roads Agency (RASTRA), and
- Nairobi City Roads Agency.

The Conference also recommended that KRB with assistance from development partners should commission consultants to inter alia, formulate policy objectives of the road sector and develop a sub-sector strategy.

21.3.3 Recommendations of the Transport Sector Memorandum

The Transport Sector Memorandum was prepared by the World Bank with collaboration from DFID, EU, KfW and SIDA towards the end of 2002.

The Memorandum makes many recommendations including the followings:

- The making of the decision to transfer the management of the main road network to the private sector, under public sector supervision through road concession,
- Formation of a Kenya Highways Agency (KHA) to manage the main inter urban road network,
- Formation of Rural and Small Towns Roads Agency for the rural roads (RASTRA);
- Urban Roads Agency, and
- Strengthening of the Kenya Roads Board.

21.3.4 Recommendations of the Transport Policy and Roads Sub-Sector Policy/ Strategy Study

As recommended by the Roads Sector Review and Stock Take Conference, the KRB commissioned a consultant (Scott Wilson) with the financial support from the European Union to review the existing Transport Policy and make the necessary recommendations and develop a Roads Sub-Sector Policy/Strategy. The study has been finalized and recommended the following institutional arrangements:

- Formation of a Kenya Highways Agency (KHA) to manage the main inter urban road network i.e road classes A and B,
- Formation of Joint Service Committees (JSC) representing a group of four or more local authorities to manage rural and minor and urban roads within the jurisdiction of the participating local authorities, and
- Strengthening of KRB.

The report recommended institutional framework is shown in Figure 21.3-1

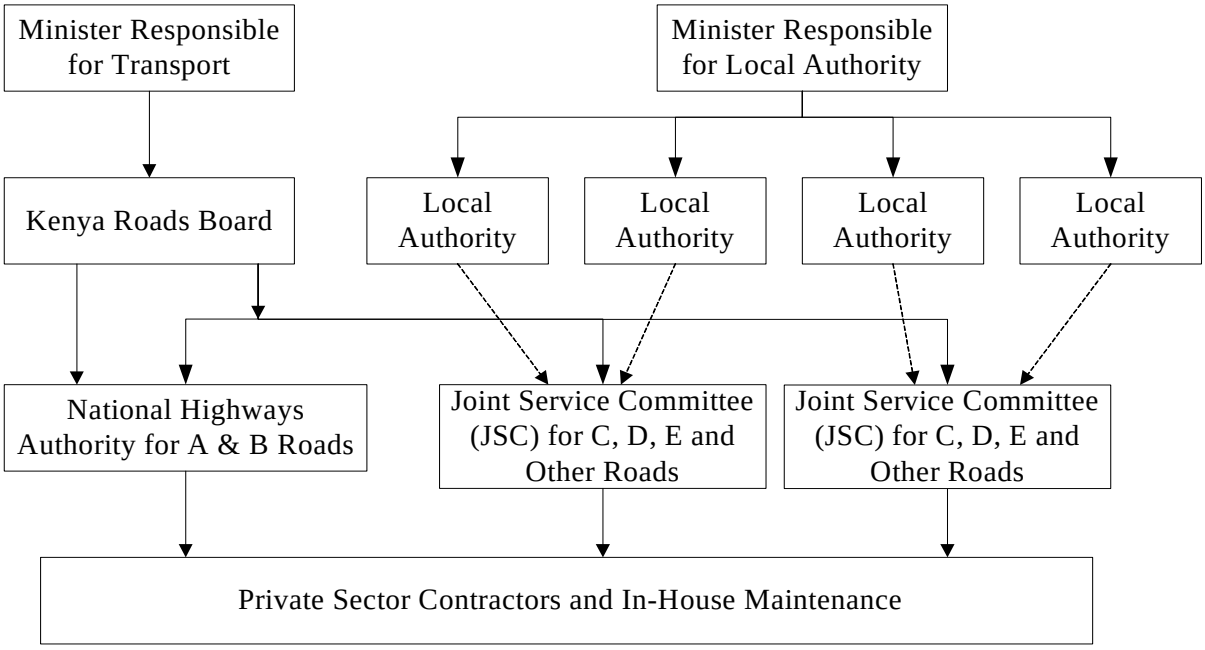

FIGURE 21.3-1 RECOMMENDED INSTITUTIONAL FRAMEWORK

21.3.5 Integrated National Transport Policy

The Ministry of Transport and Communications appointed a Task Force in April, 2003 to formulate an integrated transport policy for the country. The Green Cover report of the Task Force that was presented in January, 2004 recommended the following institutional framework for the road sector:

- Policy formulation for road provision and maintenance and policy formulation for the use and users of roads to be placed under one ministry and specifically the Ministry responsible for Transport,

- Kenya Roads Board to be strengthened to be able to take its mandate of oversight and funding, and
- Optimum number of agencies that will focus on specific category of roads in the road network to be established under the KRB. The agencies to operate on businesslike principles.

21.3.6 Reform Task Force under MORPW&H with assistance of a consultant financed under the Northern Corridor Project (World Bank)

Recommendations of the Task Force follow:

- Abolishing KRB by repealing of KRB Act and replacing it with a Kenya Roads Fund Board (KRFB), a body principally for administering the RMLF without any oversight or coordination role,
- Establishment of Kenya Roads Authority (KenRA) to manage the classified and unclassified road except urban roads,
- Creation of an Urban Development Authority to manage urban roads, and
- Retention of District Road Committees in their present form to play an advisory role in the management of D, E, and unclassified roads. This will not solve the existing problems. The DRCs as they are contained in the KRB Act are currently not functional and are having serious bottlenecks.

KRB'S concerns and observations on these proposals follow:

- The Reform Task Force ignored all the past recommendations on road sector reforms that were based on Road Maintenance Initiative building blocks;
- The proposed institutional arrangement does not separate the management of international and national roads and feeder roads. In the past the international and national roads (Class A&B) have not received the attention they deserve. The management of feeder roads would require a different approach from the trunk roads;
- The report recommends the repealing of Kenya Roads Board (KRB) Act and enactment of a Kenya Road Fund Board (KRFB) Act which implies the disbandment of KRB. The proposed KRFB will be specifically a funding institution for road maintenance activities without tools to monitor its funding operations. It will also not have authority to review and approve work programmes from the road agencies;
- The proposal to retain the District Road Committees in their present form to play an advisory role in the management of D, E, and unclassified roads will not solve the existing problems. The DRCs as they are contained in the KRB Act are currently not functional and are having serious bottlenecks;
- The recommendations are geared towards maintaining the status quo at the roads department by only changing the name and paying higher salaries. This proposal does not therefore address the root cause of the road sector problems;
- The arrangement does not provide for a coordinator of the sector. The classified and unclassified roads are managed through the MoRPW whiles the urban roads through the MoLG. There is no entity therefore responsible for the entire network. This role is currently being played by KRB. This proposal will therefore fragment the road sector;

- The mandate, structure and size of the proposed KenRA is too large with estimated 3000 employees, an annual basic salary budget of Ksh.1.2 billion and overheads estimated at Ksh 2.3 billion. This is a big burden to the tax payers; and
- The proposed KenRA should move towards contracting out maintenance activities instead of using force account methods so as to reduce the work force thus reducing the wage bill.

If this direction of reform is taken it would have the following implications:

- KRB will be abolished and KRFB established; and
- Gains already made in operationalizing KRB will be lost.

21.3.7 KRB's Recommendations on Establishment of Road Agencies

- A Facilitation Team headed by preferably the Office of the President should be formed to spearhead the reforms. The Roads Department can not reform itself.
- Recommendations made in the past studies on the reform efforts should be reviewed and the following institutions established.
  - National Highway Agency – to manage International and National Highways (Class A&B)
  - Urban Roads Authority – To manage Urban Roads
  - Rural and Small Towns Roads Authority (RASTRA)- to be responsible for feeder roads and small township roads. This body to coordinate DRC activities which should operate independently.
  - Nairobi City Roads Authority – management of City Roads.
- The role of the Kenya Roads Board should be strengthened and be a one stop shop for all road sector funds. Funding, Oversight, coordination, and monitoring should be its core mandates.
- The proposed institutions should have optimum number of staff in order to reduce the costs for its operations. Out sourcing of resources should be a key policy direction.
- KRB Act should not be repealed and instead it should be strengthened.

APPENDIX 28

FLOW OF NAIROBI RIVER

APPENDIX 28 FLOW DATA OF NAIROBI RIVER

28.1 FLOW DATA OF NAIROBI RIVER

(1) Data Source

Data source is Ministry Water and Irrigation. Data was collected on 2 March 2005.

(2) Observation Point

Observation point of Nairobi River is near the International Casino (ID=3BA29). See Figure 28.1-1. There is no other observation point in Nairobi River.

(3) Catchment Area

Catchment area of the observation point (ID=3BA29) is 75.1km^2.

(4) Observation Period

Observation Period is from May 1960 to October 1992.

28.1.1 Data Analysis

(1) Monthly Average and Maximum Flow at Nairobi River

Monthly average and maximum flow at Nairobi River are shown in Table 28.1-1.

TABLE 28.1-1 MONTHRY AVERAGE AND MAXIMUM FLOW OF NAIROBI RIVER

Month	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
MAX.(m^3/sec)	66.552	9.468	76.748	294.704	104.209	43.492	28.36	5.764	12.941	18.77	22.75	35.117
Ave.(m^3/sec)	0.953	0.498	1.474	3.925	4.906	1.783	1.235	0.868	0.605	0.567	1.044	0.627

(2) Maximum Flow at Nairobi River

Maximum flow of Nairobi River was recorded on 16 April 1985. Flows of Nairobi River in those days are shown in Table 28.1-2 and Figure 28.1-2 for a reference.

TABLE 28.1-2 NAIROBI RIVER FLOW (APRIL1985) AT INTERNATIONAL CASINO

Date	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Flow (m^3/s)	5	3	5	12	43	73	207	295	208	120	58	84	79	35	24	19	25	34	25	23	9

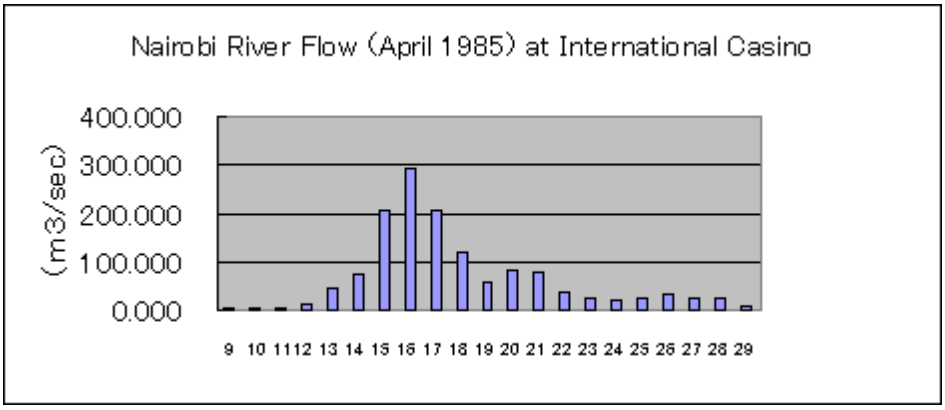

FIGURE 28.1-2 NAIROBI RIVER FLOW (APRIL1985) AT INTERNATIONAL CASINO

(3) Analysis Points

3 analysis points were established 3 points as Figure 28.1-1.

Missing Link 3: Point A is crossing of Nairobi River to Missing Link 3.

Missing Link 7: Point B is crossing of Kirichwa Ndogo River to Missing Link 7.

Missing Link 7: Point C is crossing of Kirichwa Kubuwa River to Missing Link 7.

(4) Catchment Areas of Analysis Points

Catchment areas of each analysis point are shown in Table 28.1-3 for a reference.

TABLE 28.1-3 CATCHMENT AREAS OF ANALYSIS POINTS

Analysis Point	Catchment Area	Remark
Point A	52.1 km^2	75.1 km^2 – 23.0 km^2
Point B	5.1 km^2	By planimeter
Point C	15.0 km^2	By planimeter

Note: Catchment area of Kirichwa Kubwa River is 23km^2 by planimeter.

(5) Estimated Flows at Analysis Points

Estimated flow of each analysis point is shown in Table 28.1-4.

TABLE 28.1-4 ESTIMATED FLOW OF ANALYSIS POINTS ON 16 APRIL 1985

Analysis Point	Flow (m^3/sec)	Remark
Point A	204.7	295 x (1-23/75.1)
Point B	20.0	295 x 5.1/75.1
Point C	58.9	295 x 15/75.1

Note: The flow of point A is assumed that it is same as the flow of Nairobi river (ID=3BA29) except of the Kirichwa Kubuwa River.

28.1.2 Analysis Result

If the highest flow during 30 years were used for the basic data of bridge construction plan, the estimated flow of each analysis points are shown Table 28.1-5. When the data of close section of analysis points are possible to use, the water level at these points will be estimated.

TABLE 28.1-5 RESULT OF ANALYSIS

Analysis Point	Location	Flow (m^3/sec)
Point A	Point A is crossing of Nairobi River to Missing Link 3.	204.7
Point B	Point B is crossing of Kirichwa Ndogo River to Missing Link 7.	20.0
Point C	Point C is crossing of Kirichwa Ndogo River to Missing Link 7.	58.9

Note: The flow of point A is assumed that it is same as the flow of Nairobi river (ID=3BA29) except of the Kirichwa Kubuwa River.

FIGURE 28.1-1 OBSERVATION AND ESTIMATED POINTS OF FLOW

28.1-6 Data of Nairobi River

Quantity of Water in Nairobi River

Observation Point of Nairobi River: International Casino (ID=3BA29)
Catchment Area of 3BA29= 75.1km^2
Observation Period: 1960 - 1992
Unit: m^3/sec
Data from Ministry Water and Irrigation on 2 March 2005

YEAR	DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1960	1						10.000	0.245	0.212	0.197	0.197	0.228	0.182
1960	2					5.000	0.418	0.245	0.212	0.197	0.190	0.262	0.168
1960	3					2.199	0.356	0.237	0.212	0.182	0.182	0.228	0.182
1960	4					3.150	0.316	0.228	0.212	0.182	0.182	0.212	0.175
1960	5					2.604	0.298	0.228	0.212	0.182	0.182	0.197	0.168
1960	6					1.906	0.280	0.245	0.197	0.168	0.182	0.213	0.168
1960	7					0.834	0.280	0.245	0.190	0.228	0.182	0.228	0.197
1960	8					0.748	0.280	0.212	0.182	0.128	0.168	0.212	0.212
1960	9					0.662	0.262	0.228	0.182	0.197	0.168	0.197	0.212
1960	10					0.558	0.280	0.220	0.182	0.197	0.168	0.228	0.197
1960	11					0.463	0.262	0.212	0.197	0.190	0.168	0.262	0.183
1960	12					0.440	0.254	0.228	0.197	0.182	0.168	0.463	0.168
1960	13					0.418	0.245	0.228	0.197	0.168	0.168	0.372	0.168
1960	14					0.397	0.245	0.228	0.205	0.197	0.168	0.280	0.168
1960	15					0.377	0.245	0.212	0.212	0.212	0.168	0.245	0.154
1960	16					0.356	0.245	0.212	0.197	0.197	0.168	0.245	0.397
1960	17					0.356	0.245	0.205	0.182	0.197	0.168	0.440	0.583
1960	18					0.336	0.245	0.197	0.182	0.197	0.168	0.440	0.398
1960	19					0.336	0.237	0.228	0.182	0.197	0.168	0.316	0.212
1960	20					0.336	0.228	0.245	0.182	0.197	0.168	0.281	0.197
1960	21					0.336	0.228	0.228	0.182	0.182	0.168	0.245	0.182
1960	22					0.317	0.228	0.212	0.182	0.168	0.168	0.245	0.182
1960	23					0.298	0.228	0.212	0.182	0.182	0.175	0.228	0.182
1960	24					0.317	0.228	0.212	0.182	0.197	0.182	0.212	0.168
1960	25					0.336	0.212	0.212	0.197	0.183	0.168	0.197	0.165
1960	26					0.316	0.229	0.197	0.182	0.168	0.418	0.197	0.161
1960	27					0.298	0.245	0.197	0.197	0.168	0.376	0.190	0.158
1960	28					0.298	0.298	0.212	0.197	0.168	0.298	0.182	0.154
1960	29					0.298	0.280	0.228	0.197	0.182	0.280	0.182	0.141
1960	30					0.298	0.245	0.212	0.182	0.197	0.271	0.168	0.154
1960	31					0.280		0.212	0.197		0.262		0.141
1961	1	0.141	0.013		0.182	0.397	0.228	0.182	0.168	0.212			
1961	2	0.135	0.009		0.177	0.280	0.212	0.175	0.168	0.228			
1961	3	0.128	0.009		0.173	0.280	0.212	0.168	0.168	0.228			
1961	4	0.128	0.009		0.168	0.262	0.197	0.182	0.168	0.228			
1961	5	0.116	0.009		0.154	0.262	0.182	0.141	0.182	0.212			
1961	6	0.128	0.009		0.280	0.262	0.182	0.141	0.182	0.212			
1961	7	0.128	0.009		0.197	0.627	0.182	0.148	0.182	0.197			
1961	8	0.128	0.105		0.635	0.991	0.182	0.155	0.182	0.182			
1961	9	0.128	0.128		0.440	0.717	0.182	0.162	0.228	0.182			
1961	10	0.141	0.128		0.245	0.804	0.182	0.168	0.182	0.182			
1961	11	0.128	0.105		0.212	0.834	0.190	0.175	0.182	0.182			
1961	12	0.128	0.081		0.212	1.092	0.197	0.182	0.182	0.197			
1961	13	0.128	0.056		0.212	2.356	0.182	0.182	0.175	0.182			
1961	14	0.128	0.048		1.198	1.387	0.197	0.168	0.168	0.168			
1961	15	0.128	0.034		0.440	0.418	0.182	0.168	0.168	0.168			

1961	16	0.128	0.028	0.022	0.334	0.356	0.182	0.168	0.197	0.168			
1961	17	0.128	0.034	0.105	0.228	0.298	0.182	0.168	0.197	0.168			
1961	18	0.128	0.028	0.105	0.717	0.280	0.175	0.182	0.197	0.168			
1961	19	0.128	0.021	0.095	0.558	0.262	0.168	0.168	0.212	0.197			
1961	20	0.141	0.013	0.084	0.316	0.262	0.212	0.168	0.205	0.182			
1961	21	0.128	0.009	0.094	0.262	0.245	0.197	0.182	0.197	0.182			
1961	22	0.117	0.003	0.197	0.228	0.228	0.182	0.182	0.197	0.182			
1961	23	0.105	0.002	0.182	0.228	0.245	0.182	0.175	0.182	0.168			
1961	24	0.105		0.182	0.228	0.237	0.168	0.168	0.182	0.148			
1961	25	0.094		0.168	0.182	0.228	0.168	0.182	0.182	0.128			
1961	26	0.074		0.155	0.182	0.228	0.168	0.168	0.182	0.168			
1961	27	0.048		0.141	0.182	0.228	0.182	0.168	0.175	0.197			
1961	28	0.048		0.141	0.168	0.220	0.182	0.168	0.168	0.212			
1961	29	0.038		0.280	0.168	0.212	0.182	0.168	0.182	0.228			
1961	30	0.028		0.212	0.283	0.212	0.182	0.161	0.182	0.212			
1961	31	0.017		0.197		0.197		0.154	0.182				
1963	1	0.197	0.245	0.168	0.154	1.906	3.145	2.011	0.486	0.363	0.280	0.397	0.447
1963	2		0.212	0.168	0.141	1.769	2.994	0.609	0.486	0.356	0.356	0.280	0.336
1963	3		0.205	0.339	0.141	2.750	2.843	0.609	0.583	0.356	0.280	0.280	2.809
1963	4		0.197	0.509	0.141	3.836	2.692	0.662	0.551	0.376	0.418	0.280	0.635
1963	5		0.197	0.356	0.141	3.783	3.200	0.662	0.518	0.336	0.262	0.356	2.022
1963	6		0.197	0.280	0.141	3.730	3.698	0.609	0.486	0.356	0.271	0.356	4.436
1963	7		0.197	0.262	0.148	3.944	2.806	0.609	0.440	0.336	0.280	0.298	7.026
1963	8		0.239	0.182	0.154	3.136	2.591	0.609	0.440	0.317	0.280	0.356	4.333
1963	9		0.280	0.182	0.141	3.295	2.526	0.609	0.418	0.298	0.280	0.262	1.639
1963	10		0.246	0.182	0.141	3.044	2.460	0.609	0.418	0.397	0.228	0.271	3.150
1963	11	1.341	0.212	0.182	0.141	2.556	2.395	0.558	0.418	0.336	0.262	0.280	2.476
1963	12	1.090	0.182	0.168	0.169	2.743	2.378	0.583	0.418	0.356	0.280	0.262	1.801
1963	13	0.839	0.212	0.168	0.197	2.929	2.308	0.558	0.418	0.356	0.286	0.356	1.127
1963	14	0.587	0.197	0.154	0.531	2.483	2.224	0.546	0.418	0.336	0.292	0.376	0.689
1963	15	0.336	0.197	0.168	0.864	2.193	2.224	0.533	0.662	0.346	0.298	1.782	0.676
1963	16		0.212	0.182	1.198	2.449	2.232	0.509	0.418	0.356	0.245	0.316	0.662
1963	17		0.197	0.182	0.746	8.166	2.239	0.486	0.418	0.316	0.245	0.367	0.609
1963	18		0.182	0.182	0.298	3.559	2.157	0.509	0.464	0.316	0.298	0.418	0.558
1963	19		0.197	0.168	0.228	4.036	2.141	0.486	0.509	0.316	0.228	1.955	0.717
1963	20		0.154	0.316	0.245	4.512	2.224	0.486	0.486	0.298	0.228	1.146	0.609
1963	21		0.168	0.197	0.618	3.327	2.308	0.498	0.440	0.298	0.228	0.336	0.533
1963	22		0.168	0.168	0.991	2.864	2.157	0.509	0.418	0.289	0.228	0.298	0.521
1963	23		0.168	0.168	0.895	2.574	2.117	0.486	0.418	0.280	0.228	0.280	0.509
1963	24		0.168	0.183	0.440	2.518	2.076	0.486	0.397	0.280	0.228	0.289	0.509
1963	25		0.168	0.197	0.356	3.038	2.061	0.486	0.397	0.298	0.228	0.298	0.670
1963	26		0.168	0.168	1.234	5.602	2.061	0.486	0.397	0.280	0.212	0.212	0.830
1963	27		0.168	0.212	8.166	8.166	2.011	0.440	0.336	0.280	0.229	1.955	0.991
1963	28		0.197	0.168	7.388	4.279	1.948	0.452	0.376	0.280	0.245	0.376	0.804
1963	29			0.168	6.609	4.165	1.934	0.463	0.440	0.339	0.228	0.662	0.775
1963	30			0.168	6.309	4.165	1.973	0.463	0.376	0.397	0.212	0.558	0.746
1963	31			0.161		3.296		0.463	0.369		0.212		0.689
1964	1	0.635	0.316	0.411	0.262	2.364	0.635	0.418	0.486	0.336	0.298	0.228	0.245
1964	2	0.609	0.307	0.486	0.228	2.123	0.609	0.418	0.486	0.336	0.280	0.228	0.245
1964	3	0.635	0.298	0.717	0.245	1.557	0.583	0.418	0.486	0.316	0.262	0.280	0.298
1964	4	1.286	0.298	0.463	0.228	0.991	0.558	0.418	0.486	0.298	0.254	0.262	0.336
1964	5	1.091	0.298	0.376	0.313	0.895	0.571	0.414	0.533	0.298	0.245	0.280	0.418
1964	6	0.895	0.298	0.336	0.397	1.286	0.583	0.410	0.509	0.307	0.376	0.212	0.332
1964	7	0.834	0.298	0.298	1.092	0.864	0.583	0.405	0.746	0.316	0.245	0.245	0.245
1964	8	0.662	0.280	0.298	1.162	0.804	0.583	0.401	0.635	0.298	0.228	0.237	0.262
1964	9	0.635	0.280	0.298	0.533	0.774	0.635	0.397	0.561	0.298	0.245	0.228	0.245
1964	10	0.609	0.280	0.280	1.092	0.760	0.804	0.397	0.486	0.298	0.228	0.228	0.356
1964	11	0.533	0.280	0.280	0.509	0.746	0.635	0.376	0.463	0.280	0.228	0.228	0.262
1964	12	0.510	0.280	0.280	0.464	0.746	0.609	0.376	0.418	0.280	0.228	0.228	0.271
1964	13	0.486	0.280	0.280	0.418	0.717	0.583	0.376	0.418	0.349	0.262	0.228	0.280
1964	14	0.463	0.262	0.262	0.397	0.864	0.546	0.376	0.397	0.418	0.262	0.245	0.289
1964	15	0.440	0.262	0.262	0.533	0.746	0.509	0.397	0.397	0.316	0.397	0.263	0.298

1964	16	0.440	0.262	0.262	0.356	0.709	0.509	0.376	0.397	0.298	0.262	0.280	0.245
1964	17	0.418	0.262	0.262	1.639	0.672	0.509	0.376	0.397	0.280	0.245	0.212	0.245
1964	18	0.418	0.262	0.262	3.150	0.635	0.486	0.376	0.397	0.298	0.229	0.182	0.245
1964	19	0.408	0.262	0.245	3.150	0.609	0.486	0.376	0.397	0.316	0.212	0.397	0.245
1964	20	0.397	0.245	0.245	3.150	0.509	0.463	0.376	0.418	0.307	0.237	0.280	0.245
1964	21	0.376	0.245	0.245	1.058	0.991	0.452	0.376	0.376	0.298	0.262	0.245	0.245
1964	22	0.376	0.245	0.281	1.515	0.927	0.440	0.376	0.376	0.280	0.262	0.221	0.228
1964	23	0.356	0.354	0.316	3.150	0.895	0.440	0.356	0.366	0.280	0.280	0.197	0.662
1964	24	0.356	0.463	0.280	3.150	0.826	0.440	0.356	0.356	0.262	0.280	0.197	0.316
1964	25	0.336	0.418	0.262	1.837	0.758	0.440	0.376	0.376	0.356	0.271	0.376	0.294
1964	26	0.336	0.895	0.298	2.494	0.689	0.440	0.376	0.356	0.316	0.262	0.280	0.272
1964	27	0.336	1.058	0.307	3.150	0.662	0.440	0.376	0.356	0.316	0.262	0.280	0.250
1964	28	0.316	0.418	0.316	1.456	0.662	0.429	0.418	0.356	0.316	0.245	0.262	0.228
1964	29	0.316	0.336	0.292	1.127	0.689	0.418	0.397	0.336	0.316	0.245	0.254	0.228
1964	30	0.298		0.269	2.604	0.635	0.418	1.198	0.336	0.316	0.228	0.245	0.212
1964	31	0.298		0.245		0.635		0.509	0.336		0.228		0.197
1965	1	0.558	0.182	0.141	0.154	1.165	0.212	0.212	0.168	0.141	0.116	0.141	0.168
1965	2	0.895	0.182	0.141	0.141	0.874	0.212	0.212	0.168	0.141	0.116	0.376	0.182
1965	3	0.588	0.197	0.141	0.154	0.583	0.197	0.197	0.168	0.141	0.116	0.336	0.182
1965	4	0.280	0.197	0.141	0.161	0.501	0.197	0.197	0.168	0.141	0.116	0.168	0.182
1965	5	0.397	0.182	0.141	0.168	0.418	0.197	0.197	0.168	0.141	0.116	0.376	0.175
1965	6	0.228	0.182	0.128	0.168	0.336	0.197	0.197	0.154	0.141	0.116	0.280	0.168
1965	7	0.228	0.182	0.128	0.154	0.298	0.197	0.197	0.154	0.141	0.116	0.211	0.168
1965	8	0.228	0.182	0.128	0.154	0.316	0.197	0.197	0.154	0.141	0.116	0.141	0.154
1965	9	0.418	0.182	0.128	0.141	0.298	0.182	0.197	0.154	0.128	0.116	0.168	0.154
1965	10	0.514	0.168	0.128	0.168	0.280	0.182	0.197	0.154	0.128	0.116	0.245	0.154
1965	11	0.609	0.168	0.128	0.198	0.280	0.182	0.190	0.154	0.128	0.116	0.356	0.154
1965	12	0.356	0.168	0.128	0.228	0.280	0.197	0.182	0.154	0.128	0.116	0.228	0.154
1965	13	0.262	0.154	0.128	0.533	2.277	0.197	0.182	0.154	0.128	0.116	0.116	0.154
1965	14	0.245	0.154	0.128	0.418	0.635	0.197	0.168	0.154	0.128	0.116	0.198	0.154
1965	15	0.245	0.154	0.128	0.280	0.397	0.182	0.168	0.154	0.128	0.116	0.280	0.991
1965	16	0.228	0.154	0.128	0.254	0.348	0.168	0.168	0.154	0.128	0.116	0.262	0.558
1965	17	0.220	0.141	0.128	0.228	0.298	0.168	0.182	0.154	0.128	0.116	0.558	0.486
1965	18	0.212	0.141	0.128	0.203	0.280	0.168	0.197	0.154	0.128	0.116	0.486	0.418
1965	19	0.197	0.141	0.128	0.179	0.280	0.168	0.212	0.154	0.128	0.197	0.376	0.300
1965	20	0.197	0.141	0.128	0.154	0.397	0.198	0.197	0.154	0.128	0.239	0.197	0.182
1965	21	0.212	0.141	0.128	0.197	0.376	0.228	0.182	0.154	0.128	0.280	0.183	0.182
1965	22	0.228	0.141	0.128	0.262	0.343	0.245	0.182	0.154	0.128	0.316	0.168	0.182
1965	23	0.228	0.141	0.128	0.509	0.311	0.228	0.182	0.154	0.116	0.298	0.168	0.168
1965	24	0.213	0.141	0.128	0.509	0.278	0.245	0.168	0.141	0.116	0.226	0.154	0.141
1965	25	0.197	0.141	0.141	0.377	0.245	0.262	0.168	0.141	0.116	0.154	0.154	0.138
1965	26	0.197	0.141	0.141	0.245	0.228	0.245	0.168	0.141	0.116	0.154	0.168	0.135
1965	27	0.182	0.141	0.154	0.197	0.228	0.229	0.168	0.141	0.116	0.141	0.168	0.131
1965	28	0.182	0.141	0.148	1.092	0.228	0.212	0.168	0.141	0.116	0.141	0.168	0.128
1965	29	0.182		0.141	3.150	0.228	0.212	0.168	0.141	0.116	0.141	0.168	0.128
1965	30	0.182		0.154	1.456	0.228	0.212	0.168	0.141	0.116	0.128	0.154	0.128
1965	31	0.182		0.154		0.228		0.168	0.141		0.135		0.105
1966	1	0.105	0.154	0.182	0.165	1.439	0.228	0.154	0.119	0.182		0.316	0.116
1966	2	0.105	0.168	0.105	0.154	2.294	0.178	0.154	0.117	0.154		0.418	0.128
1966	3	0.105	0.154	0.084	0.176	3.150	0.128	0.154	0.114	0.141		0.280	0.128
1966	4	0.116	0.154	0.116	0.197	2.869	0.128	0.154	0.111	0.141		0.356	0.128
1966	5	0.084	0.141	0.105	0.262	2.049	0.122	0.154	0.108	0.141		0.336	0.128
1966	6	0.094	0.129	0.100	0.228	0.609	0.116	0.154	0.105	0.128		0.714	0.128
1966	7	0.094	0.116	0.094	0.245	0.558	0.116	0.154	0.117	0.168		1.092	0.128
1966	8	0.094	0.105	0.105	0.245	0.539	0.116	0.141	0.128	0.141		0.717	0.128
1966	9	0.094	0.105	0.094	0.245	0.520	0.116	0.141	0.128	0.141		0.316	0.128
1966	10	0.094	0.463	0.105	0.303	0.501	0.105	0.148	0.116	0.141	0.141	0.262	0.128
1966	11	0.094	0.197	0.141	0.360	0.482	0.116	0.154	0.116	0.135	0.084	0.228	0.128
1966	12	0.094	0.154	0.105	0.418	0.463	0.116	0.154	0.128	0.128	0.084	0.212	0.128
1966	13	0.094	0.119	0.100	0.280	0.440	0.116	0.154	0.128	0.105	0.084	0.190	0.128
1966	14	0.084	0.084	0.094	0.246	0.356	0.116	0.154	0.122	0.105	0.084	0.168	0.128
1966	15	0.084	0.084	0.105	0.212	0.318	0.105	0.154	0.116	0.105	0.084	0.141	0.128

1966	16	0.089	0.084	0.116	0.228	0.280	0.105	0.168	0.116	0.105	0.079	0.141	0.128
1966	17	0.094	0.084	0.128	0.220	0.245	0.105	0.155	0.116	0.105	0.074	0.141	0.105
1966	18	0.094	0.105	0.182	0.212	0.262	0.105	0.141	0.105	0.105	0.074	0.128	0.105
1966	19	0.094	0.105	0.128	0.197	0.245	0.105	0.141	0.105	0.105	0.074	0.128	0.105
1966	20	0.094	0.117	0.122	0.228	0.245	0.105	0.105	0.116	0.105	0.074	0.128	0.105
1966	21	0.486	0.128	0.116	2.604	0.245	0.105	0.128	0.111	0.105	0.074	0.128	0.094
1966	22	0.280	0.105	0.397	1.127	0.229	0.105	0.128	0.105	0.105	0.074	0.128	0.094
1966	23	0.204	0.105	1.162	0.895	0.212	0.356	0.128	0.105	0.105	0.079	0.128	0.094
1966	24	0.128	0.105	0.397	0.717	0.262	0.245	0.135	0.128	0.105	0.084	0.128	0.094
1966	25	0.128	0.105	0.418	0.499	0.262	0.212	0.141	0.128	0.105	0.074	0.128	0.094
1966	26	0.105	0.105	0.228	0.280	0.245	0.197	0.128	0.141	0.105	0.084	0.128	0.094
1966	27	1.703	0.144	0.217	1.515	0.245	0.182	0.128	0.154	0.094	0.074	0.128	0.094
1966	28	1.341	0.182	0.207	0.864	0.245	0.182	0.128	0.148	0.105	0.074	0.128	0.094
1966	29	0.895		0.196	0.662	0.245	0.182	0.128	0.141	0.105	0.074	0.128	0.094
1966	30	0.518		0.186	0.583	0.245	0.168	0.125	0.141	0.094	0.101	0.128	0.094
1966	31	0.141		0.175		0.245		0.122	0.356		0.128		0.084
1967	1	0.084	0.084	0.065	0.056	1.282	1.130	0.440	0.356	0.154	0.213	0.228	0.509
1967	2	0.084	0.084	0.065	0.065	1.703	1.025	0.429	0.356	0.141	0.197	0.228	0.245
1967	3	0.084	0.084	0.065	0.074	1.703	1.025	0.418	0.356	0.141	0.182	0.228	0.245
1967	4	0.084	0.084	0.065	0.074	2.779	1.025	0.418	0.356	0.141	0.182	0.228	0.245
1967	5	0.084	0.081	0.075	0.084	2.961	1.025	0.397	0.356	0.141	0.182	0.228	0.245
1967	6	0.084	0.077	0.084	0.094	3.150	1.025	0.397	0.343	0.141	0.182	0.228	0.245
1967	7	0.084	0.074	0.084	0.105	2.965	1.008	0.397	0.329	0.141	0.182	0.212	0.262
1967	8	0.084	0.084	0.074	0.105	2.779	0.991	0.376	0.316	0.141	0.182	0.212	0.212
1967	9	0.084	0.105	0.074	0.105	2.604	0.959	0.376	0.316	0.141	0.182	0.212	0.212
1967	10	0.084	0.094	0.065	0.105	2.753	0.689	0.376	0.316	0.148	0.182	0.197	0.205
1967	11	0.084	0.084	0.065	0.141	1.906	0.662	0.376	0.316	0.154	0.182	0.197	0.197
1967	12	0.094	0.079	0.065	0.336	2.869	0.635	0.376	0.316	0.154	0.182	0.190	0.197
1967	13	0.084	0.074	0.065	0.509	2.839	0.635	0.376	0.326	0.154	0.182	0.182	0.197
1967	14	0.084	0.094	0.065	0.280	2.809	0.635	0.356	0.336	0.141	0.168	0.182	0.197
1967	15	0.084	0.094	0.065	0.463	2.779	0.635	0.356	0.336	0.141	0.183	0.182	0.197
1967	16	0.084	0.094	0.065	0.323	2.869	0.609	0.336	0.280	0.141	0.197	0.182	0.182
1967	17	0.074	0.094	0.065	0.182	1.639	0.609	0.316	0.280	0.169	0.197	0.182	0.182
1967	18	0.084	0.094	0.065	1.058	2.199	0.609	0.316	0.280	0.197	0.182	0.280	0.182
1967	19	0.084	0.080	0.065	0.280	2.123	0.486	0.298	0.356	0.197	0.182	0.254	0.182
1967	20	0.094	0.065	0.065	0.197	2.277	0.533	0.486	0.346	0.197	0.190	0.228	0.168
1967	21	0.074	0.065	0.065	0.182	1.867	0.533	0.509	0.336	0.228	0.197	0.228	0.168
1967	22	0.074	0.056	0.065	0.212	1.456	0.533	0.509	0.262	0.212	0.213	0.212	0.154
1967	23	0.074	0.065	0.056	0.237	1.286	0.509	0.443	0.262	0.212	0.228	0.197	0.154
1967	24	0.084	0.065	0.054	0.262	1.286	0.509	0.376	0.316	0.205	0.262	0.212	0.148
1967	25	0.084	0.056	0.053	3.055	1.198	0.509	0.356	0.356	0.197	0.280	0.228	0.141
1967	26	0.084	0.059	0.051	1.769	3.150	0.509	0.356	0.336	0.197	0.262	0.302	0.135
1967	27	0.084	0.062	0.050	1.116	2.604	0.509	0.280	0.282	0.182	0.245	0.376	0.128
1967	28	0.084	0.065	0.048	0.463	2.480	0.498	0.228	0.228	0.205	0.245	0.397	0.128
1967	29	0.084		0.048	0.440	2.356	0.486	0.228	0.228	0.228	0.245	0.419	0.128
1967	30	0.084		0.048	0.861	1.341	0.486	0.228	0.254	0.228	0.245	0.440	0.128
1967	31	0.084		0.056		1.234		0.228	0.280		0.245		0.128
1968	1	0.128	0.084	0.509	0.376	3.698	0.753	0.418	0.316	0.228	0.182	0.212	4.796
1968	2	0.116	0.084	0.662	4.950	5.347	0.732	0.418	0.316	0.228	0.182	0.212	8.632
1968	3	0.105	0.084	0.649	1.198	3.552	0.710	0.376	0.316	0.228	0.168	0.217	12.469
1968	4	0.105	0.084	0.635	3.055	2.869	0.689	0.376	0.316	0.228	0.168	0.223	1.906
1968	5	0.105	0.084	0.558	2.123	2.211	0.609	0.376	0.316	0.212	0.168	0.228	2.869
1968	6	0.105	0.084	1.397	1.025	1.553	0.558	0.397	0.316	0.212	0.173	0.336	1.397
1968	7	0.105	0.084	0.689	0.701	0.895	0.717	0.397	0.316	0.212	0.177	0.245	1.127
1968	8	0.105	0.094	0.418	0.376	0.895	0.662	0.397	0.316	0.217	0.182	0.245	0.963
1968	9	0.094	0.094	0.298	0.486	0.895	0.603	0.397	0.298	0.223	0.182	0.262	0.799
1968	10	0.094	0.094	0.583	0.440	0.895	0.545	0.356	0.298	0.228	0.182	0.361	0.635
1968	11	0.074	0.094	1.286	0.397	0.895	0.486	0.356	0.292	0.212	0.182	0.459	0.609
1968	12	0.074	0.094	0.635	0.387	0.817	0.662	0.356	0.286	0.212	0.182	0.558	0.596
1968	13	0.074	0.094	0.376	0.376	0.740	0.583	0.356	0.280	0.212	0.182	0.702	0.583
1968	14	0.074	0.094	0.356	0.350	0.662	0.509	0.356	0.280	0.228	0.182	0.635	0.558
1968	15	0.074	0.098	0.316	0.324	0.635	0.804	0.356	0.280	0.228	0.182	0.376	0.542

1968	16	0.074	0.103	0.336	0.298	0.609	0.900	0.356	0.280	0.228	0.182	0.280	0.525
1968	17	0.074	0.107	0.388	0.316	0.583	0.996	0.356	0.298	0.228	0.182	0.283	0.509
1968	18	0.074	0.112	0.440	0.316	0.558	1.092	0.336	0.304	0.228	0.182	0.286	0.486
1968	19	0.074	0.116	0.486	0.307	1.157	0.746	0.336	0.310	0.228	0.168	0.289	0.463
1968	20	0.074	0.128	0.376	0.298	1.757	0.609	0.336	0.316	0.212	0.168	0.376	0.418
1968	21	0.074	0.228	0.316	1.849	2.356	0.558	0.336	0.316	0.212	0.168	1.837	0.397
1968	22	0.074	0.245	1.286	3.399	0.895	0.509	0.336	0.316	0.212	0.168	0.991	0.390
1968	23	0.074	0.182	0.635	4.950	0.774	0.479	0.336	0.298	0.212	0.168	0.991	0.383
1968	24	0.074	0.168	0.881	2.604	0.662	0.448	0.336	0.280	0.212	0.168	2.488	0.376
1968	25	0.074	0.148	1.127	0.895	0.662	0.418	0.336	0.268	0.212	0.168	3.985	0.369
1968	26	0.074	0.128	0.717	1.837	0.699	0.418	0.316	0.257	0.212	0.168	1.703	0.363
1968	27	0.074	0.804	0.376	1.286	0.737	0.418	0.316	0.245	0.212	0.183	1.025	0.356
1968	28	0.074	0.298	0.262	1.540	0.774	0.418	0.316	0.245	0.212	0.197	1.025	0.356
1968	29	0.074	0.404	0.376	1.795	1.092	0.418	0.316	0.237	0.202	0.212	1.025	0.349
1968	30	0.074		1.025	2.049	0.804	0.418	0.316	0.228	0.192	0.212	0.959	0.343
1968	31	0.074		0.701		0.774		0.316	0.228		0.212		0.336
1969	1	0.336	0.356	0.440	0.262	0.220	0.235	0.182	0.212	0.168	0.141	0.128	0.245
1969	2	0.336	0.356	0.412	0.245	0.228	0.238	0.182	0.208	0.168	0.128	0.128	0.212
1969	3	0.336	0.356	0.384	0.228	0.280	0.242	0.182	0.205	0.168	0.128	0.128	0.182
1969	4	0.316	0.356	0.356	0.228	0.286	0.245	0.182	0.201	0.168	0.128	0.128	0.182
1969	5	0.316	0.336	0.316	0.228	0.292	0.245	0.182	0.197	0.168	0.128	0.128	0.182
1969	6	0.316	0.316	0.418	0.228	0.298	0.228	0.182	0.197	0.168	0.128	0.128	0.182
1969	7	0.316	0.280	0.376	0.228	0.298	0.228	0.182	0.197	0.168	0.135	0.135	0.182
1969	8	0.316	0.280	0.356	0.228	0.440	0.228	0.182	0.205	0.168	0.141	0.141	0.182
1969	9	0.298	0.274	0.343	0.228	0.336	0.228	0.182	0.212	0.168	0.141	0.145	0.168
1969	10	0.298	0.268	0.329	0.228	0.357	0.228	0.182	0.207	0.168	0.135	0.150	0.168
1969	11	0.298	0.262	0.316	0.228	0.377	0.228	0.182	0.202	0.168	0.128	0.154	0.154
1969	12	0.292	0.262	0.280	0.228	0.398	0.228	0.182	0.197	0.168	0.128	0.141	0.154
1969	13	0.286	0.262	0.509	0.228	0.418	0.228	0.182	0.197	0.165	0.128	0.177	0.154
1969	14	0.280	0.262	0.316	0.228	0.440	0.224	0.182	0.197	0.161	0.128	0.212	0.148
1969	15	0.280	0.262	0.280	0.228	1.162	0.220	0.182	0.197	0.158	0.135	0.356	0.141
1969	16	0.280	0.262	0.274	0.298	0.759	0.216	0.168	0.197	0.154	0.141	0.277	0.141
1969	17	0.280	0.262	0.268	0.262	0.356	0.212	0.168	0.197	0.154	0.154	0.197	0.128
1969	18	0.280	0.262	0.262	0.228	0.325	0.212	0.168	0.197	0.141	0.141	0.197	0.128
1969	19	0.274	0.262	0.262	0.228	0.293	0.212	0.172	0.197	0.141	0.145	0.182	0.128
1969	20	0.268	0.262	0.262	0.228	0.262	0.212	0.175	0.197	0.141	0.150	0.168	0.116
1969	21	0.262	0.262	0.262	0.228	0.245	0.208	0.179	0.182	0.141	0.154	0.182	0.116
1969	22	0.262	0.262	0.262	0.228	0.228	0.205	0.182	0.182	0.141	0.141	0.182	0.116
1969	23	0.262	0.262	0.274	0.212	0.228	0.201	0.182	0.182	0.128	0.141	0.182	0.105
1969	24	0.418	0.262	0.286	0.212	0.228	0.197	0.182	0.182	0.128	0.141	0.182	0.105
1969	25	0.509	0.262	0.298	0.212	0.228	0.190	0.190	0.182	0.128	0.141	0.240	0.105
1969	26	0.433	0.336	0.280	0.212	0.228	0.182	0.197	0.182	0.128	0.135	0.298	0.105
1969	27	0.356	0.423	0.280	0.212	0.228	0.182	0.197	0.168	0.128	0.128	0.289	0.105
1969	28	0.280	0.509	0.280	0.212	0.228	0.182	0.197	0.168	0.128	0.128	0.280	0.105
1969	29	0.280		0.280	0.212	0.228	0.182	0.197	0.168	0.128	0.128	0.262	0.105
1969	30	0.263		0.274	0.212	0.228	0.182	0.205	0.168	0.128	0.128	0.254	0.105
1969	31	0.245		0.268		0.231		0.212	0.168		0.128		0.105
1970	1	0.105	0.175	0.105	1.906	0.559	1.139	0.262	0.212	0.168	0.128	0.100	0.116
1970	2	0.116	0.168	0.105	0.533	0.509	0.609	0.280	0.197	0.154	0.105	0.105	0.116
1970	3	0.116	0.168	0.094	0.397	0.475	2.604	0.262	0.183	0.154	0.105	0.105	0.105
1970	4	0.116	0.154	0.094	0.468	0.440	0.927	0.262	0.168	0.141	0.111	0.105	0.141
1970	5	0.116	0.154	0.084	0.538	1.639	0.895	0.289	0.168	0.141	0.116	0.128	0.128
1970	6	0.128	0.141	0.084	0.609	0.834	0.609	0.316	0.168	0.141	0.116	0.128	0.117
1970	7	0.168	0.141	0.084	0.376	3.055	0.548	0.280	0.141	0.141	0.105	0.116	0.105
1970	8	0.168	0.141	0.095	0.463	0.804	0.486	0.262	0.168	0.141	0.105	0.164	0.105
1970	9	0.376	0.141	0.105	9.865	0.558	0.486	0.262	0.175	0.128	0.105	0.212	0.094
1970	10	0.356	0.141	0.105	1.025	0.860	0.463	0.245	0.182	0.154	0.094	0.141	0.094
1970	11	0.262	0.128	0.094	0.689	1.162	0.440	0.228	0.168	0.154	0.111	0.141	0.094
1970	12	0.168	0.298	0.105	0.523	0.834	0.440	0.237	0.182	0.154	0.128	0.128	0.098
1970	13	0.228	0.280	0.094	0.356	0.558	0.440	0.245	0.182	0.154	0.154	0.154	0.101
1970	14	0.245	0.141	0.094	0.509	1.162	0.429	0.262	0.182	0.154	0.128	0.182	0.105
1970	15	0.182	0.123	0.094	1.576	0.509	0.418	0.228	0.182	0.154	0.141	0.162	0.128

1970	16	0.168	0.105	0.094	0.689	0.418	0.418	0.228	0.182	0.128	0.128	0.141	0.212
1970	17	0.168	0.111	0.105	0.463	0.397	0.418	0.228	0.182	0.128	0.128	1.703	0.141
1970	18	0.161	0.116	0.105	0.376	0.376	0.376	0.228	0.182	0.128	0.128	0.280	0.128
1970	19	0.154	0.116	0.105	0.319	0.356	0.356	0.220	0.182	0.128	0.128	0.197	0.128
1970	20	0.141	0.105	0.094	0.262	0.356	0.376	0.212	0.182	0.135	0.128	0.154	0.122
1970	21	0.141	0.105	0.094	0.262	0.558	0.356	0.212	0.182	0.141	0.128	0.154	0.116
1970	22	0.141	0.105	0.094	0.228	1.769	0.336	0.212	0.182	0.128	0.128	0.148	0.116
1970	23	0.182	0.105	0.094	11.781	0.558	0.316	0.212	0.182	0.128	0.116	0.141	0.116
1970	24	0.533	0.105	0.084	7.639	0.457	0.316	0.182	0.182	0.128	0.105	0.141	0.116
1970	25	0.358	0.116	0.116	3.657	0.356	0.298	0.168	0.197	0.128	0.111	0.141	0.113
1970	26	0.182	0.105	0.129	2.276	0.336	0.280	0.175	0.197	0.128	0.116	0.128	0.111
1970	27	0.168	0.105	0.141	0.895	0.609	0.280	0.182	0.197	0.135	0.105	0.117	0.108
1970	28	0.163	0.105	0.154	1.286	2.242	0.263	0.182	0.190	0.141	0.128	0.105	0.105
1970	29	0.159		0.208	0.948	3.874	0.245	0.228	0.182	0.135	0.117	0.111	0.116
1970	30	0.154		0.262	0.609	2.199	0.245	0.228	0.175	0.128	0.105	0.116	0.122
1970	31	0.182		0.316		1.669		0.228	0.168		0.094		0.128
1971	1	0.128	0.105	0.065	0.084	0.896	0.357	0.154	0.128	0.116	0.084	0.065	0.105
1971	2	0.128	0.128	0.065	0.084	1.548	0.316	0.212	0.128	0.105	0.084	0.065	0.116
1971	3	0.111	0.141	0.056	0.084	2.199	0.298	0.182	0.128	0.116	0.084	0.065	0.105
1971	4	0.094	0.128	0.065	0.084	0.864	0.280	0.197	0.128	0.116	0.084	0.065	0.105
1971	5	0.116	0.105	0.056	0.084	0.418	0.262	0.212	0.128	0.116	0.094	0.074	0.105
1971	6	0.094	0.105	0.056	0.084	0.298	0.262	0.197	0.128	0.116	0.084	0.065	0.105
1971	7	0.105	0.105	0.056	0.084	0.245	0.262	0.182	0.128	0.105	0.084	0.065	0.105
1971	8	0.105	0.105	0.056	0.116	0.262	0.228	0.168	0.122	0.084	0.084	0.065	0.094
1971	9	0.105	0.094	0.065	0.129	0.262	0.228	0.154	0.116	0.094	0.084	0.065	0.084
1971	10	0.105	0.094	0.065	0.141	0.262	0.228	0.141	0.105	0.084	0.079	0.065	0.084
1971	11	0.105	0.084	0.065	0.129	0.212	0.228	0.141	0.128	0.084	0.074	0.094	0.084
1971	12	0.105	0.084	0.074	0.117	0.182	0.212	0.141	0.168	0.084	0.074	0.084	0.078
1971	13	0.094	0.084	0.074	0.105	0.182	0.264	0.141	0.141	0.084	0.074	0.074	0.071
1971	14	0.094	0.084	0.074	0.105	0.558	0.316	0.141	0.128	0.084	0.074	0.090	0.065
1971	15	0.116	0.084	0.074	0.558	1.198	0.228	0.141	0.128	0.084	0.065	0.105	0.056
1971	16	0.105	0.074	0.065	0.154	4.952	0.212	0.182	0.128	0.084	0.074	0.084	0.074
1971	17	0.144	0.074	0.065	0.245	8.706	0.182	0.182	0.128	0.084	0.070	0.074	0.212
1971	18	0.182	0.074	0.074	0.200	2.869	0.182	0.197	0.116	0.084	0.065	0.074	0.212
1971	19	0.116	0.074	0.065	0.154	1.576	0.182	0.212	0.105	0.084	0.074	0.065	0.326
1971	20	0.105	0.074	0.065	1.906	0.927	0.259	0.182	0.105	0.084	0.074	0.062	0.440
1971	21	0.105	0.079	0.061	0.298	3.985	0.336	0.168	0.128	0.074	0.074	0.059	0.212
1971	22	0.105	0.084	0.056	0.366	2.199	0.212	0.154	0.141	0.074	0.074	0.056	0.262
1971	23	0.105	0.084	0.056	0.168	1.458	0.205	0.141	0.154	0.074	0.074	0.056	0.168
1971	24	0.105	0.074	0.065	0.168	0.717	0.197	0.141	0.154	0.074	0.070	0.105	0.197
1971	25	0.105	0.074	0.074	0.161	0.609	0.182	0.141	0.141	0.074	0.065	0.094	0.186
1971	26	0.105	0.074	0.141	0.154	0.463	0.182	0.141	0.141	0.090	0.065	0.094	0.176
1971	27	0.128	0.074	0.105	1.576	0.397	0.175	0.141	0.116	0.105	0.065	0.105	0.165
1971	28	0.128	0.070	0.100	0.486	0.408	0.168	0.141	0.116	0.105	0.080	0.109	0.154
1971	29	0.128		0.094	0.366	0.418	0.168	0.141	0.120	0.095	0.094	0.112	0.128
1971	30	0.105		0.089	0.245	0.408	0.168	0.141	0.124	0.084	0.094	0.116	0.128
1971	31	0.105		0.084		0.397		0.128	0.128		0.080		0.128
1972	1	0.128	0.056	0.084	0.056	0.041	0.117	0.084	0.074	0.048	0.057	2.356	0.116
1972	2	0.117	0.084	0.074	0.053	0.041	0.105	0.089	0.074	0.034	0.065	0.509	0.116
1972	3	0.105	0.074	0.065	0.051	0.116	0.094	0.094	0.065	0.038	0.065	0.228	0.111
1972	4	0.105	0.084	0.056	0.048	0.105	0.718	0.094	0.065	0.041	0.065	0.128	0.105
1972	5	0.128	0.065	0.056	0.048	0.065	1.341	0.094	0.065	0.034	0.065	0.154	0.105
1972	6	0.168	0.070	0.056	0.048	0.065	0.440	0.084	0.061	0.028	0.056	0.182	0.084
1972	7	0.128	0.074	0.048	0.048	0.061	0.280	0.105	0.056	0.084	0.056	0.262	0.084
1972	8	0.128	0.128	0.048	0.048	0.056	0.212	0.084	0.074	0.084	0.061	0.316	0.084
1972	9	0.117	0.212	0.056	0.048	0.094	0.168	0.079	0.065	0.056	0.065	0.056	0.084
1972	10	0.105	0.128	0.048	0.048	0.084	0.154	0.074	0.065	0.056	0.056	0.316	0.089
1972	11	0.094	0.105	0.048	0.048	0.074	0.141	0.084	0.074	0.056	0.056	0.533	0.094
1972	12	0.094	0.084	0.048	0.048	0.084	0.128	0.105	0.065	0.048	0.056	0.197	0.094
1972	13	0.084	0.084	0.048	0.041	0.084	0.128	0.094	0.065	0.084	0.056	0.168	0.094
1972	14	0.084	0.084	0.048	0.041	0.106	0.128	0.084	0.065	0.084	0.048	0.168	0.128
1972	15	0.074	0.074	0.048	0.041	0.128	0.105	0.094	0.056	0.065	0.052	1.162	0.094

1972	16	0.074	0.084	0.074	0.041	0.094	0.105	0.089	0.056	0.056	0.056	1.703	0.084
1972	17	0.074	0.094	0.056	0.041	0.141	0.105	0.084	0.056	0.056	0.074	0.774	0.079
1972	18	0.074	0.084	0.056	0.041	0.558	0.105	0.084	0.056	0.056	0.105	0.356	0.074
1972	19	0.074	0.084	0.061	0.034	0.533	0.105	0.084	0.056	0.056	0.084	0.182	0.074
1972	20	0.074	0.075	0.065	0.034	0.228	0.094	0.084	0.061	0.048	0.075	0.262	0.074
1972	21	0.065	0.065	0.141	0.041	0.198	0.128	0.084	0.065	0.056	0.065	0.228	0.065
1972	22	0.065	0.065	0.168	0.041	0.168	0.116	0.084	0.074	0.056	0.080	0.228	0.065
1972	23	0.065	0.056	0.154	0.041	0.154	0.128	0.079	0.074	0.056	0.094	0.228	0.065
1972	24	0.065	0.092	0.141	0.041	0.128	0.116	0.074	0.074	0.052	0.094	0.168	0.067
1972	25	0.065	0.128	0.065	0.041	0.128	0.135	0.084	0.065	0.048	0.074	0.154	0.070
1972	26	0.065	0.141	0.061	0.028	0.182	0.154	0.074	0.056	0.084	0.376	0.168	0.072
1972	27	0.056	0.113	0.056	0.038	0.168	0.128	0.074	0.052	0.074	0.197	0.168	0.074
1972	28	0.052	0.084	0.056	0.048	0.148	0.105	0.074	0.048	0.061	0.245	0.141	0.074
1972	29	0.048	0.084	0.056	0.041	0.128	0.105	0.074	0.048	0.048	1.317	0.128	0.065
1972	30	0.048		0.056	0.041	0.128	0.094	0.074	0.052	0.048	2.390	0.128	0.065
1972	31	0.048		0.056		0.128		0.074	0.056		3.462		0.065
1973	1	0.056	0.074	0.084	0.022	0.298	0.245	0.116	0.074	0.056	0.065	0.034	0.105
1973	2	0.056	0.074	0.074	0.028	0.228	0.463	0.116	0.065	0.056	0.065	0.034	0.094
1973	3	0.056	0.074	0.074	0.022	0.197	0.336	0.105	0.065	0.056	0.056	0.048	0.228
1973	4	0.212	0.070	0.074	0.028	0.182	0.197	0.105	0.065	0.056	0.056	0.074	0.094
1973	5	0.228	0.065	0.065	0.028	0.168	0.182	0.094	0.065	0.056	0.048	0.084	0.048
1973	6	0.418	0.065	0.065	0.028	0.182	0.168	0.084	0.074	0.056	0.048	0.065	0.048
1973	7	0.300	0.056	0.074	0.028	0.154	0.154	0.084	0.074	0.056	0.048	0.065	0.048
1973	8	0.182	0.084	0.065	0.028	0.154	0.141	0.094	0.074	0.056	0.041	0.105	0.041
1973	9	0.154	0.074	0.065	0.048	0.141	0.141	0.084	0.065	0.056	0.041	0.154	0.065
1973	10	0.128	0.074	0.065	0.041	0.141	0.128	0.084	0.065	0.002	0.056	0.168	0.074
1973	11	0.105	0.070	0.065	0.028	0.141	0.128	0.084	0.065	0.056	0.056	0.154	0.065
1973	12	0.105	0.065	0.065	0.048	0.128	0.128	0.084	0.065	0.048	0.048	0.105	0.056
1973	13	0.094	0.558	0.065	0.034	0.128	0.116	0.084	0.065	0.048	0.048	0.094	0.048
1973	14	0.089	0.154	0.048	0.034	0.116	0.105	0.084	0.084	0.022	0.048	0.094	0.048
1973	15	0.084	0.116	0.048	0.034	0.116	0.105	0.084	0.065	0.022	0.048	0.074	0.041
1973	16	1.286	0.094	0.048	0.034	0.141	0.116	0.084	0.056	0.022	0.048	0.065	0.034
1973	17	2.277	0.336	0.045	1.456	0.128	0.105	0.084	0.065	0.022	0.048	0.065	0.034
1973	18	0.717	0.252	0.041	1.515	0.116	0.105	0.094	0.065	0.022	0.048	0.065	0.034
1973	19	0.440	0.168	0.038	0.558	0.094	0.105	0.094	0.056	0.028	0.041	0.065	0.056
1973	20	0.228	0.141	0.035	0.376	0.094	0.105	0.056	0.048	0.168	0.041	0.056	0.041
1973	21	0.191	0.105	0.031	0.212	0.105	0.105	0.065	0.056	0.084	0.041	0.056	0.034
1973	22	0.154	0.262	0.028	4.099	0.105	0.105	0.056	0.056	0.065	0.041	0.056	0.034
1973	23	0.128	0.141	0.028	1.576	0.116	0.105	0.094	0.056	0.094	0.041	0.056	0.034
1973	24	0.128	0.116	0.041	1.397	0.116	0.116	0.084	0.048	0.094	0.034	0.056	0.028
1973	25	0.105	0.100	0.034	1.703	0.105	0.116	0.065	0.048	0.463	0.034	0.048	0.028
1973	26	0.116	0.084	0.034	1.234	0.128	0.116	0.065	0.056	0.154	0.034	0.048	0.028
1973	27	0.094	0.079	0.034	0.558	0.228	0.116	0.065	0.056	0.168	0.034	0.048	0.028
1973	28	0.089	0.074	0.034	0.376	0.197	0.116	0.065	0.056	0.116	0.034	0.048	0.028
1973	29	0.084		0.041	0.298	0.262	0.128	0.065	0.056	0.094	0.034	0.074	0.028
1973	30	0.079		0.034	0.376	0.182	0.116	0.074	0.048	0.074	0.034	0.128	0.022
1973	31	0.074		0.034		0.154		0.074	0.048		0.041		0.017
1974	1	0.017		0.016	0.182	2.437	0.116	0.154	0.084	0.094	0.074	0.056	0.041
1974	2	0.017		0.017	0.084	2.049	0.084	0.228	0.084	0.084	0.041	0.056	0.034
1974	3	0.017		0.056	0.041	0.774	0.084	0.298	0.084	0.074	0.041	0.074	0.034
1974	4	0.017		0.048	0.116	0.440	0.168	0.280	0.094	0.084	0.048	0.168	0.094
1974	5	0.013		0.022	0.056	0.316	0.094	0.245	0.094	0.094	0.116	0.116	0.154
1974	6	0.013	0.003	0.013	0.017	0.262	0.084	0.182	0.094	0.084	0.116	0.116	0.128
1974	7	0.013	0.003	0.006	0.034	0.212	0.084	0.834	0.084	0.084	0.065	0.168	0.094
1974	8	0.013	0.003	0.003	0.316	0.197	0.074	0.463	0.084	0.116	0.056	0.168	0.074
1974	9	0.013	0.003	0.002	0.991	0.182	0.074	0.927	0.084	0.105	0.041	0.105	0.048
1974	10	0.013	0.003	0.002	0.583	0.168	0.074	0.463	0.084	0.141	0.041	0.116	0.048
1974	11	0.013	0.003	0.017	0.298	0.154	0.418	0.262	0.074	0.116	0.041	0.116	0.048
1974	12	0.013	0.002	0.003	0.262	0.154	0.418	0.197	0.074	0.084	0.034	0.094	0.041
1974	13	0.013	0.006	0.002	0.689	0.141	0.141	0.182	0.074	0.084	0.034	0.065	0.041
1974	14	0.048	0.006	0.002	0.376	0.141	0.105	0.197	0.074	0.084	0.034	0.056	0.034
1974	15	0.041	0.006	0.002	0.717	0.128	0.228	0.228	0.074	0.056	0.034	0.128	0.034

1974	16	0.017	0.006	0.002	0.356	0.128	0.197	0.182	0.074	0.074	0.034	0.116	0.034
1974	17	0.017	0.006	0.002	0.094	0.116	0.154	0.154	0.074	0.065	0.028	0.056	0.041
1974	18	0.017	0.006	0.002	0.376	0.105	0.128	0.154	0.074	0.065	0.028	0.154	0.034
1974	19	0.022	0.006	0.002	0.486	0.105	0.105	0.141	0.074	0.074	0.041	0.154	0.034
1974	20	0.022	0.003	0.002	0.746	0.105	0.094	0.128	0.074	0.074	0.028	0.128	0.028
1974	21	0.022	0.003	0.003	0.280	0.105	0.094	0.418	0.065	0.084	0.028	0.074	0.028
1974	22	0.022	0.003	0.002	0.197	0.168	0.094	0.418	0.065	0.074	0.028	0.065	0.028
1974	23	0.022	0.009	0.003	0.316	0.168	0.262	0.245	0.056	0.084	0.056	0.056	0.028
1974	24	0.022	0.009	0.003	0.168	0.128	0.197	0.168	0.065	0.074	0.048	0.048	0.022
1974	25		0.013	0.022	0.056	0.128	0.154	0.154	0.084	0.065	0.065	0.048	0.022
1974	26		0.014	0.028	0.418	0.105	0.141	0.141	0.094	0.065	0.065	0.041	0.022
1974	27		0.015	0.028	0.280	0.065	0.154	0.128	0.074	0.065	0.056	0.041	0.022
1974	28		0.015	0.028	0.245	0.041	0.212	0.116	0.065	0.056	0.056	0.041	0.022
1974	29			0.022	0.228	0.065	0.168	0.105	0.056	0.056	0.056	0.041	0.022
1974	30			0.017	0.804	0.074	0.141	0.094	0.105	0.048	0.056	0.041	0.022
1974	31			0.013		0.074		0.094	0.105		0.056		0.022
1975	1	0.022	0.013	0.011	0.065	0.094	0.245	0.065	0.065	0.048	0.084	0.141	0.094
1975	2	0.022	0.013	0.011	0.065	0.094	0.182	0.056	0.065	0.048	0.074	0.103	0.262
1975	3	0.022	0.013	0.010	0.048	0.094	0.141	0.056	0.065	0.057	0.074	0.065	0.212
1975	4	0.022	0.013	0.009	0.041	0.094	0.116	0.048	0.065	0.065	0.065	0.056	0.116
1975	5	0.022	0.013	0.009	0.041	0.094	0.105	0.056		0.048	0.070	0.056	0.116
1975	6	0.022	0.013	0.009	0.041	0.084	0.105	0.056		0.048	0.074	0.056	0.116
1975	7	0.022	0.013	0.009	0.041	0.084	0.094	0.056		0.048	0.056	0.048	0.116
1975	8	0.017	0.013	0.017	0.041	0.084	0.094	0.056		0.048	0.056	0.041	0.116
1975	9	0.013	0.013	0.034	0.041	0.084	0.094	0.056		0.048	0.056	0.041	0.168
1975	10	0.013	0.013	0.028	0.041	0.074	0.094	0.056		0.048	0.065	0.041	0.212
1975	11	0.022	0.013	0.028	0.056	0.094	0.084	0.048		0.048	0.056	0.034	0.141
1975	12	0.034	0.013	0.048	0.074	0.105	0.074	0.048		0.041	0.056	0.034	0.108
1975	13	0.034	0.013	0.065	0.094	0.116	0.074	0.048		0.048	0.056	0.041	0.074
1975	14	0.022	0.017	0.065	0.105	0.689	0.074	0.048		0.048	0.065	0.041	0.101
1975	15	0.022	0.013	0.056	0.141	1.341	0.074	0.048		0.048	0.065	0.041	0.128
1975	16	0.022	0.013	0.048	0.418	1.576	0.065	0.048		0.048	0.065	0.091	0.128
1975	17	0.022	0.013	0.048	0.418	1.092	0.065	0.048		0.048	0.065	0.141	0.116
1975	18	0.022	0.013	0.048	1.769	0.440	0.065	0.048		0.048	0.065	0.182	0.094
1975	19	0.022	0.013	0.056	0.609	0.262	0.065	0.048		0.048	0.059	0.262	0.065
1975	20	0.022	0.013	0.056	0.298	0.197	0.065	0.048		0.048	0.054	0.280	0.048
1975	21	0.022	0.013	0.056	0.440	0.197	0.065	0.048		0.048	0.048	0.182	0.045
1975	22	0.022	0.013	0.041	1.576	0.168	0.065	0.048		0.048	0.094	0.168	0.041
1975	23	0.017	0.013	0.034	0.609	0.141	0.065	0.048		0.048	0.074	0.155	0.041
1975	24	0.013	0.013	0.028	0.689	0.197	0.074	0.065		0.048	0.074	0.141	0.041
1975	25	0.013	0.013	0.028	0.418	0.141	0.065	0.105		0.048	0.056	0.141	0.041
1975	26	0.013	0.013	0.028	0.804	0.116	0.065	0.105		0.048	0.056	0.141	0.041
1975	27	0.013	0.013	0.028	0.262	0.116	0.065	0.105		0.048	0.056	0.116	0.041
1975	28	0.013	0.012	0.028	0.168	0.316	0.065	0.074		0.048	0.056	0.141	0.041
1975	29	0.013		0.028	0.141	0.376	0.065	0.065		0.048	0.094	0.116	0.041
1975	30	0.013		0.034	0.105	0.262	0.065	0.065		0.048	0.182	0.105	0.041
1975	31	0.013		0.041		0.262		0.065			0.141		0.041
1976	1		0.041	0.034	0.034	0.176	0.254	0.197	0.116	0.262	0.084	0.091	0.356
1976	2		0.041	0.028	0.048	0.141	0.228	0.154	0.141	0.397	0.084	0.094	0.525
1976	3		0.041	0.022	0.048	0.105	0.116	0.128	0.168	1.456	0.074	0.116	0.346
1976	4		0.084	0.022	0.041	0.105	0.116	0.197	0.154	1.058	0.074	0.154	0.262
1976	5		0.041	0.022	0.048	0.105	0.141	0.141	0.141	0.717	0.168	0.128	0.222
1976	6		0.116	0.022	0.048	0.168	0.128	0.094	0.141	0.662	0.168	0.105	0.182
1976	7		0.116	0.022	0.048	0.105	0.094	0.116	0.154	0.609	0.141	0.105	0.212
1976	8		0.048	0.022	0.048	0.094	0.094	0.116	0.154	0.509	0.116	0.105	0.154
1976	9		0.048	0.022	0.074	0.105	0.228	0.298	0.168	0.463	0.084	0.094	0.154
1976	10		0.074	0.022	0.074	0.116	0.128	0.228	0.182	0.397	0.094	0.084	0.128
1976	11		0.065	0.022	0.463	0.141	0.105	0.197	0.168	0.376	0.094	0.074	0.116
1976	12		0.048	0.006	0.774	0.105	0.074	0.197	0.141	0.356	0.116	0.065	0.133
1976	13		0.041	0.006	0.509	0.105	0.116	0.154	0.105	0.316	0.094	0.056	0.151
1976	14		0.041	0.006	0.583	0.105	0.262	0.154	0.074	0.356	0.094	0.065	0.168
1976	15		0.041	0.006	2.277	0.105	0.228	0.141	0.094	0.336	0.094	0.056	0.228

1976	16		0.027	0.006	1.977	0.141	0.197	0.128	0.116	0.316	0.094	0.048	0.197
1976	17		0.041	0.006	1.025	0.168	0.262	0.197	0.116	0.280	0.094	0.056	0.182
1976	18		0.041	0.006	0.583	0.376	0.154	0.182	0.105	0.280	0.084	0.056	0.182
1976	19		0.041	0.006	0.397	0.262	0.141	0.168	0.084	0.280	0.094	0.141	0.175
1976	20		0.041	0.016	0.262	0.197	0.298	0.141	0.074	0.212	0.094	0.228	0.168
1976	21		0.041	0.025	0.128	0.212	0.717	0.128	0.094	0.228	0.094	0.316	0.154
1976	22		0.041	0.035	0.094	0.376	0.895	0.128	0.074	0.262	0.094	0.298	0.154
1976	23		0.041	0.045	0.094	0.583	0.635	0.105	0.094	0.280	0.084	0.376	0.154
1976	24	0.023	0.035	0.055	0.116	2.779	0.533	0.105	0.094	0.463	0.074	0.262	0.154
1976	25	0.034	0.028	0.064	0.149	0.486	0.280	0.084	0.105	0.440	0.084	0.212	0.182
1976	26	0.034	0.041	0.074	0.182	0.280	0.212	0.105	0.141	0.345	0.084	0.182	0.280
1976	27	0.034	0.065	0.065	0.182	0.356	0.154	0.105	0.197	0.249	0.084	0.298	0.212
1976	28	0.034	0.056	0.057	0.245	0.280	0.141	0.141	0.182	0.154	0.074	0.336	0.168
1976	29	0.041	0.028	0.048	0.228	0.280	0.116	0.116	0.197	0.116	0.065	0.316	0.141
1976	30	0.041		0.041	0.212	0.280	0.197	0.128	0.168	0.084	0.084	0.397	0.141
1976	31	0.041		0.034		0.280		0.128	0.154		0.087		1.769
1977	1	0.397	0.154	0.048	0.028	3.355	0.148		0.128	0.084	0.219	0.141	0.262
1977	2	0.419	0.154	0.041	0.028	2.944	0.128		0.116	0.084	0.219	0.128	0.228
1977	3	0.440	0.117	0.034	0.025	2.534	0.128		0.116	0.084	0.219	0.182	0.228
1977	4	0.245	0.117	0.028	0.022	2.123	0.128		0.105	0.084	0.219	0.168	0.205
1977	5	0.084	0.092	0.028	0.022	3.150	0.307		0.105	0.084	0.219	0.168	0.182
1977	6	0.065	0.082	0.038	4.099	3.150	0.486		1.286	0.074	0.219	0.613	0.182
1977	7	0.056	0.071	0.048	0.356	3.150	1.515		0.742	0.074	0.219	1.058	0.245
1977	8	0.048	0.071	0.028	1.954	4.050	0.991		0.197	0.074	0.219	0.689	0.168
1977	9	0.045	0.071	0.022	3.552	4.950	0.280		0.182	0.074	0.219	0.262	0.168
1977	10	0.041	0.071	0.022	2.480	7.138	0.262		0.168	0.074	0.219	0.262	0.141
1977	11	0.034	0.046	0.017	1.408	3.874	0.245		0.141	0.070	0.219	0.262	0.133
1977	12	0.034	0.046	0.017	0.336	3.150	0.237		0.116	0.065	0.185	0.298	0.124
1977	13	0.034	0.046	0.015	0.397	1.703	0.228		0.105	0.056	0.185	0.307	0.116
1977	14	0.034	0.046	0.013	3.449	1.092	0.212		0.100	0.056	0.185	0.316	0.262
1977	15	0.034	0.046	0.013	0.583	1.304	0.197	1.002	0.094	0.048	0.185	0.182	0.168
1977	16	0.031	0.046	0.022	0.533	1.515	0.298	1.002	0.094	0.066	0.185	0.128	0.154
1977	17	0.028	0.019	0.013	0.398	1.515	0.245	0.950	0.298	0.084	0.185	0.583	0.128
1977	18	0.028	0.002	0.013	0.262	1.576	0.197	0.897	0.168	0.095	0.185	0.895	0.128
1977	19	0.065	0.040	0.022	0.228	1.703	0.197	0.798	0.141	0.105	0.185	0.895	0.128
1977	20	0.128	0.079	0.039	0.168	1.092	0.197	0.798	0.128	0.116	0.185	0.880	0.228
1977	21	0.084	0.117	0.056	0.197	1.092	0.193	0.897	0.117	0.105	0.185	0.864	0.440
1977	22	0.048	0.155	0.048	0.197	0.789	0.190	0.798	0.105	0.084	0.255	0.558	0.245
1977	23	0.041	1.595	0.034	0.197	0.486	0.186	0.798	0.168	0.074	0.255	0.336	0.746
1977	24	0.034	3.697	0.028	0.239	0.141	0.182	0.753	0.116	0.065	0.255	0.486	0.486
1977	25	0.065	0.622	0.028	0.280	0.141	0.168	0.707	0.105	0.061	0.510	3.449	0.426
1977	26	0.041	0.509	0.022	3.874	0.094	0.161	0.707	0.094	0.056	0.350	0.486	0.366
1977	27	0.041	0.396	0.022	0.834	0.182	0.154	0.707	0.084	0.048	0.255	0.411	0.305
1977	28	0.034	0.222	0.022	5.868	0.182	0.141	0.707	0.089	0.048	0.396	0.336	0.245
1977	29	0.034		0.017	10.902	0.182	0.168	0.707	0.094	0.041	0.307	0.583	0.212
1977	30	0.031		0.048	3.765	0.182	0.168	0.707	0.094	0.041	0.307	0.280	0.182
1977	31	0.028		0.034		0.168		0.418	0.084		0.307		0.182
1978	1	0.168	0.128	0.105	0.583	7.302	0.336	0.280	1.907	0.228	0.128	0.245	0.280
1978	2	0.155	0.116	0.084	0.546	2.779	0.336	0.262	2.708	0.197	0.141	0.228	0.228
1978	3	0.141	0.116	0.084	0.509	1.515	0.336	0.262	2.989	0.182	0.141	0.397	0.834
1978	4	0.128	0.105	0.084	0.418	1.576	0.316	0.262	1.907	0.154	0.128	0.262	0.895
1978	5	0.116	0.100	0.084	0.397	1.286	0.316	0.262	1.746	0.141	0.128	1.341	0.558
1978	6	0.105	0.094	0.084	0.662	1.092	0.298	0.262	1.595	0.141	0.116	0.418	0.609
1978	7	0.105	0.094	0.084	0.622	1.162	0.298	0.245	1.595	0.141	0.105	0.280	0.376
1978	8	0.105	0.084	0.084	0.440	1.092	0.336	0.228	1.746	0.141	0.105	0.245	0.298
1978	9	0.105	0.074	0.084	2.157	0.927	0.376	0.228	1.746	0.141	0.105	0.212	0.280
1978	10	0.105	0.074	0.084	3.874	0.804	0.336	0.228	1.284	0.154	0.116	0.197	0.245
1978	11	0.094	0.084	0.094	1.639	0.834	0.316	0.228	1.277	0.154	0.128	0.168	0.245
1978	12	0.084	0.079	0.084	0.895	0.834	0.298	0.228	1.153	0.141	0.105	0.168	0.245
1978	13	0.084	0.074	0.074	0.717	0.746	0.298	0.212	1.277	0.141	0.116		0.280
1978	14	0.084	0.074	2.779	1.025	0.689	0.298	0.245	1.277	0.141	0.141		0.895
1978	15	0.230	0.065	0.397	2.018	0.609	0.280	0.245	1.408	0.141	0.128		0.864

1978	16	0.376	0.056	0.864	1.411	0.689	0.280	0.245	1.277	0.141	0.116		0.440
1978	17	0.141	0.056	0.463	0.804	1.127	0.280	0.228	1.277	0.141	0.116		0.316
1978	18	0.895	0.141	0.418	0.558	0.689	0.289	0.212	1.153	0.128	0.116		0.298
1978	19	0.280	0.129	0.387	0.509	0.558	0.298	0.197	1.153	0.141	0.105		0.376
1978	20	2.049	0.116	0.356	0.486	0.533	0.298	0.212	1.153	0.128	0.094		0.486
1978	21	0.746	0.154	0.228	0.486	0.509	0.280	0.212	1.153	0.116	0.583		0.397
1978	22	1.326	0.197	0.197	0.463	0.463	0.280	0.212	1.002	0.128	0.834		0.280
1978	23	1.906	0.168	0.418	0.475	0.463	0.262	0.197	1.153	0.154	0.336		0.262
1978	24	0.689	0.141	5.988	0.486	0.440	0.245	0.212	1.002	0.154	0.318		0.228
1978	25	0.280	0.116	11.557	0.509	0.463	0.245	0.212	1.002	0.154	0.300		0.212
1978	26	0.245	0.111	8.133	0.583	0.440	0.245	0.212	1.002	0.154	0.281		0.212
1978	27	0.197	0.105	4.710	0.486	0.418	0.245	0.212	1.002	0.141	0.263		0.228
1978	28	0.168	0.105	1.286	2.520	0.397	0.245	0.212	1.002	0.128	0.245		0.182
1978	29	0.161		1.341	1.269	0.397	0.280	0.212	1.002	0.128	0.182		0.228
1978	30	0.154		1.198	4.286	0.356	0.298	0.262	0.897	0.128	0.262		0.197
1978	31	0.141		0.891		0.336		0.376	1.153		0.397		0.168
1979	1	0.154	0.609	0.262	0.182	0.356	0.689	0.245	0.197	0.141	0.116	0.094	0.197
1979	2	0.141	0.864	0.245	0.182	0.316	0.834	0.245	0.212	0.141	0.105	0.105	0.509
1979	3	0.154	2.520	0.228	0.182	0.316	0.662	0.262	0.197	0.154	0.105	0.105	0.262
1979	4	0.141	1.127	0.212	0.197	0.298	0.509	0.280	0.197	0.141	0.105	0.141	0.168
1979	5	0.141	0.834	0.212	0.316	0.280	0.463	0.280	0.182	0.141	0.105	0.197	0.154
1979	6	0.141	0.463	0.212	0.834	0.245	0.440	0.245	0.182	0.141	0.105	0.298	0.141
1979	7	0.154	0.437	0.182	0.376	0.356	0.356	0.262	0.197	0.141	0.116	0.298	0.135
1979	8	0.168	0.411	0.182	0.533	0.959	0.298	0.418	0.197	0.141	0.105	0.182	0.128
1979	9	0.154	0.385	0.197	1.456	2.779	0.440	0.356	0.197	0.298	0.105	0.197	0.128
1979	10	0.141	0.358	0.182	1.198	2.277	0.662	0.262	0.182	0.197	0.105	0.774	0.116
1979	11	0.141	0.332	0.182	0.635	0.991	0.463	0.245	0.197	0.168	0.094	0.397	0.116
1979	12	0.141	0.306	0.182	0.558	0.834	0.298	0.245	0.197	0.168	0.600	0.440	0.128
1979	13	0.128	0.280	0.182	0.834	1.515	0.356	0.245	0.212	0.168	0.094	0.376	0.116
1979	14	0.128	0.245	0.197	0.959	0.864	0.316	0.245	0.228	1.371	0.116	0.486	0.105
1979	15	0.128	0.228	0.212	0.662	0.533	0.316	0.245	0.212	0.105	0.094	0.376	0.105
1979	16	0.128	0.212	0.197	0.440	0.440	0.298	0.245	0.212	0.154	0.105	0.245	0.105
1979	17	0.141	0.212	0.197	0.336	0.397	0.298	0.228	0.197	0.094	0.105	0.212	0.105
1979	18	0.128	0.228	0.774	0.298	0.356	0.280	0.212	0.182	0.128	0.105	0.197	0.105
1979	19	0.141	0.262	0.895	0.298	0.336	0.280	0.228	0.182	0.128	0.105	0.182	0.105
1979	20	0.141	0.262	2.199	0.280	0.316	0.280	0.212	0.182	0.116	0.094	0.168	0.105
1979	21	0.141	0.212	1.456	0.262	0.336	0.280	0.197	0.168	0.116	0.094	0.168	0.105
1979	22	0.154	0.228	0.533	0.245	0.336	0.280	0.197	0.154	0.116	0.105	0.197	0.105
1979	23	0.141	2.869	0.376	0.245	0.397	0.280	0.197	0.154	0.105	0.116	0.154	0.116
1979	24	0.128	0.558	0.298	0.440	0.486	0.316	0.197	0.154	0.105	0.105	0.154	0.128
1979	25	0.128	0.376	0.285	0.440	0.440	0.298	0.262	0.154	0.116	0.105	0.141	0.168
1979	26	0.141	0.316	0.272	0.927	0.959	0.298	0.376	0.154	0.105	0.105	0.128	0.141
1979	27	0.141	0.356	0.258	0.804	2.779	0.336	0.262	0.168	0.141	0.154	0.128	0.128
1979	28	0.154	0.280	0.245	0.418	1.769	0.262	0.262	0.154	0.128	0.128	0.116	0.116
1979	29	0.262		0.228	0.397	0.864	0.262	0.212	0.154	0.116	0.116	0.116	0.116
1979	30	0.635		0.197	0.418	0.635	0.262	0.197	0.141	0.094	0.105	0.116	0.116
1979	31	0.316		0.197		0.533		0.197	0.141		0.105		0.105
1980	1	0.094	1.341	0.084	0.116	0.128		0.298	0.154	0.154	0.094	0.084	0.182
1980	2	0.094	1.576	0.141	0.105	1.456		0.262	0.154	0.141	0.084	0.074	0.182
1980	3	0.094	0.583	0.316	0.094	3.985		0.245	0.154	0.141	0.084	0.094	0.168
1980	4	0.094	0.298	0.168	0.094	1.515		0.228	0.168	0.141	0.084	0.168	0.168
1980	5	0.084	0.212	0.128	0.094	1.576	0.397	0.228	0.154	0.128	0.084	0.228	0.245
1980	6	0.079	0.190	0.116	0.094	3.347	0.376	0.228	0.168	0.141	0.154	0.220	0.397
1980	7	0.074	0.168	0.105	0.094	4.099	0.440	0.228	0.168	0.128	0.116	0.212	0.336
1980	8	0.084	0.168	0.105	0.094	2.049	0.397	0.228	0.197	0.116	0.094	0.509	0.463
1980	9	0.074	0.141	0.105	0.094	1.058	0.356	0.228	0.245	0.105	0.197	0.245	0.397
1980	10	0.074	0.141	0.105	0.094	0.774	0.336	0.228	0.212	0.105	0.116	0.168	0.262
1980	11	0.074	0.105	0.105	0.094	0.689	0.316	0.245	0.182	0.105	0.105	0.154	0.228
1980	12	0.074	0.128	0.094	0.094	1.977	0.316	0.212	0.154	0.105	0.105	0.141	0.212
1980	13	0.065	0.116	0.094	0.084	0.804	0.298	0.212	0.168	0.105	0.182	0.141	0.197
1980	14	0.074	0.116	0.084	0.094	5.213	0.280	0.197	0.182	0.128	0.128	0.197	0.212
1980	15	0.065	0.116	0.084	0.212	1.286	0.280	0.228	0.168	0.128	0.116	0.376	0.182

1980	16	0.065	0.105	0.084	0.154	1.025	0.280	0.197	0.141	0.154	0.105	1.092	0.168
1980	17	0.065	0.105	0.094	0.141	2.199	0.262	0.182	0.154	0.128	0.089	2.779	0.168
1980	18	0.065	0.105	0.094	0.262	2.123	0.262	0.182	0.154	0.116	0.084	0.895	0.262
1980	19	0.065	0.105	0.094	0.717	0.959	0.245	0.182	0.168	0.105	0.084	0.509	0.245
1980	20	0.065	0.105	0.094	0.463	0.689	0.245	0.168	0.182	0.105	0.094	0.583	0.212
1980	21	0.065	0.105	0.094	0.927	0.558	0.245	0.168	0.168	0.094	0.105	0.376	0.168
1980	22	0.065	0.094	0.094	0.397	0.486	0.245	0.182	0.154	0.094	0.094	0.440	0.168
1980	23	0.056	0.094	0.094	0.262		0.298	0.182	0.168	0.094	0.094	0.397	0.154
1980	24	0.065	0.094	0.094	0.197		0.356	0.168	0.168	0.105	0.094	0.298	0.141
1980	25	0.074	0.094	0.094	0.212		0.280	0.168	0.168	0.105	0.084	0.262	0.141
1980	26	0.084	0.084	0.084	0.228		0.262	0.168	0.168	0.094	0.084	0.245	0.154
1980	27	0.084	0.084	0.079	0.197		0.245	0.168	0.154	0.094	0.084	0.336	0.154
1980	28	0.084	0.084	0.074	0.168		0.228	0.168	0.154	0.105	0.084	0.262	0.141
1980	29	0.084	0.084	0.084	0.168		0.212	0.168	0.154	0.094	0.094	0.212	0.128
1980	30	0.116		0.168	0.141		0.418	0.168	0.168	0.094	0.094	0.197	0.116
1980	31	0.662		0.141				0.168	0.154		0.094		0.116
1981	1	0.116	0.084	0.056	0.316	1.703	0.746	0.316	0.262	0.245	0.212	0.168	0.116
1981	2	0.105	0.084	0.056	1.397	0.717	0.662	0.316	0.262	0.245	0.182	0.168	0.105
1981	3	0.116	0.084	0.056	0.927	0.662	0.746	0.316	0.245	0.228	0.168	0.154	0.105
1981	4	0.141	0.084	0.056	1.515	0.609	0.635	0.316	0.245	0.212	0.154	0.154	0.105
1981	5	0.141	0.084	0.056	1.515	0.635	0.635	0.316	0.245	0.212	0.154	0.141	0.128
1981	6	0.116	0.056	0.056	1.515	0.635	0.895	0.316	0.262	0.212	0.154	0.141	0.245
1981	7	0.122	0.056	0.056	0.991	2.367	0.583	0.316	0.316	0.212	0.154	0.128	0.212
1981	8	0.128	0.056	0.048	0.336	4.099	0.583	0.316	0.280	0.197	0.141	0.141	0.168
1981	9	0.116	0.084	0.048	0.262	4.451	0.558	0.298	0.298	0.197	0.197		0.154
1981	10	0.116	0.074	0.048	0.486	1.837	0.558	0.298	0.280	0.197	0.182		0.141
1981	11	0.116	0.065	0.048	2.961	1.286	0.558	0.298	0.280	0.182	0.154		0.128
1981	12	0.116	0.056	0.048	6.053	1.162	0.533	0.316	0.280	0.197	0.154		0.128
1981	13	0.116	0.056	0.048	2.691	0.991	0.509	0.356	0.271	0.197	0.141		0.128
1981	14	0.105	0.065	0.048	3.449	4.214	0.463	0.336	0.262	0.212	0.141		0.128
1981	15	0.105	0.065	0.048	2.277	6.659	0.440	0.336	0.262	0.197	0.154		0.116
1981	16	0.094	0.065	0.048	11.336	1.977	0.418	0.336	0.245	0.182	0.141		0.141
1981	17	0.116	0.065	0.048	3.985	1.515	0.440	0.316	0.245	0.182	0.141		0.197
1981	18	0.105	0.065	0.056	7.810	1.198	0.418	0.316	0.228	0.168	0.141		0.212
1981	19	0.094	0.065	0.056	2.049	1.162	0.376	0.316	0.228	0.182	0.154		0.212
1981	20	0.094	0.065	0.056	1.341	1.127	0.356	0.316	0.228	0.212	0.154		0.182
1981	21	0.105	0.065	0.048	1.162	1.058	0.336	0.298	0.212	0.212	0.182		0.168
1981	22	0.094	0.065	0.116	1.058	0.927	0.336	0.298	0.197	0.197	0.168		0.154
1981	23	0.105	0.056	0.056	0.959	0.864	0.336	0.298	0.212	0.182	0.168		0.141
1981	24	0.116	0.056	0.197	0.774	0.834	0.336	0.298	0.228	0.228	0.154		0.182
1981	25	0.094	0.056	0.116	0.746	0.774	0.336	0.280	0.212	0.197	0.168		0.168
1981	26	0.105	0.065	0.168	0.689	0.746	0.336	0.262	0.197	0.197	0.376		0.154
1981	27	0.094	0.056	0.182	0.662	0.717	0.376	0.280	0.197	0.316	0.280		0.128
1981	28	0.084	0.056	0.168	0.583	0.662	0.376	0.280	0.197	0.583	0.298		0.128
1981	29	0.094		0.689	0.533	0.662	0.356	0.280	0.486	0.316	0.228		0.116
1981	30	0.084		0.463	0.533	0.991	0.336	0.280	0.418	0.245	0.197		0.116
1981	31	0.084		0.262		0.959		0.280	0.280		0.182		0.116
1982	1	0.105	0.094	0.056	0.533	0.316	0.336	0.154	0.154				
1982	2	0.116	0.094	0.048	0.336	0.262	0.316	0.154	0.154				
1982	3	0.105	0.094	0.048	0.356	0.228	0.316	0.154	0.154				
1982	4	0.105	0.094	0.048	0.376	1.286	0.280	0.154	0.141				
1982	5	0.094	0.084	0.048	0.418	1.977	0.262	0.154	0.154				
1982	6	0.094	0.084	0.048	0.746	1.058	0.228	0.141	0.141				
1982	7	0.094	0.074	0.048	0.509	0.509	0.212	0.141	0.128				
1982	8	0.084	0.084	0.048	0.418	0.609	0.228	0.141	0.128				
1982	9	0.084	0.084	0.048	0.440	0.864	0.212	0.141	0.141				
1982	10	0.105	0.084	0.056	0.533	0.533	0.197	0.128	0.128				
1982	11	0.105	0.065	0.048	0.635	0.662	0.182	0.141	0.128				
1982	12	0.094	0.065	0.048	0.533	0.440	0.182	0.141	0.116				
1982	13	0.094	0.074	0.065	0.486	0.668	0.182	0.138	0.116				
1982	14	0.094	0.074	0.074	0.418	0.895	0.182	0.135	0.116				
1982	15	0.094	0.094	0.074	0.376	2.123	0.182	0.131	0.128				

1982	16	0.105	0.094	0.074	0.245	1.576	0.168	0.128	0.128				
1982	17	0.105	0.084	0.074	0.376	1.576	0.168	0.141	0.128				
1982	18	0.105	0.074	0.074	0.298	0.959	0.168	0.116	0.128				
1982	19	0.094	0.074	0.074	0.376	0.486	0.168	0.128	0.128				
1982	20	0.094	0.065	0.074	0.509	1.092	0.154	0.116	0.128				
1982	21	0.094	0.065	0.116	0.463	1.286	0.182	0.116	0.116				
1982	22	0.094	0.065	0.074	0.316	0.583	0.228	0.116	0.105				
1982	23	0.105	0.065	0.074	0.262	0.440	0.746	0.154	0.105				
1982	24	0.094	0.056	0.074	0.717	0.356	0.280	0.141	0.116				
1982	25	0.094	0.056	0.074	1.058	0.418	0.228	0.154	0.116				
1982	26	0.105	0.056	0.074	0.717	1.456	0.197	0.298	0.116				
1982	27	0.105	0.048	0.074	1.769	1.058	0.197	0.298	0.116				
1982	28	0.094	0.048	0.197	1.092	1.703	0.182	0.182	0.116				
1982	29	0.084		0.154	3.150	0.583	0.168	0.168	0.116				
1982	30	0.084		0.228	0.533	0.440	0.168	0.154	0.105				
1982	31	0.094		0.381		0.376		0.154	0.105				
1983	1			0.245	0.197	1.162	0.262	0.262		0.154	0.116	0.128	0.336
1983	2			0.245	0.197	0.717	0.245	0.245		0.154	0.128	0.128	0.298
1983	3			0.245	0.197	0.689	0.245	0.228		0.154	0.168	0.128	0.298
1983	4			0.228	0.182	0.558	0.376	0.228		0.154	0.141	0.141	0.298
1983	5			0.212	0.168	0.486	0.533	0.228		0.154	0.141	0.128	0.376
1983	6			0.212	0.154	0.533	0.316	0.212		0.141	0.141	0.141	0.356
1983	7			0.212	0.168	0.558	0.280	0.212		0.141	0.154	0.128	0.356
1983	8			0.197	0.168	0.440	0.298	0.197		0.128	0.141	0.128	0.376
1983	9			0.182	0.168	0.418	0.262	0.197		0.128	0.154	0.155	0.316
1983	10			0.182	0.154	0.486	0.262	0.197		0.141	0.197	0.182	0.298
1983	11			0.182	0.154	0.397	0.228	0.212		0.141	0.154	0.154	0.289
1983	12			0.182	0.154	0.376	0.228	0.197		0.141	0.128	0.154	0.280
1983	13			0.168	0.154	0.397	0.228	0.197		0.128	0.128	0.168	0.280
1983	14			0.182	0.154	0.376	0.228	0.182		0.116	0.116	0.262	0.262
1983	15			0.182	0.168	0.376	0.356	0.245		0.105	0.128	0.280	0.262
1983	16			0.182	0.182	0.336	0.280	0.298		0.105	0.116	0.336	0.245
1983	17			0.168	0.182	0.397	0.245	0.280		0.105	0.116	0.298	0.228
1983	18			0.182	0.168	0.376	0.228	0.245		0.116	0.105	0.298	0.212
1983	19			0.182	0.168	0.336	0.212	0.245		0.116	0.105	0.298	0.533
1983	20			0.182	0.154	0.316	0.212	0.245		0.128	0.094	0.298	
1983	21			0.182	0.182	0.298	0.228	0.212		0.141	0.094	0.336	
1983	22			0.168	0.262	0.280	0.262	0.212		0.154	0.084	0.298	
1983	23			0.168	0.579	0.298	0.245	0.212		0.168	0.116	0.298	
1983	24			0.182	0.895	0.298	0.228	0.212		0.168	0.116	0.298	
1983	25			0.182	0.851	0.280	0.212	0.212		0.141	0.105	0.298	
1983	26			0.583	0.864	0.280	0.217	0.197		0.105	0.094	0.356	
1983	27			0.864	3.985	0.280	0.223	0.197		0.105	0.094	0.336	
1983	28			0.280	2.691	0.262	0.228	0.182		0.105	0.094	0.336	
1983	29			0.245	2.277	0.245	0.262			0.105	0.084	0.336	1.234
1983	30			0.228	1.456	0.262	0.262			0.105	0.084	0.336	0.804
1983	31			0.212		0.262					0.105		0.533
1984	1	0.418	0.084	0.609	0.336	0.991			0.486	0.212		0.116	
1984	2	0.376	0.084	0.583	0.376	1.234			0.418	0.423		0.168	
1984	3	0.336	0.084	0.583	0.336	1.058			0.418	0.635		0.154	
1984	4	0.298	0.074	0.583	0.298	1.198			0.418	0.635		0.105	
1984	5	0.262	0.074	0.583	0.298	1.210			0.441	0.635		0.116	
1984	6	0.245	0.074	0.609	0.280	1.222			0.463	0.635		0.197	
1984	7	0.228	0.074	0.486	0.262	1.234			0.486	0.635		0.509	
1984	8	0.212	0.065	0.480	0.245	0.746			0.440	0.585		0.717	
1984	9	0.228	0.065	0.475	0.228	1.092			0.440	0.536		0.356	
1984	10	0.245	0.065	0.469	0.228	0.717			0.440	0.486		0.212	
1984	11	0.212	0.056	0.463	0.262	0.746			0.440	0.486		0.440	
1984	12	0.197	0.048	0.440	0.397	0.683			0.463	0.609		0.280	
1984	13	0.197	0.048	0.609	0.397	0.621			0.486	0.486		0.228	
1984	14	0.182	0.048	0.609	0.356	0.558			0.418	0.486		0.262	
1984	15	0.168	0.048	0.558	0.316	0.804			0.418	0.573		0.280	

1984	16	0.168	0.048	0.612	0.316	0.774			0.418	0.659		0.533	
1984	17	0.154	0.048	0.666	0.280	0.746			0.418	0.746	0.065	0.298	
1984	18	0.141	0.048	0.720	0.440	0.746			0.404	0.746	0.061	0.262	
1984	19	0.141	0.048	0.774	0.336	0.752			0.390	0.746	0.056	0.182	
1984	20	0.141	0.048	0.746	0.336	0.757			0.376	0.746	0.065	0.141	
1984	21	0.141	0.048	0.463	0.308	0.763			0.376	0.717	0.056	0.128	
1984	22	0.141	0.048	0.533	0.280	0.768			0.376	0.717	0.056	0.128	
1984	23	0.141	0.048	0.509	0.212	0.774			0.376	0.717	0.048	0.105	
1984	24	0.141	0.048	0.509	0.128	0.834			0.376	0.717	0.105	0.105	
1984	25	0.197	0.048	0.463	0.168				0.383	0.635	0.262		
1984	26	0.212	0.048	0.440	0.558				0.390	0.609	0.486		
1984	27	0.128	0.048	0.440	0.356				0.397	0.609	0.583		
1984	28	0.116	0.041	0.418	0.262				0.397	0.609	0.212		
1984	29	0.128	0.325	0.418	0.505				0.397	0.609	0.141		
1984	30	0.128		0.397	0.748				0.397	0.609	0.116		
1984	31	0.116		0.376					0.000		0.105		
1985	1		0.689	1.025		74.920	2.721	2.437	0.959	0.708	0.746	1.162	
1985	2		1.142	1.014		13.921	2.662	2.277	0.959	0.717	0.717	1.186	
1985	3		1.596	1.002		13.921	2.604	2.123	0.927	0.717	0.717	1.210	
1985	4		2.049	0.991		12.774	2.520	2.123	0.896	0.689	0.689	1.234	
1985	5		2.199	0.927		11.626	2.356	2.123	0.864	0.689	0.680	1.703	
1985	6		2.520	0.927		10.479	2.199	2.074	0.864	0.662	0.671	5.347	
1985	7		2.779	0.895		9.468	2.123	2.026	0.895	0.671	0.662	10.479	
1985	8		2.779	0.895		8.522	2.051	1.977	0.895	0.680	0.662	11.557	
1985	9		4.693	1.082	5.347	6.816	1.978	1.977	0.864	0.689	0.635	13.683	
1985	10		6.608	1.269	2.691	6.351	1.906	1.906	0.854	0.689	0.774	15.809	
1985	11		8.522	1.456	5.213	5.972	1.769	1.906	0.844	0.662	1.639	17.935	
1985	12		8.161	2.049	11.781	5.592	1.576	1.906	0.834	0.635	1.504	18.982	
1985	13		6.816	1.977	43.492	5.213	1.456	2.060	0.834	0.635	1.369	15.210	
1985	14		3.552	1.837	72.638	4.573	1.397	2.213	0.804	0.626	1.234	12.704	
1985	15		3.055	1.769	206.971	3.874	1.436	2.367	0.804	0.618	1.092	10.479	
1985	16		2.649	1.409	294.704	3.552	1.476	2.520	0.804	0.609	0.991	8.277	
1985	17		2.243	1.049	207.587	3.347	1.515	2.277	0.794	0.609	0.991	6.076	
1985	18		1.837	0.689	120.469	3.188	3.150	2.199	0.784	0.558	0.959	3.874	
1985	19		1.977	0.689	57.631	3.028	2.779	2.199	0.774	0.558	0.913	3.657	
1985	20		1.977	2.199	84.257	2.869	2.692	2.078	0.774	0.683	0.867	4.696	
1985	21	0.746	1.769	5.080	78.852	2.779	2.604	1.958	0.746	0.808	0.820	4.099	
1985	22	0.746	1.456	6.816	35.401	2.870	2.633	1.837	0.746	0.933	0.774	5.347	
1985	23	0.746	1.346	5.949	24.157	2.961	2.662	1.515	0.746	1.058	0.774	4.931	
1985	24	0.717	1.237	5.081	19.195	2.961	2.691	1.397	0.746	0.991	1.234	4.515	
1985	25	0.717	1.127	4.214	24.876	2.992	2.691	1.286	0.746	0.991	1.234	4.099	
1985	26	0.717	1.092	4.099	34.270	3.024	2.779	1.286	0.746	0.895	1.308		
1985	27	0.717	1.058	7.639	24.876	3.055	2.779	1.221	0.717	0.804	1.382		
1985	28	0.717	1.025	8.706	22.750	3.055	2.691	1.156	0.717	0.785	1.456		
1985	29	0.717		9.468	9.274	2.961	2.606	1.090	0.689	0.765	1.345		
1985	30	0.717			135.919	2.779	2.522	1.025	0.689	0.746	1.234		
1985	31	0.689				2.779		0.991	0.698		1.198		
1986	1		1.476	1.210		36.564			1.397	0.864	0.509		
1986	2	2.199	1.436	1.222		38.011			1.331	0.834	0.486		
1986	3	2.123	1.397	1.234		39.498			1.264	0.864	0.486		
1986	4	2.028	1.397	1.198		44.363			1.198	0.959	0.494		
1986	5	1.932	1.286	1.162		49.229			1.198	0.927	0.501		
1986	6	1.837	1.234	1.162		54.094			0.991	0.916	0.509		
1986	7	1.703	1.198	1.515	8.340	48.988			0.927	0.906	0.509		
1986	8	1.515	1.186	1.718	7.810	71.631			0.864	0.895	0.583		
1986	9	1.397	1.174	1.920	8.522	52.365			1.904	0.895	0.558		
1986	10	1.234	1.162	2.123	11.557	41.237			2.945	0.864	0.609		
1986	11	1.369	1.092	2.049	12.007	30.110			3.985	0.864	0.655		
1986	12	1.504	1.092	1.977	14.332	18.982			0.864	0.834	0.700		
1986	13	1.639	1.058	1.977	16.657	13.921			0.864	0.854	0.746		
1986	14	1.515	1.058	1.234	18.982	12.237			0.895	0.875	0.717		
1986	15	1.703	1.047	1.663	13.921	11.336			2.604	0.895	0.635		

1986	16	1.639	1.036	2.091	8.522	10.902			2.723	0.927	0.635		
1986	17	1.515	1.025	2.520	8.340	10.109			2.842	0.927	0.609		
1986	18	1.476	1.025	2.199	9.082	9.315			2.961	0.895	0.622		
1986	19	1.436	1.058	2.049	8.775	8.522			2.869	0.895	0.636		
1986	20	1.397	1.127	1.977	8.468	6.351			0.895	0.906	0.649		
1986	21	1.397	1.162	2.123	8.161	6.053			0.864	0.916	0.662		
1986	22	1.286	1.186	2.051	7.810	5.484			0.895	0.927	0.635		
1986	23	1.286	1.210	1.978	9.468	5.907			0.949	0.927	0.895		
1986	24	1.341	1.234	1.906	10.479	16.121			1.004	0.927	1.058		
1986	25	1.341	1.286	1.837	11.557	26.336			1.058	0.864	1.014		
1986	26	1.341	1.234	1.769	17.503	36.550			0.864	0.746	0.971		
1986	27	1.341	1.234		23.449	14.173			0.804	0.700	0.927		
1986	28	1.456	1.198		29.395	12.237			0.834	0.655	0.864		
1986	29	1.456			45.717	9.773			0.864	0.609	0.774		
1986	30	1.341			35.117	9.180			0.864	0.558	0.509		
1986	31	1.515							0.864		0.689		
1988	1			0.228	8.651	16.329	8.523	5.907	3.985	2.604	2.411	1.127	3.874
1988	2			0.228	8.807	32.659	8.340	5.720	3.985	2.604	2.465	1.127	3.055
1988	3			0.197	8.963	48.988	7.985	5.534	3.874		2.520	1.092	2.448
1988	4			1.515	9.118	38.011	7.813	5.347	3.874		2.520	1.127	1.841
1988	5			1.936	9.274	30.981	7.641	5.213	3.874		2.356	2.317	1.234
1988	6			2.358	23.920	30.981	7.469	5.213	3.802		2.199	3.506	1.162
1988	7			2.779	20.715	36.325	6.976	5.080	3.729		2.049	4.696	1.092
1988	8			2.356	15.210	41.669	6.659	5.080	3.657		2.001	4.099	1.092
1988	9			1.837	12.308	47.013	7.302	4.994	3.347		1.954	3.765	1.058
1988	10			1.515	9.406	38.306	6.816	4.908	3.055		1.906	5.907	1.084
1988	11			1.341	6.504	29.395	19.041	4.822	2.869		1.906	6.816	1.110
1988	12			1.214	5.764	22.520	31.267	4.696	2.869		1.837	5.835	1.136
1988	13			1.086	5.347	21.160	43.492	4.451	2.810		1.769	4.855	1.162
1988	14			0.959	4.950	20.505	35.974	4.214	2.750		1.721	3.874	1.162
1988	15			0.895	5.484	19.850	26.591	4.573	2.691	1.092	1.673	3.552	1.127
1988	16			0.834	5.394	19.195	19.409	4.699	2.691	1.092	1.624	3.248	1.127
1988	17			0.774	5.303	18.351	12.941	4.824	2.520	1.436	1.576	2.961	1.139
1988	18			0.717	5.213	19.096	11.655	4.950	2.520	1.779	1.515	2.779	1.150
1988	19			1.350	4.573	19.840	10.368	4.950	2.356	2.123	1.515	4.399	1.162
1988	20			1.983	6.976	12.469	9.082	4.696	2.468	1.906	1.456	6.019	1.906
1988	21			2.615	8.522	11.601	8.340	4.696	2.579	1.977	1.397	7.639	9.468
1988	22			3.248	10.479	10.733	8.161	4.696	2.691	2.199	1.319	22.750	7.639
1988	23			1.703	16.100	9.865	8.161	4.614	2.604	2.199	1.240	18.770	5.484
1988	24			2.520	21.721	8.522	7.810	4.533	3.347	2.306	1.162	10.479	11.411
1988	25			7.639	27.342	7.996	7.532	4.451	3.248	2.413	1.092	8.522	17.337
1988	26			6.921	51.341	7.469	7.254	4.451	3.055	2.520	1.092	7.464	23.264
1988	27			6.202	39.198	7.469	6.976	4.331	2.993	2.437	1.127	6.405	29.190
1988	28			5.484	45.076	7.944	6.659	4.214	2.931	2.437	1.127	5.347	35.117
1988	29			6.351	36.261	8.418	6.504	4.214	2.869	2.437	1.115	5.080	29.657
1988	30			8.340	0.000	8.893	6.201	4.138	2.691	2.356	1.104	4.099	30.714
1988	31			8.496		8.706		4.061	2.691		1.092		0.000
1989	1	1.198		1.198	1.860	12.526	10.004	5.215	5.213	3.657	3.667		
1989	2	1.198		1.198	1.815	6.816	10.272	5.082	4.950	3.588	2.961		
1989	3	1.162		1.162	1.769	6.659	10.070	4.950	4.331	3.518	2.779		
1989	4	1.150		1.150	1.769	6.659	9.867	4.950	4.099	3.449	2.779		
1989	5	1.139		1.139	1.703	6.351	9.665	0.013	3.874	3.449	2.779		
1989	6	1.127		1.127	7.810	8.500	9.665	0.013	4.504	3.347	2.691		
1989	7	1.127		1.127	6.201	10.649	9.468	6.504	5.134	3.347	2.781		
1989	8	1.127		1.127	10.251	12.797	9.274	6.164	5.764	3.347	2.871		
1989	9	1.092		1.092	14.301	14.946	9.082	5.824	5.080	3.250	2.961		
1989	10	1.092		1.092	18.351	45.396	8.895	5.484	5.080	3.152	3.056		
1989	11	1.127		1.127	10.902	51.341	8.709	5.213	4.950	3.055	3.150		
1989	12	1.163		1.163	8.522	104.209	8.522	5.213	4.950	3.055	3.150		
1989	13	1.198		1.198	7.302	80.341	8.522	28.360	4.823	2.869	3.150		
1989	14	4.099		4.099	5.484	56.474	8.161	25.360	4.696	2.869	3.056		
1989	15	2.604		2.604	4.875	32.606	8.161	20.759	4.696	2.779	2.963		

1989	16	2.199		2.199	4.266	28.617	7.810	16.158	4.573	2.721	2.869		
1989	17	2.049		2.049	3.657	26.095	7.696	11.557	4.573	2.662	2.869		
1989	18	2.732		2.732	3.449	24.635	7.583	10.479	4.451	2.604	2.691		
1989	19	3.416		3.416	3.449	32.332	7.469	10.272	4.372	3.552	2.691		
1989	20	4.099		4.099	3.347	28.985	7.302	10.272	4.293	12.941	2.648		
1989	21	6.351		6.351	3.347	25.637	7.302	9.865	4.214	9.865	2.606		
1989	22	4.451		4.451	3.969	22.290	6.976	9.479	4.214	6.659	2.563		
1989	23	3.765		3.765	4.591	18.982	6.659	9.092	4.099	6.457	2.520		
1989	24	3.437		3.437	5.213	18.982	6.314	8.706	4.099	6.255	2.437		
1989	25	3.108		3.108	7.302	18.560	5.968	8.340	4.099	6.053	2.437		
1989	26	2.780		2.780	12.469	13.921	5.623	7.985	4.024	6.053	2.356		
1989	27	2.451		2.451	20.715	12.774	5.623	7.810	3.949	5.623	2.277		
1989	28	2.123		2.123	29.657	11.626	5.484	7.639	3.874	5.213	7.635		
1989	29	1.977		1.977	23.947	10.479	5.347	7.312	3.874	5.080	12.993		
1989	30	1.837		1.837	18.237	9.468	5.347	6.986	3.765	4.374	18.351		
1989	31	1.906		1.906		9.736		6.659	3.765		18.770		
1990	1		2.437				10.376	8.522	5.080	3.484	2.691	3.055	
1990	2	52.023	2.437			15.210	10.273	8.522	4.822	3.415	2.691	3.552	
1990	3	66.552	2.280			12.704	10.170	8.161	4.822	3.347	2.604	3.659	
1990	4	54.094	2.123			10.479	10.067	7.985	4.822	3.347	2.604	3.767	
1990	5	38.602	2.049			9.827	9.665	8.161	4.822	3.347	2.604	3.874	
1990	6	28.515	1.977			9.174	9.468	7.639	4.822	3.347	2.576	3.874	
1990	7	18.427	1.977			8.522	8.893	7.365	4.822	3.248	2.548	4.099	
1990	8	8.340	1.906			6.816	8.893	7.090	4.696	3.184	2.520	4.696	
1990	9	7.469	1.978			5.347	8.769	6.816	4.696	3.119	2.520	5.347	
1990	10	6.659	2.051			20.057	8.646	6.351	4.573	3.055	2.438	5.837	
1990	11	6.201	2.123			15.210	8.522	5.907	4.492	2.869	2.356	6.326	
1990	12	6.053	2.123			23.306	8.522	5.907	4.412	2.869	2.356	6.816	
1990	13	5.773	2.049	44.122		31.402	8.522	5.764	4.331	2.869	2.330	7.639	
1990	14	5.493	1.977	48.988		39.498	8.522	5.717	4.331	2.869	2.303	7.302	
1990	15	5.213	1.977	76.748		30.981	8.161	5.670	4.214	2.869	2.277	7.469	
1990	16	4.822	1.930	71.631		23.449	8.468	5.623	4.214	2.869	2.123	6.053	
1990	17	4.696	1.884	67.446		17.935	8.775	5.347	4.331	2.869	2.123	7.391	
1990	18	4.331	1.837	63.261		12.704	9.082	5.347	4.292	2.869	2.049	8.729	
1990	19	4.099	9.468	59.076		19.706	8.893	5.347	4.253	2.869	2.049	10.067	
1990	20	3.988	8.340	55.849		26.709	8.522	5.080	4.214	2.869	2.353	11.118	
1990	21	3.876	6.053	47.550		33.711	9.274	6.478	4.214	2.869	2.657	10.479	
1990	22	3.765	5.623	39.250		39.498	8.893	7.876	4.099	2.839	2.961	9.865	
1990	23	3.657	5.115	30.951		44.122	8.649	9.274	3.874	2.809	2.691	9.468	
1990	24	3.449	4.607	22.652		21.160	8.405	10.067	3.765	2.779	2.604	9.339	
1990	25	3.248	4.099	14.352		15.210	8.161	10.067	3.729	2.779	2.604	9.211	
1990	26	3.248	4.573	6.053		15.210	7.639	10.479	3.693	2.691	2.869	9.082	
1990	27	3.122	4.451	6.053		15.210	7.302	10.479	3.657	2.691	2.931		
1990	28	2.995	4.451	5.623		15.210	8.161	8.768	3.657	2.691	2.993		
1990	29	2.869		5.213		15.210	8.161	7.058	3.552	2.691	3.055		
1990	30	2.691		4.696		12.704	8.522	5.347	3.552	2.691	2.779		
1990	31	2.604				10.479		5.347	3.552		2.961		
1991	1	6.053	1.906	1.234	17.894	6.435	9.668	3.874	3.347	2.251	1.456	1.515	
1991	2	5.764	1.954	1.222	17.935	6.816	9.867	3.874	3.449	2.199	1.456	1.515	
1991	3	5.347	2.001	1.210	14.686	7.639	10.067	3.765	3.415	2.123	1.456	1.515	
1991	4	4.822	2.049	1.198	11.557	9.733	10.067	3.765	3.381	2.049	1.397	1.515	
1991	5	4.581	1.837	1.198	11.118	11.827	10.067	3.552	3.347	1.977	1.378	1.515	
1991	6	4.340	2.691	1.162	10.905	13.921	10.067	3.451	3.150	2.049	1.360	1.456	
1991	7	4.099	1.639	1.127	10.692	15.210	9.468	3.349	3.055	2.001	1.341	1.456	
1991	8	4.099	1.639	1.127	10.479	14.173	9.468	3.248	3.055	1.954	1.341	1.515	
1991	9	3.874	1.558	1.127	10.342	12.704	9.468	3.055	2.869	1.906	1.341	1.535	
1991	10	3.874	1.478	1.127	10.204	14.686	9.468	3.055	2.869	1.837	1.369	1.556	
1991	11	3.794	1.397	1.127	10.067	13.643	8.522	2.869	2.869	1.977	1.397	1.576	
1991	12	3.713	1.397	1.127	9.468	12.600	7.639	2.869	2.869	1.837	1.378	1.576	
1991	13	3.633	1.397	1.092	9.153	11.557	7.138	2.810	2.779	2.049	1.360	1.703	
1991	14	3.552	1.515	1.058	8.837	12.704	6.816	2.750	2.691	2.001	1.341	1.837	
1991	15	3.449	1.456	0.991	8.522	21.160	6.326	2.691	2.604	1.954	1.341	1.837	

1991	16	3.765	1.476	1.108	8.522	33.711	5.837	2.604	2.520	1.906	1.397	1.837	
1991	17	3.150	1.495	1.224	8.342	32.332	5.347	2.604	2.492	1.837	1.397	1.837	
1991	18	3.055	1.515	1.341	8.161	31.440	5.080	2.520	2.465	1.769	1.397	1.837	
1991	19	3.024	1.397	1.286	7.639	30.549	4.822	2.691	2.437	2.049	1.412	1.837	
1991	20	2.992	1.341	1.286	7.110	29.657	4.573	2.750	2.437	1.837	1.427	1.837	
1991	21	2.961	1.397	1.234	6.582	28.360	4.573	2.810	2.356	1.837	1.441	1.906	
1991	22	2.779	1.397	1.234	6.053	25.849	4.492	2.869	2.356	1.837	1.456	2.199	
1991	23	2.691	1.436	7.150	6.504	22.290	4.412	2.961	2.356	1.837	1.397	2.334	
1991	24	2.604	1.476	13.066	5.347	22.290	4.331	3.449	2.304	1.906	1.397	2.469	
1991	25	2.562	1.515	18.982	4.696	21.187	4.331	3.449	2.251	1.769	1.515	2.604	
1991	26	2.521	1.397	19.623	4.451	20.085	4.099	3.449	2.199	1.769	1.515	2.869	
1991	27	2.479	1.397	18.560	4.750	18.982	4.099	3.415	2.199	1.515	1.515	2.779	
1991	28	2.437	1.234	17.729	5.048	13.921	4.099	3.381	2.199	1.515	1.515		
1991	29	2.356		17.770	5.347	11.557	4.024	3.347	2.199	1.515	1.515		
1991	30	2.199		17.811	6.053	10.479	3.949	3.347	2.356	1.515	1.515		
1991	31	2.199		17.853		9.468		3.248	2.304		1.515		
1992	1		1.115	1.058	1.058	6.537	4.907	3.874	3.483	2.199	1.198		
1992	2	1.837	1.104	1.058	1.092	11.788	4.573	3.765	3.518	2.123	1.198		
1992	3	1.837	1.092	1.058	1.127	17.039	5.080	3.657	3.552	2.049	1.186		
1992	4	1.814	1.092	1.025	1.110	22.290	4.822	3.729	3.552	2.049	1.174		
1992	5	1.792	1.058	1.025	1.093	21.160	4.573	3.802	3.552	2.025	1.162		
1992	6	1.769	1.058	1.058	1.075	20.057	4.492	3.874	3.449	2.001	1.162		
1992	7	1.769	1.058	1.058	1.058	20.057	4.412	3.657	3.449	1.977	1.162		
1992	8	1.639	1.058	1.058	1.127	18.982	4.331	3.765	3.449	1.906	1.127		
1992	9	1.515	1.058	1.058	1.234	18.633	4.214	3.874	3.449	1.703	1.127		
1992	10	1.286	1.058	1.025	1.397	18.284	4.099	3.985	3.449	1.515	1.115		
1992	11	1.269	1.058	1.025	1.378	17.935	4.099	3.948	3.248	1.515	1.104		
1992	12	1.251	1.025	1.058	1.360	15.210	3.874	3.911	3.055	1.476	1.092		
1992	13	1.234	1.025	1.058	1.341	14.173	3.874	3.874	2.779	1.436	1.092		
1992	14	1.234	1.025	1.036	1.397	12.704	3.874	3.874	2.691	1.397	1.058		
1992	15	1.234	1.036	1.013	1.286	11.557	3.874	3.874	2.662	1.397	1.058		
1992	16	1.234	1.047	0.991	1.286	11.411	3.874	3.874	2.633	1.397	1.058		
1992	17	1.234	1.058	0.991	1.276	11.264	3.765	3.874	2.604	1.341	1.069		
1992	18	1.222	1.058	0.991	1.265	11.118	3.874	3.802	2.604	1.341	1.081		
1992	19	1.210	1.058	0.959	1.255	10.479	3.765	3.729	2.520	1.323	1.092		
1992	20	1.198	1.058	0.959	1.244	9.468	3.801	3.657	2.520	1.304	1.075		
1992	21	1.198	1.058	0.948	1.234	8.161	3.838	3.657	2.437	1.286	1.058		
1992	22	1.198	1.058	0.938	1.198	7.639	3.874	3.657	2.410	1.286	1.058		
1992	23	1.162	1.058	0.927	1.198	7.365	3.765	3.552	2.383	1.234	1.058		
1992	24	1.162	1.058	0.959	1.162	7.090	3.765	3.657	2.356	1.234	1.036		
1992	25	1.150	1.025	0.991	1.186	6.816	3.765	3.657	2.356	1.234	1.013		
1992	26	1.139	1.058	0.959	1.210	6.504	3.874	3.657	2.277	1.222	0.991		
1992	27	1.127	1.058	0.991	1.234	6.504	3.802	3.657	2.199	1.210	0.959		
1992	28	1.127	1.058	0.991	1.397	6.201	3.729	3.657	2.199	1.198	0.959		
1992	29	1.127	1.058	0.991	1.341	5.907	3.657	3.552	2.199	1.198	0.991		
1992	30	1.127		0.991	1.286	5.574	3.449	3.552	2.199	1.198	0.991		
1992	31	1.127		1.025		5.240		3.449	2.199				

28.2 RAINFALL DATA OF NAIROBI AREA

(1) Data Source

Data source is Ministry of Transport and Communications. Data was collected on 20/May/2005.

(2) Observation Point

Observation points related the project are Dagoretti Corner (ID=9136164) and Kabete Agriculture University (ID=9136208). See Figure 28.2-1.

(3) Observation Period

Observation Period of Dagoretti Corne and Kabete Agriculture University are from January 1970 to December 2004 and April 1971 to December 2004 respectively.

(4) Mean and High Monthly Rainfall

TABLE 28.2-1 MEAN AND HIGH MONTHLY RAINFALL FOR DAGORETTI CORNER AND KABETE AGRICULTURE UNIVERSITY

UNIT: $X10^{-1}$ MM

	Dagoretti Corner		Kabete Agriculture University	
	MEAN	HIGH	MEAN	HIGH
JAN	18.5	817	20.7	711
FEB	18.6	675	18.2	1010
MAR	29.0	980	31.9	1334
APR	74.5	1391	68.7	1582
MAY	56.6	1256	56.0	796
JUN	12.1	855	14.0	978
JUL	6.2	386	6.8	425
AUG	6.8	440	7.5	470
SEP	9.6	509	9.7	1076
OCT	19.1	830	22.1	872
NOV	47.9	830	52.6	1088
DEC	28.5	717	28.6	800
YEAR	27.3	1391	28.1	1582

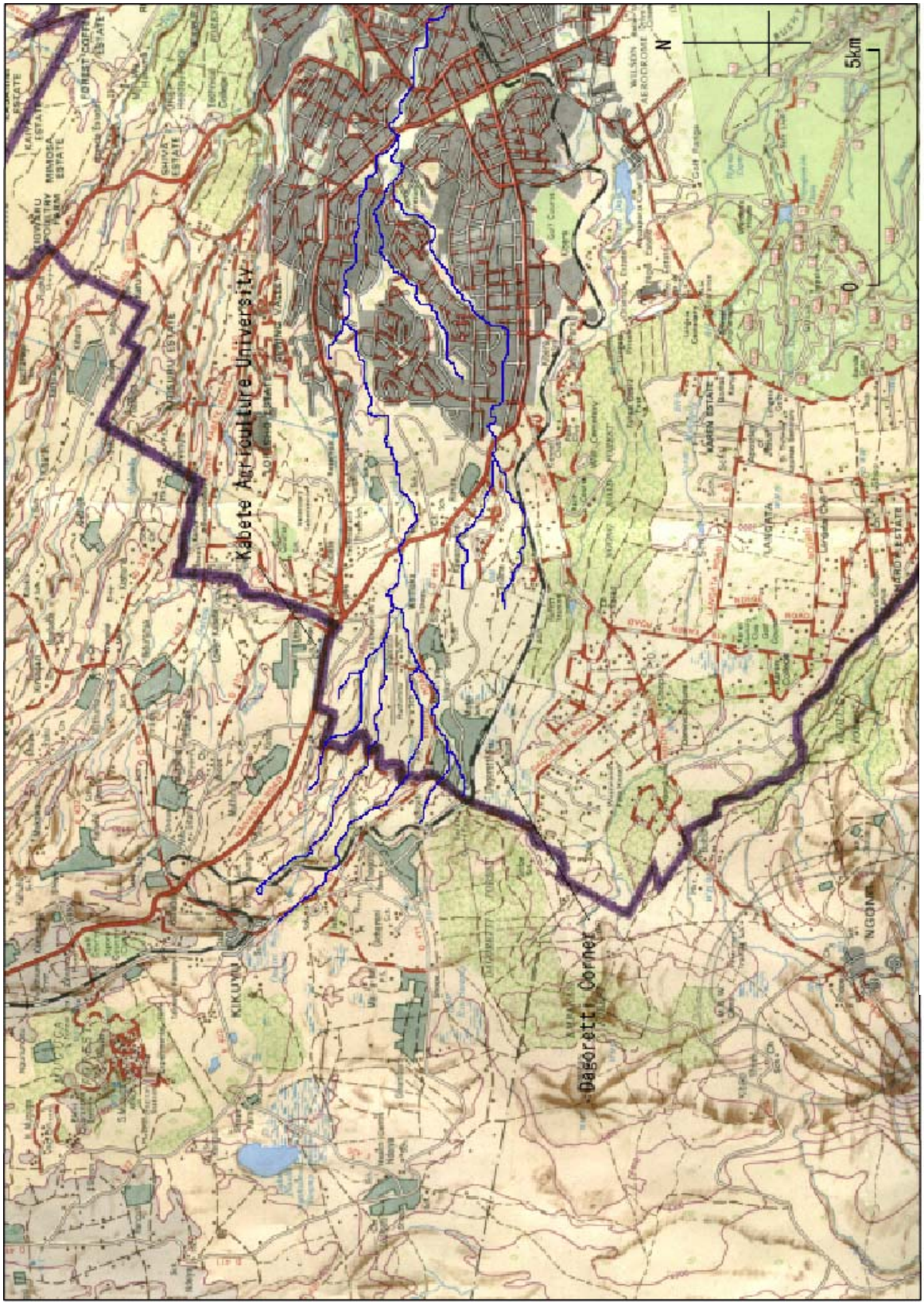

FIGURE 28.2-1 LOCATION OF RAINFALL OBSERVATION POINTS

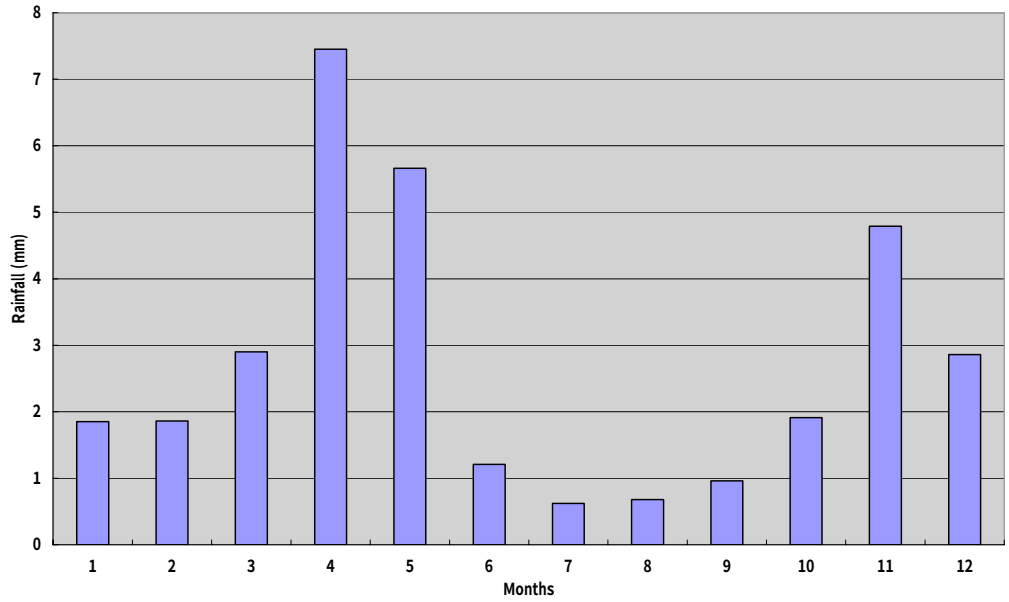

FIGURE 28.2-2 MEAN MONTHLY RAINFALL FOR DAGORETTI CORNER (1970~2004)

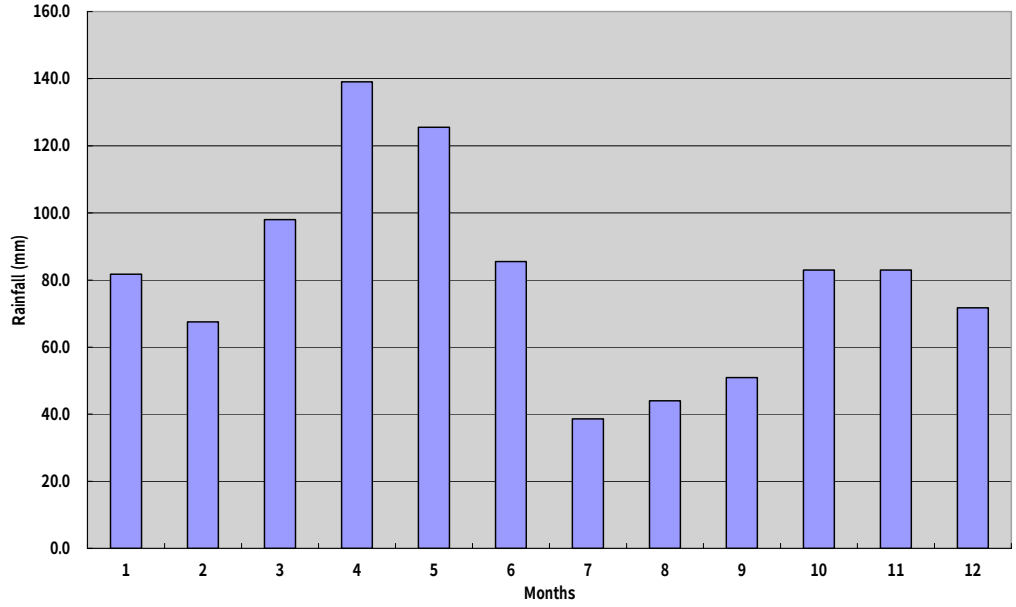

FIGURE 28.2-3 HIGH MONTHLY RAINFALL FOR DAGORETTI CORNER (1970~2004)

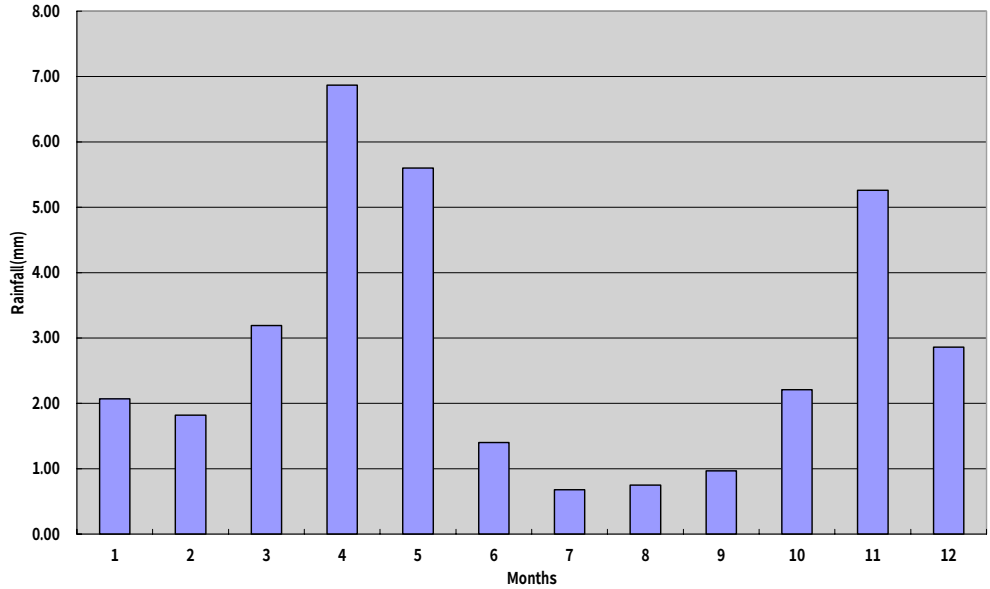

FIGURE 28.2-4 MEAN MONTHLY RAINFALL FOR KEBETE AGRICULTURE UNIVERSITY (1971~2004)

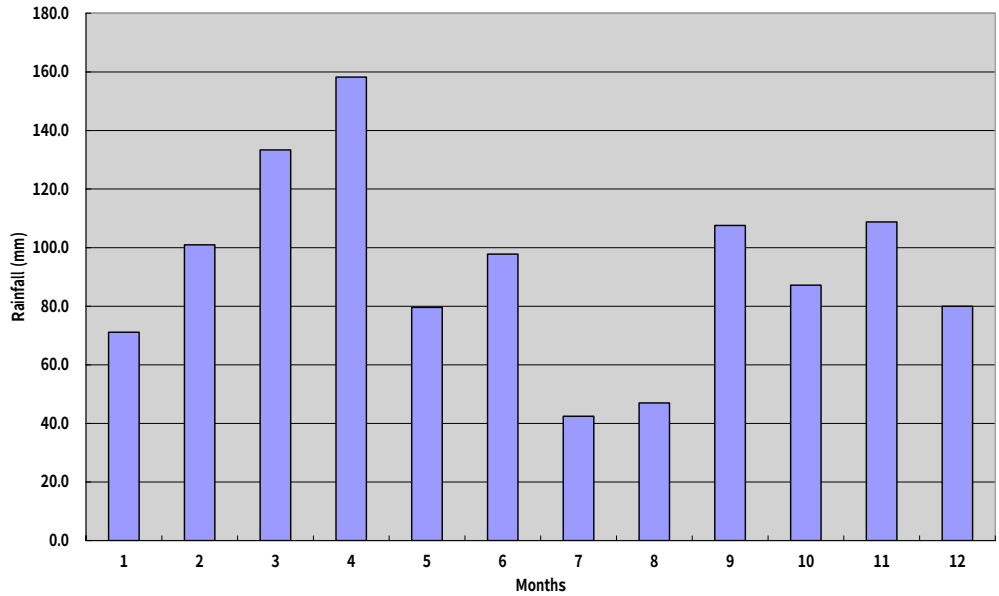

FIGURE 14.2-5 HIGH MONTHLY RAINFALL FOR KEBETE AGRICULTURE UNIVERSITY (1971~2004)

(5) Maximum 24 hr rainfall

TABLE 28.2-2 MAXIMUM 24 HR RAINFALL FOR DAGORETTI CORNER AND KABETE AGURICULTURE UNIVERSITY

UNIT: MM

YEAR	Dagoretti Corner	Kabete Agriculture University
1970	75.5	-
1971	97.6	73.6
1972	85.5	97.8
1973	139.1	102.0
1974	44.4	48.5
1975	58.2	57.0
1976	56.6	51.0
1977	86.9	84.9
1978	98.0	90.0
1979	69.0	50.0
1980	125.6	71.1
1981	111.7	128.3
1982	71.7	65.0
1983	67.5	108.8
1984	44.1	41.0
1985	48.0	49.7
1986	104.5	87.7
1987	50.8	80.0
1988	91.7	70.8
1989	80.2	158.2
1990	66.5	90.0
1991	59.9	66.5
1992	57.9	133.4
1993	64.5	80.1
1994	50.5	53.1
1995	61.5	85.8
1996	58.8	36.7
1997	59.6	101.0
1998	88.1	85.7
1999	57.4	107.6
2000	42.6	83.0
2001	128.4	103.0
2002	86.6	77.0
2003	58.3	53.0
2004	67.9	129.4

28.2 DATA ANALYSIS

(1) Maximum Rainfall at Observation Points

Maximum rainfall at Dagoretti Corner counted on 17 April 1973 is 139.1 mm.

Maximum rainfall at Kabete Agriculture University counted on 18 May 1989 is 158.2 mm.

(2) Rainfall on the Maximum Flow at Nairobi River (April 1985)

Maximum flow of Nairobi River during 1960~1992 was recorded on 16 April 1985. Flows of Nairobi River in those days are shown in Table 28.2-3 and Figure 28.2-6 for a reference. Rainfall of each observation points on this day shows Table 28.-2-4 and Table 28.2-5, also Figure 28.2-7 and Figure 28.2-8.

TABLE 28.2-3 NAIROBI RIVER FLOW (APRIL1985) AT INTERNATIONAL CASINO

Date	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Th4e (m^3/s)	5	3	5	12	43	73	207	295	208	120	58	84	79	35	24	19	25	34	25	23	9

TABLE 28.2-4 RAINFALL (APRIL1985) AT DAGORETTI CORNER

Date	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
mm/day	73	86	12	239	38	181	396	480	81	7	67	36	16	9	0	0	78	7	0	0	123

TABLE 28.2-5 RAINFALL (APRIL1985) AT KABETE AGRICULTURE UNIVERSITY

Date	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
mm/day	198	46	10	61	78	260	165	351	195	11	0	40	99	0	0	0	78	24	0	0	70

(3) Analysis

On that day (16 April 1985), maximum water flow were recorded at International Casino, the rainfall at Dagoretti Coner and Kabete Agriculture University also were recorded the big rainfall during three days.

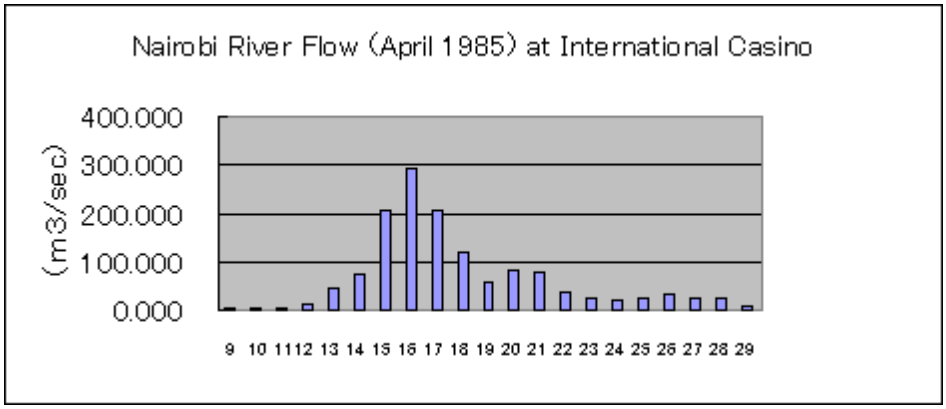

FIGURE 28.2-6 NAIROBI RIVER FLOW (APRIL 1985) INTERNATIONAL CASINO

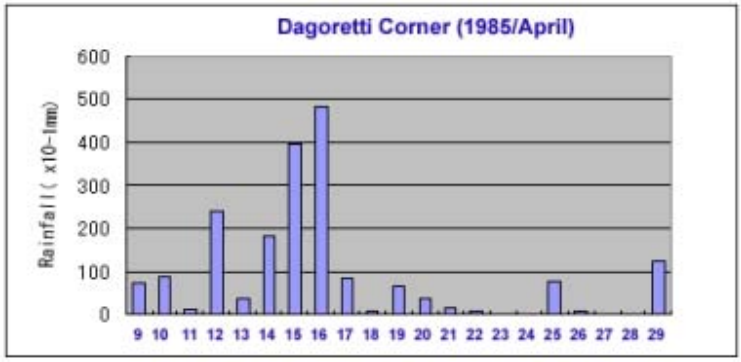

FIGURE 28.2-7 RAINFALL (APRIL 1985) AT DAGORETTI CORNER

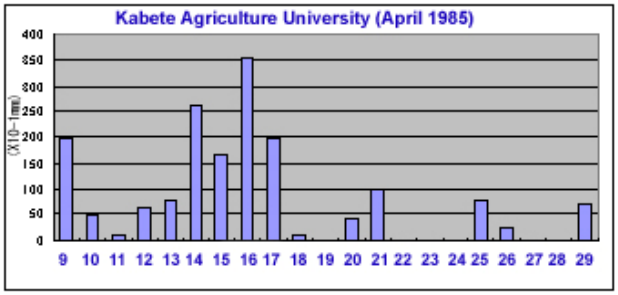

FIGURE 28.2-8 RAINFALL (APRIL 1985) AT KABETI AGRICULTURE UNIVERSITY

TABLE 28.2-6 RAINFALL DATA

Rainfall Data

Source: Kenya Meteorological Department, Ministry of Transport and Communication

Station 9136164(=164): Dagoretti Corner **Data period: 1970~2004**
Station 9136208(=208): Kabete Agriculture University **Data period: 1971~2004**

No Date: -98
Missing data: -99
Data Unit: x10-1 mm

Sta.	Year	Mon.	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	27th	28th	29th	30th	31st
164	1970	1	0	0	30	63	266	14	56	12	1	0	177	13	0	0	0	0	1	0	0	14	29	149	1	0	0	0	0	23	68	9	92
164	1970	2	0	0	0	0	0	0	0	3	0	105	0	0	14	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	-98	-98	-98
164	1970	3	0	0	0	0	17	6	1	41	30	0	0	0	0	30	3	0	0	0	0	7	0	0	114	128	63	138	297	236	19	354	148
164	1970	4	55	558	467	24	2	21	496	8	57	2	7	82	66	23	8	0	0	0	1	31	755	290	396	0	0	38	71	0	15	0	-98
164	1970	5	8	0	77	23	210	1	0	80	213	53	0	15	13	0	0	0	40	7	58	398	0	0	0	0	46	232	561	6	158	0	224
164	1970	6	166	0	35	0	0	0	0	0	0	0	0	3	0	10	2	0	7	19	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1970	7	2	0	129	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	6	0	14
164	1970	8	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	8	16	6	0	5	2	4	0	0	4
164	1970	9	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	0	0	4	0	-98
164	1970	10	0	0	0	0	15	4	0	0	1	30	151	32	0	0	8	2	0	0	0	0	0	0	18	23	0	0	0	0	0	0	28
164	1970	11	4	9	30	0	7	26	70	3	0	17	116	12	132	0	704	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1970	12	0	46	14	0	0	0	0	0	0	0	0	0	131	247	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	44
164	1971	1	0	15	0	0	0	0	0	0	0	0	0	0	0	0	17	433	0	0	0	0	0	0	0	23	26	1	0	0	0	0	0
164	1971	2	0	31	15	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	-98	-98	-98
164	1971	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	53	39	0	2	0	2	75
164	1971	4	0	0	0	0	0	21	0	150	36	39	104	15	6	134	444	131	41	39	437	188	18	0	0	0	85	240	2	0	24	167	-98
164	1971	5	0	210	614	36	0	3	0	44	39	25	0	0	94	0	108	976	300	71	29	390	179	0	0	0	0	0	0	5	0	67	17
164	1971	6	0	1	0	0	0	0	0	0	0	0	0	0	180	9	0	0	7	29	5	0	0	0	0	0	0	0	0	0	0	0	-98
164	1971	7	0	8	0	0	0	28	4	0	0	0	0	0	0	0	2	0	1	35	0	11	0	0	0	0	1	1	0	0	0	0	0
164	1971	8	0	-99	0	0	0	0	0	-99	0	3	-99	20	0	-99	0	0	0	0	0	13	16	35	4	3	0	-99	-99	0	2	0	-99
164	1971	9	0	0	4	8	6	0	0	0	0	0	29	0	0	65	0	0	0	0	0	0	0	0	0	0	372	0	0	0	29	0	-98
164	1971	10	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	57	17	0	0
164	1971	11	0	0	0	27	0	0	0	0	7	0	113	0	0	25	104	0	0	0	8	0	0	14	38	14	74	32	50	67	6	88	-98
164	1971	12	0	84	0	0	0	0	0	0	0	0	0	0	0	0	0	341	123	83	194	4	220	34	98	355	0	0	0	0	0	53	31
164	1972	1	0	4	0	0	62	88	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1972	2	0	163	0	0	0	0	33	232	51	3	0	0	0	0	0	9	0	0	0	0	0	8	47	214	0	0	0	0	0	-98	-98
164	1972	3	0	0	2	0	0	0	0	0	0	24	99	0	0	0	43	0	0	0	0	204	0	0	0	0	0	0	0	0	0	0	0
164	1972	4	0	0	0	0	0	0	0	0	0	27	0	19	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	126	10	-98
164	1972	5	0	122	195	4	0	30	537	83	0	15	31	345	40	134	0	152	208	191	65	26	15	0	8	0	22	23	6	2	32	0	0
164	1972	6	0	0	30	855	149	0	2	0	0	0	0	0	0	0	0	15	0	0	0	187	0	0	0	124	16	0	0	0	0	0	-98
164	1972	7	0	0	0	0	0	0	29	0	0	0	71	25	0	2	4	0	0	0	0	0	0	0	34	0	0	0	0	0	0	0	0
164	1972	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	6	10	18	0	0	0	0	0	0	0	1	0
164	1972	9	0	0	0	0	0	5	278	0	0	0	0	0	112	0	0	0	0	6	0	8	0	0	4	41	71	0	0	0	32	0	-98
164	1972	10	0	0	0	0	0	0	0	0	0	0	0	0	0	51	0	100	6	0	0	0	24	0	128	1	326	32	222	0	0	563	462
164	1972	11	0	0	0	74	44	52	109	0	104	98	0	0	37	188	314	0	0	57	42	12	5	24	0	0	0	75	18	0	0	0	-98
164	1972	12	0	0	4	7	0	0	0	0	0	24	0	56	13	20	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	0
164	1973	1	0	0	307	29	258	137	3	15	0	0	0	0	0	0	438	183	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1973	2	0	0	0	0	0	0	39	0	0	0	0	530	0	0	0	51	251	5	0	0	86	11	0	0	0	0	0	0	-98	-98	-98
164	1973	3	0	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	95	0	0	0	7	0	0	0
164	1973	4	0	0	0	8	0	0	0	0	38	6	0	13	3	0	0	0	1391	106	89	0	781	285	113	60	213	0	0	30	6	125	-98
164	1973	5	2	65	0	0	11	69	5	0	0	0	3	0	0	4	0	140	0	0	0	0	36	0	0	0	0	0	0	198	2	0	78
164	1973	6	90	22	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	30	0	-98
164	1973	7	0	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	0	0
164	1973	8	0	4	17	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	6	0	0	0	0	0	0	0	0	8
164	1973	9	0	0	0	0	0	0	0	0	63	0	0	0	0	0	0	16	0	0	0	426	9	46	17	14	304	58	65	0	0	0	-98
164	1973	10	0	0	0	0	0	0	0	0	51	0	0	0	0	0	107	0	0	6	0	0	0	0	0	0	5	0	0	53	0	0	0

164	1973	11	0	7	43	0	32	5	36	90	120	10	0	76	0	0	0	0	5	0	13	0	4	0	0	0	0	26	0	16	63	140	-98
164	1973	12	0	94	0	0	0	0	0	0	132	4	0	0	0	0	0	0	0	206	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1974	1	0	0	0	0	0	0	0	0	10	0	0	0	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1974	2	0	0	0	0	85	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1974	3	375	140	95	3	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	0	0	86	0	220	418
164	1974	4	60	123	68	44	38	130	14	205	189	9	29	183	111	271	95	0	0	75	81	47	0	88	96	43	42	23	8	30	5	444	-98
164	1974	5	348	7	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	114	0	7	0	0	0	0	0	0	7	13
164	1974	6	48	10	0	0	26	0	0	14	0	0	54	296	0	0	5	173	16	0	0	0	0	0	0	194	16	0	47	45	3	19	-98
164	1974	7	111	58	66	3	13	78	28	75	0	3	0	5	40	35	0	0	17	0	0	0	159	0	0	0	0	0	0	0	0	0	0
164	1974	8	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	23	23	0	0	0	0	0	33	11
164	1974	9	0	0	100	0	0	0	46	0	30	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1974	10	11	0	0	116	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	102	15	33	0	0	0	3	0	0	0
164	1974	11	0	67	106	43	60	108	82	53	58	119	10	0	0	0	0	19	77	76	99	0	0	0	0	0	0	6	0	0	0	0	-98
164	1974	12	0	0	0	203	54	32	0	0	0	0	0	0	0	4	6	44	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1975	1	25	0	0	0	0	0	0	0	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1975	2	0	0	0	0	0	0	0	0	0	0	0	14	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1975	3	0	0	0	17	0	3	0	137	10	0	0	0	0	0	0	0	11	3	0	0	0	0	0	0	0	0	0	72	15	170	
164	1975	4	43	0	0	13	0	0	0	0	0	111	213	16	0	215	29	154	314	5	34	8	5	159	206	27	180	0	0	0	0	0	-98
164	1975	5	6	4	0	0	0	0	0	0	0	0	137	82	0	582	167	233	34	3	0	23	0	0	0	26	0	0	75	409	23	35	43
164	1975	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	0	0	4	0	0	0	0	0	4	8	10	0	0	0	-98
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164	1975	8	0	0	0	0	3	4	0	0	0	0	4	3	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1975	9	0	237	8	0	0	16	58	0	0	173	33	31	0	0	9	509	72	0	0	0	0	0	0	0	61	4	74	10	81	-98	
164	1975	10	0	0	0	0	0	5	0	0	16	27	0	0	0	0	0	0	0	0	15	11	137	164	0	0	0	40	10	97	89	0	0
164	1975	11	0	0	0	0	0	0	0	0	0	0	0	92	27	73	16	54	213	115	14	0	29	132	171	4	13	0	0	0	50	0	-98
164	1975	12	9	140	0	0	481	120	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
164	1976	1	154	0	0	0	0	0	0	0	0	0	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1976	2	0	0	202	6	50	0	0	0	0	0	0	0	0	0	0	71	0	0	0	0	0	0	0	38	11	29	16	0	0	-98	-98
164	1976	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	19	261	2	13	0	0	0	0
164	1976	4	0	0	0	0	0	0	0	0	3	170	55	76	0	318	147	4	7	0	7	0	0	0	53	51	0	26	25	45	0	0	-98
164	1976	5	0	0	0	0	7	0	57	0	0	0	0	3	0	0	52	32	78	1	0	5	51	7	566	0	0	0	0	0	0	0	0
164	1976	6	0	0	0	0	0	0	0	0	0	0	0	0	0	7	12	0	0	4	0	256	148	0	0	0	0	0	0	0	18	18	-98
164	1976	7	0	0	0	0	0	0	118	0	0	41	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
164	1976	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	179	0	0	0	0	0	0	0
164	1976	9	35	467	0	49	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	28	6	0	0	0	0	0	0	-98
164	1976	10	0	0	8	95	8	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	19	0	0	0	0	0	0	0	0
164	1976	11	0	32	171	2	0	0	0	0	42	3	0	0	0	0	0	0	0	106	510	52	121	112	2	0	13	335	21	0	179	75	-98
164	1976	12	190	13	0	0	0	0	0	5	0	0	0	24	137	67	0	13	50	0	0	0	0	1	11	11	23	32	0	0	0	60	337
164	1977	1	1	89	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	155	8	0	0	0	0	29	0	15	0	0	0	0	0
164	1977	2	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	15	66	181	189	277	0	12	0	0	-98	-98	-98
164	1977	3	0	0	0	0	0	14	9	0	7	0	0	0	0	0	15	0	5	21	10	154	41	0	0	0	0	0	0	6	48	45	0
164	1977	4	0	0	0	63	869	0	414	305	28	74	36	60	498	372	78	0	21	5	4	41	93	9	21	159	96	326	56	520	158	679	-98
164	1977	5	233	320	0	0	82	0	0	662	493	60	128	262	19	163	537	130	0	19	21	0	0	0	0	0	0	0	0	0	0	0	0
164	1977	6	0	0	0	0	3	229	67	0	0	0	0	0	0	0	23	0	81	21	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1977	7	0	0	0	1	60	5	38	28	0	0	365	0	0	0	7	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	10
164	1977	8	0	0	0	13	244	0	0	6	50	0	0	0	0	0	44	147	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
164	1977	9	0	0	0	0	0	0	0	1	0	0	23	0	0	0	0	82	3	4	69	53	0	0	0	0	0	0	0	0	0	0	-98
164	1977	10	0	0	0	0	0	0	0	0	16	0	0	0	0	10	0	0	0	0	7	31	75	23	40	81	0	0	0	0	2	16	152
164	1977	11	3	77	143	11	191	203	140	3	171	1	3	9	14	0	30	423	24	38	6	491	18	0	175	386	3	13	5	85	15	0	-98
164	1977	12	32	0	0	0	0	23	0	0	42	0	0	0	33	0	0	7	32	7	27	219	47	262	18	386	0	0	0	0	0	0	0
164	1978	1	0	0	0	0	0	0	0	0	0	0	0	9	0	0	405	20	274	18	559	0	54	96	0	0	0	0	0	0	0	0	0
164	1978	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	107	5	23	50	55	32	0	16	54	0	0	0	-98	-98	-98
164	1978	3	13	2	0	0	0	0	102	0	68	0	0	0	980	29	123	6	7	0	67	16	29	90	393	616	147	19	21	84	177	0	0
164	1978	4	0	18	0	0	104	19	15	0	400	266	0	22	116	86	22	0	0	0	25	0	43	37	86	105	102	4	217	18	8	864	-98
164	1978	5	74	1	61	23	8	15	7	8	0	24	11	8	0	0	9	116	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
164	1978	6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	13	25	4	0	0	0	0	0	2	10	26	1	-98
164	1978	7	0	2	0	5	1	0	0	0	0	0	0	6	9	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	66	11	5

164	1978	8	194	0	0	0	0	0	2	0	0	0	0	0	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	440
164	1978	9	0	0	0	0	0	0	0	0	3	16	0	0	0	0	0	0	0	0	0	0	0	112	15	1	0	0	0	0	7	-98
164	1978	10	8	0	0	0	0	0	0	0	0	0	0	0	166	0	0	0	0	0	0	173	465	0	0	12	195	16	136	0	0	165	0
164	1978	11	0	147	22	264	14	0	36	0	0	0	0	0	0	127	77	0	36	0	9	121	178	13	7	38	81	4	0	0	0	85	-98
164	1978	12	26	127	140	16	96	0	0	0	0	35	4	52	130	271	64	0	0	68	113	39	0	0	0	0	0	0	0	0	108	0	0
164	1979	1	0	0	0	0	0	0	16	0	0	0	0	0	9	0	7	7	33	31	0	11	7	2	0	0	7	11	0	88	352	39	88
164	1979	2	172	359	41	98	0	0	0	0	173	37	0	11	0	0	2	0	0	100	36	0	0	623	0	0	0	6	0	0	-98	-98	-98
164	1979	3	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	1	26	690	242	268	0	0	0	105	84	0	0	0	0	0	0
164	1979	4	0	0	36	7	140	61	2	98	132	31	56	69	24	69	26	10	0	15	20	5	0	0	65	10	243	102	15	24	33	0	-98
164	1979	5	35	15	27	7	0	0	322	56	267	9	0	195	0	0	0	0	0	0	0	0	38	76	75	45	23	286	310	9	9	0	36
164	1979	6	97	11	0	12	0	63	0	19	4	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	57	0	6	0	0	-98
164	1979	7	0	13	11	0	0	0	127	10	0	0	0	0	0	0	7	0	0	0	1	0	0	0	0	0	267	0	0	0	0	0	0
164	1979	8	0	0	0	0	0	4	4	0	0	11	6	2	54	8	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1979	9	0	4	0	0	0	0	0	481	0	6	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7	0	0	-98
164	1979	10	0	0	8	0	4	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	26	2	0	11	0	96	34	0	0	0	0
164	1979	11	0	0	6	83	226	0	24	3	334	94	74	14	145	0	0	0	15	2	0	0	4	7	0	0	0	0	0	0	0	43	-98
164	1979	12	387	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	17	0	0	30	0	186	51	0	5	9	0	0	0
164	1980	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	101	277	526
164	1980	2	122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	-98	-98
164	1980	3	17	134	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	0	0	0	25	124	24	5
164	1980	4	0	0	0	0	0	0	0	11	63	0	0	17	46	57	7	23	88	330	48	203	32	5	0	80	49	0	0	0	0	0	-98
164	1980	5	494	560	242	307	315	317	359	41	6	0	153	35	552	0	64	46	1256	25	0	0	0	14	60	0	3	14	2	0	186	250	14
164	1980	6	0	0	0	0	0	18	7	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	110	0	0	0	0	0	133	2	-98
164	1980	7	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	4	0	0
164	1980	8	0	0	0	0	0	11	34	78	0	0	0	0	24	0	0	0	0	0	10	0	0	0	5	11	0	0	0	0	0	0	0
164	1980	9	0	0	0	11	0	0	0	0	0	6	0	0	0	214	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	-98
164	1980	10	0	1	75	143	189	0	232	51	10	0	30	0	47	12	357	830	250	0	0	0	98	98	12	7	0	11	53	0	0	0	0
164	1980	11	0	1	75	143	189	0	232	51	10	0	30	0	47	12	357	830	250	0	0	0	98	98	12	7	0	11	53	0	0	0	-98
164	1980	12	0	0	0	107	36	49	27	0	0	0	0	0	31	0	0	0	19	66	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1981	1	0	0	0	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0
164	1981	2	0	0	0	0	0	0	0	0	0	0	0	31	10	0	1	0	16	2	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1981	3	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	5	36	0	76	0	139	453	6	46	78	62	0	410	62	14
164	1981	4	416	30	379	8	186	130	0	0	59	336	735	261	174	12	1117	600	800	61	0	0	0	47	0	0	42	13	0	-99	0	280	-98
164	1981	5	0	28	15	10	7	128	607	561	125	2	0	135	65	664	5	10	0	0	36	10	0	0	0	0	0	0	0	0	0	44	0
164	1981	6	0	0	0	0	12	0	0	7	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	3	0	54	0	-98
164	1981	7	0	0	0	0	0	0	0	0	0	0	8	21	0	21	1	0	0	0	0	0	0	0	0	0	0	6	0	0	48	0	0
164	1981	8	0	0	0	0	58	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	15	0	0	0	0	235	0	66
164	1981	9	0	0	0	0	7	0	0	0	0	0	0	0	30	0	0	0	0	0	-99	27	0	0	21	26	0	0	255	21	0	0	-98
164	1981	10	0	0	0	0	0	8	0	51	0	0	0	0	0	0	0	0	0	0	41	62	0	2	0	0	162	23	92	6	0	0	0
164	1981	12	0	0	0	0	189	35	2	4	0	0	0	0	3	0	18	18	50	15	3	0	0	0	32	11	0	0	0	0	0	0	0
164	1982	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1982	2	0	0	0	0	0	0	0	0	0	0	0	0	8	99	87	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1982	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	194	0	0	0	0	0	0	0	259	85	60	19
164	1982	4	8	8	0	32	0	0	30	99	9	0	0	0	0	0	19	73	0	116	28	135	40	16	7	397	0	342	204	560	20	0	-98
164	1982	5	10	0	10	675	54	16	32	95	81	2	97	0	83	102	216	0	53	0	202	176	0	11	0	56	19	137	47	1	4	0	2
164	1982	6	2	0	0	0	0	0	12	0	0	0	0	0	25	0	0	0	3	18	6	1	87	180	7	0	12	5	1	0	0	0	-98
164	1982	7	1	0	0	0	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	38	0	191	0	0	0	0	0
164	1982	8	29	0	0	0	0	0	1	31	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0
164	1982	9	0	0	0	0	1	0	0	0	0	0	0	0	0	123	0	0	0	0	88	0	0	7	6	0	74	0	0	42	0	0	-98
164	1982	10	0	0	0	0	0	90	0	0	0	2	74	75	26	3	0	50	156	387	76	212	50	4	86	31	0	0	0	32	37	112	15
164	1982	11	282	10	0	56	0	0	0	72	195	0	2	0	204	88	11	38	144	41	22	0	0	0	1	169	158	491	102	114	0	151	-98
164	1982	12	717	91	589	173	0	3	21	0	12	10	0	0	5	0	14	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1983	1	0	0	0	0	1	7	0	0	0	0	0	0	0	0	39	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
164	1983	2	1	77	0	0	0	0	0	0	0	0	675	7	68	388	0	0	115	248	212	30	0	0	0	0	0	0	0	0	-98	-98	-98
164	1983	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	670	4	0	0	0	0
164	1983	4	0	0	0	0	27	0	0	0	0	0	0	27	7	0	21	2	0	0	0	100	2	14	332	192	114	564	156	117	21	33	-98

164	1983	5	4	12	0	1	0	58	3	6	3	0	5	32	1	3	0	51	153	0	0	0	0	15	32	0	6	0	0	0	7	0	0
164	1983	6	0	0	0	71	11	0	2	0	0	0	0	0	0	1	0	0	0	0	21	6	6	3	0	0	0	0	0	10	0	0	-98
164	1983	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	78	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
164	1983	8	0	0	0	0	0	0	0	0	0	100	0	0	0	25	0	0	0	0	3	44	72	21	0	0	3	0	0	0	0	24	0
164	1983	9	0	0	0	0	0	0	0	2	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	-98
164	1983	10	0	0	177	31	76	11	0	10	65	1	0	0	23	54	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	56
164	1983	11	121	10	25	0	41	0	0	0	0	0	0	0	25	0	0	0	0	0	5	0	0	0	0	0	6	0	0	0	3	13	-98
164	1984	1	0	0	0	0	0	0	0	14	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
164	1984	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	-98	-98
164	1984	3	16	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	10	0	0	0	0	0	0	0	0	13	0	0	10	0	0
164	1984	4	0	0	0	0	0	0	0	32	124	59	42	0	0	12	0	124	0	0	0	0	0	0	0	34	135	85	0	0	0	138	-98
164	1984	5	0	0	0	0	0	16	0	0	2	0	0	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1984	6	0	0	2	0	0	0	0	0	22	0	0	0	0	0	37	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1984	7	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	16	0	19	11	24	0	5	0	0	0	0	0	0	0	0
164	1984	8	0	0	0	0	0	25	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	29	0	1	0
164	1984	9	12	0	0	156	0	0	0	0	0	0	0	0	23	54	0	0	0	0	0	34	0	0	0	0	0	0	27	0	0	0	-98
164	1984	10	0	0	0	0	21	14	31	248	20	4	150	4	0	0	0	55	0	0	34	18	30	19	387	20	40	123	0	0	0	3	11
164	1984	11	0	22	6	30	69	63	210	15	0	156	34	33	62	11	181	0	84	0	0	0	0	0	0	14	0	317	35	4	16	41	-98
164	1984	12	46	26	0	0	0	0	16	7	0	93	441	28	0	0	0	0	0	0	0	31	48	0	0	0	0	0	0	0	0	0	0
164	1985	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1985	2	0	254	48	0	94	3	6	28	94	90	153	18	0	0	0	0	0	5	0	0	0	0	0	0	0	134	0	-98	-98	-98	
164	1985	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	27	440	0	63	49	17	0	0	3	19	436	2	87	162
164	1985	4	0	0	7	10	29	0	0	82	73	86	12	239	38	181	396	480	81	7	67	36	16	9	0	0	78	7	0	0	123	263	-98
164	1985	5	136	18	166	23	18	0	0	4	139	3	0	20	0	20	96	29	0	26	0	0	0	0	0	28	0	0	1	0	0	0	0
164	1985	6	0	0	3	0	0	0	0	0	0	0	0	7	2	0	0	0	183	3	13	5	0	0	0	0	0	0	0	0	0	0	-98
164	1985	7	0	0	0	1	0	35	13	0	0	0	0	220	0	5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
164	1985	8	0	0	0	16	0	0	0	12	10	6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	8	6	0	0
164	1985	9	20	0	0	0	93	0	0	3	4	0	0	0	0	0	0	0	0	0	0	41	0	0	0	0	0	0	0	0	0	0	-98
164	1985	10	0	0	0	0	0	0	0	0	28	93	0	0	0	0	13	3	3	4	26	0	0	0	19	128	0	0	2	17	0	0	0
164	1985	11	0	2	117	0	76	268	291	2	32	0	50	10	0	0	0	0	28	42	45	2	2	34	76	6	0	23	0	0	0	11	-98
164	1985	12	22	20	23	4	67	1	11	0	4	121	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	421	0	0	0	0
164	1986	1	0	0	0	0	0	0	2	0	23	0	23	13	38	20	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
164	1986	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1986	3	0	0	0	2	0	126	112	12	30	0	0	0	0	0	0	4	284	0	0	97	6	6	0	0	0	65	0	0	7	50	0
164	1986	4	29	0	0	0	0	397	14	79	559	84	0	0	147	0	1	17	28	0	0	0	0	184	76	2	0	157	151	167	160	139	-98
164	1986	5	19	5	166	0	0	516	1045	168	0	0	0	0	37	60	0	0	0	5	51	49	27	119	89	6	162	0	0	3	43	21	0
164	1986	6	176	5	0	0	0	0	0	0	0	0	0	0	24	0	0	25	9	0	0	0	0	17	0	0	0	0	0	0	6	0	-98
164	1986	7	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	6	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
164	1986	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	2	0	0	0	0	0	4	21	0	0	0	5
164	1986	9	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1986	11	10	94	95	75	61	0	0	2	2	324	78	39	67	51	0	11	90	0	5	0	446	126	30	44	22	79	27	63	83	1	-98
164	1986	12	171	10	0	0	312	591	10	0	24	5	0	0	0	0	0	0	0	2	83	0	0	0	0	0	0	0	0	0	0	0	0
164	1987	1	0	66	140	43	100	0	0	4	0	2	0	0	0	0	88	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1987	2	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	114	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1987	3	0	0	0	0	4	0	0	0	15	360	0	0	0	0	0	0	0	5	123	0	0	0	0	0	0	0	0	0	0	0	0
164	1987	4	0	0	0	0	397	251	246	20	0	23	86	53	228	2	0	0	0	787	28	350	4	188	0	0	7	0	0	0	0	605	-98
164	1987	5	255	9	0	0	0	0	11	15	89	110	2	15	0	0	0	8	2	9	3	0	0	5	103	79	1	12	0	0	0	17	198
164	1987	6	44	34	0	50	106	202	15	0	0	0	29	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	16	143	-98
164	1987	7	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1987	8	0	0	0	0	0	0	0	15	33	10	0	17	8	2	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1987	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	34	36	0	0	0	0	74	-98
164	1987	10	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0
164	1987	11	0	0	0	32	15	81	197	163	6	0	508	84	87	0	34	0	0	0	0	0	0	112	104	0	0	0	2	147	2	0	-98
164	1987	12	0	37	276	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1988	1	0	0	0	7	2	4	68	0	31	86	0	0	0	0	0	120	442	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1988	2	0	82	0	0	0	0	0	0	118	0	0	0	0	0	0	0	0	0	0	18	35	0	0	0	0	0	0	0	0	-98	-98
164	1988	3	0	0	59	6	72	0	0	0	0	25	0	0	0	0	5	0	0	27	204	0	0	0	212	212	0	81	216	204	0	0	0
164	1988	4	172	18	0	2	214	221	0	120	172	0	9	0	0	6	21	388	122	8	272	112	0	195	310	0	227	288	0	91	917	0	-98

164	1988	5	270	334	0	4	170	347	261	417	0	2	89	0	0	0	0	42	136	6	49	209	82	0	0	0	0	0	0	0	0	0
164	1988	6	0	0	0	0	0	0	0	52	19	0	0	636	20	0	0	0	42	19	0	0	0	0	0	31	0	0	0	0	87	0	-98
164	1988	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	13	0	0	0	0	0	0	18	0	0	0	0	0	6	3	0
164	1988	8	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	48	117	5	1	2	17	44	0	0	0	10	48	0	0
164	1988	9	78	11	0	0	0	0	0	0	0	0	7	3	0	0	0	0	16	7	22	0	0	0	0	4	0	0	0	0	0	0	-98
164	1988	10	88	0	0	5	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	5	0	0	0	0	0	94	0
164	1988	11	0	0	6	0	57	114	0	16	132	75	19	0	0	7	11	15	8	32	0	38	282	7	0	0	10	0	0	0	0	0	-98
164	1988	12	0	0	0	0	0	0	10	37	0	27	63	0	0	0	0	0	0	16	109	403	123	238	0	35	128	0	220	37	12	0	0
164	1989	1	0	0	0	0	387	201	0	0	0	0	0	0	0	218	33	112	0	21	0	4	91	0	28	7	0	0	0	0	0	0	0
164	1989	2	0	0	0	156	21	164	2	45	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1989	3	0	0	0	0	0	0	0	0	0	0	0	156	119	36	0	0	66	31	57	87	187	0	0	13	0	0	0	0	0	50	0
164	1989	4	41	15	0	428	18	400	174	210	120	58	3	20	0	5	0	7	0	0	38	0	0	7	26	174	443	0	309	81	65	5	-98
164	1989	5	8	31	0	0	0	12	488	170	74	38	157	332	143	0	20	0	68	802	0	5	22	0	0	0	0	136	47	25	0	0	0
164	1989	6	0	0	252	0	0	0	0	0	0	0	0	0	27	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1989	7	0	0	13	0	25	27	154	11	0	0	0	77	8	0	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1989	8	0	0	10	0	75	17	0	0	0	73	0	0	18	0	0	18	5	0	0	0	0	0	0	0	0	0	12	0	6	2	0
164	1989	9	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	8	30	369	19	0	0	52	0	12	16	0	8	0	0	-98
164	1989	10	0	3	0	0	8	5	19	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	14	62	154	91	175	19
164	1989	11	0	0	0	0	0	0	0	85	137	73	0	0	29	14	0	34	63	0	8	89	13	62	130	0	30	128	73	15	88	78	-98
164	1989	12	2	34	4	0	0	0	42	176	122	44	19	5	0	0	0	0	0	0	0	0	30	87	16	4	0	643	91	0	0	105	622
164	1990	1	5	426	3	0	0	0	0	0	0	73	0	0	0	0	0	0	0	0	0	11	9	0	0	0	0	0	0	0	0	0	0
164	1990	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	118	8	84	0	7	0	0	59	0	0	-98	-98	-98
164	1990	3	0	0	0	115	198	106	180	155	43	0	4	62	606	427	0	14	6	0	0	26	0	87	13	54	0	0	0	0	0	39	23
164	1990	4	665	510	14	87	204	5	31	10	12	26	6	32	48	27	0	44	50	4	0	15	265	376	40	0	0	4	0	0	0	0	-98
164	1990	5	0	0	0	0	0	0	93	46	349	0	5	245	482	140	0	0	0	0	4	16	0	104	0	0	59	82	0	8	0	0	0
164	1990	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	75	-98
164	1990	7	0	0	0	0	0	6	3	0	0	22	0	0	0	0	119	0	0	0	0	2	0	0	0	5	0	0	0	0	0	0	0
164	1990	8	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	8	0	0	0	2	4	0	0	0	0	2	0	0	0	11	55
164	1990	9	121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	24	0	0	0	0	0	0	0	0	0	0	83	-98
164	1990	11	124	7	59	25	7	2	316	61	0	0	6	107	77	150	91	129	93	49	92	0	0	0	5	0	0	0	0	0	0	0	-98
164	1990	12	0	17	5	30	4	0	28	19	0	65	316	79	46	0	84	8	85	40	0	3	0	0	0	0	0	0	0	0	0	0	100
164	1991	1	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	21	0	0	0	0
164	1991	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1991	3	0	0	0	0	0	0	0	0	0	2	0	0	13	6	0	0	0	0	0	0	0	0	0	149	309	241	2	100	112	6	0
164	1991	4	0	313	41	66	4	118	37	0	0	0	0	0	1	0	23	0	5	35	0	100	0	0	0	7	0	0	0	489	214	31	-98
164	1991	5	78	1	0	3	0	0	74	24	0	9	202	139	485	8	0	2	529	148	198	12	93	39	108	4	11	56	26	89	137	0	55
164	1991	6	0	4	0	16	12	0	119	0	0	0	0	0	0	0	42	26	0	0	13	0	0	0	0	0	0	0	0	0	0	0	-98
164	1991	7	0	0	5	0	11	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0
164	1991	8	0	0	0	0	0	0	0	0	0	68	306	16	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
164	1991	9	15	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	0	0	6	0	0	0	0	0	0	-98
164	1991	10	0	0	0	0	0	3	8	0	0	0	28	0	0	62	56	82	0	0	1	0	9	28	0	0	0	39	0	0	0	0	0
164	1991	11	47	46	0	51	0	0	0	1	29	52	48	60	34	10	85	63	101	0	12	5	38	438	599	17	25	26	34	6	0	0	-98
164	1991	12	22	0	0	0	0	69	74	62	64	201	41	0	0	0	0	0	0	0	287	406	8	5	7	0	0	12	0	0	0	0	0
164	1992	1	0	0	0	0	0	0	0	0	0	0	0	0	27	1	45	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
164	1992	2	0	0	0	477	0	0	0	259	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98
164	1992	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260	0	0	0	24	18	0	0	0	0	0	0	0	0	0
164	1992	4	118	396	0	0	3	1	361	363	363	579	3	0	0	23	0	0	0	178	0	0	204	0	0	0	0	374	54	299	273	438	-98
164	1992	5	61	452	83	15	0	0	0	0	0	9	0	0	22	20	11	56	0	0	0	0	0	106	0	0	0	0	0	8	101	0	0
164	1992	6	0	0	0	0	9	0	0	0	0	9	187	0	17	0	0	0	0	0	0	51	0	0	10	0	0	0	0	0	0	0	-98
164	1992	7	8	113	280	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1992	8	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	7	4	0	0	0	0	0	0	0	3	30	0	0	0	0	0
164	1992	9	0	0	0	0	0	15	11	0	2	20	5	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	-98
164	1992	10	22	68	40	0	0	0	0	0	0	0	15	0	0	95	0	52	61	0	0	0	0	0	0	0	0	0	77	41	30	0	11
164	1992	11	85	94	142	62	63	70	0	0	29	0	0	20	1	109	0	545	0	0	0	0	0	0	3	5	0	0	5	11	22	83	-98
164	1992	12	1	0	37	0	0	25	176	35	3	147	0	0	34	0	34	354	9	2	0	0	0	0	0	0	0	0	0	0	30	45	32
164	1993	1	90	13	0	0	55	130	519	0	86	0	2	68	69	0	222	40	36	83	258	334	0	0	0	0	477	122	37	3	72	35	0
164	1993	2	0	0	0	0	0	269	12	556	0	645	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98

164	1993	3	0	0	0	0	0	0	0	93	0	0	0	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	91	0
164	1993	4	0	0	0	0	0	49	0	0	0	0	0	0	5	0	148	36	4	9	0	0	0	0	0	0	0	0	0	0	0	-98
164	1993	5	0	0	216	153	20	0	185	0	0	47	67	0	121	75	3	14	9	0	0	0	0	40	0	2	0	0	0	0	0	0
164	1993	6	0	0	0	152	38	0	14	4	29	210	15	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1993	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
164	1993	8	0	0	0	0	6	0	0	0	0	0	0	0	111	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1993	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1993	10	0	0	0	0	0	0	5	2	0	0	0	0	0	25	40	0	0	0	0	0	0	0	0	0	0	0	0	130	229	23
164	1993	11	23	349	0	0	0	0	34	79	30	0	0	0	0	0	0	6	0	0	36	40	92	7	0	0	0	41	0	59	211	5	-98
164	1993	12	31	0	31	34	453	493	0	0	0	0	0	0	11	0	0	0	15	0	0	0	0	0	0	0	7	0	7	0	0	0	0
164	1994	2	0	0	0	0	0	0	0	0	0	0	75	263	20	9	505	10	0	0	0	0	0	46	0	0	0	0	0	-98	-98	-98
164	1994	3	0	0	0	18	7	0	0	0	0	0	0	0	0	140	0	0	0	0	3	0	0	0	30	71	25	3	0	294	0	0	0
164	1994	4	0	0	0	0	0	126	0	135	182	0	31	20	346	0	311	0	0	0	0	0	229	0	392	358	155	81	22	0	0	82	-98
164	1994	5	35	32	67	0	0	0	26	3	0	0	68	0	14	10	291	18	50	0	125	115	0	0	27	9	16	0	0	236	0	0	0
164	1994	6	0	0	0	0	0	0	0	0	101	0	0	0	0	0	0	7	0	9	0	0	0	0	0	0	0	0	0	11	0	70	-98
164	1994	7	0	28	17	0	0	0	0	0	0	0	0	128	0	0	16	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
164	1994	8	0	29	0	2	0	0	4	0	0	18	1	0	0	225	257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1994	9	0	0	0	0	14	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	-98
164	1994	10	0	0	0	0	0	0	3	0	0	0	0	195	418	0	0	0	22	7	9	0	3	115	106	0	0	0	0	0	0	0	0
164	1994	11	0	4	0	334	267	129	43	200	0	391	148	69	202	134	26	78	3	0	0	2	154	5	0	0	0	21	12	41	65	127	-98
164	1994	12	0	0	0	67	266	15	122	51	2	3	0	0	5	0	0	0	0	0	0	0	0	0	138	0	8	0	0	0	0	0	0
164	1995	1	0	139	0	0	0	0	0	0	0	0	3	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1995	2	0	0	0	0	0	0	0	60	77	321	22	48	0	276	364	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1995	3	0	374	615	77	32	0	0	31	0	0	0	0	0	140	0	0	0	0	0	0	0	0	256	76	57	0	20	0	0	4	0
164	1995	4	0	0	28	2	106	4	0	1	0	62	59	0	0	0	0	0	0	0	297	14	30	0	0	0	0	15	182	31	126	140	-98
164	1995	5	418	147	39	0	0	734	5	223	8	0	7	14	0	3	164	64	60	6	11	0	0	0	0	0	0	33	0	16	79	72	0
164	1995	6	0	0	81	0	79	0	8	0	0	0	0	0	0	0	3	20	0	0	0	0	0	0	0	0	0	0	14	35	6	67	-98
164	1995	7	17	0	0	0	0	55	0	0	0	0	0	0	0	0	0	0	0	0	0	2	30	0	7	0	1	6	0	0	0	0	0
164	1995	9	0	0	3	4	103	0	0	0	11	47	7	11	0	0	0	0	0	0	0	0	0	0	7	0	0	99	0	0	0	0	-98
164	1995	11	0	76	1	0	0	0	0	0	0	0	0	117	81	127	144	0	6	0	0	6	0	130	0	0	87	10	31	136	0	0	-98
164	1995	12	11	26	7	0	0	0	0	0	0	0	0	145	23	0	0	49	50	13	0	0	0	3	0	0	3	0	2	0	0	0	0
164	1996	1	0	0	0	0	0	0	0	0	0	0	64	0	0	0	0	7	0	0	0	33	78	0	0	0	0	0	0	0	0	0	0
164	1996	2	0	0	0	0	3	37	0	0	0	0	9	0	0	0	0	53	325	0	0	16	0	0	0	0	0	0	12	0	0	-98	-98
164	1996	3	0	0	0	196	0	0	0	0	0	145	0	0	0	47	0	0	0	0	26	65	0	104	0	0	0	463	0	131	5	0	32
164	1996	4	214	9	0	0	0	157	22	588	0	0	3	6	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103	-98
164	1996	5	3	0	0	0	11	1	0	0	0	0	2	3	3	116	3	0	4	305	4	199	10	67	26	0	53	82	2	0	0	0	0
164	1996	6	0	34	44	50	0	0	0	92	45	19	14	90	123	49	0	0	0	0	0	0	0	1	0	10	0	12	0	0	0	0	-98
164	1996	7	0	0	0	0	0	5	23	3	0	0	5	61	8	0	42	46	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1996	9	197	0	19	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1996	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0
164	1996	11	5	10	78	210	0	0	13	2	0	23	258	170	45	189	5	0	0	0	302	96	65	0	0	135	34	1	36	0	0	0	-98
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164	1997	1	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1997	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1997	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1997	5	413	0	85	190	68	152	0	0	11	18	27	0	0	86	153	0	0	0	0	0	3	26	76	6	0	0	0	0	0	0	14
164	1997	6	0	0	0	0	0	0	0	0	14	0	0	0	0	2	0	0	0	8	4	0	8	0	0	0	0	0	0	8	5	0	-98
164	1997	7	0	3	0	0	0	0	0	10	1	6	0	0	0	0	0	0	0	0	0	0	0	0	18	12	0	0	0	0	0	0	0
164	1997	8	0	0	0	0	0	0	61	31	0	7	0	0	0	0	27	3	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0
164	1997	9	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	-98
164	1997	10	0	0	0	22	0	47	1	18	0	5	37	142	67	1	0	0	0	58	63	43	596	2	5	0	0	0	0	0	176	89	185
164	1997	11	59	69	22	316	219	150	269	3	13	0	17	9	0	178	274	25	14	475	0	3	93	0	46	222	216	101	201	356	429	59	-98
164	1997	12	0	82	139	280	36	278	60	71	0	73	0	36	62	0	4	15	10	155	0	0	0	7	0	116	107	78	204	146	0	2	0
164	1998	1	49	22	20	425	0	76	145	27	78	87	639	46	81	490	817	435	10	0	20	3	0	0	0	0	0	0	74	47	16	0	4
164	1998	2	0	0	0	0	0	2	10	5	523	207	225	47	84	151	56	66	7	0	21	38	0	0	0	0	0	0	0	0	-98	-98	-98
164	1998	3	0	0	0	0	0	0	0	45	9	6	0	0	0	0	0	6	0	0	0	97	163	126	8	78	148	14	0	11	2	0	26
164	1998	4	0	0	56	0	48	47	0	0	82	10	320	137	52	9	0	0	0	2	0	132	0	10	10	0	26	0	1	69	27	80	-98

164	1998	5	290	200	83	98	102	216	157	173	76	398	152	116	0	33	9	452	4	0	0	0	465	18	47	0	15	110	881	32	0	0	0
164	1998	6	0	0	0	0	64	0	206	456	2	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	127	0	0	0	0	0	-98
164	1998	7	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	386	11	0	0	0	0	0	0	0	11	0
164	1998	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	0	0	0	2	0	0	0	0	135	88	0	0	0	0	0	0
164	1998	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	247	0	0	-98
164	1998	10	0	6	65	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1998	11	38	0	0	29	0	0	0	136	30	54	0	0	0	0	0	0	32	88	4	3	3	29	0	51	0	32	16	0	3	14	-98
164	1998	12	0	4	0	0	2	0	0	28	0	0	0	0	0	0	0	0	630	0	25	0	0	0	0	0	0	0	0	0	0	0	0
164	1999	1	0	0	0	0	0	0	0	0	111	5	0	0	0	0	58	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
164	1999	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	1999	3	0	0	0	0	0	0	0	0	152	70	15	455	125	21	26	0	26	50	0	0	0	0	0	0	75	526	22	79	6	13	189
164	1999	4	284	0	51	28	0	28	6	157	45	368	0	0	0	0	0	109	0	0	252	0	37	0	32	0	0	0	0	30	1	313	-98
164	1999	5	13	0	0	0	0	6	0	0	26	0	0	0	30	0	0	7	169	0	0	0	0	0	0	0	0	0	0	0	7	0	0
164	1999	6	9	0	14	0	0	0	0	7	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	-98
164	1999	7	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	23	8	4	0	0	0	0	0	0	0	0	1	0	9	0	0
164	1999	8	0	0	0	0	0	0	0	0	0	0	0	8	0	0	9	15	0	21	6	0	0	0	0	400	7	0	0	0	0	130	16
164	1999	9	6	0	0	2	0	0	2	0	0	0	0	137	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	1999	10	0	0	0	0	0	0	0	0	0	0	3	0	30	0	0	0	7	0	0	0	0	0	0	0	30	41	52	61	0	0	0
164	1999	11	0	0	0	0	0	351	14	48	5	28	153	234	82	40	38	20	230	33	101	30	108	0	2	24	158	40	41	49	464	574	-98
164	1999	12	532	204	0	158	4	213	85	31	0	11	0	0	0	0	0	0	0	50	126	155	34	20	64	10	1	0	91	48	0	0	0
164	2000	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	18	0	0	0	0	0	0	0	0	0
164	2000	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98
164	2000	3	23	0	0	0	0	0	0	0	0	0	0	0	0	235	0	46	0	0	16	0	0	0	0	0	56	0	19	0	0	0	0
164	2000	4	49	0	0	283	201	44	12	23	10	0	2	0	0	0	0	0	0	0	0	0	0	272	156	25	0	0	0	0	0	0	-98
164	2000	5	2	32	0	0	0	26	0	426	214	0	2	0	0	0	0	18	0	0	0	0	0	0	0	0	0	390	90	0	3	0	0
164	2000	6	0	0	0	0	0	0	0	0	0	0	116	20	0	0	0	30	0	170	103	0	0	0	0	0	0	0	0	0	0	0	-98
164	2000	7	0	0	0	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	5	6	0	0	0	0	11	5
164	2000	8	0	0	0	0	71	0	0	2	0	0	0	0	0	12	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	2000	9	0	0	0	0	0	0	0	0	0	0	0	0	85	0	0	0	0	0	155	2	0	0	0	0	0	0	144	0	0	0	-98
164	2000	10	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	80	147	0	21	0	0	0	0	0	0	0	0	0	0	0
164	2000	11	89	0	24	54	0	176	0	0	0	33	3	0	15	13	47	9	268	62	12	305	383	15	52	2	57	101	0	27	0	0	-98
164	2000	12	67	0	0	0	0	0	57	0	52	113	127	0	0	0	0	161	333	2	0	48	20	0	0	0	0	0	0	0	0	0	0
164	2001	1	0	0	274	524	20	413	149	585	23	200	19	204	1284	3	0	0	0	0	0	0	8	0	375	5	175	8	16	0	15	0	0
164	2001	2	0	0	0	0	212	0	0	29	0	14	0	23	0	0	0	0	0	0	0	0	0	0	10	0	29	0	0	0	-98	-98	-98
164	2001	3	0	0	0	0	263	630	0	0	0	0	0	122	112	0	0	0	23	0	8	0	0	0	0	42	256	777	240	240	0	161	52
164	2001	4	12	0	0	70	158	35	194	150	78	0	0	0	0	0	52	0	0	0	48	0	293	72	0	57	1	0	0	115	18	97	-98
164	2001	5	0	541	94	27	2	57	0	0	0	0	40	0	22	0	67	0	0	0	0	0	0	0	15	0	0	0	218	6	0	0	0
164	2001	6	0	0	0	0	67	991	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	4	0	0	0	0	2	0	0	0	-98
164	2001	7	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	3	32	120	83	0	0	0	8	3	0	0	0	0
164	2001	8	0	5	0	0	0	0	0	23	0	0	0	148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	2001	9	0	0	0	0	0	0	276	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	2001	10	5	3	4	22	0	187	21	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	40	9
164	2001	11	247	10	48	330	99	19	0	0	20	0	0	196	243	102	45	0	0	0	0	0	43	24	0	11	110	5	35	0	0	0	-98
164	2001	12	0	0	0	0	0	0	0	0	8	0	27	14	6	46	0	0	2	25	5	0	0	0	0	0	0	0	0	0	0	0	0
164	2002	1	0	0	0	0	83	0	0	0	0	0	0	0	35	168	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	2002	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	0	6	0	0	0	0	0	2	0	122	24	357	5	-98	-98	-98
164	2002	3	0	84	409	13	0	85	0	0	146	117	0	13	0	0	0	7	0	0	8	3	0	0	3	3	0	0	0	0	0	0	8
164	2002	4	0	13	0	0	0	0	0	0	0	0	0	34	0	0	89	170	19	1	5	151	7	285	42	11	27	0	120	183	866	29	-98
164	2002	5	192	164	4	305	5	23	168	13	46	66	18	156	8	0	0	0	161	0	0	79	21	0	0	0	0	0	0	0	0	0	0
164	2002	6	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	2002	7	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
164	2002	8	0	0	6	0	0	0	0	0	0	8	2	0	3	15	0	0	0	0	5	0	0	0	0	25	0	0	0	0	0	0	0
164	2002	9	0	0	0	0	0	0	46	0	0	0	0	36	0	0	0	0	180	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	2002	10	0	35	0	0	0	0	0	0	12	179	0	0	0	0	0	0	0	0	0	0	0	83	208	90	0	106	12	0	3	24	0
164	2002	11	204	0	0	11	142	163	99	0	0	14	0	0	229	107	302	58	145	0	41	2	34	0	0	0	0	0	0	2	62	0	-98
164	2002	12	0	0	208	171	10	20	0	0	24	0	0	177	12	62	5	0	0	0	152	106	466	59	23	52	22	123	237	403	289	0	7
164	2003	1	247	0	0	129	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

164	2003	2	0	0	0	0	47	0	0	0	0	89	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
164	2003	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	97	28	0	0	70	66	3	0	0	0
164	2003	4	0	0	0	0	0	0	0	0	0	0	0	0	0	317	0	14	0	0	0	138	583	486	337	0	0	0	48	56	39	311	-98
164	2003	5	40	106	166	26	164	83	112	537	28	4	6	219	39	403	4	27	0	0	0	5	69	49	25	9	18	0	86	76	4	50	120
164	2003	6	0	200	0	0	0	46	12	0	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	2003	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	4	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
164	2003	8	0	0	0	8	0	0	0	0	14	0	7	0	0	2	0	0	31	0	0	12	6	2	0	0	18	23	0	0	0	0	0
164	2003	9	0	0	0	0	0	0	0	0	0	0	313	0	0	119	0	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	-98
164	2003	10	2	4	5	3	13	0	0	0	0	0	0	4	0	0	0	0	100	8	0	0	0	0	0	22	41	29	0	47	27	256	148
164	2003	11	40	88	40	10	78	0	0	0	0	0	0	0	339	60	0	0	0	0	0	286	59	114	0	542	0	4	12	2	0	0	-98
164	2003	12	93	2	3	28	0	0	0	29	3	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
164	2004	1	0	10	8	2	12	0	0	0	0	0	0	0	0	245	679	30	0	0	0	0	0	247	106	0	0	0	0	0	0	0	0
164	2004	2	0	56	25	3	0	0	0	39	109	0	14	0	0	0	10	32	0	0	0	0	0	27	2	0	0	0	0	0	0	-98	-98
164	2004	3	0	0	0	0	0	0	0	0	30	68	310	38	0	0	0	0	0	0	0	0	0	0	0	0	13	0	138	0	0	78	210
164	2004	4	0	0	0	0	380	94	150	122	588	624	24	41	29	15	0	0	0	0	0	0	0	0	16	74	87	78	9	0	427	360	-98
164	2004	5	146	628	674	30	415	0	13	0	0	31	16	0	0	9	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	4	0
164	2004	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	8	80	2	0	-98
164	2004	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	2004	8	0	0	0	0	0	0	0	0	0	0	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
164	2004	9	0	4	0	0	0	0	0	0	0	0	0	0	6	10	22	0	0	0	0	0	5	0	0	0	13	2	172	0	0	0	-98
164	2004	10	4	14	0	0	0	0	0	0	0	0	0	0	0	16	3	93	0	32	28	7	8	0	277	90	19	115	3	13	35	0	0
164	2004	11	0	0	122	0	39	49	2	249	36	0	0	119	10	56	0	180	8	3	0	0	0	177	53	563	8	0	0	0	0	5	-98
164	2004	12	4	0	30	0	5	37	166	62	69	5	0	0	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	210	0	0
208	1971	4	0	0	0	0	0	0	0	73	11	39	1	6	20	48	298	131	55	43	446	276	21	0	0	0	34	736	0	0	13	103	-98
208	1971	5	0	161	361	91	0	18	0	55	5	159	25	8	225	146	164	557	202	131	28	247	139	25	0	0	0	8	0	24	0	71	33
208	1971	6	0	3	0	57	0	0	0	0	0	0	0	0	0	66	15	0	0	0	35	38	0	0	0	0	0	0	0	0	0	0	-98
208	1971	7	0	35	0	0	0	40	9	8	0	0	0	0	0	0	3	0	0	157	0	11	0	0	0	0	10	2	0	0	3	0	0
208	1971	8	0	0	0	0	0	0	0	0	0	20	0	22	2	0	0	0	0	0	0	43	9	30	1	13	0	0	0	0	2	0	0
208	1971	9	0	0	3	11	15	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0	38	0	-98
208	1971	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	69	0	0	0	0	0	0	0	0	152	7	0	0
208	1971	11	0	0	0	27	0	0	0	0	0	0	147	0	5	5	110	0	0	0	10	0	0	31	21	14	71	40	47	98	8	40	-98
208	1971	12	0	40	43	0	0	0	0	0	0	0	0	0	0	0	0	406	57	144	205	0	86	15	109	276	0	2	0	0	0	99	8
208	1972	1	0	0	0	0	80	96	0	17	0	0	0	0	0	0	0	0	0	0	0	9	0	0	2	0	0	0	0	0	0	0	0
208	1972	2	0	95	0	0	0	0	81	237	34	2	0	0	0	0	0	35	37	0	0	0	0	0	0	48	204	0	0	0	0	-98	-98
208	1972	3	0	0	15	0	0	0	0	0	0	0	59	0	0	3	61	0	0	0	0	445	0	0	0	0	0	0	0	0	0	0	0
208	1972	4	0	0	0	0	0	0	0	0	0	38	0	7	0	0	0	0	3	0	31	0	0	0	0	0	0	0	0	0	85	96	-98
208	1972	5	0	38	240	11	0	0	5	11	3	21	2	230	266	88	0	106	69	226	8	79	9	0	1	8	157	55	25	30	35	3	0
208	1972	6	0	0	81	978	72	0	3	0	0	0	0	0	0	0	0	0	11	0	0	16	0	0	0	0	0	73	8	0	0	0	-98
208	1972	7	0	0	0	0	0	0	51	0	0	0	29	0	0	8	10	0	0	14	18	2	0	0	18	0	0	0	0	0	0	0	-99
208	1972	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	26	9	0	0	0	0	0	0	0	0	0
208	1972	9	0	0	0	0	0	0	203	0	0	0	0	0	103	2	0	13	0	4	4	10	0	0	2	38	75	0	2	0	45	0	-98
208	1972	10	0	0	0	0	0	8	0	0	0	0	0	0	0	17	0	62	9	0	0	18	49	0	130	0	252	58	47	6	10	567	435
208	1972	11	0	0	0	25	24	62	135	15	83	235	0	0	151	183	215	0	0	151	23	81	18	18	4	0	0	65	11	0	0	0	-98
208	1972	12	0	0	0	11	0	0	0	0	4	85	0	0	93	89	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1973	1	0	0	297	0	163	55	8	15	0	0	0	0	0	4	356	220	94	0	25	0	0	0	0	0	0	0	0	0	0	0	0
208	1973	2	0	0	0	0	0	0	63	0	0	0	0	144	0	0	0	22	386	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1973	3	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	54	0	0	0	0
208	1973	4	0	0	0	0	0	0	0	0	0	0	0	106	0	0	0	0	1020	63	0	140	70	240	80	220	120	3	35	0	0	13	-98
208	1973	5	13	0	0	0	0	45	0	0	0	0	58	0	1	0	0	28	0	0	0	0	29	16	0	0	0	150	4	186	2	0	20
208	1973	6	208	90	10	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	65	0	-98
208	1973	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0
208	1973	8	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
208	1973	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	9	65	232	112	172	0	0	0	-98
208	1973	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	0	30	0	0	0	0	0	0	0	0	65	0	0	0	0
208	1973	11	0	32	0	41	47	133	25	109	246	32	0	64	0	28	0	0	0	0	0	0	0	0	0	0	0	15	0	28	18	0	-98
208	1973	12	0	70	0	0	0	0	27	0	100	0	0	0	0	0	0	0	0	122	0	0	0	6	0	0	0	0	0	0	0	0	0
208	1974	1	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

208	1974	2	0	0	0	0	40	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1974	3	220	100	250	15	0	0	0	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	15	0	30	0	185	322
208	1974	4	68	162	170	62	25	102	140	250	137	16	136	158	181	190	201	0	115	195	210	0	0	54	46	47	57	23	0	62	40	5	-98
208	1974	6	0	0	0	0	120	4	0	0	0	0	18	142	0	2	0	200	56	0	0	0	0	0	5	84	41	5	90	161	16	11	-98
208	1974	7	78	149	34	10	12	356	75	121	4	5	0	12	58	17	0	0	8	0	0	0	140	0	0	0	0	0	0	0	0	0	0
208	1974	8	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0	4	0	0	0	0	0	30	67	0	0	0	0	131	113
208	1974	9	18	0	69	45	0	5	115	0	151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
208	1974	10	123	0	0	248	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0	89	37	0	17	0	0	0	0	0	0
208	1974	11	0	54	82	0	29	120	95	55	106	41	0	0	0	0	0	28	88	142	81	0	0	0	0	0	0	0	0	0	0	0	-98
208	1974	12	0	0	0	485	34	5	0	0	0	0	0	0	0	0	5	19	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1975	1	0	0	0	0	0	0	0	0	89	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
208	1975	2	0	0	0	0	0	0	0	0	0	0	0	9	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1975	3	0	0	0	0	0	0	0	90	11	0	0	0	0	0	0	0	10	30	0	0	0	0	0	0	0	0	0	0	30	56	19
208	1975	4	90	0	7	0	0	0	0	8	72	211	25	0	301	12	212	570	70	6	19	360	105	150	5	45	0	0	0	0	0	-99	-98
208	1975	5	32	0	0	0	0	0	0	0	0	0	95	87	10	435	263	191	39	0	0	55	20	0	0	21	0	0	31	110	25	28	100
208	1975	6	0	11	0	0	0	0	0	35	0	0	0	0	0	0	0	16	0	0	18	8	0	0	0	7	10	14	0	0	0	0	-98
208	1975	9	0	225	6	0	0	48	0	0	0	100	34	15	0	9	0	100	51	0	0	0	0	0	0	0	0	128	1	130	0	34	-98
208	1975	10	0	0	0	0	0	0	0	3	5	111	0	0	0	0	0	0	0	0	6	22	28	68	0	0	0	0	6	232	66	0	0
208	1975	11	0	0	0	0	0	0	0	0	0	0	0	107	0	94	24	63	126	87	34	0	7	137	96	0	59	0	0	0	7	0	-98
208	1975	12	18	64	0	0	314	61	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0
208	1976	1	0	0	0	0	0	0	35	0	0	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1976	2	8	0	148	4	0	68	0	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0	0	60	10	75	7	0	0	-98	-98
208	1976	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	52	102	123	14	0	0	0	0	0
208	1976	4	0	0	0	0	0	0	0	0	0	182	42	99	0	330	225	22	0	0	56	0	0	105	0	237	0	37	33	18	0	0	-98
208	1976	5	0	0	0	0	0	0	45	0	0	0	0	26	12	0	59	93	74	0	0	31	350	63	377	0	0	0	0	58	0	0	0
208	1976	6	0	0	0	0	0	0	0	8	0	0	0	0	0	14	28	0	0	53	0	180	37	2	0	10	0	0	0	0	0	1	-98
208	1976	7	0	0	0	0	0	0	45	4	0	15	0	0	0	0	0	13	0	0	0	0	6	0	0	0	0	0	24	0	0	0	0
208	1976	8	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0
208	1976	9	47	200	39	4	0	0	0	0	2	0	0	0	44	1	0	0	0	0	0	48	50	0	6	4	0	0	0	0	0	0	-98
208	1976	10	0	6	20	60	15	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	3	0	0	0	0	0	0	2	0
208	1976	11	0	47	230	29	9	0	0	0	0	6	0	0	0	0	0	0	0	83	5	95	61	46	0	0	24	132	44	0	185	30	-98
208	1976	12	108	28	0	0	0	0	0	0	0	0	0	22	107	35	0	11	95	0	0	0	0	0	24	20	20	31	0	0	0	0	510
208	1977	1	0	313	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	0	0	0	0	0	52	13	0	0	0	0	0	0
208	1977	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	80	380	290	40	7	20	0	0	-98	-98	-98
208	1977	3	0	0	0	0	0	10	17	2	17	0	0	0	0	0	47	0	14	35	147	210	32	12	0	2	15	0	0	30	62	163	5
208	1977	4	32	3	0	54	849	0	644	240	18	70	37	8	450	99	32	10	25	16	0	109	12	18	22	58	222	112	111	399	66	432	-98
208	1977	5	250	185	1	5	16	17	0	772	245	114	30	48	40	168	349	260	90	0	6	7	0	0	0	0	136	0	0	0	0	0	0
208	1977	6	0	0	0	0	0	293	96	0	0	0	0	0	0	0	17	0	55	1	0	0	0	0	0	0	0	0	0	33	0	0	-98
208	1977	7	0	0	0	0	75	0	34	33	0	4	59	0	0	6	2	0	0	0	0	6	0	0	0	0	0	0	0	3	0	0	19
208	1977	8	0	0	0	0	245	0	0	22	22	0	0	0	0	0	14	210	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0
208	1977	9	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	65	4	6	58	32	0	0	0	0	0	0	0	0	0	0	-98
208	1977	10	0	0	0	0	0	7	0	0	0	50	0	0	0	0	0	0	0	1	0	90	55	49	21	63	0	0	0	0	29	56	110
208	1977	11	0	166	121	0	156	123	111	16	189	21	0	26	40	0	0	357	52	38	97	153	8	41	222	205	14	13	21	128	21	0	-98
208	1977	12	0	0	0	0	0	10	0	0	12	0	0	0	177	0	0	6	21	0	20	169	19	53	17	378	0	0	0	0	0	0	0
208	1978	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108	33	454	15	296	0	60	113	0	0	0	0	0	0	0	0	0
208	1978	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	113	9	56	65	29	42	13	0	63	0	0	3	-98	-98	-98
208	1978	3	0	0	0	0	11	0	39	0	54	0	14	0	617	4	142	25	23	0	161	56	91	64	377	900	55	238	38	130	171	0	50
208	1978	4	33	40	0	19	180	10	13	0	272	170	26	8	184	33	38	0	5	1	0	0	5	54	300	140	318	0	258	5	51	705	-98
208	1978	5	170	0	13	9	0	41	68	16	0	41	17	11	0	0	19	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1978	6	0	0	0	0	0	0	0	39	0	0	0	0	0	0	0	0	0	26	28	0	0	0	0	0	0	0	4	30	28	8	-98
208	1978	7	0	0	0	7	0	0	0	0	0	0	0	9	29	8	0	0	0	0	0	0	0	0	32	0	0	0	0	0	100	57	0
208	1978	8	202	0	0	0	0	17	0	0	0	0	0	0	10	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	4
208	1978	9	0	12	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	13	12	5	0	0	0	0	0	18	0	-98
208	1978	10	12	0	0	0	0	5	0	0	0	0	0	3	45	0	0	0	0	0	0	92	338	2	0	0	281	4	86	0	23	157	0
208	1978	11	10	45	10	299	9	4	11	7	0	0	0	0	0	88	150	0	52	0	25	47	63	0	0	44	110	0	0	0	0	81	-98
208	1978	12	37	289	131	20	111	0	0	6	0	44	0	58	58	237	44	4	0	58	66	47	0	0	0	0	0	0	0	0	0	0	0
208	1979	1	0	0	0	0	0	4	9	0	0	0	26	0	4	1	0	10	0	32	5	9	2	3	21	1	30	17	5	90	95	203	46

208	1979	2	206	554	36	88	0	0	6	0	27	97	0	9	0	0	0	0	0	9	10	0	0	826	2	0	0	181	0	0	-98	-98	-98
208	1979	3	0	0	0	0	0	0	0	0	0	0	4	0	55	73	3	0	126	232	232	328	0	0	0	27	126	0	0	0	0	0	0
208	1979	4	0	0	0	6	298	31	0	281	27	57	24	279	297	60	12	0	0	36	6	11	7	0	217	64	142	82	24	78	54	0	-98
208	1979	5	53	38	5	0	24	0	151	142	123	385	0	119	82	9	1	0	0	0	0	5	21	87	78	27	39	324	148	6	3	0	5
208	1979	6	147	19	0	10	0	40	0	45	25	0	0	0	0	3	0	0	0	0	0	0	0	4	10	5	0	83	5	4	0	0	-98
208	1979	7	0	19	15	6	0	10	89	24	0	0	0	0	4	2	13	0	0	1	14	0	0	0	0	0	137	0	0	0	0	0	0
208	1979	8	0	0	0	0	0	5	13	0	3	12	4	12	40	8	0	8	5	0	5	0	0	0	0	0	0	12	0	0	0	0	0
208	1979	9	19	3	0	0	0	0	0	76	0	0	3	6	0	0	0	0	5	0	0	0	0	0	0	0	0	14	12	0	18	0	-98
208	1979	10	0	0	30	4	5	0	0	0	0	0	0	0	0	10	0	0	20	0	0	0	60	4	0	0	3	125	3	0	0	0	0
208	1979	11	0	3	22	221	313	0	0	0	306	91	121	94	139	2	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	13	-98
208	1979	12	500	0	0	0	0	0	0	0	0	0	28	0	0	0	0	0	0	5	37	7	3	18	67	104	42	0	8	0	0	0	3
208	1980	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	1	0	5	0	127	711	682
208	1980	2	618	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	-98	-98
208	1980	3	10	251	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	313	22	0	
208	1980	4	0	0	0	0	0	0	0	2	34	0	0	16	33	248	4	9	231	559	166	154	27	2	0	0	57	0	0	0	0	0	-98
208	1980	5	323	796	410	169	209	294	39	41	14	7	128	6	471	62	31	97	267	4	0	0	0	33	134	1	2	7	2	0	439	238	10
208	1980	6	0	0	0	0	0	27	10	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	146	0	2	0	0	0	52	10	-98
208	1980	7	0	0	0	0	0	0	0	3	5	2	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	13	2	0	0
208	1980	8	4	0	0	0	7	18	6	108	2	0	0	0	31	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0
208	1980	9	0	0	0	24	1	0	0	0	0	0	1	0	0	229	0	0	0	0	0	0	0	0	34	0	0	0	0	0	0	0	-98
208	1980	10	0	0	0	0	0	0	1	153	0	0	0	29	0	0	0	0	0	10	2	0	0	0	0	0	0	0	6	58	0	0	0
208	1980	11	0	22	147	291	49	0	257	23	30	2	42	0	63	4	314	532	302	0	182	21	91	59	27	10	0	0	84	0	0	0	-98
208	1980	12	0	0	0	0	204	196	53	99	0	0	0	2	59	0	0	0	5	119	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1981	1	0	0	10	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0
208	1981	2	0	0	0	0	0	0	0	0	15	0	0	39	0	3	10	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1981	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8	2	12	96	43	149	481	25	10	54	47	80	0	84	132	14
208	1981	4	347	15	202	62	227	60	0	2	11	587	302	159	456	11	1283	48	351	64	0	0	0	24	0	-99	4	60	0	2	0	783	-98
208	1981	5	5	42	38	34	0	69	459	263	185	1	0	15	120	587	7	50	2	0	63	59	0	0	0	0	2	0	0	0	0	134	2
208	1981	6	0	4	0	0	36	0	12	0	2	1	5	0	0	0	0	0	3	0	0	0	0	0	0	0	38	3	0	1	0	0	-98
208	1981	7	0	0	0	0	0	0	0	0	0	1	18	20	2	23	2	0	4	2	0	0	0	0	0	0	0	15	0	0	93	0	0
208	1981	8	0	0	0	1	34	0	7	0	0	0	0	0	0	0	0	0	0	0	3	0	0	7	11	8	0	0	0	0	132	0	6
208	1981	9	0	0	0	0	5	0	0	0	0	0	0	24	32	0	0	0	0	0	61	89	-99	0	100	23	0	0	318	-99	-99	0	-98
208	1981	10	0	0	0	0	0	0	0	128	0	0	0	0	0	0	0	0	0	0	92	46	0	4	0	6	172	146	85	8	0	0	0
208	1981	11	0	0	0	0	0	0	0	0	0	0	12	23	23	77	7	6	0	25	83	0	0	0	0	0	2	2	0	0	0	0	-98
208	1981	12	0	0	0	0	321	26	8	0	0	0	0	0	4	0	39	4	70	5	0	0	0	10	53	41	0	0	0	0	0	0	0
208	1982	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
208	1982	2	0	0	0	0	0	0	0	0	0	0	0	0	16	114	4	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1982	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	84	0	0	0	0	0	0	0	111	218	39	45	
208	1982	4	13	6	6	106	0	5	45	103	12	1	0	0	0	0	0	150	0	85	14	7	15	0	112	583	0	661	4	462	16	12	-98
208	1982	5	13	8	42	338	53	44	62	125	72	23	266	2	68	61	29	4	102	0	38	300	1	18	0	56	21	614	67	1	4	0	0
208	1982	6	5	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	4	62	0	0	0	52	5	0	10	3	1	0	0	0	-98
208	1982	7	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	3	19	3	36	0	198	2	0	0	0	0
208	1982	8	23	0	0	0	0	0	13	39	0	0	0	0	0	3	4	0	4	0	0	0	0	1	0	0	0	9	0	13	1	0	0
208	1982	9	0	0	0	0	0	0	0	0	0	0	0	0	9	277	2	2	0	0	30	0	0	12	14	0	51	0	0	17	1	0	-98
208	1982	10	0	0	0	0	0	133	0	0	0	16	72	119	30	6	21	49	65	319	59	92	61	0	83	43	0	0	0	140	9	81	2
208	1982	11	303	24	0	0	0	0	0	182	16	0	42	0	210	111	89	6	139	56	14	0	0	0	106	150	129	135	190	184	26	224	-98
208	1982	12	82	175	650	83	0	6	31	0	29	44	0	8	14	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
208	1983	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1983	2	0	117	1	0	0	0	0	0	0	0	518	6	50	363	0	0	121	185	403	43	0	0	0	0	0	0	0	0	-98	-98	-98
208	1983	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	2	479	19	0	0	0	30
208	1983	5	30	20	0	13	0	46	6	1	114	4	0	41	1	0	0	94	19	0	0	0	0	2	25	4	28	0	0	0	10	0	0
208	1983	6	0	0	0	350	17	4	0	0	0	0	0	0	0	2	0	0	0	0	34	13	13	9	1	0	0	17	0	59	6	0	-98
208	1983	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	127	34	0	0	0	0	0	0	0	2	0	1	11	0	2	0	0
208	1983	8	0	0	0	0	0	0	0	0	0	108	0	0	0	25	0	0	0	20	0	67	94	8	1	0	0	0	0	0	8	78	2
208	1983	9	0	0	0	0	0	0	0	3	30	1	0	2	0	0	0	37	16	9	1	0	0	0	0	0	0	0	0	0	0	0	-98
208	1983	10	0	8	223	18	12	6	0	17	111	0	0	0	0	23	13	0	0	0	0	0	0	88	0	0	0	0	0	0	0	0	8
208	1983	11	17	10	43	3	78	0	8	0	0	0	0	0	53	0	0	0	0	0	0	26	0	0	0	97	0	0	0	5	0	2	-98

208	1983	12	0	5	0	65	91	129	54	0	0	0	0	0	0	0	0	0	322	0	320	0	158	95	1088	493	8	292	87	0	0	0
208	1984	1	0	0	0	0	0	0	0	0	9	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
208	1984	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	-98	-98
208	1984	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	23	99	0	0	0	0	0	0	0	0	23	10	0	12	0	0
208	1984	4	0	0	0	0	0	0	0	10	6	9	87	0	0	3	0	134	1	0	0	0	0	0	1	209	28	15	10	7	0	28	-98
208	1984	5	0	0	0	0	28	7	7	0	0	0	0	0	0	0	0	0	0	10	4	0	0	0	0	0	0	0	0	0	0	41	0
208	1984	6	0	0	0	2	0	0	0	0	30	10	0	0	0	0	15	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	-98
208	1984	7	0	0	0	0	0	0	0	0	0	0	4	0	2	3	0	0	0	0	0	41	155	25	0	4	0	0	0	0	0	0	0
208	1984	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	0	122	0	0	0
208	1984	9	43	10	0	57	0	0	0	0	0	0	0	0	29	57	1	0	0	0	0	2	0	0	0	0	0	0	28	16	0	0	-98
208	1984	10	0	0	0	0	410	69	110	216	43	37	29	0	0	0	0	15	0	0	9	2	79	46	373	75	158	155	0	0	3	0	27
208	1984	11	46	12	0	18	131	93	230	51	0	91	7	34	74	52	163	0	13	0	0	27	68	0	0	17	0	35	66	63	15	20	-98
208	1984	12	76	63	0	0	0	0	16	18	14	61	339	15	0	0	0	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0
208	1985	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1985	2	0	189	236	0	86	4	71	25	89	55	94	17	0	0	0	0	0	7	0	0	0	0	0	0	0	0	15	53	-98	-98	-98
208	1985	3	3	0	0	0	0	8	0	0	0	0	0	0	0	0	0	12	10	58	264	10	26	77	114	0	0	5	449	497	0	17	164
208	1985	4	0	15	8	9	93	0	0	0	198	46	10	61	78	260	165	351	195	11	0	40	99	0	0	0	78	24	0	0	70	190	-98
208	1985	5	158	4	153	9	14	8	7	21	94	1	0	108	1	31	84	20	2	58	5	0	0	0	25	0	0	1	0	0	0	0	0
208	1985	6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	114	11	10	24	2	0	0	0	0	0	0	0	0	0	-98
208	1985	7	0	0	0	6	1	35	20	0	0	2	0	222	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	8
208	1985	8	11	0	0	12	0	0	0	18	13	0	5	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	14	8	0	0
208	1985	9	52	3	0	0	223	0	0	47	8	2	0	0	0	0	0	0	0	5	0	27	0	3	0	0	0	3	0	0	0	0	-98
208	1985	10	0	0	1	0	0	0	4	0	97	89	0	0	0	0	14	20	2	2	33	4	0	79	54	10	0	2	0	6	0	0	4
208	1985	11	0	1	36	4	233	159	220	105	67	21	228	10	0	0	0	0	68	74	13	0	56	47	2	9	0	2	6	1	0	17	-98
208	1985	12	45	94	24	4	37	9	30	0	10	156	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	232	0	0	0	0
208	1986	1	0	0	0	0	0	0	4	0	41	0	0	3	7	0	0	0	0	0	0	0	8	1	0	0	0	0	0	0	0	0	0
208	1986	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1986	3	0	0	0	12	0	83	1	38	16	0	0	0	0	0	0	13	139	0	0	81	1	3	0	0	0	94	6	0	108	33	0
208	1986	4	26	0	0	0	0	244	14	145	410	387	0	7	157	4	0	5	8	0	5	2	26	103	105	75	1	105	91	167	170	120	-98
208	1986	5	18	43	120	2	9	671	877	54	4	0	0	0	72	0	0	0	10	6	66	40	90	181	355	23	373	0	19	5	44	72	0
208	1986	6	75	14	0	0	0	0	0	0	0	0	0	0	39	4	10	36	6	5	0	0	0	22	0	0	2	0	0	0	6	76	-98
208	1986	7	3	0	2	0	0	0	0	0	0	0	0	35	3	0	0	1	0	0	0	0	0	0	0	0	2	0	1	0	5	0	0
208	1986	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	3	0	0	0	10
208	1986	9	0	0	0	3	5	0	0	0	29	0	0	0	0	0	1	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	-98
208	1986	10	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	33	0	0	0	38	107	52	0	55	0	0	3	0	112
208	1986	11	48	25	53	42	175	0	1	0	3	324	281	31	62	90	0	12	49	0	5	0	302	220	20	33	13	76	4	770	99	5	-98
208	1986	12	126	7	2	4	267	320	8	0	3	11	2	0	0	0	0	10	3	0	44	2	0	0	0	6	0	0	0	0	0	0	0
208	1987	1	0	221	138	70	220	0	0	2	0	0	0	0	0	137	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1987	2	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	800	2	0	3	0	0	0	0	0	0	-98	-98	-98
208	1987	3	0	0	0	0	0	0	0	0	1	62	0	0	0	0	76	0	0	1	14	0	0	0	0	0	0	0	0	0	0	0	0
208	1987	4	0	0	0	0	324	338	357	138	53	5	108	12	236	4	0	0	0	239	6	190	21	50	0	9	51	71	0	0	0	0	-98
208	1987	5	735	9	0	22	0	0	14	174	108	153	0	12	0	0	0	7	1	33	10	0	6	0	33	67	0	20	27	0	0	19	0
208	1987	6	13	20	2	2	371	69	104	0	0	26	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	28	233	5	-98
208	1987	7	33	7	0	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0
208	1987	8	0	0	0	0	0	0	0	9	56	35	0	13	13	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1987	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	122	50	0	0	0	0	0	-98
208	1987	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	38	0	0	0	0	0	0	0	0
208	1987	11	0	0	0	166	9	9	21	12	0	2	589	55	366	0	95	0	0	0	8	0	0	300	84	0	0	0	0	31	7	5	-98
208	1987	12	0	35	107	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1988	1	0	0	0	31	0	11	26	0	114	6	0	0	0	0	4	276	494	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1988	2	0	104	0	0	0	0	0	0	49	0	0	0	0	0	0	0	0	0	0	4	44	0	0	0	4	0	0	0	0	-98	-98
208	1988	3	0	0	30	20	41	0	0	0	7	66	0	0	0	0	6	0	0	33	82	139	140	0	155	708	0	108	124	61	0	0	0
208	1988	4	200	7	50	41	282	93	0	168	207	0	47	7	0	0	408	141	62	17	112	215	0	638	521	72	507	305	0	140	426	0	-98
208	1988	5	259	151	0	0	146	274	536	418	0	50	70	0	0	0	0	43	177	43	75	176	34	0	0	0	0	7	0	0	0	0	0
208	1988	6	0	2	0	0	0	0	0	26	4	20	0	269	63	0	0	0	19	13	0	0	0	0	0	57	4	0	0	0	0	32	-98
208	1988	7	0	0	0	0	9	0	0	0	0	0	0	0	0	136	20	0	0	0	0	0	0	15	0	0	0	0	0	0	7	0	0
208	1988	8	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	172	34	0	0	10	17	24	0	0	0	21	190	0	0

208	1988	9	8	16	0	0	0	3	0	0	0	0	0	0	1	0	0	18	0	202	0	0	0	3	5	9	3	3	0	0	0	0	-98
208	1988	10	45	0	0	31	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69	2	0	0	0	0	13	0
208	1988	11	0	12	40	0	54	96	16	13	71	215	8	0	0	22	44	12	14	29	0	52	306	35	0	0	0	0	0	0	0	0	-98
208	1988	12	2	0	0	0	0	0	0	42	83	52	45	0	0	0	0	0	0	34	36	231	194	131	0	11	287	0	131	26	51	0	0
208	1989	2	0	0	0	59	60	161	8	80	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1989	3	0	0	0	0	0	0	0	0	0	0	0	128	103	21	0	0	17	110	106	65	309	0	0	0	3	0	0	22	0	57	0
208	1989	4	24	31	4	245	0	482	71	121	120	0	8	3	7	5	0	2	0	0	102	0	0	0	80	285	298	4	142	16	40	9	-98
208	1989	5	12	0	0	0	9	149	866	160	443	20	567	489	191	81	67	0	115	1582	0	9	12	0	0	7	0	70	17	97	5	0	0
208	1989	6	8	0	246	0	2	0	0	0	0	0	1	0	11	0	0	0	1	1	0	0	0	0	4	0	0	0	1	0	0	0	-98
208	1989	7	3	2	22	0	0	99	98	16	0	0	0	5	23	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	2	0	
208	1989	8	0	0	6	0	59	57	0	0	0	58	0	0	8	0	0	20	18	0	0	0	0	0	0	0	0	0	21	0	5	0	0
208	1989	9	6	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	8	47	425	119	0	0	146	0	71	24	0	58	0	0	-98
208	1989	10	0	0	0	0	2	14	38	16	2	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	57	3	140	164	103	208	82
208	1989	11	0	0	0	0	0	0	0	17	237	28	0	0	11	23	0	7	89	0	31	106	3	108	117	0	0	110	3	11	73	55	-98
208	1989	12	20	99	14	0	0	16	9	173	85	47	0	18	0	0	0	0	0	0	0	0	38	55	152	41	0	429	127	0	3	140	394
208	1990	1	5	357	9	5	5	0	0	0	0	112	0	0	0	0	0	0	2	0	0	21	0	0	0	0	0	0	0	0	0	0	0
208	1990	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	281	0	13	0	0	164	0	0	-98	-98	-98
208	1990	3	10	2	0	225	35	89	209	232	64	21	9	6	375	555	2	7	71	35	24	43	0	71	48	0	44	0	5	0	0	8	7
208	1990	4	204	477	24	86	389	5	30	6	85	27	2	61	0	22	0	620	34	15	0	0	62	406	46	109	0	19	100	0	0	13	-98
208	1990	5	0	0	0	0	0	24	224	78	520	0	0	900	70	253	0	0	0	0	0	7	33	656	15	96	83	104	8	6	20	0	0
208	1990	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	31	5	0	0	0	0	0	28	-98
208	1990	7	0	0	3	3	0	5	2	0	0	0	0	0	0	0	97	0	0	0	0	11	7	0	6	2	0	0	0	0	0	0	0
208	1990	8	0	0	0	0	0	0	0	0	0	5	0	0	0	1	8	8	0	0	0	2	3	0	0	0	0	0	0	0	0	48	135
208	1990	9	30	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	33	0	0	0	0	0	0	0	0	0	34	226	-98
208	1990	11	20	22	114	12	0	0	309	38	0	0	4	124	63	135	65	139	96	26	10	0	0	0	0	0	0	0	36	27	20	0	-98
208	1990	12	0	17	51	42	29	0	28	16	0	9	232	45	47	30	50	0	25	16	0	0	0	0	0	0	0	0	0	0	0	0	124
208	1991	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	58	232	20	0	0
208	1991	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	-98	-98	-98
208	1991	3	0	0	0	0	0	0	0	0	0	17	0	0	16	11	0	0	0	0	0	0	0	0	0	29	402	224	11	73	14	0	0
208	1991	4	0	45	145	7	4	60	0	0	0	0	0	0	10	6	29	0	2	36	0	241	26	125	4	21	0	21	0	524	228	49	-98
208	1991	5	38	35	10	0	0	9	15	23	0	14	233	402	457	63	93	44	168	195	199	32	83	11	319	16	4	6	92	19	150	0	95
208	1991	6	0	0	0	8	0	0	6	0	0	0	0	0	0	2	64	18	0	0	26	0	0	0	0	0	0	0	0	0	0	1	-98
208	1991	7	0	0	10	0	7	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	94	4	0	0	0	0	0
208	1991	8	0	0	0	0	0	0	0	0	0	92	137	145	16	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
208	1991	9	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	13	0	0	0	0	0	0	-98
208	1991	10	0	0	0	0	0	0	0	8	0	0	7	0	0	31	16	55	0	0	0	0	31	52	0	0	0	16	0	0	0	0	0
208	1991	11	4	48	0	29	0	0	0	0	25	51	42	78	8	0	42	89	101	5	116	25	120	665	410	10	32	35	47	9	0	0	-98
208	1991	12	7	0	0	2	0	41	38	29	40	70	13	0	0	0	0	0	0	0	162	35	0	0	46	0	0	24	0	0	0	0	0
208	1992	1	0	0	0	0	0	0	3	0	0	0	0	6	0	0	39	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1992	2	0	0	0	0	468	0	0	0	234	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98
208	1992	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	26	0	0	0	0	0	0	0	3	2
208	1992	4	20	507	24	0	23	51	405	374	160	363	0	0	0	0	0	0	0	168	0	178	145	0	0	17	0	605	128	452	82	307	-98
208	1992	5	279	1334	89	8	0	0	0	0	0	11	0	0	83	44	185	35	0	0	0	19	0	0	0	0	0	0	0	0	65	13	0
208	1992	6	0	0	0	29	25	0	0	0	0	0	0	12	30	51	23	2	0	0	0	24	10	0	0	0	0	0	0	0	0	0	-98
208	1992	7	25	147	119	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1992	8	0	0	0	0	0	0	0	0	7	0	0	0	0	0	16	6	1	0	0	0	0	0	4	0	4	0	0	0	0	0	0
208	1992	9	0	0	0	0	0	0	0	18	0	12	116	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	-98
208	1992	10	0	12	20	65	0	0	0	0	0	0	0	42	0	0	6	0	97	65	0	0	0	0	0	0	0	0	210	81	59	0	48
208	1992	11	6	23	247	75	58	55	0	2	22	0	13	24	2	65	0	330	0	0	0	0	0	0	0	4	55	0	0	13	62	70	-98
208	1992	12	12	0	0	0	2	12	76	43	29	136	11	3	35	0	0	324	40	7	0	0	0	0	3	0	0	0	0	0	27	38	72
208	1993	1	108	4	0	0	27	198	277	0	28	0	32	20	67	8	174	0	86	166	38	423	27	0	0	0	148	83	5	7	62	13	0
208	1993	2	5	0	0	0	0	12	0	223	0	152	36	0	0	0	0	0	0	0	0	0	0	0	0	103	0	0	0	0	-98	-98	-98
208	1993	3	0	0	0	0	0	0	0	163	0	0	0	295	0	0	0	0	0	0	0	0	0	6	3	0	0	0	0	2	0	125	20
208	1993	4	0	0	0	0	0	50	0	0	0	0	27	0	24	20	38	62	9	19	0	0	0	0	2	10	0	0	1	0	0	197	-98
208	1993	5	70	0	4	6	0	42	2	164	0	0	2	8	0	38	16	2	0	30	0	0	4	0	23	0	0	0	0	0	0	0	3
208	1993	6	0	0	0	310	13	0	0	11	81	147	10	5	2	3	0	0	0	0	0	0	0	0	0	0	0	0	15	14	0	0	-98
208	1993	7	0	0	0	0	0	0	0	0	0	0	0	0	8	1	0	0	3	0	0	19	4	0	0	0	0	0	0	0	0	0	0

208	1993	8	0	0	0	0	0	13	3	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
208	1993	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
208	1993	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	0	0	48	96
208	1993	11	35	501	0	0	5	0	56	43	18	3	0	0	0	0	17	59	1	0	12	33	136	7	0	0	38	37	2	16	65	4	-98
208	1993	12	113	1	0	64	574	801	1	0	0	0	0	116	17	11	2	0	72	0	0	0	0	0	8	0	2	9	7	0	0	0	0
208	1994	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	44	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1994	2	0	0	0	0	0	0	0	0	0	0	56	167	38	10	52	30	2	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1994	3	0	0	0	3	118	0	0	0	0	0	0	0	0	99	26	0	15	0	0	0	0	9	175	11	0	58	9	40	0	0	0
208	1994	4	0	0	0	0	5	168	0	211	0	0	44	0	124	21	197	0	188	0	0	0	232	0	382	480	145	99	2	0	0	74	-98
208	1994	5	22	0	25	11	0	12	41	0	0	0	89	26	4	133	204	31	58	0	106	108	0	0	0	12	30	0	0	10	0	0	0
208	1994	6	0	0	0	0	0	0	0	12	205	21	0	0	0	0	1	10	0	0	0	0	0	30	0	0	0	0	0	40	0	125	-98
208	1994	7	3	6	32	0	0	6	0	0	0	0	0	92	2	0	34	0	0	0	0	2	7	0	0	0	0	4	7	0	0	0	0
208	1994	8	0	17	0	0	0	0	0	0	0	42	0	0	0	245	25	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1994	9	0	0	0	0	2	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	-98
208	1994	10	0	0	0	0	0	0	7	0	0	0	0	272	256	32	0	0	3	61	18	0	15	125	84	4	0	0	0	0	0	1	0
208	1994	11	0	2	0	531	135	91	24	405	12	324	183	62	270	94	195	222	13	0	0	0	378	0	0	0	0	39	0	20	11	3	-98
208	1994	12	62	3	0	46	216	34	131	67	3	5	0	0	6	0	0	0	0	0	0	0	0	0	74	0	0	0	0	0	0	0	0
208	1995	1	0	78	0	0	0	0	0	0	0	0	3	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1995	2	0	0	0	0	0	0	0	113	105	408	53	0	0	58	137	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1995	3	0	458	335	2	29	0	0	151	0	0	0	0	0	304	0	0	0	0	0	0	3	40	155	86	23	0	60	0	0	10	0
208	1995	4	0	2	18	24	231	0	0	0	12	113	86	2	0	0	0	0	0	0	235	72	10	0	0	0	53	100	444	47	858	286	-98
208	1995	5	252	52	119	24	0	760	5	227	45	0	0	132	0	64	273	71	53	55	19	0	0	2	0	0	6	154	0	20	103	5	3
208	1995	6	0	12	227	0	326	0	0	0	0	0	0	0	0	0	221	120	0	0	0	0	0	0	0	0	11	0	23	36	1	266	-98
208	1995	7	41	9	0	6	0	98	0	0	0	0	0	0	0	0	0	0	0	0	0	16	11	0	2	0	6	3	0	0	0	0	0
208	1995	9	0	0	4	19	155	0	0	0	145	26	21	0	5	0	0	0	0	0	0	0	0	1	0	0	138	0	0	0	0	0	-98
208	1995	10	0	9	61	6	69	0	53	0	0	0	0	0	0	0	9	0	0	0	5	0	0	10	198	0	168	230	0	104	299	308	28
208	1995	11	1	257	22	0	13	0	0	0	0	15	0	244	265	40	75	0	75	0	30	0	4	69	6	0	7	0	198	171	0	5	-98
208	1995	12	18	0	73	0	0	0	0	0	0	0	0	145	30	0	0	64	275	32	0	0	0	18	0	0	0	0	20	0	0	0	0
208	1996	1	0	0	0	0	0	0	0	0	0	15	16	0	0	0	0	0	0	0	0	22	74	2	0	0	0	0	0	0	0	0	0
208	1996	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	57	245	60	0	0	0	0	0	0	0	0	0	0	0	-98	-98
208	1996	3	0	0	0	104	0	0	0	0	9	29	0	0	0	51	0	0	0	0	67	120	11	45	0	0	9	367	0	142	10	0	137
208	1996	4	112	49	0	2	9	192	291	119	0	0	11	25	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	-98
208	1996	5	8	0	0	0	0	2	0	0	0	0	0	38	6	132	1	15	57	162	2	126	32	96	4	2	48	143	18	0	0	0	0
208	1996	6	0	0	18	121	0	0	0	77	35	28	33	30	112	49	0	0	0	0	0	0	0	0	0	10	0	2	0	0	0	0	-98
208	1996	7	0	0	25	0	0	65	0	3	0	0	24	101	8	5	92	25	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1996	8	0	0	0	0	0	0	0	0	0	0	0	0	7	60	0	0	0	0	0	234	3	0	0	0	8	52	0	0	0	2	0
208	1996	9	223	10	10	0	0	0	0	55	0	0	0	0	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
208	1996	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0
208	1996	11	116	12	108	196	16	10	36	28	42	19	127	235	17	89	63	0	0	0	348	60	242	0	0	137	32	46	26	85	0	7	-98
208	1996	12	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0
208	1997	1	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1997	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98	-98
208	1997	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	20	0	0	0	0	0	187	77	0
208	1997	4	0	87	486	500	388	79	14	210	10	278	117	688	113	0	0	1	0	0	0	1010	350	186	294	104	192	0	11	8	128	158	-98
208	1997	5	101	0	104	107	123	233	0	0	22	15	79	0	0	58	47	7	0	0	0	0	44	25	52	40	0	0	0	0	0	0	4
208	1997	6	0	0	0	0	13	0	0	0	44	0	0	0	0	85	0	9	2	0	7	0	13	0	0	0	0	0	0	51	5	2	-98
208	1997	7	0	0	4	0	0	0	14	7	6	27	3	0	0	0	0	0	0	0	0	0	0	0	33	121	0	0	0	0	0	0	0
208	1997	8	0	0	10	180	0	0	0	0	0	4	0	0	0	10	20	15	0	0	0	0	0	615	0	0	0	0	0	0	0	0	0
208	1997	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
208	1997	10	124	75	67	447	113	155	269	10	0	4	0	22	28	0	257	162	21	15	136	0	14	152	0	141	141	205	72	147	144	308	0
208	1997	11	124	75	67	447	113	155	269	10	0	4	0	22	28	0	257	162	21	15	136	0	14	152	0	0	141	205	72	147	144	308	-98
208	1997	12	3	61	113	135	42	687	62	153	0	118	0	58	32	3	0	23	0	135	0	0	0	92	0	112	102	68	134	63	0	2	0
208	1998	1	98	63	20	0	0	73	103	24	70	69	419	36	62	553	770	568	13	6	37	0	0	0	0	0	0	0	84	78	9	0	0
208	1998	2	0	0	0	0	0	21	10	0	307	85	131	48	124	140	59	139	0	0	174	133	0	0	0	0	0	0	0	0	-98	-98	-98
208	1998	3	0	0	0	0	0	0	0	110	6	0	0	0	0	0	0	0	0	0	0	135	124	221	14	270	70	20	0	36	6	0	1
208	1998	4	0	0	75	155	150	47	0	0	41	0	306	62	16	25	0	0	45	12	0	55	1	5	2	1	169	0	4	96	12	239	-98
208	1998	5	258	72	14	163	32	64	127	315	166	1	174	58	0	35	70	205	5	0	0	0	260	90	96	0	19	142	857	44	0	0	0

208	1998	6	0	0	0	0	267	0	0	350	0	0	0	0	0	3	3	0	0	4	4	0	0	0	0	0	0	0	0	0	0	-98
208	1998	7	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	198	12	0	0	0	0	0	0	10	0
208	1998	8	0	0	0	0	0	0	0	3	0	0	0	0	0	0	27	9	0	0	6	0	0	0	0	102	66	0	0	0	0	0
208	1998	9	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	6	11	0	0	0	0	0	0	0	0	0	0	308	0	0	-98
208	1998	10	0	43	470	0	0	0	0	0	14	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1998	11	94	0	0	10	0	0	149	33	10	0	0	0	0	27	0	0	63	105	15	30	0	22	0	0	0	17	0	0	34	12	-98
208	1998	12	0	0	0	0	1	37	0	0	0	0	0	0	0	0	0	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0
208	1999	1	0	0	0	0	0	0	0	0	138	0	0	0	0	0	14	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0
208	1999	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	3	0	0	0	0	0	0	-98	-98	-98
208	1999	3	0	0	0	0	0	0	0	0	97	57	97	320	143	237	48	0	25	27	0	0	0	0	0	0	21	182	92	125	0	40	289
208	1999	4	10	0	370	39	25	60	0	265	50	10	0	0	0	0	0	0	0	30	415	5	2	0	45	0	0	0	0	47	6	127	-98
208	1999	5	20	0	0	0	0	71	10	0	0	13	8	0	8	0	9	24	148	0	0	0	0	0	0	0	0	0	0	1	0	0	0
208	1999	6	0	6	0	0	0	0	0	7	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
208	1999	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	5	0	0	0	0	4	7	0	0	0	0	0	27	0	0
208	1999	8	0	0	0	0	3	0	0	0	0	0	0	0	0	0	17	12	0	8	0	1	0	0	0	120	20	0	0	0	0	92	23
208	1999	9	10	0	0	0	0	0	7	0	0	0	0	216	0	0	0	10	0	0	14	0	0	0	0	0	0	0	0	0	4	0	-98
208	1999	10	2	0	0	0	0	0	44	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	48	0	0	0
208	1999	11	71	0	0	0	0	312	112	74	4	122	35	246	114	110	44	10	213	31	120	34	106	29	11	16	242	41	118	51	187	1076	-98
208	1999	12	872	500	0	193	6	100	83	22	0	0	0	0	0	0	0	0	0	38	9	149	12	28	44	7	0	20	159	38	0	0	0
208	2000	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	0	0	0	0	0	0	0	0	0
208	2000	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98	-98
208	2000	3	14	0	0	0	0	0	0	0	0	0	0	0	0	148	0	120	0	0	0	0	0	0	0	0	81	0	11	0	0	43	0
208	2000	4	94	0	0	830	98	18	3	12	15	0	13	0	0	0	0	0	0	0	0	0	0	254	582	625	0	0	0	0	0	0	-98
208	2000	5	0	0	0	0	0	50	0	272	313	1	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	75	240	0	0	0	0
208	2000	6	0	0	0	1	0	0	0	0	0	0	227	8	9	9	0	79	1	17	228	0	0	0	0	0	0	0	0	0	0	0	-98
208	2000	7	0	0	4	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	10	9	6	0	0	0	0	10	0
208	2000	8	0	0	0	0	42	0	0	0	0	0	0	0	0	8	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	2000	9	0	0	0	0	0	0	33	0	0	0	0	0	108	0	0	0	0	0	40	8	4	0	2	0	0	0	340	0	0	0	-98
208	2000	10	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	15	54	81	30	0	0	0	0	0	0	0	0	0	0	0
208	2000	11	38	0	37	56	75	125	0	0	0	12	10	34	23	98	16	15	190	46	6	460	530	10	7	7	32	26	0	7	17	0	-98
208	2000	12	0	0	0	0	0	0	22	0	90	97	203	0	0	0	15	380	225	1	0	8	23	0	0	0	0	0	0	49	0	0	0
208	2001	1	0	0	60	389	0	221	142	435	170	270	0	257	1030	0	0	0	0	0	0	0	5	0	373	21	224	52	23	11	33	0	0
208	2001	2	0	0	0	0	0	0	0	6	0	7	14	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	-98	-98	-98
208	2001	3	0	0	0	0	155	478	2	0	0	0	0	107	30	0	0	0	5	0	7	0	0	0	0	47	140	234	276	0	153	32	137
208	2001	4	2	0	0	0	6	11	75	92	60	0	0	0	0	0	18	0	0	0	74	11	330	3	0	40	30	0	0	270	27	16	-98
208	2001	5	0	370	90	10	0	5	1	0	0	0	105	20	121	0	11	0	0	0	0	0	0	0	0	0	0	0	112	12	0	0	0
208	2001	6	3	0	0	0	205	540	0	0	0	0	0	0	0	0	0	0	0	1	0	0	8	5	0	0	0	0	32	0	0	0	-98
208	2001	7	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	46	5	82	0	0	0	12	8	0	0	3	1
208	2001	8	6	4	0	0	0	0	0	33	0	0	0	190	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	2001	9	0	0	0	0	0	0	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
208	2001	10	1	41	2	761	0	93	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	23	7	
208	2001	11	197	42	74	588	94	78	0	0	68	0	0	50	145	120	24	7	62	0	0	0	71	32	0	0	93	43	29	0	0	78	-98
208	2001	12	0	0	0	0	0	0	0	12	8	0	51	18	9	33	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
208	2002	1	0	0	0	0	24	0	0	0	0	0	0	0	258	113	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	2002	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	0	0	0	0	0	0	0	11	0	240	110	283	0	-98	-98	-98
208	2002	3	2	161	165	8	60	10	0	0	30	330	0	0	0	0	0	0	0	4	2	62	1	0	12	0	0	0	0	0	0	0	55
208	2002	4	4	31	0	0	0	0	0	0	2	58	154	0	46	0	103	98	60	0	86	60	180	461	14	57	51	0	225	294	770	33	-98
208	2002	5	131	117	40	155	74	79	109	11	130	80	46	185	53	0	0	7	106	0	0	2	18	0	0	0	0	0	0	0	0	0	0
208	2002	6	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
208	2002	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	5	0	0	28
208	2002	8	0	0	8	0	0	0	0	0	0	0	17	0	1	3	0	0	0	0	0	5	0	0	0	23	0	0	0	5	0	0	2
208	2002	9	7	0	0	0	0	0	31	0	0	0	0	0	0	0	0	0	185	0	0	0	0	0	0	0	0	0	0	0	0	0	-98
208	2002	10	0	69	0	0	0	0	0	0	0	60	0	0	0	0	3	0	0	0	0	0	0	167	194	30	0	25	1	0	28	9	4
208	2002	11	132	0	12	11	44	165	100	0	0	0	0	26	339	150	82	142	282	0	17	0	0	5	0	0	0	0	7	4	56	0	-98
208	2002	12	0	64	142	210	35	142	0	0	18	4	0	27	0	44	0	0	0	0	132	62	580	29	0	157	143	4	179	291	0	11	35
208	2003	1	21	0	0	3	255	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
208	2003	2	0	0	0	0	29	4	0	0	0	20	18	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	41	-98	-98	-98

208	2003	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	26	0	0	289	30	96	0	0	0
208	2003	4	0	0	5	0	0	0	0	0	0	0	0	0	0	255	1	16	0	0	0	182	530	170	259	0	0	0	335	55	46	338	-98
208	2003	5	21	0	0	3	255	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
208	2003	6	0	0	0	0	0	46	0	30	209	0	0	0	0	0	0	0	0	0	0	0	0	9	3	0	4	1	0	0	0	0	-98
208	2003	7	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	10	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
208	2003	8	0	2	4	5	17	6	0	0	4	0	0	13	0	0	40	1	50	0	0	2	9	12	4	0	7	324	43	0	0	0	0
208	2003	9	2	17	0	0	0	0	0	0	0	0	140	0	0	110	0	0	8	0	0	0	0	0	0	0	0	0	1	0	0	0	-98
208	2003	10	12	0	0	0	0	0	0	0	0	0	0	60	0	0	0	0	0	0	0	0	0	0	0	63	33	50	0	44	8	241	36
208	2003	11	0	198	35	48	119	21	0	0	0	0	0	0	150	147	0	0	0	0	0	236	99	55	0	49	0	0	5	1	8	0	-98
208	2003	12	34	0	0	14	0	0	4	80	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
208	2004	1	0	0	19	7	6	0	1	0	0	0	0	0	0	79	1294	63	0	0	0	0	0	0	340	86	0	0	0	0	0	0	0
208	2004	2	50	45	7	13	0	0	0	120	40	0	0	0	0	0	11	104	0	0	0	0	0	63	0	0	0	0	0	0	0	-98	-98
208	2004	3	0	0	0	0	0	0	0	0	0	120	292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	148	2	0	18
208	2004	4	5	0	21	0	216	26	154	172	460	746	114	3	84	8	0	0	0	0	0	0	214	0	42	248	275	292	170	29	262	575	-98
208	2004	5	133	1188	339	20	70	0	0	0	3	53	0	0	0	0	0	0	68	0	0	0	0	0	0	0	0	9	0	0	0	30	0
208	2004	6	0	0	0	0	0	3	0	22	0	0	0	0	0	0	12	1	0	0	0	0	0	0	0	0	0	0	23	43	0	0	-98
208	2004	7	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	51	0	0	5	0	0	0	0	0	0	0
208	2004	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	2004	9	0	0	0	0	0	0	0	0	0	0	0	0	22	14	6	0	7	0	0	0	0	0	0	0	0	16	84	12	0	0	-98
208	2004	10	11	0	0	0	0	0	0	0	0	0	0	0	0	12	0	71	0	40	71	0	3	24	356	95	14	92	0	24	7	0	0
208	2004	11	0	0	73	22	67	127	7	154	4	0	0	117	25	32	0	18	39	11	0	0	5	185	12	262	16	0	0	0	0	8	-98
208	2004	12	16	0	0	0	8	35	134	37	83	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	255	5	0

28.3 RECORDS OF THE STAKEHOLDERS MEETING

28.3.1 Minutes of Meeting of the Fourth Stakeholders Meeting

Minutes of Meeting of the Fourth Stakeholder Meeting

Place: Kenya Science Teachers Collage
Time and Date: 27th May, 2005

Opening Ceremony'

Eng. S. M. Ngare of the Ministry of Roads and Public Works presided over the opening ceremony, and Mrs. Ngethe, Deputy Town Clerk of Nairobi City Council, opened the meeting.

Session I

Eng. S. M. Ngare stated the purpose of the missing link improvement project was to care traffic congestion and to identify the missing links, which discussed during the past three stakeholder meetings, held in November 2004, February and March 2005. JICA Study Team then presented the "Outline of the Missing Link Improvement Project" containing the basic design concept and general considerations as follows:

1) Outline of the Missing Link Improvement Project by Mr. T. Toda;
2) Result of IEE presented by Mr. S. Minato;

Session II

Eng. S.M. Ngare chaired the Plenary Session for discussions on the Missing Link Improvement Project as participants raised queries and comments as follows:

1) He stated that while he works for TelCom Kenya he is a local resident. He made comments earlier in response to the newspaper advertisement that the maintenance of the road of the section, which is No.7, is necessary and is happy to hear that the project is under consideration for construction. Missing Link No.7 is poorly maintained especially on drainage. Slum development and kiosks should be removed as soon as possible. On the other hand, a plan to cooperate with TelCom Kenya for service duct is not well considered. This has to be incorporated in the project.

2) From the Survey Office point of view, relocation of the local people should be carried out as soon as possible while their number should be as much smaller as possible. The same is true to land acquisition, which should be minimal. Current design of the road should take into account of other organizations, which use the road reserve for their services. For instance insertion of fibre-optic cable duct should be taken care of at the design stage, not digging the road once again after completion of the construction works.

3) Overloaded roads in Nairobi in the past was major concern. Opening of Missing Link No.3 and No.6 would cater for the large volume of traffic. Thus the advantage of the missing link improvement project has to be clear enough.

4) The Government of Kenya side responded as follows:
   a. Response by MoRPW: The above comments are noted. Other service providers are digging the road at present. Thus the study team will consider appropriate design. There is a mechanism to assure that the local residents subject to resettlement are carefully considered to incorporate into the study. Digital maps being used for not only missing link improvement project but also master plan as a whole will be made available. Therefore accuracy of design is much more assured than before.

   b. Representative of CCN: The issue of kiosk demolition will be carefully taken care of by giving appropriate notice to operators. Responding to the comments on other service providers, design works will undertake the portion of service duct. Other design flaws would also be taken care of during the design period.

   c. Representative of MOLH: The existing road reserves are used for the missing links and no permanent house relocation is necessary. Ministry will take care of the slum area removal and future development of it, which should be taken into account during the design works of road. Compensation will be done according to the laws and regulations of the country. Eng. S. M. Ngare also stated that the appropriate advance notice shall be issued. He also pointed out that the connection points to the existing road of the missing link roads would be another problem as facilities are not readily available on the existing road while the improved road would be facilitated with sidewalks and cycling ways.

5) We would like to hear the commitment from CCN and MoRPW at the moment especially for the maintenance point of view.

6) MoRPW responded that it is in the process of consultation with the appropriate authorities.

7) The study should take into account the national initiative for which NMT issues should be explicitly considered. At present foot bridge construction works are not adequate. I know it is expensive but characteristics of pedestrians should be studied and incorporated into the road design.

8) Jua Kali Sector's Programme is in operation at a section of No.7, where more than 300 families are operating different businesses. Thus those business establishments should be taken care of in

conjunction with the missing road improvement project. In the design, their resettlement area should be incorporated so as to be able to take care of them.

9) Industrial area and CBD should be catered for in the project. Land bridges and over-bridges are vital to de-congest the traffic in this area. Also, Uhuru Highway should particularly be taken care of with construction of fly-over at intersections. Roundabouts are no longer in function on Uhuru Haighway.

10) Study team's measure has to consider decongestion of the section between Westlands and CBD. For those coming from rural area to Nairobi, they spend approximately 1.5 hours from Westlands to the city centre.

11) Government of Kenya side responded as follows:

a. MoRPW responded that NMT facilities and footbridges are a part of our study. A foot bridge has been prepared between Nairobi Hospital and Kenyatta Hospital. Jua Kali sector should be taken care of – but there are a lot of participatory discussions necessary as the project design is carried out. Traffic to CBD is causing problem and Southern Bypass from Kikuyu to Langata should take care of the through traffic. Circulation of traffic within CBD is in the stage of detailed study by JICA Study Team.

b. CCN responded that there is a measure to control pedestrians going across the carriage way. Road barriers have been erected in places. Thereby forcing pedestrians use footbridge where it is built. Footbridges are short in number at present. Thus private companies are encouraged to construct foot bridges.

c. Representative of CCN also responded that there is a policy of informing the temporary kiosk operators when to move their units occupying the right of way.

d. MoRPW made a comment that final analysis on kiosks and service utilities and other issues on social dimension related to road development project should be taken into account in the future designs of road and citizens are involved at the design stage.

12) Safety signs and safe zones should be provided for pedestrians.

13) ISK: Matatu and parking areas in and perimeter of Nairobi should be considered.

14) Missing links have been one of the important issues. It should contribute to de-congest the present traffic.

15) Assist local people in the area of Serena Hotel in terms of safety.

16) Relocation of kiosks should be incorporated in the design.

17) The area around Serena Hotel is getting to be a kind of garbage dump.

18) Road design in the future should incorporate the kiosk structures in some strategic places.

19) There is no proper coordination between urban planners and physical designers. For instance, Ongata Longai was developed without road construction project and the road congestion to and from this area is very bad. This is one of the evidences. Also matatu stops are not properly placed and matatu drivers do not follow the rules and stop anywhere on the road ubiquitously – thus educate them to stop at designated matatu stops.

20) Government of Kenya side responded as follows:

a. MoRPW responded that the design should be completed in December 2005. Construction works are not committed at this stage but are looking into possibilities. Parking areas of matatu have been studied and incorporated into the JICA Study. Proposals for training of matatu drivers have been made as a part of the public transport issues. A proposal from the participants on restricting matatu in CBD is noted. Actual study area of JICA Study is "Metropolitan Area" and rural areas such as Limuru, Kikukyu, Thika, Athi River and Kangundo are taken into a part of study. Economists, Sociologist, and Environmentalist are also involved in the project design as a part of requirement.

b. Representative of CCN responded that there is land acquisition involved in the missing links.

c. CCN also responded that city engineers are aware of the issues raised here. In the case of land acquisition, title deed is an issue and the local residents should substantiate it. Kiosk owners can visit Director of City Planning and have a look at the plan of resettlement for kiosks.

d. MOLH responded that the city's new boundary has been redefined as incorporation of periphery into the city has become necessary. Updated land use plan is necessary so as to update the development scheme of the city.

21) Correctness of data collected for JICA Study has to be double-checked for accuracy in terms of road design. But who checks the data? In order to avoid problems at the time of implementation, explicit responsibility should be made quite clear. Therefore MoRPW should have appropriate expertise on road design.

22) Lack of land use plan of the city was the cause of past and present problems. How is the situation to be improved? Matatu control is one of the important issues.

23) Main consideration of selecting these missing links appears to be to de-congest the other area within the city of Nairobi. How about the road safety measures?

24) Government of Kenya side responded as follows:

a. MoRPW responded that the correctness of data for designing is a pertinent issue. MoRPW will take responsibility for doing it. Whether the question of survey, data, etc. professionals are asked to endeavour to revise it at each stage of road design. Mechanism to correct anomaly on road design actually exists. This JICA study is looking at totality of the metropolitan area transportation issues. Holistic approach is the basis of the study and therefore JICA Study is all inclusive study. One of the resident associations wrote an issue addressed to us concerning the flooding of a river, encroachment to the road reserves and other anomalies around Kileleshwa area. MoRPW will undertake these issues.

b. Eng. Ndorongo: Issues on encroachment to the road reserve in Nairobi has been a long time issue and NEMA and MOLH have been working together and looking into the problem for solution.

Closing Remarks:

Closing remarks for which these issues discussed today such as land acquisition, encroachment of informal sectors, underground service duct, and other issues related to the traffic issues, physical design and social planning, should be taken care of and therefore incorporated into the study. Particularly the issues on the relocation of kiosks to other areas should be clearly addressed to the responsible government agencies. Public transportation is other issue incorporated into the study. These comments made today are all going to be included in the study, which will be completed in December this year. Missing links between urban planners and road designers are vital part of the project and we have taken note of it. This study should play an important role to amalgamate these issues.

Closing Ceremony

Former City Engineer-com-consulting engineer was invited to offer role of thumbs and to close the meeting. Eng. E. Mwasi stated that in the past there have been a number of mistakes on the traffic issues and the study revealed them today. I am happy to make this statement today for the meeting that we realized then but could not amend. Metropolitan Growth Strategy was the basis of urban development project for Nairobi in the past. Although whole of it was not fully accepted, it is the pride of Kenyan Government that manuals derived from the Metropolitan Growth Strategy for road design have been given to other African countries and they worked very well. In Nairobi, there are a lot of

missing links and that the Master Plan will address these problems of unconnected roads by recommending them in due course. Funding for the road improvement project is another problem but we all hope that the funding for the project is realized by JICA in the future.

Individual Stakeholder Meeting

1 Ring Road Jua Kali Garage Association

An individual stakeholder meeting was held as follows:

Date: 31st May, 2005, 10:00AM

Place: #639, JICA Study Team's Office, MoRPW

Attendance: Ring Road Jua Kali Garage Association - Mr. Benson Mbugua (Chairman)
Mr. Jacob O. Wadawe (Vice Chairman)
JICA Study Team: Mr. S. Minato

The following is the summary of the discussion of the meeting:

- Ring Road Jua Kali Garages Association was organized under the Societies Act, 1968 and its parent association is the Westlands Jua Kali Association;
- Licensing system of the association is to register at the Attorney General Office, of the Provincial Office for artisan operation;
- City Council Licensing Office charges Rp. 7,410/year for garage operation for the Single Business Permit;
- There are 18 garages in operation at present on the Missing Link No.7. There is one on the Missing Link No.6 and another one on No.3.;
- Grocery shops do not have organization like Jua Kali Association;
- Association is quite concerned with the resettlement of upon implementation of the missing link improvement project. How the local people could sustain themselves after the resettlement is a matter of concern. In this connection, we would like to propose to operate in:

  i. The same places/areas if new road design could cater for places of the garages over the areas of Missing Link No.3, No.6 and No.7; and/or
  ii. The different places/areas such as the un-used areas along Ngong Road or any other areas as Nairobi City Council designates.

- 5 m x 15m of area is required for a garage operation;
- We commit to maintain the place according to the laws and regulations for safety and health and in order of discipline as well as for honest service attitude;
- Petrol stations are not operating automobile services. Thus it would be sensible to maintain local garages like those on the Missing Link No.7 for social services;
- Instead of licensing unspecified period, specify period for 3 to 5 years and renew the license every year. Thus at the end of designated period, evacuation should take place. During this period the local people would be able to organize themselves for a plan to establish themselves for sustainability;

2 Micro-Small Enterprise Development

An individual stakeholder meeting was held as follows:

Date: 02nd June, 2005, 11:00AM

Place: #639, JICA Study Team's Office, MoRPW

Attendance: Provincial Applied Technology Office – Mr. Otieno Kula,
Nairobi Province Jua Kali Associations Congress – Mr. Rashid Kaberere,
Nairobi Province Jua Kali Associations Congress – Mr. Peter Ameyo,
Ring Road Jua Kali Garage Association - Mr. Benson Mbugua (Chairman)
Ring Road Jua Kali Garage Association - Mr. Jacob O. Wadawe (Vice Chairman)
JICA Study Team: Mr. S. Minato

The following is the summary of the discussion of the meeting:

- "Micro-Small Enterprise Development " known in Kenya as "Jua Kali Sector" has been recognised by the Government of Kenya in 1985 for promotion of sustainability of traders, food vendors and artisans who form groups in each geographical area of Kenya;
- Those engage in Jua Kali sector are very poor people who migrate into urban areas and begin working as traders, food vendors, or artisans that operate under Temporary Occupation License and they are excluded from any formal economic development projects that take place in Kenya;
- They occupy in the road reserve in Nairobi, or given a plot for opening small shop like Nairobi City Park Market. Instead of exclusive them from any development projects, they should be included as an integral part of development projects;
- "Inclusive Development of Jua Kali Sectors" means the local people selling food, clothing etc. or working as mechanics of garages should be consider as a part of any development intervention;
- Jua Kali Sector's people contain more than 0.5 million people in Nairobi and their labour should be tapped and pumped into the higher economic activities instead of removing them from the present locations without income generation programme imposed upon them;
- One of the examples of Jua Kali Sector's development could be to prepare a market place and house them for trading goods, selling food or artisan works;
- Supervision of Jua Kali Sector's people should be administered by Nairobi City Council in terms of which cleanliness and security of the area for the general public, including international tourists, are very important and should be assured of. Thereby Nairobi City Council could generate revenue, maintain cleanliness of the city, and assure the security of market places and food stalls. Excluding those of Jua Kali Sectors would not make neither side developed in terms of physical and psychological development;
- Thus, in order to achieve "Win-Win Situation", Jua Kali Sector's people should be integrated into a part of the Missing Link Improvement Project.

Programme of the Fourth Stakeholders Meeting

MASTER PLAN STUDY

FOR URBAN TRANSPORT

IN THE NAIROBI METROPOLITAN AREA

PROGRAMME OF THE STAKEHOLDER MEETING ON MISSING LINKS NO.3, NO. 6 AND NO.7

Time and Date:	**27th May, 2005**
Venue:	**Kenya Science Teachers College**

Agenda

8:30 – 9:00	Registration	
9:00 – 9:45	Opening Ceremony	
	Master of Ceremony:	Eng. B. G. Ariga, MOLG
	Introduction of Participants	
	Opening remarks	**Mr. J. Gakuo, Town Clerk, NCC**
Session I		
9:45 – 09:50	Purpose of the Missing Link Improvement Project	MORPW
09:50 – 10:30	1) Outline of the Missing Link Improvement Works	Mr. T. Toda
	2) Result of IEE and Affected Areas	Mr. S. Minato
10:30 – 11:00	**Tea Break**	
Session II		
11:00 – 12:00	Plenary Discussions:Expected Issues on Project Implementation	
12:00 – 12:30	Wrap-up of Plenary Discussions	
12:30 – 13:00	Closing Remarks	Mr. L. Mbwaga, Director of Physical Planning, MOLH
13:00 – 14:00	**Lunch Break**	

PARTICIPANTS OF THE FOURTH STAKEHOLDERS MEETING

Table 28.3-1A-1

1	CG	Eng. L. K. Tonui	MRPW	M	-	30260-00100 Nairobi	lktonui@roadsnet.go.ke	2723101
2	CG	Eng. F. G. Ngachu	MRPW	M	PSE (D)	"	fgngachu@roadsnet.go.ke	2723101
3	CG	Eng. S. M. Ngare	MRPW	M	CSE (D)	"	smngare@roadsnet.go.ke	2723101
4	CG	Eng. P. Amiani	MRPW	M	Engineer	"	pamiani@2001.yahoo.com	2723101
5	CG	Mrs. E. Mibey	MRPW	F	Enviromentalist	"	eemibey@kenya.ke	2723101
6	CG	Ms. Elizabeth Thumbi	MRPW	F	-	"	enlgathogo@yahoo.com	2723101
7	CG	Eng. Orege O. C.	MRPW	M	-	"	oregeoc@roadsnet.go.ke	2723101
8	CG	Eng. G. M. Kiiru	MRPW	M	Engineer	"	gmkiiru@roadsnet.go.ke	2723101
9	CG	Eng. C. F. Kiranga	MRPW	M	Engineer-in-Chief	"	cfkiranga@roadsnet.go.ke	2723101
10	CG	Eng. F. D. Karanja	MRPW	M	-	"	fdkaranja@roadsnet.go.ke	
11	CG	Eng. J.N. Maina	MRPW	M	-	"	jnmaine@roadsnet.go.ke	
12	CG	Maurice Chore	MRPW				mauricechore@yahoo.com	
13	CG	Eng. B. G. Ariga	MOLG	M	Director	"	bgariga@africaonline.co.ke	230031
14	CG	Eng. N. N. Nyariki	MOLG	M	AD	"		230031
15	CG	Eng. J. W. Theuri	MOLG	M	Engineer	"	jwtheuri@yahoo.com	230031
16	LG	Eng. C. M. Chiuri	CCN	M	City Engineer	30075 00100		224281
17	LG	Eng. S. K. Mburu	CCN	M	DCE	"		224281
18	LG	Mr. S. M. Muthama	CCN	M	-	"	mwanziasam@yahoo.com	224281
19	LG	Mr. J. K. Barreh	CCN	M	City Planning Dept.	"	barrehk@yahoo.com	224281
20	LG	Eng. J. K. Mwangi	CCN	M	Engineer	"		224281
21	LG	Mr. L. K. Abdalla	CCN	M	City Planning Dept.	"	LKA@yahoo.com	224281
22	LG	Eng. Christine A. Ogut	CCN	M		"	tirana@excite.com	224281

PARTICIPANTS OF THE FOURTH STAKEHOLDERS MEETING

Table 28.3-1A-2

No.	Code	Representative Name	Organization	Sex	Occupation	Contact Address		
						P.O.Box	E-Mail	Telephone
23	CG	Mr. T. Ndorongo	MOLH	M	Planner	P.O.Box 45025 Nairobi		2729800
24	CG	Mr. J. K. O. Oguya	MOLH	M	Planner	P.O.Box 14752-00100 Nairobi	kenoguya@yahoo.com	2729800
25	CG	Mr. J. K. Mathenge	MOLH	M	-	P.O.Box 30450 Nairobi		
26	CG	Mr. E. F. Onyuna	MENR	M		P.O.Box 30521 Nairobi		2714543
27	CG	Ms. A. Olubendi	MOF	F		"	aolubendi@yahoo.com	338111
28	CG	Mr. A. M. Kitolo	MOT	M	Economist	"	akmulwa@yahoo.com	2729200
29	CG	Mr. Joram K. Kagombe	KEFRI	M	-	P.O.Box 20412 Nairobi	jokagombe@yahoo.com	
30	CG	Eng. S. K. Kamau	KRB	M	Engineer	73718 00200	skkamau@kroadsboard.go.ke	2722865
31	CG	Mr. L.M. Katawa	Traffic Police	M	Nairobi Area	P.O.Box 46782 Nairobi		0733-901939
32	LG	Mr. Peter M. Kibinda	Thika Municipal Council	M	Town Planner	P.O.Box 240 Thika	kibinda@ardkenya.com	0722-788044
33	LG	Ms. Esther Mbugua	Limuru Municipality	F	Town Engineer	P.O.Box 2814 Limuru		0733-7488896
34	LG	Mr. R. K. Mugambi	Mavoko Municipality Council	M	Town Engineer	P.O.Box 11 Athi River		0720-785736
35	LG	Mr. Samuel P. N. Kuria	Kangundo Town Council	M	Town Clerk	P.O.Box 56 Tala		0733-822556
36	PA	Dr. S.N. Oresi	Kenya Railways	M	-	P.O.Box 30121 00200 Nairobi	snyaguchaoresi@yahoo.com	340049
37	IO	Mr. Brian Williams	UN-Habitat	M				625001
38	IO	Mr. Andrew Gitonga	European Union	M	Representative	P.O.Box 45119 Nairobi	andrew.gitonga@cec.eu.int	2713020
39	IO	Mr. M. Takeuchi	MoRPW	M	JICA Expert	c/o JICA Kenya Office		
40	IO	Mr. M. Ishizuka	JICA Kenya Office	M		50572 00200 Nairobi		
41	IO	Mr. J. Inamura	JICA Kenya Office	M		50572 00200 Nairobi		
42	IO	Mr. S. Muthui	DED	M		P.O.Box 47136 Nairobi	ken@Ded.de	
43	IO	Mr. Erick Khamala	RCMRD	M		P.O.Box 18118 Nairobi	ekhamala@rcmrd.org	
44	INS	Mr. Calvine Kayi	Dept. of Geography, Kenyatta University	M	-	P.O.Box 43844 Nairobi	ckayi@justice.com	

PARTICIPANTS OF THE FOURTH STAKEHOLDERS MEETING

Table 28.3-1A-3

No.	Code	Representative Name	Organization	Sex	Occupation	Contact Address		
						P.O.Box	E-Mail	Telephone
45	INS	Mr. Fred Owegi	KIPPRA	M	-	P.O.Box 56445 Nairobi	fowegi@kippra.or.ke	
46	INS	Mr. C. M. Ndonga	IEK	M	-	P.O.Box 54400 Nairobi	ndonga@kenyaweb.com	
47	INS	Ms. Pauline N. Mwangi	IPAR	M	-		pmwangi@ipar.or.ke	
48	INS	Prof. M. Koech	Kenyatta University	M	-	P.O.Box 30943 Nairobi	amiacfed@yahoo.com	
49	INS	Ms. Marry Kinoti		F			mkinoti@comhlth.ac.ke	
50	INS	Mr. Aggrey Okinda		M			aggreyokinda@yahoo.com	
51	NGO	Mr. Shumpei Kambe	Fellowship for Africa	M	Representative	P.O.Box 9549-00100 GPO	Kambe@africaonline.co.ke	
52	NGO	Mr. Enock Kanyanya	Kenya Forest Working Group	M	-	P.O.Box 20110 Nairobi	ekanyanya@kenyaforest.org	
53	NGO	Mr. Frank Msafiri	Kenya Forest Working Group	M	-	P.O.Box 30332-00100 Nairobi	bfmsafiri@yahoo.com	
54	NGO	Ms. Chiaki Hayakawa	Upepo	F	Representative	P.O.Box 78735 Nairobi	ecotour@gol.com	
55	NGO	Mr. Francis Githaigah	Brackenhurst Environmental Program	M	-	P.O.Box 32 Limuru	kyherbflora@yahoo.com	
56	NGO	Mr. John Kibui	Matatu Owners Association	M	-	P.O.Box 3669-00100 GPO	moakenya2003@yahoo.co.uk	
57	NGO	Ms. Betty Robin	Muthaiga Resident Association	F	Vice Chairman	P.O.Box 463423-00619 Nairobi	gbrobin@africaonline.co.ke	
58	NGO	Ms. M. Ruberti	Muthaiga Resident Association	F	-	P.O.Box 463423-00619 Nairobi	ruberti@africaonline.co.ke	
59	NGO	Dr. H. Croze	Muthaiga Resident Association	M	-	P.O.Box 463423-00619 Nairobi	hcroze@aerp.org	
60	NGO	Sihrish Shah	Westland Residents Association	M	-	P.O.Box 10866-00400 nairobi	lovely@wananchi.com	
61	NGO	Fred G. Kariuki	Kenya Association of Manufacturers	M	-			
62	NGO	Ms. Terumi Matsushita	Moyo Children Center	M	Representative	P.Box 2712 Thika	moyo@africaonline.co.ke	
63	NGO	Mr. Edwins Mukabanah	Kenya Buse Services	M	-	P.O.Box 40238-00100 Nairobi	emukabanah@yahoo.com	
64	NGO	Ms. Jo Leyland	Association of Safe International Road Travel	F	Representative	P.O.Box 43799 GPO	joleyland@nbi.ispkenya.com	
65	NGO	Ms. Lynet N. Kaloo	Commuters Welfare Association	F	-	P.O.Box 41162 GPO	cowea@2004@yahoo.com.	
66	NGO	Mr. Festo Fadawula	NCBDA	M	-	P.O.Box 10687-00100	ncbda@africaonline.co.ke	

PARTICIPANTS OF THE FOURTH STAKEHOLDERS MEETING

Table 28.3-1A-4

No.	Code	Representative Name	Organization	Sex	Occupation	Contact Address		
						P.O.Box	E-Mail	Telephone
67	NGO	Mr. Sammy Gitau	ILCP(JICA)	M	-	P.O.Box 67395 Nairobi	sammycfk@yahoo.co.uk	
68	NGO	Ms. Atiti Stella A.	UOM	F	-	P.O.Box 651 Ngong Hills	atitisa@yahoo.co.uk	
69	NGO	Mr. Kiama Stephen	Nyakururu League for Environment	M	-	P.O.Box 356 Nyakururu	mastakin500@yafoo.com	
70	NGO	Mr. Patrick J.M. Wem	KAM	M	-	P.O.Box 271 Athi River	wem@mabati.com	
71	NGO	Ms. Rahab Mundara	ITDG-EA	F	-	P.O.Box 39491 Nairobi	rahab.mundara@itdg.or.ke	
72	PC	Mr. Macharia Simon	OSDC	M	P. A.	P.O.Box 61243 Nairobi	smwangim@yahoo.com	0722927753, 219794
74	PI	Fredrick Macharia						
75	PI	Stephan Kamau						
76	PI	Jane Mwihaki						
77	PI	Mr. Akanya Stallone Solomon			Anthropologist	P.O.Box 3662-00200 Nairobi	maotsekanga@yahoo.com	
78	PI	Joseph O. Achola Badia	Dialogue for Dev. Network	M		P.O. Box 76484-00508, Nairobi	ibadiah@yahoo.com	
79	INS	Mr. Francis Wambalamba		M	Professor		wambalamba@MSN.com	
80		Wilson N. Kamau		M	Licenced Land Surveyor	P.O. Box 16230-00100,Nairobi	geodata@insightkenya.com	
81	PI	Ms. Akosa Wambalamba		F	Professor		wambalamba@MSN.com	
82		Samson Kibii		M	Strategic Manager		ikibii@telkom.co.ke	
83		Johnson K. Wachira		M				724981017
84		Mairura Omwenga	Architectural Association of Kenya	M	Professional Town Planner	Fax:220582	aak@wananchi.com	
85	PI	Mr. Frederick Ngugi	PA to Hon Beth Mugo, MP			P.O.Box 30040-001000 Nairobi	bmugo@kenyaweb.com	
86		Mr. T. Bekki	JICA Study Team	M				
87		Mr. A. Nakamura	JICA Study Team	M				
88		Mr. Yumita	JICA Study Team	M				
89		Mr. T. Toda	JICA Study Team	M				

PARTICIPANTS OF THE FOURTH STAKEHOLDERS MEETING

Table 28.3-1A-5

No.	Code	Representative Name	Organization	Sex	Occupation	Contact Address		
						P.O.Box	E-Mail	Telephone
90		Mr. M. Koto	JICA Study Team	M				
91		Mr. K. Isomoto	JICA Study Team	M				
92		Mr. S. Minato	JICA Study Team	M				
93		Mr. S. Mwangi	JICA Study Team	M				
94		Mr. G. Abeno	JICA Study Team	M				
95		Moses Okwiri	JICA Study Team	M				
96	PI	Mr. Hosea M. Mwangi	Auto Assessors & Consultancy	M	Assessor	P. O. Box 58988 00200 Nairobi	hassaro123@excite.com	
97	PI	Mr. Stephen Mutoro	Kenya Alliance of Resident Associations	M	Chief Executive Officer	P. O. Box 24827 00502 Nairobi	kara@accesskenya.com	574331
98	PI	Steve B. Oyugi	Patriotic Economic Democratic Alliance	M	Journalist	P. O. Box 16668 00100 Nairobi	pedakenya@yahoo.com	0722-780423
99	INS	Prof. Francis W. Wambalaba	United States International University	M	Professor	P. O. Box 595 Sarit Centre	wambalaba@outr.usf.edu	
100	CG	District Officer, Pumwani	Provincial Administration	M	Administrators			
101	CG	District Officer, Kibera	Provincial Administration	M	Administrators			
102	CG	District Officer, Kasarani	Provincial Administration	M	Administrators			
103	CG	District Officer, Dagoretti	Provincial Administration	M	Administrators			
104	CG	District Officer, Embakasi	Provincial Administration	M	Administrators			
105	CG	District Officer, Westlands	Provincial Administration	M	Administrators			
106	CG	District Officer, Makadara	Provincial Administration	M	Administrators			
107	PI	Thomas Ngumi		M	Sociologist			
108-152	PI	Local Residents	Letters distributed by hand for 45 locations of the local residents along the Missing Link No.3, No.6 and No.7	-	-	-		

CG/Central Government, LG/Local Government, PA/Parastatal, INS/Institute, IO/International Organization, NGO/Non Governmental Organization, PC/Private Company, PI/Private Individual

28.3.2 Minutes of Meeting of the Fifth Stakeholders Meeting

MINUTES OF THE FIFTH STAKEHOLDERS MEETING

Place: SILVER SPRINGS HOTEL, Conference Room

Time and Date: 9:45 – 14:25, 26TH JULY 2005

LIST OF ATTENDANTS

	Representative's Name	Organization
1	Eng. S. M. Ngare	MORPW
2	Eng. G. M. Kiiru	MORPW
3	Mrs. C. Mibey	MORPW
4	Ms. Elizabeth Thumbi	MORPW
5	Mr. A. M. Kitolo	MOT
6	Eng. J. W. Theuri	MOLG
7	Eng. E. H. M. Kagamba	CCN
8	Mr. S. M. Muthama	CCN
9	Eng. J. K. Mwangi	CCN
10	Eng. Christine A. Ogut	CCN
11	Mr. John K. Barreh	CCN
12	Mr. P. S. Adolwa	CCN
13	Eng. S. K. Kamau	KRB
14	Mr. Hudson M. Mukanga	NEMA
15	Ms Jane Nyandika	NEMA
16	Mr. Philip J. Mainga	Kenya Railways
17	Ins. Joshua Momanyi	Traffic Police
18	Mr. T. Kanenawa	JICA Kenya Office
19	Mr. J. Inamura	JICA Kenya Office
20	Mr. Felix M'mboyi	JICA Kenya Office
21	Mr. Kaneko	JICA Expert (MOLH)
22	Eng. Adrew Gitonga	European Union
23	Dr. Josphat K. Z. Mwatelah	JKUAT/AICAD
24	Prof. R. N. Mutuku	JKUAT
25	Dr. P. K. Kamau	Kenyatta University
26	Eng. C. M. Ndonga	Institute of Engineers of Kenya
27	Ms Jo Leyland	SIDA
28	Ms. Rahab Mundara	ITDG - EA
29	Mr. Fred Owegi	KIPPRA
30	Dr. C. M. Aligula	KIPPRA

31	Mr. Samuel Muthui Ikima	German Dev. Service
32	Mr. John Kibui	Matatu Ownwers Asso
33	Ms Lynet Kaloo	Commuters W. Association
34	Judy Thuo	Citi Hoppa
35	Mrs. Mary W. Mwangi	Double 'M'
36	Mrs. Betty Robin	Muthaiga Res. Association
37	Mrs. Ruberti	"
38	Mr. Peter Muindi	Kenya Disabled Association
39	Mr. Stephen Asumo	"
40	Mr. T.Toda	JICA Study Team
41	Mr. T. Kimura	"
42	Mr. K. Isomoto	"
43	Mr. M. Koto	"
44	Mr. T. Otake	"
45	Dr. J.N Mukabi	"
46	Mr.C.Chepyegon	"
47	Mr. M. Okwiri	"
48	Mr.S Mwangi	"
49	Mr. S. C Kiplagat	"

AGENDA

- **Improvement of Traffic Circulation in the CBD**
- **Bus/Matatu Restructuring**

1. Improvement of Traffic Circulation in the CBD

(a) Mr. Kimura gave a presentation on this topic. It included the following:

- Traffic flow improvement measures-Overlay, repair of pavement, parking, repair of bus stops, repair of sidewalks, channelisation, pavement markings, installation and repair of traffic control signs, installation and repair of traffic signal, and beautification (flower beds, trees)
- Improvement of intersections-Traffic signal improvement, installation and synchronization of traffic signals, use of area wide controls and the use of state of the art techniques such as CCTV and ITV monitoring systems.

(b) Once Mr. Kimura was through with his presentation, Mr. Isomoto took to the podium and gave his presentation which contained the following:

- Master flow of traffic impact assessment
- Parking access route impact assessment
- Arterial and collector roads impact assessment
- Local street motorized traffic impact assessment
- Parking area /traffic flow ratio in the CBD-Conceptual determination
- Improvement of NMT facilities
- Traffic signalization improvement plan
- Necessity to improve development plans

2. Bus and Matatu restructuring

Mr. Koto's presentation contained the following:

- Modal selection as an improvement basis
- Enhancement of public transport and improvement of the MIA
- Alleviation of congestion by rerouting and public transport corridor management
- Use of shuttles within the CBD
- Improvement of existing major roads
- Allowance of public transport on Missing Links once constructed

3. Plenary Discussion

During the first session of the plenary discussion, the following questions, contributions, remarks and concerns were made:

a) Ms. Mundara was concerned that there were no additional provisions for NMT on both Juja and Ngong roads

b) Dr. Mwatela observed that there was need to transfer from private to public transport, but there were no proposals for priority bus lanes

c) Mr. Mainga of the Kenya Railways requested to know what precautions were being taken to prevent encroachment on road reserves for example at the Nakumatt, Ngong Road and the Baptist Church was also concerned that there was no connection link between Kibera and Langata.

d) Prof. Mutuku had three major concerns:
- Redefinition of the CBD due to current developments
- He observed that the emphasis was on Matatu and Bus routes whereas there were other alternatives such as use of flyovers
- Designation of park and ride facilities

4. Questions and Answers

The following reply/answers were advanced to the above questions:

a) Eng. Theuri informed the meeting that in the KUTIP project NMT components were incorporated in the design, but due to suspension of this project no implementation was made. It was further observed by. Eng Mwangi that in all designs NMT facilities should be included. Eng. Ngari and Eng. Ogutu further observed that in the World Bank proposals and the Missing Links designs incorporated NMT facilities. Mr. Toda further explained the kind of considerations which were incorporated by the study team.

b) Mr. Koto informed the meeting that the Study Team was proposing the introduction of priority bus lanes, rehabilitation of commuter rail facilities and the introduction of park and ride facilities. Eng. Mwangi further suggested the enforcement of penalties (i.e. increase of parking tariffs for private cars in the CBD)or any other form of enticement of private car users

c) In reply to Mr. Mainga's question, Eng. Ngare informed the meeting that the parking lots on Nakumatt and Baptist Church were temporary and were to be done away with once dualling of the road starts.

d) In reply to Prof. Mutuku's question, Mr. Adolwa why we should have a Modal Interchange Area within the CBD and next to one of the best hotels in the country. He was of the opinion that the city was self redefining and that through traffic should not be allowed. He further suggested that other transport studies such as those done by World Bank, and the Belgian

government should be integrated in the report. Eng. Ngare further added that the MOLH was undertaking a land policy study and should put more emphasis on the redefinition of the CBD

5. Second Session for Plenary Discussions

In the second session of the plenary discussion, the following questions, contributions, remarks and concerns were made:

a) Eng. Mwangi observed that short term parking facilities in the CBD have been converted to long term parking and that off street parking facilities were underutilized there is a need for integration of a comprehensive network with the CBD for the improvement to be sustainable.

b) Insp. Momanyi was concerned that the study was insufficient in content yet vital. He requested the team to introduce a pragmatic system of controlling human traffic. He further noted that NMT, particularly hand carts were creating a lot of congestion in East Lands and he therefore suggested the relocation of both Wakulima retail and wholesale markets elsewhere.

c) Dr. P. Kamau was concerned with the long term effects of the introduction of the MIA's and was worried that the Study Team may finally make recommendations which may be difficult to implement. He was also worried that the introduction of a MIA at the Presidential Pavilion would adversely affect other users such as preachers.

d) Dr. Aligula wanted to know what kind of road strategy was being adopted and how the study team intended to deal with the city's growth.

d) Ms. Judy Thuo, requested that a pragmatic education/enforcement strategy should be adopted in order to educate road users on the need to use the provided facilities such as footbridges.

In reply to the above questions and concerns, the following replies were advanced:

a) Eng. Mwangi observed that the use of Globe Cinema R/A as a Matatu terminus had alleviated congestion in the CBD. He also noted that traffic management studies for other commercial areas within the city were underway.

b) Mr. Adolwa noted that the Wakulima market was not an impediment, but an integral part of the CBD. He further supported the idea of introduction of a MIA at Muthurwa noting that the land could be optimally utilized for public interest.

c) Mr. Koto informed the meeting that strategies to develop the CBD include the improvisation of public transport systems and the need to lessen the number of private cars in the CBD.

d) Eng. Ngare informed the meeting that SIDA /GOK studies were underway and their recommendations would be included in the report

6. Third Plenary Session

In the third and final session of the plenary discussions, the following questions, contributions, remarks and concerns were made:

a) Eng Ngare made the following observations:

- The relocation of public transport terminals may not correspond with the needs of the NMT
- The proposed flat rate fares within the CBD may not be economically viable
- The enforcement of some of the recommendations, for example queuing of passengers and standing passengers may be difficult
- Since the transport sector is liberalized, then who will operate the shuttles and what is its viability?
- Where is the Modal Interchange Area for PT vehicles from Westlands?

b) Mrs. M. Mwangi had the following concerns:

- What will happen to the passengers once the bus termini are relocated?
- Why not expand Wakulima market to Muthurwa to incorporate more hawkers and enhance collection of rates
- Transport from various city zones should be considered, integrated and complemented
- Queuing system has been introduced in Eastlands and it has worked
- There are no bus shelters in Outering Road
- The GOK should have an exclusive training centre for PSV crews to be pragmatic and in order to harmonize standards.

c) H. Mukanga had the following concerns/ remarks:

- That the Study team should identify more areas within the CBD where the yellow boxes can be used
- Handcart operators to be licensed/regulated
- That measure be put in place to guard against degradation of Uhuru Park by the proposed Modal Interchange Area

d) Eng. C. Ogutu had the following concerns/ remarks:
   - The introduction of shuttles within the CBD will impede pedestrian movement
   - High occupancy vehicles are requied. What appropriate PT measures have been undertaken to bring back Bustrack on track?
   - Facilities for Physically challenged persons should be incorporated in the designs
   - Parking of trailers in residential areas
   - Performance of proposed MIA at the Presidential pavilion will depend on the design concepts employed
   - What's the effect of having a sandwich study for both the industrial and residential zones rather than a separate study for each zone?

e) Mr. P. Muindi requested to know what role the disabled can play in the study and whether this can be expanded to include other parts of the country rather than Nairobi alone.

In reply to these questions and concerns, the following replies were advanced:

a) Eng. Mwangi observed that relocation of Westlands bus bay is appropriate and that MT and NMT need to be separated to minimize conflict. He also informed the meeting that a proposal was underway to setup a police post at the Globe Cinema R/A Terminus. There is also a plan to provide floodlights at the Terminus to enhance security. Physical barriers are also to be used at foot bridges to deter pedestrians crossing the road dangerously. He further observed that it was not possible to enforce queuing of passengers at all terminals but can be done at termini such as Kencom bus stage.

b) Mr. Koto citing the example of the Citi Hoppa was of the opinion that these proposals would be introduced step by step. He further noted that a financier was required in order to install shelter on all roads. PT for the physically challenged should introduce lower level bus loading facilities and hand cart pushers could utilize Uhuru Highway during off-peak hours.

c) Mr. Toda informed the meeting that considerations of physically challenged persons such as introduction of barrier free zones and adoption of universal design concepts would be included in the report.

d) Mr. Adolwa informed the meeting that there was an ongoing plan to intervene against security problems in the city.

e) Eng. Muthama informed the meeting that land initially allocated for parking of trailers has been reallocated to a private developer and is unavailable, but there is an ongoing plan to acquire land elsewhere and this would solve the problem.

Finally, Eng. Muthama gave an overview of the plenary discussion as follows:

1. NMT issues
   - New designs to include NMT facilities
   - World Bank initiative to provide NMT facilities
   - Westlands R/A improvement

2. Mode transfer from private to public transport
   - Already contained in an earlier report

3. Encroachment
   - MORPW allowed temporary parking on Nakumatt Ngong Road and Baptist Church.

4. Redefining the CBD
   - The CBD has redefined itself and this is being taken into account
   - Study team to consider outlying areas as part of the CBD

5. Alternative transport
   - Covered in earlier meetings

6. Parking issues
   - Short term parking is being overused yet long term parking is underutilized

7. Proposed MIA at Uhuru Park
   - Is a short-term measure until an appropriate area is identified

8. Education and enforcement
   - A study on road safety is underway(GOK/SIDA)

9. Physically challenged people
   - The government involves them in all their studies

10. Security of MIA
    - Police posts, Lighting

11. Use of footbridges
    - Introduce heavy duty guard rails to compel pedestrians to use them

12. Introduction of high capacity buses
    - Operators to be encouraged through education

13. Sourcing for provision of bus shelter
    - Ongoing measure(KRB and other sectors)

14. Standing passengers
    - Necessary measure to be introduced within the CBD as in other countries

15. Prioritization of projects
    - Should be selected on viability criteria in relation to congestion alleviation within the CBD

The meeting ended at 2:25 PM

Minutes of Meeting of the Sixth Stakeholder Meeting

Place: Kenya Science Teachers Collage

Time and Date: 23rd August, 2005

Opening Ceremony'

Eng. S. M. Ngare of the Ministry of Roads and Public Works presided over the opening ceremony, and the participants introduced themselves.

Session I

Eng. S. M. Ngare stated the purpose of the missing link construction works and other features of the Project are to improve current conditions of the traffic in Nairobi as a whole. He stated that there have been a series of stakeholder meetings since November 2004 and that the meeting today is the sixth presentation of which it would be the final meeting. JICA Study Team then presented the Result of the Master Plan Study as follows:

1) Missing Link Construction Works by Mr.T.Toda
2) Traffic Circulation Improvement in the CBD by Mr. K. Isomoto
3) Improvement of Bus/Matatu Transportation System by Mr. M. Koto
4) Result of IEE presented by Mr. S. Minato;

Session II

Eng. Adolwa of the City Council of Nairobi chaired the plenary discussion and the following is the comments and answers on the issues on the Project.

1) Comments:
   It is difficult to visualise what was really improved at the Westlands roundabout. It appears that intersection with signal is better rather than roundabout with signal.
   Answers:
   a. How the traffic flow would be improved in the Westlands has been planned through which Pilot Project is an initial stage. Further geometrical improvement and circulation of flow, approach improvement, and signalization should have all been completed before it is improved.
   b. Engineering practice during the study period determined that out of four options, signalization on the roundabout is the way the Study Team believes it is appropriate.
   c. A combination of Missing Link No.3 and the Westlands roundabout would further improve the traffic conditions in the area. However, the following would have to be incorporated into the final report:

- Road networks as an active linkage from one area to the other is a question and it should be included in the Study.
- Tariff for parking is attracting drivers i.e. too low for full day parking.
- Minimum parking areas proportionate to the number of cars should be provided by CCN, which is also trying to improve the country bus terminals in the future.

2) Comments:

a. What it is required are the wide and grade separation junctions as a true solution for traffic crises in Nairobi.

b. Lack of parking places are also necessary to solve. Wider areas like around CBD should be made use of for parking as well as to expand traffic flow.

c. Expansion of the road width for matatu stop should be made 100 m away from the roundabout. It is necessary in order to feed up-coming traffic volume as matatus pick up passengers on the road occupying 1 lane.

d. Existing flow channels of the transport is not adequate. For instance, land in Industrial Area is not quite adequately made use of it. In order to provide future accessibility to the area explicit land use plan should be made.

e. Country bus station in terms of park and ride should be developed in order to make the mode interchange area as much functional as possible.

f. Road congestion charge should be introduced i.e. the more people go to the centre the more charges are generated for CCN's revenue.

Answers:

a. Metropolitan growth strategy of the City of Nairobi expired 2000 and it is currently in the preparation stage. Current land use is a focus of discussion and within the next few months, result would have to be made available.

b. Thika, Kangundo and Limuru are also the areas within the study area of JICA Study Team. Thus growth of sub-urban town in the future has been studied and that it would add up to the traffic volume and the capacity of the roads. Thereby population of these areas should be taken care of.

c. Country bus terminal was not quite the part of Study.

d. Car parking issue was a part of study and a number of measures to solve the car parking issues are considered adequate.

e. Other comments are noted.

3) Comments:

a. Roundabouts in Nairobi do not have facilities adequate for the current traffic volume.

b. Mpaka Road connection is not included and its missing link is not adequate.

c. Westlands roundabout is good to improve and matatu terminal should be built in the near-by area.

Answers:

Comments are noted:

4) Comments

a. Parking area may have to be reduced in CBD for discouraging private cars entering it.

b. How the Project is dealing with implementation strategy?

Answers:

a. Past studies on the improvement of traffic conditions in Nairobi have been carried out but almost none of them were studied that the CBD and Nairobi Hill area are an integrated part of traffic issue. Thus this Master Plan study is the first study doing it.

b. Other portions of Westlands roundabout improvement has been committed by CCN.

5) Comments

a. Road humps are slowing down the traffic. What is the status to it within the Study?

b. Physically challenged people's facilities like lowered curbs and yellow line are not provided.

Answer:

Comments are noted.

6) Comments:

a. Behaviour in using transportation facilities such as the road signs and reaction of the people react to these is not discussed.

b. Pedestrians are not quite obeying the traffic facilities and signals at the Westlands. How is it going to be improved?

Answer:

Comments are noted.

7) Comments:

a. Government office's working hours should be staggered.

b. Traffic rule obeisance and enforcement should also be strictly implemented.

Answer:

Comments are noted:

8) Comments:

Policy and opinion in terms of supporting the alleviation on air pollution is important for the viewpoints of the health and ecosystem of Nairobi. Enforcement of traffic rule on this point should be strictly carried out.

Answer:

Comments are noted:

9) Comments:

Best approach for the traffic issue is the land use. How in the future Nairobi would be looking like, not only the city centre but also surrounding areas. With strict development strategies, it has to be achieved. Thereby road network could be appropriately developed. Based on the idea, mechanism of implementation should be clarified.

Answer:

Comments are noted:

10) Comments:

It is not clear if the Upper Hill area could be commercial or residential area in terms of the land use category and what if pollution prevails.

Answer:

Depending on the categorization of residential area or commercial area, regulation may differ. At the time of implementation, Metropolitan Growth Strategy's land use plan should be the reference point and further study is necessary.

11) Comments:

a. Physically challenged people should be taken care of at the public transportation. For instance, bus stop distance of 500 m is too long for the physically challenged people.

Answer:

Comment is noted.

12) Comments:

Linkage to the society and economy of the Study result on the improvement of traffic conditions in Nairobi should be elaborate and that it integrates the micro-enterprise of Jua Kali Operators. Not only should a large scale operation be considered as a part of economic development but also micro-enterprise operator play supporting role of the large operation of the economy in Nairobi. Thus Jua Kali Operator should be integrated into such economic development projects.

Answer:

Comment is noted:

13) Comments:

a. Missing Lin No.7 may link to Southern Bypass eventually and may remove those residents in Kebara. What would be the measures for them.

Answer:

Southern Bypass is in progress as planned. Environmental study was done at the time of feasibility study by JICA but NEMA was not in place in Kenya. Thus, EIA is planned to carry out upon PPP arrangement of the project is ready for which the concessionaire is responsible to carry out EIA Study. This is the requirement for WB project and GOK is taking care of it.

Session III

After the lunch break, Eng. Adolwa of the City Council of Nairobi continued to chair the Session III of the plenary discussions.

1) Comments:

a. Why Eastlands area beyond Tom Mboya St. are not included in terms of integrated traffic improvement strategy of the study?

b. Passengers from Monbasa and Kangundo would be entering Nairobi. For pedestrians, in these areas, no traffic safety is ensured. What has it been done to that area?

Answer:

a. Whether the western part of Nairobi or eastern part of Nairobi is not a matter of concern. The Study Team tried to equalize the emphasis. However, current traffic volume was a governing factor of the study.
b. Pedestrianization of CBD area is a preference to motorization. CCN is trying to create cycle routes in the city, particularly in Industrial Area. Also pedestrian walkway networks would be implemented within a year funded by World Bank. CBD area, like Mama Ngina Street would be a one way street and other measures would be implemented shortly as a massive urban pedestrianization scheme would be implemented.
c. Toward the target year of 2025, pubic transport system would be greatly improved.

2) Comments:

Because of the economy is bad, transport network is not working at present. What is happening about the subway system the topic of 1980s for urban transport system improvement?

Answer:

a. Budget is not available for subway construction works.

3) Comments:

a. Land use plan and transportation network is not in function each other. Network of railway and industrial area should be revised.
b. Nairobi, compared to London, do not have circular road. Are there any circumferential roads planned in Nairobi?
c. When transportation plan was done for Nairobi, it is always for vehicles. Make sure NMT facilities are constructed. For instance, cycle way to Nairobi from Kibera should be constructed.

Answer:

NMT facility is a part of the study. Other comments are noted.

4) Comments:

a. Safety on the road is not mentioned in the presentation. For instance, at Globe Cinema's roundabout, the underground pass way is a place of crime. How do you improve it?
b. Vendors on the road are also dangerous. Make sure the safety of them.
c. We should be looking at the study from the same viewpoints. Engineers are looking the study from the engineering approach while others are looking at it from the social and human viewpoints.

Answer:

a. Safety facilities on the public transportation system are a matter of separate issue on transportation conducted by Min. of Transport. Integration of MOT forum and MORPW is important.
b. System of transportation, which consists of many components, should be looked at from the same viewpoints. But the purpose of this stakeholder meeting is the one to architect.

5) Comments:

a. Road accidents causes traffic jam. How does the project take care of the incident?

b. Not only motorists driving private cars but also other mode of transportation should be taken care of. By restricting cars on the road to some extent, NMT would be much more safer than they are now.

Answer:

Comment is noted:

6) Comments:

Parking bays are badly layout causing bad circulation of traffic in CBD. How is this taken care of in the Project?

Answer:

Comment is noted:

7) Comments:

a. In the Project, is the population change since 1973 taken into accounted for?

b. Increase of the vehicle/capacity ratio was not clearly mentioned.

Answers:

Volume/Capacity Ratio is well aware of in the study. Engineers have expressed using cross sections during the presentation that are the result of reflecting volume/capacity ratio. During the design period, passenger-car unit is used based on the survey carried out within the framework of the project.

8) Comments:

Market building plan above matatu terminals, in terms of long term plan, should integrate pedestrians and Jua Kali Project operators.

Answer:

Comment is noted:

9) Comments:

Upon damages made on the road signs, immediate replacement should be done by the City Council of Nairobi.

Answer:

Comment is noted:

10) Comments:

a. How the buildings close to the road construction works are done?

b. Bus fare is determined by the supply and demand. How is it justified while petrol and other prices are going to rise?

11) Comments:

Outer Ring Road's congestions are very bad. Thus widening at a few intersections, Mutindo Intersection is one of them, should be considered.

12) Comments:

Lower Kirinyannga Rd. is not used because of security reasons. Road signs and other facilities for safety should be provided. Sidewalks are encroached by the kiosks and vendors and that circulation of pedestrians are interrupted.

13) Comments:

Will there be any changes on the land regulation? How about the traffic regulations?

14) Comments:

Decongesting measures of the master plan does not include hand-cart of the city.

15) CBD decongestion in terms of public transportation with the master plan does not solve. Bus stops should be made outside the CBD and parking areas and circulation of vehicles within CBD should be only for private cars and restrict "unnecessary vehicles" from entering CBD and construct fly-over on the intersections.

Answer:

Comments from 8 - 15 are noted. Whether the construction of beautiful pavement for vehicles or pedestrians should be considered is not a matter of concern. What citizens make use of them are the reflections of the city's conditions of landscape. Disobedience of traffic regulations, filthy and congested streets are all the reflection of the behaviour of individuals. Thus, it is not a question of good plan but it is a good use of it. Instead of "cosmetic" works of the project component, in-depth consideration and good management of it in terms of hardware and software should be considered. PPP (Public-Private-Partnership) is a new form of solving the traffic issues Nairobi and it would be increasing in the future.

16) Comments:

a. Focus on the policy and organizations such as Nairobi Metro Transport Authority that would implement the project should be elaborated.
b. An intelligent transport system for the city, based on IT networks for monitoring the behaviour of drivers, conditions of parking areas, and behaviour of passenger etc. could be considered as a part of the study.

Answer:

IT network within the government circle does not exist while every government department is supposed to be IT compliant. However, these concepts are in the future much more efficient and functional in the urban transport system in Nairobi.

17) Comments:

Design standard of the study is not clear. It should be clarified.

Answer:

It is a part of the study.

18) Comments:

a. Ways to dissuade people and vehicle from Nairobi is another way to decongest the traffic. One way is to move public services out of Nairobi. More motorcycle use is another. Parking area should be created outside the city would be an alternative way to dissuade people from entering the city.
b. Tourism development, including pamphlet for guiding tourists moving aptly, should be considered.
c. Because of the people who are on the business and government services are in demand of

services such as food stall, show shining etc., traffic issues should explicitly design for the people with micro-enterprise and Jua Kali Project operators are those who would be on the supporting role of such a large scale economic development.

Answer:

Comments are noted.

19) Comments:

a. Bus/Matatu transport system should be designed for the commuters.

Answer:

Comments are noted.

20) Comments:

Excluding matatu from CBD and creating matatu terminals at Globe Cinema, Muthurwa and Processional Way would not be a working system. Instead, public service vehicles should be allowed during the fixed time in the morning and evening areas only and private cars should be restricted during the fixed time. This arrangement could solve the problem on matatu operators who are in need of better income.

Answer:

Comments are noted.

21) Comments:

a. Depending on the contents of matatu services, such as with/without time tables, with/without regulations etc., efficiency of the public transportation system might not be well improved. With current system, there will be no way to develop better transportation system such as seamless ticket that allows passengers changing from one mode of transport to the other.
b. Double deckers like London could contribute to solve a part of traffic issues currently facing in Nairobi.
c. Well planned financing bus operation companies is another problem that Kenya has to sort out in order to contribute for improvement of the current traffic issues.

Answer:

a. Introduction of shuttle bus system is at present an option and the study team believes that it is an appropriate system judging from the predicted performance of national economy and the maturity of society as a whole.
b. Mode interchange could be made at the area outside of most congested areas. Such mode interchange areas should be facilitated with safety measures as well as urban amenity.

22) Comments:

a. Public transport system should be able to offer “executive class” system in addition to the current system and attract private car drivers to use it.
b. Public bus should be able to allow passengers standing in buses of “ordinary class”.

Answer:

Comments are noted.

23) Comments:
    a. Best way moving forward from the current situation on the traffic issues to the next is to discuss about the technology available for the issue. Japanese technology may be working with their own system and culture while Kenyan technology needs to review for functional system for solving traffic issues, ranging from financing sector to construction sector to management sector.
    b. An UN organization specifically established for sub-Saharan Africa is ready to finance the Project provided the modern technology is used including CO_2 swap programme. Thus the Government of Kenya should seize the opportunity to implement the project and that the Kenyan way of considering solving current traffic issues and raising the efficiency of it is achieved.

    Answer:

    Comments are noted. The way the discussions are made today would be able to change the transportation system and individuals are encouraged to take positive part for it, not only demanding things to be made but also to actively participate for it, like obeying the traffic rules.

Wrap-up of the Plenary Discussions

Eng. Kagamba of the City of Nairobi Council conducted the wrap-up of the plenary discussions as follows:

1) Based on the experiences of the Pilot Project carried out in the Westlands, roundabout improvement works are implemented within the framework of the Project. Itself would also be improved as access roads leading to the Westlands roundabout are improved;
2) Metropolitan growth strategy is in the process of its final stage. Its contents will be made available shortly and that the hitherto deteriorated land use plan is explicitly clarified. Thereby revitalization of the urban growth is achieved and improvement of the traffic problems we are facing today would therefore be realized in the near future.
3) NMT facilities are the important portion of the study and citizens of Nairobi should appreciate it as the project is implemented.
4) Improvement of the public transportation system would be the key issue of improving the traffic conditions in Nairobi. Every effort will be made in order to solve the deteriorated traffic conditions of CBD.
5) Financing and implementation strategy including improvement of executing organizations would be the success of the project implementation. It would be a continuous debate within the government circle.
6) Environmental concern is the last resort for the successful acceptance of the project. Coupled with the land use plan, effective development of road network on which public transportation depends would bring about the fruits of the study.

Meeting adjourned at 17:25.

APPENDIX 28-4

ENVIRONMENTAL IMPACT ASSESSMENT FOR PRE-FEASIBILITY STUDY ON THE MISSING LINKS, NO.3, NO.6 AND NO.7

ENVIRONMENTAL IMPACT ASSESSMENT FOR PRE-FEASIBILITY STUDY ON THE MISSING LINKS, NO. 3, NO.6 AND NO. 7 OF THE MASTER PLAN STUDY FOR URBAN TRANSPORT IN THE NAIROBI METROPOLITAN AREA.

VOLUME I

FINAL REPORT

BY

AMI DEVELOPMENT SERVICES LIMITED
P.O BOX 30943 NAIROBI, 00100, KENYA
TEL: (254) 020-600520/603977
FAX: (254) 020-891906
EMAIL: amiacfed@yahoo.com

Prof. Michael K. Koech
Team Leader, EIA/EA Lead Expert

&

Mrs. Mary K. Kinoti
Consultant, EIA/EA Lead Expert

22/08/2005

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ABBREVIATIONS

CBO- Community Based Organization
EIA- Environmental Impact Assessment
IR- Income Restoration
ML- Missing Link
MOLG- Ministry of Local Government
MRPW- Ministry of Roads and Public Works
NEMA- National Environment Authority
NGOs- Non Governmental Organizations
NMT- Non- Motorized Transport
PAPs- Project Affected Persons
PIU- Project Implementation Unit
RAP- Resettlement Action Plan
RU- Resettlement Unit
VIP- Ventilated Improved Pit

DEFINITION OF TERMS

Compensation: payment in cash or kind to which affected people are entitled in order to replace the lost asses, resources or income

Entitlement: Rang of measures comprising compensation, income restoration, transfer assistance, income substitution and relocation which are due to affect people, depending on the nature of their loss to restore their economic and social base.

Entitlement Matrix: Identifies categories of eligible persons and the specific entitlement due to each category

Expropriation: Government taking possession of property or changing property rights in order to execute or facilitate public or private projects

Host Population; Community residing in or near the area to which affected people are to be relocated.

Income restoration: Re-establishment of livelihood, income earning capacity and production levels of people directly affected by the development project.

Project Affected Persons (PAPs): persons whose livelihood or living standards are adversely affected through loss of land, housing and other assets, income or access to services as a consequence of the implementation of the development project

Rehabilitation: Re-establishing living standards, income earning capacity, production levels and social systems.

Relocation: moving project affected households and rebuilding housing and assets, including productive land and public infrastructure in another location.

Social preparation: Process of consultation with affected people undertaken before key resettlement decisions are made, to build their capacity to deal with resettlement.

Vulnerable groups: Distinct groups of people who might suffer disproportionately from resettlement

EXECUTIVE SUMMARY

The present transport infrastructure is inadequate to meet the rapidly increasing traffic demand in the Nairobi Metropolitan Area. There is therefore need to increase the transport supply. An inadequate supply of the road capacity, road structure and traffic management measures have been causing heavy traffic congestion and traffic accidents. Accordingly, in order to alleviate this situation, construction of missing links and improvement of road structures/facilities and traffic management measures are required. The Government of Kenya decided that in order to solve the transport problems, a comprehensive master plan covering the areas of road network improvement, public transport and traffic management should be developed with a time horizon of 2025.

Against the foregoing, the government of Kenya has proposed to construct road missing links within west lands division in the City of Nairobi. The proposed activity is construction of three missing road links measuring 10 km in total.

The Environmental Management and Coordination Act no. 8 of 1999 and the Environmental Impact Assessment (EIA) Regulations indicate factors, which must be considered in conducting and preparing on EIA Study Report. For the purpose of this EIA study and Report Preparation, the consultant will use the following methodologies:

- Visual observation at the proposed project site and other relevant sites, and where necessary table photographs.
- Conduct interviews and other forms of collecting primary date.
- Collect views during barazas and other meetings
- Facilitate consultation and public participation
- Review and analysis of literature, including secondary data
- Impact identification using matrices and experts' professional assessment

The City of Nairobi extends between 36^0 4' and 37^0 10' east and approximately between 1^0 9' and 1^0 28' south, covering an area of 696 km^2**.**

The population of Nairobi has grown from 120,00 in 1950, then to 350,000 persons in 1963 and to 2.14 million in 1999 with a growth of 4.8 % per annum. The population density of Nairobi currently stands at 3200 persons per km^2. It is the biggest urban centre in Kenya. The high urban population growth rate has created rapid urban spatial growth and associated problems such as inadequate housing, traffic congestion, environmental degradation, land use conflicts etc.

Nairobi has a mean altitude of approximately 1700 meters above sea level. Nairobi area is divided into two physiographic units or landforms. The western portion is on high ground (approximately 1700-1800 meters above the sea level) with rugged topography, while the eastern side is generally low (approximately 1600 meters above sea level) and flat.

The main drainage follow the regional slope of the volcanic rocks towards the east, while subsidiary internal drainage into the Rift region is confined to the western part.

The climatic conditions of Nairobi largely follow the national trends. The highest rainfall is experienced between March and May and the short rainfall season occurs between October and December. The mean annual rainfall ranges between 850 and 1050 mm. It is usually dry between June and August, while the hottest months are January and February. Mean daily temperatures range between 12C and 26C, while the mean monthly humidity varies between 36% and 55%.

Land in Nairobi Metropolitan area is utilized for residential, industrial, infrastructure, commercial, urban agriculture, recreational, institutions, water bodies and national parks and forest reserves. About 28.6% of Nairobi area is open land. Sizable land is also utilised for Residential (25.3%), forests and National Park (21.7%) and Agriculture (13.8%). The remaining portion is shared among recreation, industrial/commercial/service centres, infrastructure and water bodies.

The methodologies used were as follows:

- Literature review.
- Field visits (reconnaissance) at the beginning of the study to learn of the study area and sites.
- Visual observations at the proposed sites for the construction/opening up of the 3 missing Links roads in the Kileleshwa – Kilimani-Lavington areas.
- Use of photographs of scenery to obtain permanent records of observations.
- Collection of views during Chiefs **Barazas**, (meetings) along the Missing Links Roads.
- Administration of questionnaires to the community around the proposed sites.
- Interviews with other stakeholders, including diverse leaders, including (provincial administration, Local government, civil servants, private sector, and informal sector representatives) as key informants.
- Walk - through Information checklists.
- Impact identification using matrices and expert/professional assessment.
- Confirmation and sharing of preliminary findings with the proponent and other relevant EIA experts.
- Constant review of various drafts reports.

The identified potential positive impacts include:

- Landscaped Road Environment
- Improve international business
- Easier access to social amenities
- Enhanced security
- Positive foreign cultural values
- Enhanced non-motorist traffic safety
- Generated Employment opportunities.
- Enhanced accessibility
- Increased commerce

- Improved linkages between national regional and international carriage ways
- Economic interacting through improved transportation network
- Improved tourism and agricultural markets
- Improved roads safety measures
- Improved communication
- Poverty alleviation
- Reduced vehicle operating and passenger and commodity transport costs
- A well functioning and appropriate permanent, cost effective, safe, secure and sustainable road network in place.

The identified potential negative impacts include:

- Removal of structures in the road reserve.
- Loss of vegetation by clearing the encroaching bushes.
- Increased litter
- Displacement of human settlement
- Noise, Gaseous and Dust pollution
- Traffic disruption and accidents
- Water pollution by accidental oil spillage
- Soil Erosion
- Disturbance of fauna and flora due to clearing of encroaching bushes
- Operational hazards of road workers (danger posed by careless motorists)
- Pollution by waste materials from drains clearing and pavement reconstruction.

The proposed mitigation measures include:

- Resettlement of displaced people
- Provide adequate located and well-maintained sanitary and solid waste disposals facilities such as VIP latrines.
- Collect, recycle and re-use oils for treating wood e.g. fencing posts.
- Proper training and sensitization of mechanical staff.
- Avoid accidental spillage through good mechanical practices and proper storage.
- Create awareness on HIV/AIDS and other related diseases.
- Avail health care services
- Reshape the quarry and where mechanical material acquisition is undertaken.
- Routine watering of diversion roads.
- Use and architectural design to blend landscape.
- Provide drainage works as needed to reduce risks.
- Avoid use of stagnant water for drinking by provision of wells.
- Recycle material sites into cattle watering points where possible
- Routine maintenance to discourage habitation of plant and animal species.
- Create awareness on proper litter disposal and use of road worth vehicles.
- Topsoil and the other material layers must be stockpiled separately in a planned and organized manner to facilitate reinstatement.

- It is important to plan quarry excavation so that when one section has been exploited, it is rehabilitated. The reinstatement prevents erosion of soil and greatly improves aesthetics.
- The quarry must be landscaped and fenced to encourage natural regeneration of vegetation to stabilize the ground.
- Where water is available, dampening of the quarry surface will reduce dust emission.
- Access routes to quarries shall be planned and stipulated in the contract documents. Protect susceptible surfaces with mulch or fabric, and plant vegetation on erodible surfaces.
- Increased number of drain outlets drains so as to avoid cascade effect.
- Incorporate filter sub drains below the sub-base or at the formation level.
- Routine watering of diversions and installation of mufflers on equipment.
- Provide drainage works as needed to reduce risks.
- Avoid materials' extraction in human settlement areas where possible.
- Gabions, stone pitching, scour checks, grassing and tree planting.
- Include physical barriers to reduce noise levels. Enforce air and noise standards.
- Enforce section 91 of the Traffic Act, CAP 403 of the Laws of Kenya.
- Provide for disposal facilities.
- Encourage anti littering laws and regulations.
- Enforce use of service-able vehicles and ensure quality of petrol at filling stations.
- Design and implement road safety measures.
- Put in place emergency services to control accidental incidences.
- Enforce frequent maintenance of the road and discourage off road driving.

It is recommended that:

a) The implementing agency should address and implement all the proposed mitigation measures.

b) Environmental mitigation measures should be incorporated into the roads sector tender dossiers and contractual agreements.

c) The appropriate training needs identified should be implemented.

d) Capacity building, creating awareness, implementing proposed mitigation measures and monitoring are essential to the effective implementation of the Environmental Management Plan. To achieve this key target groups, such as road workers, road users and project-affected people must be trained.

e) Resettlement action plans and procedures should take into consideration various aspects of the people being resettled eg. Schooling of children and viable alternative places.

CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

There are four major modes of transportation in Kenya for passengers and bulk freight: rail, road, maritime, and air. Of these models, the most important in terms of volume is road transport, with the most important land transport corridor being the route between Nairobi and Mombasa and then the corridor that runs from Nairobi to the west of the country towards Uganda and into the interior of Africa. An efficient transport system is a pre-requisite for the rapid economic development of the country and for improving the quality of life of the people.

However, the transport system of the country is far from satisfactory with low operating speeds, delays, accidents and high operating costs due to the poor condition of the road and rail infrastructures and inadequate capacity of the transport system. Over past decade, spectral development policy of the Government of Kenya has been legislated to implement proper maintenance for its existing road infrastructure. Despite this, the network has deteriorated rapidly during this period. On the other hand, traffic demand has been increasing very rapidly during the past decade and there is now a shortage of road capacity to meet the rising demand.

The present supply to transport is inadequate to meet the increase in traffic demand, in particular in Nairobi Metropolitan Area. Hence, there is need to increase the transport supply. An inadequate supply of the road capacity, road structure and traffic management measures have been causing heavy traffic congestion and traffic accidents. Accordingly, in order to alleviate this situation, construction of missing links and improvement or road structures/facilities and traffic management measures are required. The Government of Kenya decided that in order to solve the transport problems, a comprehensive master plan covering the areas of road network improvement, public transport and traffic management should be developed with a time horizon of 2025.

Against the foregoing, the government of Kenya has proposed to construct Missing Links roads within Westlands Division in the City of Nairobi. The proposed activity is the construction of three Missing Links roads measuring about10 km in total.

The construction of the Missing Links in Westlands Division is, but a major development works that require an Environmental Impact Assessment (EIA) in accordance with EMCA No. 8 of 1999 and Regulations made there under Legal Notice 101 of 2003. According to the afore-mention legal instruments, the second step the in EIA process, in Kenya after the screening, is the preparation of a project report.

1.2 Purpose of EIA

Environmental Impact Assessment (EIA) is a method used to identify a project's probable impacts on the environment. As a national policy instrument, EIA is carried out early in the project cycle at the pre-feasibility stage for proposed activities, policies, programmes, plans and projects which are shown by preliminary screening as likely to have significant adverse environmental, social or economic impacts.

1.3 Objectives of EIA

Enhance harmonized in the implementation and enforcement of laws for the management, sustainable use and protection of the environment. Provide economic incentives and penalties to encourage sustainable use of natural resources while degradation and or pollution of natural resources.

1.4 EIA Project Report Objectives

1. To identify natural, social and cultural impacts of the proposed project.
2. To propose mitigation measures to identified adverse impacts.
3. To develop an environmental management plan for the proposed project

The content of this report therefore constitute an EIA Project Report as stipulated in Part 1V of EMCA no. 8 of 1999. This provision of the said Act states that a proponent shall submit to the Authority, an environmental impact assessment project report incorporating but not limited to the following information-

(a) The proposed location of the project
(b) A concise description of the national environmental legislative and regulatory framework, baseline information, and any other relevant information related to the project:
(c) The objectives of the project:
(d) The technology, procedures and processes to be used, in the implementation of the project:
(e) The materials to be used in the construction and implementation of the project:
(f) The products, by-products and waste generated by the project:
(g) a description of the potentially affected environment:
(h) The environmental effects of the project including the social and cultural effects and the direct, indirect, cumulative irreversible, short-term and long-term effects anticipated:
(i) Alternative technologies and processes available and reasons for preferring the chosen technology and processes:
(j) Analysis and alternatives including project site, design and technologies and reasons for preferring the proposed site, design and technologies.
(k) An environmental management plan proposing the measures for eliminating, minimising or mitigating adverse impacts on the environment: including the cost, time frame and responsibility to implement the measures;
(l) Provision of an action plan for the prevention and management of foreseeable accidents and hazardous activities in the cause of carrying out activities or major industrial and other development projects;
(m) The measures to prevent health hazards and to ensure security in the working environment for the employees and for the management of emergencies;

(n) An identification of gaps in knowledge and uncertainties which were encountered in compiling the information;

(o) An economic and social analysis of the project;

(p) An indication of whether the environment of any other state is likely to be affected and the available alternatives and mitigating measures; and

(q) Such other matters as the Authority may require.

(2) The environmental Impact assessment study report shall be accompanied by a non-technical summary outlining the key findings, conclusions and recommendations of the study and shall be assigned by the proponent and environmental impact assessment experts involved in its preparation.

The construction of the Missing Links roads in Westlands area in the City of Nairobi is the main focus of this study.

CHAPTER TWO: BASELINE INFORMATION OF THE PROJECT AREA

2.1 Historical Background and Functions of the city of Nairobi

Nairobi was founded as a camp in 1896 and acquired its city status in 1950. Historical records indicate that its urban functions started in 1889, when it became the headquarters of the Uganda Railways, and the capital function in 1905 (Tiwar, 1979). In 1934, the first public transport, Kenya Bus Services was set up with a fleet of only two buses (African Urban Quarterly, 1988). The post-independence wave of rural-urban migration in the 1960s and 1970s brought about serious housing, transport, and waste management problems, which made Nairobi 'an eye-sore' to policy makers and planners. The city is divided roughly into East-West by Nairobi and Mathare rivers. The development has tended to be in lateral east to west direction.

The City of Nairobi extends between 36^0 4' and 37^0 10' east and approximately between 1^0 9' and 1^0 28' south, covering an area of 696 km^2**.**

Nairobi is the administrative, commercial, industrial and socio-cultural centre of the Republic of Kenya. It is the world headquarters of two United Nations agencies, namely the United Nations Environment Programme (UNEP) and the United Nations Centre for Human Settlements (UN-Habitat). It is also the headquarters of several regional offices of United Nations agencies such as UNICEF, UNESCO, UNIDO, UNDP, etc. all of which reinforce Nairobi's importance as cultural meeting point within the Eastern African region due to national and international functions. Nairobi is also the centre of regional tourist and new light industries.

2.2 Population

The population of Nairobi has grown from 120,00 in 1950, then to 350,000 persons in 1963 and to 2.14 million in 1999 with a growth of 4.8 % per annum. The population density of Nairobi currently stands at 3200 persons per km^2. It is the biggest urban centre in Kenya. The high urban population growth rate has created rapid urban spatial growth and associated problems such as inadequate housing, traffic congestion, environmental degradation, land use conflicts etc.

2.3. Topography and Drainage

Nairobi has a mean altitude of approximately 1700 meters above sea level. Nairobi area is divided into two physiographic units or landforms. The western portion is on high ground (approximately 1700-1800 meters above the sea level) with rugged topography, while the eastern side is generally low (approximately 1600 meters above sea level) and flat.

The main drainage follow the regional slope of the volcanic rocks towards the east, while subsidiary internal drainage into the Rift region is confined to the western part. The lava plains east of a line Ruiru-Nairobi-Ngong are underlain by a succession of lava flows alternating with lakebeds, streams deposits, tuffs and volcanic ash. These plains

comprising mainly the Athi plains and the Northern section of the Kapiti plain extend westwards, rising from 4900feet (1493m) at the Athi River to 6000feet (1829m) in the faulted region near Ngong. They form gently rolling grasslands with a fairly even surface, broken occasionally by low east facing scarps that represent the margins of partly eroded lava flows. Gullies and canyon like gorges, cut into the lavas, have steep walls, such as those along the Mbagathi valley. Further east this valley widens slightly where soft material is being actively eroded (Saggerson, 1991).

2.4 Geological Characteristics

The rocks on the Nairobi area mainly comprise a succession of lavas and pyroclastics of cainozoic age and overlying the foundation of Folded Precambrian schists and gneisses of the Mozambique belt. The crystalline rocks are rarely exposed but occasionally fragments are found as agglomerates derived from former Ngong volcano. All formations are covered by deep soils and gravel of quaternary age. Within the rift, loess and lacustrine deposits, some containing diatomaceous beds, reflect major changes in climatic conditions.

2.5. Soils of Nairobi Metropolitan Area

The soils of the Nairobi area are products of weathering of mainly volcanic rocks under relatively high temperature and rainfall, good drainage prevailing in the Kikuyu highlands in the west and poor drainage conditions typifying the Athi plains in the east. Weathering in the former case has produced red soils that reached more than 50 feet (15m) in thickness (Saggerson, 1991).

2.6. Climate

The climatic conditions of Nairobi largely follow the national trends. The highest rainfall is experienced between March and May and the short rainfall season occurs between October and December. The mean annual rainfall ranges between 850 and 1050 mm. It is usually dry between June and August, while the hottest months are January and February. Mean daily temperatures range between 12C and 26C, while the mean monthly humidity varies between 36% and 55%.

2.7. Land Use

Land in Nairobi Metropolitan area is utilized for residential, industrial, infrastructure, commercial, urban agriculture, recreational, institutions, water bodies and national parks and forest reserves (Fig.1.7). Land-use statistics presented in Table1.7 show that the highest percentage (28.6%) of Nairobi area is open land, meaning that it has not been put into any use yet. Sizable land is also utilised for Residential (25.3%), forests and National Park (21.7%) and Agriculture (13.8%). The remaining portion is shared among recreation, industrial/commercial/service centres, infrastructure and water bodies.

Urban land use, which refers to spatial distribution of activities within urban area, is an important factor in effective urban planning and management. Land use is one of the

aspects that indicate the severity of the urban problems mentioned. Up-to-date land use inventory becomes a requirement that facilitates urban planning, growth pattern, and monitoring.

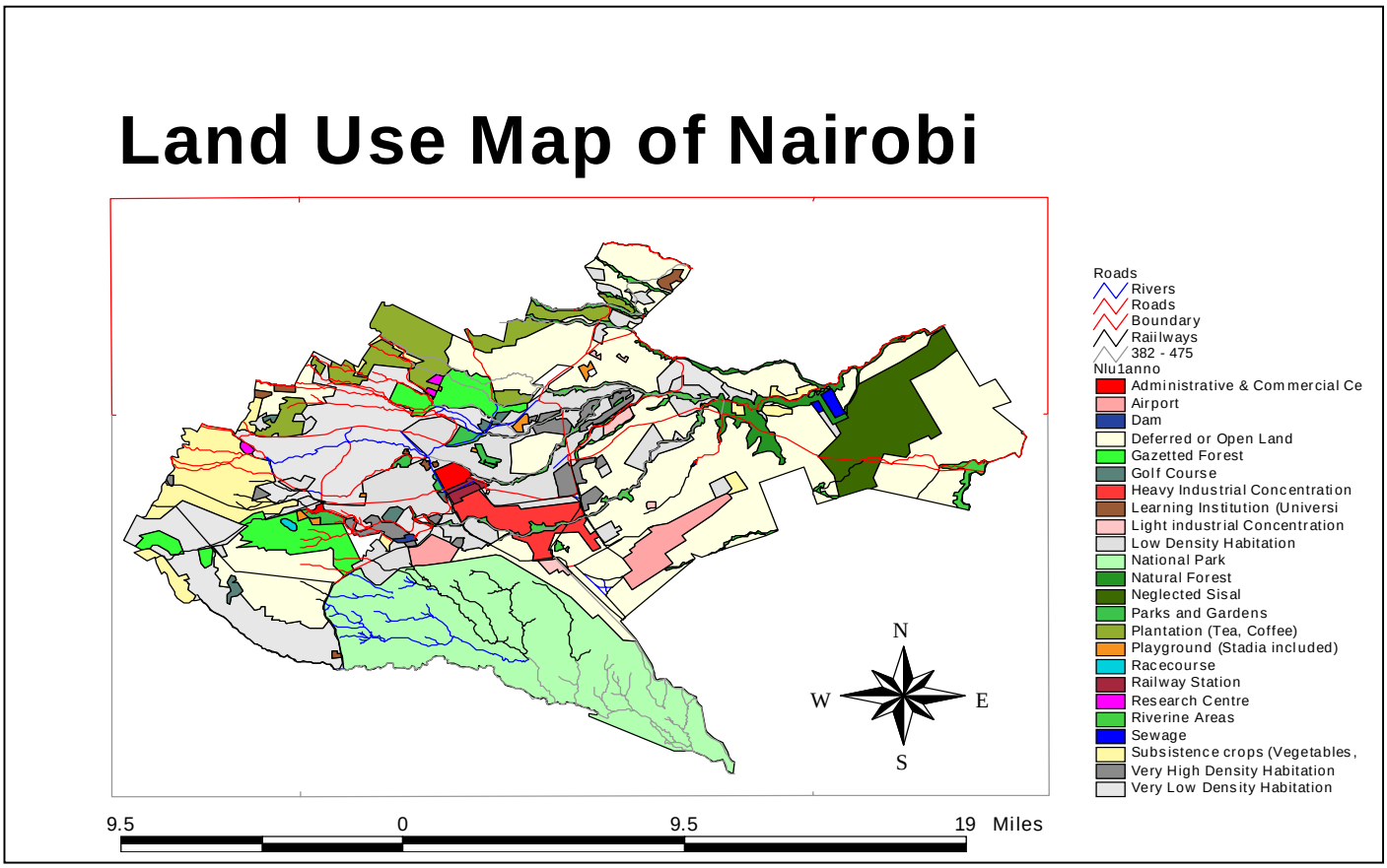

Figure 1.7: Land Use Map of Nairobi Metropolitan Area (Nyabenge 1994)

Table 1.7: Area and percentage cover of land use types

Land Use Type	**Area (km^2)**	**Cover (%)**
Residential	**175.6**	
	25.3	
Very high dense habitation	11.3	1.6
High dense habitation	10.8	1.6
Medium dense habitation	10.9	1.6
Low dense habitation	52.5	7.5
Very low dense habitation	90.1	
	13.0	
Industrial/commercial/service centres	**31.8**	**4.4**
Heavy industrial concentration	7.9	1.1
Light industrial concentration	10.4	
1.5		
Quarry	4.4	0.6
Administration and Commercial (or CBD)	2.8	0.4

Research Centres	1.1	0.1
Learning Institutions	3.9	0.6
Hospital(s)	1.3	0.2
Infrastructure	**15.9**	**2.3**
Airport	12.8	1.8
Railway Station	1.7	0.2
Sewage plants	1.4	0.2
Recreation	**128.4**	
	18.5	
National park	116.4	
	16.5	
Parks/Gardens	5.6	0.8
Golf Course	2.7	0.5
Play Grounds	2.2	0.3
Race Course	0.9	0.1
Drive-in Cinema	0.6	0.1
Water body	**0.4**	**0.1**
Dams	0.4	0.1
Agricultural	**96.8**	
	13.8	
Subsistence Crops	30.8	4.4
Plantation (Tea, Coffee)	35.7	5.1
Neglected Sisal/Rangelands	30.2	4.3
Others	**247.1**	
	35.4	
Gazetted Forest	24.8	3.5
Riverine Area	11.4	1.6
Ungazetted Forest	12.1	1.7
Open land	198.8	
	28.6	

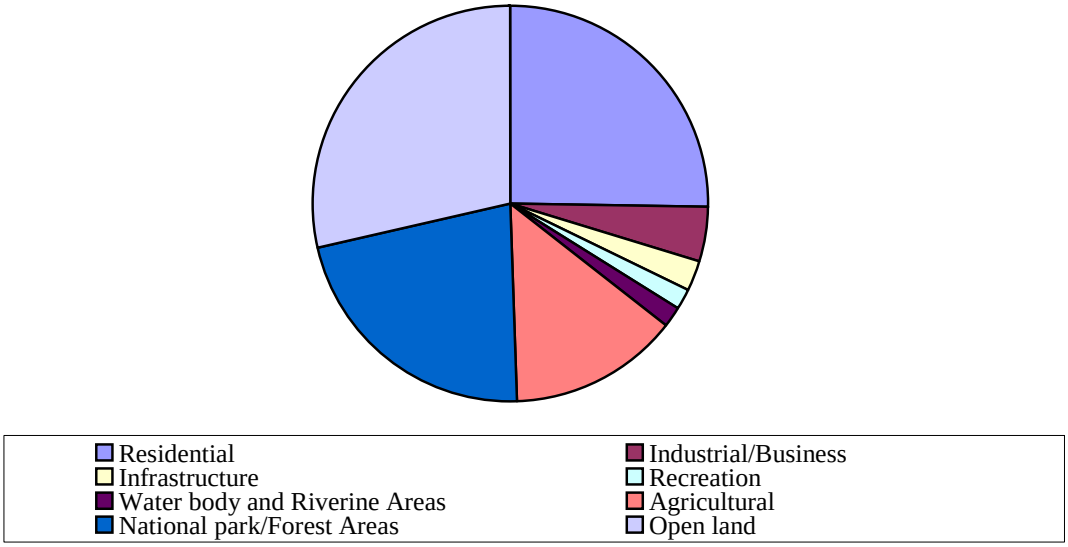

Figure 1.2: Area and percentage cover of land use types (Derived from table 1.7)

2.8 General Natural Environment of the City of Nairobi

There are various conservation areas in the Nairobi Metropoplitan Area (NMA) include two national parks, forest areas, and city parks.

National Parks: Within the NMA with the land area of 117km^2. The Oldonyo Sabuk National Park is in the east of the NMA, and has the land area of 18.5km^2.

***Nairobi City's Parks and Conservation Areas*:** The Nairobi Arboretum is located to the north of the State House. Two city parks of the Uhuru and the Central are fronting on the west side of the Uhuru highway. Depending on the way selected projects are designed, a part of these parks may be directly affected. The Nairobi City Park is in the north of Nairobi City on the Forest road to the south and the Limuru road to the northwest. This is the Nairobi residents' most popular part of weekend outing. The Jeevanjee Park is facing the Moi Avenue. It is the smallest city park in the middle of congested downtown business district.

***Forest Areas*:** Forest areas existing in the NMA are summarized in the Table 1.8.

Table 1.8 Forest Areas Within The Study Area

Forest Area	Location	Area (ha)	Considerations for the Master Plan
Ngong Road	Western part of Nairobi City	1,189.5 ha	It may be partly affected by the Southern Bypass Project.
Dagoretti	Just outside of Nairobi City	764 ha	It may be partly affected by the Southern Bypass Project
Ololua	Just outside of Nairobi City	667.7 ha	A quarter of the forest is a natural forest with a variety of wildlife, which has been studied.
Ngong Hill	Western end of the NMA.		
Embakasi	Immediately southwest of Dagoretti Forest	573 ha	
Muguga	Western end of the NMA	225.3 ha	
Kamiti	Northern part of the NMA	169.6 ha	
Kiambu	Northern part of the NMA	79.3 ha	
Karura	Northern part of Nairobi City	956.1 ha	The headquarters of the Forest Department is located in the forest are.
Mateteni, Kithatani and Ngulini	Machakos District		These are district forests known as trust land.

2.9 General Social Environment

The general social environmental status of the City of Nairobi is discussed in terms of settlement patterns, housing, drainage and waste management, gender and household headship, public Health and Education

Settlement patterns: The demography and socio-economic characteristics of the NMA are described in Chapter 3 together with broad distribution of settlements that reflects the designation of residence by ethnicity during the colonial era and also the present income class distribution. This section focuses on informal settlements.

In 1993, there were about 110 informal settlements with a total population of approximately 0.75 million. They occupied 5.84% of the land area used for residential purposes, but housed 55% of the City's population. Some of Nairobi's informal settlements and their associated population are as follows: Kibera (251,040), Dagoretti (186,250), Kasarani (158,120), Makadara (102,480), Embakasi (31,890), Pumwani (11,890) and Parklands (7,330).

The Dagoretti, Embakasi and Kasarani settlements are most remotely located in the range of 12-18km from the main employment and service center of the CBD and the Industrial Area. The smaller and older settlements, Parklands and Pumwani, are closer to the center in the range of 4-6km. Kibera is exceptional that it is large and close, at about 5km from the CBD. For all settlements the weighed average distance from the centre is 11km.

Housing: Housing characteristics in Nairobi reflect socio-economic characteristics of the population. More permanent houses are found in high and middle-income areas with tiled roofs and stonewalls and often with large gardens. They are detached houses

concentrating in the areas to the west of the Uhuru highway and the north of the Waiyaki way/ Forest road, and the area beyond the Ngong Road Forest. Middle-income households can afford well-established apartment buildings, which are scattered among the detached houses.

Slum development has been one of the challenging aspects of urbanisation in the City of Nairobi and Kenya in general. Table 14.2 shows the eight (8) major slum areas in terms of population in the City of Nairobi.

In October 2004 UN-Habitat started the Kenya Slum Up-grading Programme (KENSUP) with MRPW and MOLG. Although the programme covers urban areas in Kenya as a whole, Nairobi and Kisumu have been selected as pilot urban areas. In Nairobi, the Kibera-Soweto areas have been selected. In these areas, more than 90 % of the households lack basic physical and social infrastructure. While in Kibera security of land tenure is not clear, it is not the case in Soweto.

In order to improve the livelihood of people living and working in Kibera-Soweto, housing improvement, income generation and other programmes are implemented. There are various organizations involved in the programme such as the central and local governments, international and bilateral aid agencies including NGOs and private companies. For instance, a number of bicycles are provided for small business in operation within the Kibera slum. It is a test case if NMT would become popular in the slum area and if it may be extended to outside the area.

Table 2.9 Slum Developments In Nairobi

	Area	1993 [1)]	2002 [2)]
1	Kibera	251,040	291,600
2	Dagoretti	186,250	96,840
3	Kasarani	158,120	277,400
4	Makadara	102,480	99,900
5	Embakasi	31,890	115,200
6	Pumwani	11,890	28,800
7	Parklands	7,330	-
8	Mathare	-	165,600
	Total	749,000	1,075,340

Note: 1) Alder, G. (1995) Matrix Development Consultants
2) Estimated by Save the Children Center (SCC), Nairobi.

Drainage and Waste Management: Sewer mains in Nairobi City are laid along the Nairobi River, the Natari and Ruiruaka River, and the Ngong River. Nearly 20 sewage treatment plants are operational, largescale ones being at Dandora and Kariobangi. The sewerage system does not cover the whole of Nairobi City, and septic tanks and latrines are used in other areas. The storm water drainage system is inadequate even within Nairobi City, often causing inundation and traffic disruption. Dumping of solid wastes in drainage channels makes the situation worse**.**

Gender and Household Headship**:** Male headed and female-headed households are almost equally distributed. The number of household members ranges in 3-6 persons for both male and female-

headed households. Males and females rent their living places almost equally, but their cooking fuel consumption distinctly differs. Male-headed households spend more paraffin and charcoal than female-headed households. This indicates that female-headed households are generally poorer in terms of household expenditure.

Public Health**:** Respiratory symptoms and malaria are the top two major causes of mortality in recent years followed by accidents**.**

Education**:** There are much young population not attending schools in recent years. However, attendance of primary school and secondary school is on the steady increase as a whole.

CHAPTER THREE: NATIONAL LEGISLATIVE AND REGULATORY FRAMEWORK

3.1 Introduction

Before 1999 various legal instruments were being used sectorally in environmental management. In 1999 the environmental Management and Coordination Act, No. 8 was enacted and operationalised in the year, 2000.

3.2. Procedure of EIA

- All of the environmental impact assessment activities in Kenya should be carried out by "Lead Expert" registered with the National Environmental Management Authority;
- Lead expert entrusted by project proponents should elaborate a "Project Report" as a project proposal containing the outline of the project and identifying the potential environmental impacts and submit it to NEMA;
- NEMA examines the "Project Report" and it is required to comment on the report within 45 days;
- Based on NEMA's comments on the "Project Report", the proponent is to implement the project:
  - Without EIA study as it is exempt from full EIA but carry out monitoring of the conditions of approval
  - Acceptance of proposal;
  - Advice for revisions; or rejection

If EIA study was requested to carry out, "Terms oReference" which contains basic requirement of the EIA guidelines should be prepared by the project proponent and submitted to NEMA for approval. There is no fixed period for comment by NEMA but might take for 45 – 60 days in general;

- EIA report, which usually runs for 3 - 6 months depending on the covering area and intensity of study, the following should be covered by the registered lead experts of EIA in Kenya.
  - Sources of impact;
  - Project inputs;
  - Project activities;
  - Area of impacts on the natural and human environments;
  - Environmental impacts (impacts on the natural and human environments);
  - Environmental guidelines and standards (National legislation, international guidelines, international conventions and treaties);
  - Mitigation measures;
  - Environmental management plan; and
  - Environmental Monitoring and Auditing.
- Upon receipt of EIA report, NEMA assesses it within 60 days for further comments unless otherwise EIA license issued.

CHAPTER FOUR: METHODOLOGY

4.1 Terms of Reference for the Project Report

The terms of reference developed by the proponent for the EIA project report were as follows:

4.1.1 Interview Survey for the Missing Link Improvement Project

1. Identify total number of kiosks and garages and any other temporary nature of structures directly and indirectly affected by the Missing Link Improvement Project;
2. Identify total number of households, apartment buildings, shops, factories and offices of the permanent nature of structures directly and indirectly affected by the Missing Link Improvement Project;
3. Establish total number of population directly affected by the Missing Link Improvement i.e. identify the total number of population of each apartment buildings, etc. fronting the Missing Link No. 3, No.6 and No.7;
   (a) Carry out interview survey of the residents directly or indirectly affected by the Missing Link Improvement Project, regardless of whether they are permanent residents, kiosk owners on temporary permit, factory, business or office workers, who are directly or indirectly affected by the Missing Link Improvement Project, at least one every 100m or less;
   (b) Compile the survey data and process and analyse the result statistically;
   (c) Upon process and analysis of the interview survey result, identify the number of permanent nature of structures subject to resettlement or land acquisition if any including kiosks, garages and any other temporary nature of structures subject to resettlement; and
   (d) Carry out interview survey of the residents directly or indirectly affected by the Missing Link Improvement Project, regardless of whether they are permanent residents, kiosk owners on temporary permit, factory, business or office workers, who are directly or indirectly affected by Missing Link Improvement Project, at least one every 100m or less.
   (e) Compile the survey data and process and analyse the result statistically;
   (f) Upon process and analysis of the interview survey result, identify the number of permanent nature of structures subject to resettlement or land acquisition if nay including kiosks, garages and any other temporary nature of structures subject to resettlement; and
   (g) Identify the area of resettlement for those of permanent nature of structures subject to resettlement or land acquisition if any including and kiosks, garages and any other temporary nature of structures subject to resettlement;

2) Contact Persons on the Study of Resettlement Action Plan

The following is a list of contact persons identified and included:

(a) Chairman of Ring Road Jua Kali Garage Association;
(b) Provincial Applied Technology Office for Jua Kali Sector;
(c) Chairman of the Nairobi Province Jua Kali Associations Congress;
(d) Nairobi City Council, the Planning Departments;
(e) Nairobi City Council, City Engineer;
(f) Ministry of Roads and Public Works;

(g) National Environment Management Authority –Kenya;
(h) District Officer, Westlands Division and
(i) Chiefs of Kilimani and Kileleshwa Locations e.t.c.

3. Investigate on the policy on resettlement for the kiosks and garages and any other temporary nature of structures occupying the road reserves of Missing Link No.3, No.6 and No.7 and make recommendations on the resettlement scheme as a whole.

4. Study on Environmental Implications
   As appears in the Instructions for Bidding, the following traffic flow improvement works would be carried out in terms of its engineering designs.

   i. Traffic flow improvement of the area at intersection of Ngong Road and Haile Selassie Avenue;
   ii. Traffic flow improvement of the area from Railway Station to Moi Avenue to Muranga Road;
   iii. Traffic flow improvement of Westlands area; and
   iv. Traffic flow improvement of Pangani area

   In relation to the above, flow of public transportation is improved and their circulation could be changed according to the road improvement. Study therefore explicitly on the environmental implications of the above traffic flow improvement including psychological and behavioural changes that may take upon pedestrians, private car drivers, bus and matatu drivers and others who use the improved sections of the road in Nairobi. The information for this study is provided separately in Volume II study Report.

5. Study on Natural Environment
   Based on the Master Plan Study report and the field observation, identify fauna and flora directly affected by the selected projects subject to pre-feasibility study and present them in a form of which scientific names, English names and local names are shown where appropriate.
6. Count the traffic (pedestrians, motorised and non-motorised vehicles) at the intersections of Missing Links Roads 6 and 7.

4.2 Design and Methodology

The Environmental Management and Co-ordination Act (EMCA) o. 8 of 1999 and the Environmental Impact Assessment (EIA) Regulations indicate factors, which must be considered in conducting an EIA study and preparing the EIA study report. For the purpose of this study the consultants used methodologies and data collection techniques, which were amendable to the various types of information/data required. The methodologies used were as follows:

- Literature review.
- Field visits (reconnaissance) at the beginning of the study to learn of the study area and sites.
- Visual observations at the proposed sites for the construction/opening up of the 3 missing Links roads in the Kileleshwa – Kilimani-Lavington areas.
- Use of photographs of scenery to obtain permanent records of observations.

- Collection of views during Chiefs **Barazas**, (meetings) along the Missing Links Roads.
- Administration of questionnaires to the community around the proposed sites.
- Interviews with other stakeholders, including diverse leaders, including (provincial administration, Local government, civil servants, private sector, and informal sector representatives) as key informants.
- Walk - through Information checklists.
- Impact identification using matrices and expert/professional assessment.
- Confirmation and sharing of preliminary findings with the proponent and other relevant EIA experts.
- Constant review of various drafts reports.

4.3 Instruments for Data Collection and Procedures

Several techniques and instruments were used in gathering data. The instrument principal (questionnaires) that were used for the field studies were designed by the proponent and reviewed/strengthened by consultants prior to the administration in the field, in order to ensure that the data collected were properly verified. The following is a description of the instruments that were used, the procedures used in their administration, together with other procedures used to collect other supplementing information.

4.3.1 Literature Review Guide

A list of potential sources of data and information for this study was compiled by the consultants. The list was used to guide the consultants in identifying the relevant information. Some of the sources are cited and appear in the list of references.

4.3.2 Interview Questionnaires With Temporary Occupiers of the Missing Links Roads 3, 6 and 7.

After the completion of the review of the developed questionnaire by the proponent, the consultant hired research assistants to administer questionnaires through interviewing and completing the questionnaires. Prior to the administration of these questionnaires, the research assistants were trained for half a day, on how to administer the questionnaires in English and Kiswahili where applicable. All the questions were thoroughly covered and the research assistants were confident in the administration of the questionnaires.

4.3.3 Meeting with the Provincial Administration Officials

Due to security problems in Kenya, and particularly in Nairobi, the consultants held a series of meetings with the provincial administration, especially in the project area. The consultants met with the District Officer of Westlands Division, with Chiefs of Kileleshwa and Kilimani locations. These officials exceedingly facilitated the data collection from the temporary occupiers of the missing links. For example, they held meetings with consultants and research assistants, explained the value of research being conducted, and the value of their contributions in answering all the questions in the questionnaires transparently. The consultants valued the assistance and contributions towards the data collection for this Study.

4.3.4 Walk Through Observation Checklists

Consultants made and recorded observations during both the preliminary and detailed follow-up field study visits. The observations focused on natural environments and social environments, e.g. vegetation, streams, temporary shelters, permanent residents/businesses, jua kali garages, kiosks, and vendors on open air. The procedure applied to the missing links (social impacts, natural environment) and the improvements of roundabouts and intersections (social and natural) environments.

4.3.4 Traffic Counting: Intersections of Missing Links 6 and 7.

Prior to Thursday 16/06/2005, the day of the counting, two research assistants were trained by the consultants on the method and procedures of counting This involved pedestrians, bicycles, private cars, taxis, trucks, buses, matatus and others. A few days before, the research assistants had been taken to the site for familiarization, and to report there by 6:15 A.M on the counting day. The procedure entailed:1) counting in the direction of travelling from Missing Link No. 7 S E(from 6.30 AM – 6.30 P.M), 2) counting in the direction of travelling from Missing Link No. 7 NW (from 6.30 AM – 6.30 PM), 3) counting in the direction of travelling from Missing Link No. 6 N E (from 6.30A.M – 6.30P.M. and 4) counting in the direction of travelling from Missing Link No. 6 S.W (from 6.30 A.M – 6.30 P.M).

4.3.5 Key Informants' Questionnaires/Interview

The key informants were identified to be the District Officer, Westlands Division, the Chiefs of Kileleshwa, Kilimani, Squatter village elders, Chairman Ring Road Jua Kali Garage Association, Provincial Applied Technology Officer for Jua Kali Sector, Nairobi City Council Planner, and Kenya NEMA, among several key informants were identified.

This questionnaires focused on the suitability of the Missing Link Roads construction sites, community support, social-economic impact, environmental concerns and recommended mitigation measures for predicted negative impacts resulting from the proposed construction of the missing links roads. Also, it elicited information on the difficulties experienced by temporary occupiers in the area, as well as suggestions on how these could be alleviated through appropriate compensation for their assets, and finding suitable or similar sites, taking into consideration minimal losses, economically, socially, and culturally.

4.3.7. Guide for the Public Meetings on the missing links.

The meetings were well publicized by the chiefs at the request of the consultants, through the District Officer, Westlands Division. The attendances, in all the meetings in the 3 missing links roads were extremely good. The chiefs organised them in a way that the businesses activities were not disrupted. This meant that, meetings were conducted in the respective businesses of the temporary occupiers locally, and the meetings duration averaged 20 minutes – 45 minutes. The consultants, chiefs, D.O and temporary occupiers of the missing Links roads established very good professional working relationships.

The key informants questionnaires/interviews were conducted by the consultants (natural and social EIA experts) themselves. These consultants also conducted interviews of the businesses and some permanent residents of the project area.

4.4 Data Analysis Techniques

In analysing the data for this study, two statistical programmes were applied. These are: SPSS for Windows and SPSS data entry builder were used. The latter, a part from designing of the questionnaires, was employed in data coding and entry. While the former, was used to perform statistical analysis, mainly descriptive statistics.

The two programmes were chosen for the study because;

(a) They are tools for fast and flexible survey design and data collection, and
(b) They are powerful tools for data analysis for the social science research.

These statistical tools facilitated the collation, description and presentation of data of this study.

CHAPTER FIVE: FINDINGS OF THE SUPPLEMENTAL STUDY

5.1 Introduction

After preliminary tour of the areas for the proposed project, Missing Links Nos. 3, 6 and 7, it was observed that there are people and flora that will be adversely affected by the proposed project.

A supplement study was therefore carried out to determine the extent and severity of the foreseen impacts. The findings of this study were as follows:

5.2 Natural Environment of the Project Area

A floristic survey of the natural environment in missing links No.3, 6 and 7 and of the roundabouts was carried out to determine the composition of trees and shrubs for the area. This was part of an impact assessment exercise in areas that are targeted for infrastructure (roads) development in the Nairobi Metropolitan area. The missing links are located in Kilimani, Kileleshwa and Lavington, which are part of the high-class residential areas in Nairobi.

These missing links are part of the road network within the city of Nairobi and are either not developed or are neglected and not effectively used for the intended purpose at the moment.

The dilapidated roads are now used as footpaths by the people and in some cases have been turned into makeshift dwellings where informal structures are built for both residential and commercial purposes.

There are different types of trees and shrubs that are found within the missing links. These include both indigenous as well as exotic plants. The neighbouring residential homeowners have planted ornamental plants to improve the scenery of the surrounding. In other sections, the missing links are used as agricultural fields where food crops such as maize, cassava, papaya, avocado, sweet potatoes and yams are planted.

5.2.1 MISSING LINK NO. 3

Section One

The stretch is currently under renovation on the sideways after the makeshift structures were recently demolished by the Nairobi City Council. Flowers are being grown to replace the previous use that was dominated by the illegal structures. The section has very few trees, these include:

Botanical Name	***Common Name***	***Family***
Ficus Benjamina	Benjamina fig	Moraceae
Acrocarpus fraxinifolius	Shingle tree	Leguminosae

Section Two

The stretch has well developed trees with exotic species dominating. There are also new plantings and other initiatives such as tree nurseries that supply seedlings in the well-vegetated neighbourhood. Active agriculture is also evident with food crops such as maize, beans and fruit crops including mangoes, bananas and avocadoes.

Botanical Name	***Common Name***	***Family***
Ficus Benjamina	Benjamina fig	Moraceae
Jacaranda mimiseafolia	Jacaranda	Bignonaiceae
Gravillea robusta	Silver Oak	
Proteaceae		
Eucalyptus saligna	-	Myrtacaeae
Tipuana tipu	Tipu tree	Fabaceae
*Melina sp**		
*Casuarina equisetifolia**	Whistling pine	Casuarinaceae
*Tithonia diversifolia**	-	Compositeae
*Rhicinus communis**	Castor oil seed	Solanaceae
*Vernonia hochstetter**	-	Compositae
Cassia spectabilis	-	Caesapliniaceae
*Hibiscus rosasinensis**	-	Malvaceae
*Terminalia mentalis**	-	-
*Manihot glaziovii**	-	Euphorbiaceae
*Phoenix reclinata**	Wild date palm	Palmae
Schinus terebinthefolia	-	Anarcadiaceae
*Spathodea campanulata**	Nandi flame	Bignoniaceae
*Ficus thoningii**	-	Moraceae
*Callistemon virminalis**	-	Myrtacaeae
*Acacia xanthophloea**	Fever tree	Mimosae
*Croton macrostachyus **		Euphorbiaceae
*Markhamia lutea**	-	-
Acrocarpus fraxinifolius	Shingle tree	Leguminosae
*Sesbania sesban **	Sesban	Leguminosae
*Dendrocalamus strictus **	Bamboo	Poaceae
*Dracaena afromontana**		Dracaenaceae

** Indigenous*

5.2.2MISSING LINK NO. 6

Section One

There is extensive agriculture. Crops planted include, sugar cane, sweet potatoes, avocadoes and maize. Along with the food crops, there is also napier grass, which is used as fodder for livestock. The following trees and shrubs are growing along this stretch:

Botanical Name	***Common Name***	***Family***
*Ficus thoningii**	-	Moraceae
Acrocarpus fraxinifolius	Shingle tree	Leguminosae
Leucaena leucocephala	Horse tamarind	Leguminaceae

*Bauhinia sp**	-	Casalpiniaceae
*Rhicinus communis**	Castor oil seed	Solanaceae
*Lantana camara**	-	Labiateae
*Spathodea campanulata**	Nandi flame	Bignoniaceae
*Vernonia ochstetteri**	-	Compositae
*Melia volkensii**	-	Meliaceae
Tipuana tipu	Tipu tree	Fabaceae
*Croton megalocarpus**	Musine	Euphorbiaceae
*Dombeya sp**	-	Sterculiaceae
*Solanumi ineunum**	-	Solanaceae
*Schinus molle**	Paper tree	Anacardiaceae
*Milicia excelsa**	-	Moraceae
*Olea capensis**	-	Oleaceae

Section Two

The stretch has active agriculture with food crops such as maize, cassava and bananas. The animal fodder, Napier grass is also planted. Trees and shrubs found in the stretch include:

Botanical Name	***Common Name***	***Family***
Acrocarpus fraxinifolius	Shingle tree	Leguminosae
Eucalyptus sp	-	Myrtacaeae
*Croton sp**	-	Euphorbiaceae
*Ficus thoningii**	-	Moraceae
*Croton megalocarpus**	Musine	Euphorbiaceae
Gravilleia robusta	Silver Oak	Proetaceae
*Vernonia sp**	-	Compositae

Section Three

The stretch has bushes consisting of *Tithonia, Leonotis* and *Lantana* species. There is also agriculture with crops such as maize, bananas and pumpkins. The tree species are:

Botanical Name	***Common Name***	***Family***
Gravillea robusta	Silver Oak	Proteaceae
*Acacia xanthophloea**	Naivasha thorn	Mimosae
*Phoenix reclinata**	Wild date palm	Palmae
Jacaranda mimiseafolia	Jacaranda	Bignoniaceae
*Markhamia lutea**	-	Bignoniaceae
*Spathodea companulata**	Nandi flame	Bignoniaceae
Phoenix canariensis	Canary palm	Palmae
*Terminalia mentalis**	-	-
*Datura stramonium**	Devil's apple	Solanaceae
*Zyzigium sp**	-	Myrtaceae
*Acrocarpus fraxinifolius**	Shingle tree	Leguminosae
*Acacia kirkii**	-	Mimosae
*Newtonia buchanani**	-	Caesalpiniaceae
Eucalyptus sp	-	Myrtaceae

**** Indigenous***

*Acacia laha**	-	Mimosae
*Podocarpus falcatus**	-	Cypressaceae
*Casuarina equisetifolia**	Whistling pine	Casuarinaceae
Aracuaria columnaris	-	Coniferae
*Croton megalocarpus**	Musine	Euphorbiaceae
Tipuana tipu	Tipu tree	Fabaceae
*Schinus molle**	Paper tree	Anacardiaceae
Filicium dicipiens	-	

5.2.3 MISSING LINK 7

Section One

This stretch has swampy areas at some points with sedges of *Cyperus* species. There are also flower nurseries along the swampy areas with very well established flower gardens mainly consisting of *Acalypha* and *Hibiscus* species. Agriculture is also evident with maize as the main crop. The tree cover includes:

Botanical Name	***Common Name***	***Family***
Chorisia speciosa	-	Bombacaceae
*Croton megalocarpus **	Musine	Euphorbiaceae
Aracuaria columnaris-	-	Coniferae
*Bauhinia sp**	-	Caesalpiniaceae
Cassia spectabilis	-	Caesapliniaceae
*Grewia sp**	-	Tiliaceae
*Markhamia lutea**	-	Bignoniaceae
*Spathodea campanulata**	Nandi flame	Bignoniaceae
*Casuarina equisetifolia**	Whistling pine	Casuarinaceae
*Schinus molle**	Paper tree	Anacardiaceae
Eucalyptus sp	-	Myrtacaeae

Section Two

The missing link is lined with well-developed residential homes with driveways extending into the link. Well-defined tree lines of *Casuarina sp* and generally a beautiful scenery. Agriculture at some points with maize, bananas and vegetables. The trees found in the stretch include:

Botanical Name	***Common Name***	***Family***
Acrocarpus fraxinifolius	Shingle tree	Leguminosae
Gravillea robusta	Silver Oak	Proteaceae
*Casuarina equisetifolia**	Whistling pine	Casuarinaceae
*Sesbania sesban**	Sesban	Leguminosae

** Indigenous*

Section Three

This section has varied landscapes with open grassland areas, fallow land tree nurseries and bushland consisting of *Lantana* and *Opuntia sp.* Active agriculture with maize, pumpkins, cassava and yams. The trees found along the stretch are:

Botanical Name	***Common Name***	***Family***
Croton megalocarpus *	Musine	Euphorbiaceae
Jacaranda mimiseafolia	Jacaranda	Bignonaiceae
*Lantana camara**	-	Labiateae
*Opuntial vulgaris**	Barbery fig	Cactaceae
*Acacia poliacantha**	-	Mimoseae
*Croton macrostachyus**	-	Euphorbiaceae
*Ficus sycomorus**	-	Moraceae
Aracuaria columnaris		Coniferae

Section Four

This section consists of areas with informal settlements, which are used for both residential and commercial purposes. There are also agricultural activities that are widespread and consist of bananas, beans, pumpkins, cassava and green peas. The vegetation is dominated by bush land with a few scattered trees. The following species were recorded:

Botanical Name	***Common Name***	***Family***
*Datura stramonium**	Devil's apple	Solanaceae
*Rhicinus communis**	Castor oil seed	Solanaceae
*Tithonia diversifolia**	-	Compositae
*Hibiscus sp**	-	Malvaceae
*Croton megalocarpus**	Musine	Euphorbiaceae
*Erythrina burtii**	Coral tree	Leguminaceae
*Polygonum salicifolium**		Polygonaeceae

Section Five

The missing link is dominated by shrubs and grasses of *Amaranthus* and *Panicum* species respectively notable trees and shrubs are:-

Botanical name	***Common Name***	***Family***
*Solanum Incanum**	-	Solanaceae
*Maninot glaziocvii**	Tree cassava	Euphorbiaceae
*Acacia polyacantha**	Falcon's claw Acacia	Mimosae
*Rhicinus communis**	Castor oil seed	Solanaceae
*Tithonia diversifolia**	-	Compositae

** Indigenous*

Section Six

The section has well developed flowers gardens which with species of *Acalypha, Hibiscus* and *Bougainvillea* species dominating. The section has also several informal infrastructures for small-scale artisans.

The plant community is well established and consists of important agroforestry and ornamental species.

Botanical Name	***Common Name***	***Family***
*Acacia xanthophloea**	Naivasha thorn	Mimosae
Gravillea robusta	Silver Oak	Proteaceae
*Casuarina equisetifolia**	Whistling pine	Casuarinaceae
*Spathodea campanulata**	Nandi flame	Bignoniaceae
*Acacia mearnsii**	Wattle tree	Mimosae
*Milica excelsa**	-	Moraceae
*Callistemon virminalis**	-	Myrtacaeae
*Psidium guajava**	Guava tree	Myrtacaeae

Section Seven

This section has a rich diversity of flora with key forestry and agroforestry species. There is also a woodland grown with Eucalyptus, Acacia, Guava and bottle brush plants. Some plant community in the section are:

Botanical Name	***Common Name***	***Family***
*Acacia kirkii**	-	Mimosae
*Croton megalocarpus**	Musine	Euphorbiaceae
Gravillea robusta	Silver Oak	Proteaceae
Tipuana tipu	Tipu tree	Fabaceae
*Sesbania sesban **	Sesban	Leguminosae
Ficus Benjamina	Benjamina fig	Moraceae
*Phoenix reclinata**	Wild date palm	Palmae
Eucalyptus sp	-	Myrtacaeae
Acrocarpus fraxinifolius	Shingle tree	Leguminosae
*Vitex keniensis**	Meru oak	Vertanaceae
*Acacia xanthophloea**	Naivasha thorn	Mimosae

Section Eight

Botanical Name	***Common Name***	***Family***
*Acacia xanthophloea**	Naivasha thorn	Mimosae
Eucalyptus maculate	Spotted gum	Myritacaceae
*Terminalia mentalis**	-	-
Acrocarpus fraxinifolius	Shingle tree	Leguminosae
*Dracaena afromontana**	-	Dracaenaceae
*Markhamia lutea**	-	Bignoniaceae
Tipuana tipu	Tipu tree	Fabaceae
*Croton megalocarpus**	Musine	Euphorbiaceae
Cassia spectabilis	-	Caesapliniaceae
Jacaranda mimiseafolia	Jacaranda	Bignonaiceae
*Hibiscus sp**	-	Malvaceae

** Indigenous*

*Bougainvillea sp**	-	Nyctaginaceae
Cupressus sp	-	Cypressaceae

** Indigenous*

5.3 Social Environment for the Missing Link Project Area.

The construction of the missing links will have some effects on people either operating businesses or living in close proximity to the Missing Links. Table 5.3 summarises the various categories people and properties that will be affected by the proposed Project.

Table 5.3. Number of both permanent and temporary residents/business that are likely to be affected by the proposed project.

Code No.	Descriptions	No. in each Missing Link			
		3	**6**	7	**Total**
001	Kiosks	10	23	101	134
002	Vendors without shelter	5	20	39	64
003	Motor garages*	3	0	21	51
004	Permanent Residents (Single units)**	13	9	1	23
005	Permanent Residents (Apartments)**	70	181	81	332
006	Temporary Residents***	0	1	3	4
007	Permanent Businesses (offices)	4	1	5	10
008	Social Facilities	1	0	0	1
009	Gardening	2	10	8	20
010	Tree nurseries	2	0	1	3
011	Religious Buildings/Offices	1	0	1	2
012	Schools	1	0	1	2
013	Car Parks	0	0	3	3

* Only the number of entrances were counted though there are more than 1 person working inside the premises.
** Only those with gates fronting the missing links were counted.
*** Some temporary structures that serve as houses

5.3.1 Socio-Demographic Characteristics occupiers of the missing links (informal businesses and settlements).

The social-demographic results are described in terms of gender, age, marital status, parental status, economic status, and residential status. A total of 282 respondents were interviewed during the survey out of which 75, 21,and 186 were in the missing links (ML) Nos.3, 6 and 7, respectively.

Gender: The survey interviewed 70 (93.3%) males and 5 (6.7%) females in the ML 3, 11 (52.4%) males and 10 (47.6%) in ML 6 and 144 (77.4%) and 42 (22.6%) females in ML. 7 (Table5.3.1a). In total 225 males and 57 females were interviewed in the three missing links. The high number of male respondents is because of the dominance of male-

oriented automobile activities, Jua Kali garages, in the MLs. 3 and 7. All sort of mechanics are employed in these Jua Kali garages.

Table 5.3.1a. Gender of Respondents in the Missing Links 3, 6 and 7.

Gender	**Missing Link**					
	No.3		**No.6**		**No.7**	
	Number	Percentage	Number	Percentage	Number	Percentage
Male	70	93.3	11	52.4	144	77.4
Female	5	6.7	10	47.6	42	22.6
Total	**75**	**100**	**21**	**100**	**186**	**100**

Age: Generally, the respondents can be described as youthful i.e over 70% fell within the age brackets of 20-29 and 30-39 in ML Nos. 3 and 7 and about 70% in the ML No. 6 (table 5.3.1b). This composition is a reflection of the youthful population that characterizes Kenya's population. Less than 10% fell within the age brackets of 15-19 and 50-59 in ML Nos. 3 and 7 and no respondent was recorded for the age bracket 15-19 for ML No.6. Those falling in the age bracket of 40-49 were less than 20% in all the three missing links

Table 5.3.1b: Ages of Respondents

Age	**Missing Link**					
	No.3		No.6		No.7	
	Number	Percentage	Number	Percentage	Number	Percentage
15-19	4	5.3	0	0	4	2.2
20-29	32	42.7	7	33.3	71	38.2
30-39	24	32.0	9	42.9	59	31.7
40-49	6	8.0	3	14.3	38	20.4
50-59	6	8.0	1	4.8	10	5.4
MORE THAN 60	3	4.0	1	4.8	4	2.2
Total	**75**	**100**	**21**	**100.0**	**186**	**100**

Marital Status: Over 70% of the respondents were married in all the three Missing Links while less than 30% were singles and only one (4.8%) respondent was divorced in the ML No. 6 (table 5. 3. 1c).

Table 5. 3. 1c: Marital Status of the Respondents

Marital Status	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Single	21	28	5	23.8	30	16.1
Married	53	70.7	15	71.4	156	83.9
Other (Divorced)	0	0	1	4.8	0	0
Total	**75**	**100**	**21**	**100**	**186**	**100**

Parental Status: about 69.3% against 30.7%of the respondents in ML No. 3, 81% against 19% in ML.6 and 90.3% against 9.7% in ML.7 had children (table 5.3.1d). This compared fairly with their marital status where almost all the married had children and almost all the singles did not have children.

Table 5.3.1d: Responses on the parental status of the Respondents

Response	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	52	69.3	17	81.0	168	90.3
No	23	30.7	4	19.0	18	9.7
Total	**75**	**100**	**21**	**100.0**	**186**	**100**

The number of children of the respondents ranged between 1 and 20. Over 10% of the respondents in all the missing links had children between 1 and 4 while those with more than five children were below 10% across the missing links (table 5.3.1e).

Table 5.3.1e: Statistics of the Children of the Respondents

No. of Children	Missing Links					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
1	9	12.0	4	19.0	30	16.1
2	8	10.7	1	4.8	55	29.6
3	10	13.3	4	19.0	28	15.1
4	9	12.0	5	23.8	22	11.8
5	7	9.3	2	9.5	15	8.1
6	-	-	1	4.8	8	4.3
7	6	8.0	-	-	4	2.2
8	2	2.7	-	-	2	1.1
10	-	-	-	-	3	1.6
11	-	-	-	-	1	0.5
20	-	1.3	-	-	-	-
NA	23	30.7	4	19.0	18	9.7
Total	75	100	21	100.0	186	100

Location of Schools: The majority of the respondents across the missing Links send their children to schools outside the project area but within Nairobi city with the exception of ML 6 where the majority 33.3% have their children attending schools outside Nairobi City. Less than 10% of the respondents in the three missing links have children attending schools within the project area while another less than 10% in MLs. 3 and 6 and 16.7% in ML. 7 having children who have not reached school going age or have completed their education (table 5.3.1f).

Table 5.3.1f. Locations of Schools Attended by the Respondent's Children

Location of the School (s)	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Within the project area (Lavington-Kileleshwa)	2	2.7	2	9.5	9	4.8
Outside the Project area	35	46.7	6	28.6	83	44.6
Outside Nairobi	11	14.7	7	33.3	39	21.0
Other (Do not go to school / or have not yet gone school)	7	9.3	2	9.5	31	16.7
No response						
Total	**55**	**63.4**	**17**	**80.9**	**162**	**87.1**

NB. *In ML.3 the responses from 52 respondents (table 5.3.1d) who have children are 55 because 3 respondents have more than one location of schools for their children.*

Residential Status: There are three residential categories of the respondents in all the three Missing Links (table 5.3.1g). These are:

(a) Those owning residential houses/structures within the project area,
(b) Those renting residential house/structures within the project area
(c) Those who have other residential arrangements such as residing with relatives outside the project.

About 9.5% of respondents in ML. 6 and 12.9% in ML 7 own a residential place in the project area. None was recorded for ML.3 (table 5.3.1g), while 38.1% of respondents in ML 6 and 23.7% in ML 7 rent a flat/apartment in the project area. None of the respondent in the ML3 was recorded for this category.

All respondents in ML 3 and over 50% in both ML 6 and ML7 are either renting, owning or have other residential arrangements outside the project area (see Appendix1 for a detailed presentation).

Table 5.3.1g. Residential categories of the Respondents

Residential Category	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
House owner in the project area	0	0	2	9.5	24	12.9
Renting Flat/Apartment in the project area	0	0	8	38.1	44	23.7
Other*	75	100	11	52.4	118	63.4
Total	**75**	**100**	**21**	**100.0**	**186**	**100**

* Refer to Appendix 1 for detail presentation

Dependants: In ML 3, more than 10% of respondents have from 1 to more than 6 dependants living with them. In ML6, about 23.8% of respondents have 3 or 4 dependants, while in ML7, about 28% of respondents have more than 6 dependants living with them (table 5.3.1h).

Occupation: The respondents in the missing links engage in informal employments/businesses. They operate kiosks and engage in other occupations such as street vending, laundry, construction works, hairdressing, mechanics, farming, carpentry, salesmanship, tailoring, shoe-mending and pastoring /preaching among others (Appendix2). Less than 10% of the respondents in MLs. 3 and 7 and 47.6% in ML.6 operate kiosks with daily permit. Those operating kiosks with annual permit were less than 10% across the missing links. Other occupations described in Appendix 2 are engagements of 77.3%of the respondents in ML.3, 52 % in ML.6 and 67.6% in ML. 7 (table 5.3.1i).

Dependants on the respondent's occupation: Majority of the respondents in all the missing links 78.7% in ML.3, 23.8% in ML.6 and 76.9% in ML.7 have more than 5 people depending on their occupations (Table 5.3.1j). Those with dependents less than 5 were less than 10% across the missing links. This dependence compared fairly with the respondents' cohabitants.

Vehicle Ownership: Few respondents in all the three missing links own vehicles. In ML.3, 10.7% against 89.3% own vehicles while in MLs. 6 and 7 are 28.6% against 71.4 and 18.8% against 81.2% respectively (table 5.3.1k). Bicycle is the common kind of vehicle in the three missing links, it is owned by 6.7% of respondents in ML.3, 23.8% in ML.6 and 11.8% in ML.7 (table 5.3.1l). 4% and 6.5% of respondents in MLs. 3 and 7 respectively own private cars while 0.5% own motorcycle in ML7.

Table 5.3.1h: Number of Dependants living with Respondents

No. of Dependants	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
0	2	2.7	1	4.8	0	0
1	8	10.7	2	9.5	17	9.1
2	18	24.0	2	9.5	17	9.1
3	12	16.0	5	23.8	35	18.8
4	10	13.3	5	23.8	36	19.4
5	10	13.3	2	9.5	29	15.6
More than 6	15	20.0	4	19.0	52	28.0
Total	**75**	**100**	**21**	**100**	**186**	**100**

Table 5.3.1i. Occupations of the respondents

Occupation	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Kiosk owner (Daily permit)	11	14.7	10	47.6	24	12.9
Kiosk owner (Annual permit)	1	1.3	2	9.5	18	9.7
Shop owner (Permanent permit)	0	0	0	0	0	0
Office worker/Shop keeper	0	0	0	0	0	0
Factory worker	0	0	0	0	0	0
Business owner	6	8.0	1	4.8	17	9.1
Government worker	0	0	0	0	0	0
No occupation	0	0	0	0	6	3.2
Other	58	77.3	11	52.4	126	67.6
Total	**76**	**101.3**	**24**	**114.3**	**191**	**102.5**

***NB**. In ML3, the total responses from 75 respondents are 76 equivalent to 101.3% because one respondent engages in more than one occupation. Similarly in ML.6 total responses from 21 respondents are 24 equivalent to 114.3% because two respondents engage in more than one occupation. And in Ml.7 the responses are 191 equivalent to 102.5% because 6 respondents have no occupation while 5 of those who responded engage in more than one occupation.*

Table 5.3.1j. Dependants on Respondents' Occupations

No. of Dependants	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Less than 3	5	6.7	2	9.5	9	4.8
Between 3 & 5	6	8.0	2	9.5	24	12.9
More than 5	59	78.7	5	23.8	145	76.9
No Response	5	6.6	1	4.8	8	5.4
Total	**75**	**100**	**21**	**100**	**186**	**100**

Table 5.3.1.k. Vehicle Ownership

Response	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
YES	8	10.7	6	28.6	35	18.8
NO	67	89.3	15	71.4	151	81.2
Total	**75**	**100**	**21**	**100**	**186**	**100**

Table 5.3.1l: Kinds of Vehicles Owned by Respondents

Response	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Private Car	3	4.0	0	0	12	6.5
Bus/Matatu	0	0	0	0	0	0
Motor Cycle	0	0	0	0	1	0.5
Bicycle	5	6.7	5	23.8%	22	11.8
Truck/Commercial Vehicle	0	0	0	0	0	0
Total	**8**	**10.7**	**5**	**23.8**	**34**	**18.3**

Information on the Missing Links Roads Improvement Project: About 70.7% against 29.3% of the respondents in MLs. 3, 71.4% against 28.6% in ML. 6 and 67.7% against 32.3% in the ML. 7 are aware of the existence of the Missing Links (table 5.3.1m). With regard to the ownership of the road reserve of the Missing Link, 90.5% against 9.5% in ML3, 70.7% against 29.3% in ML.6 and 31.2 against 61.8% in ML 7 know that the missing links are neither their land for development of buildings nor for farming (table 5.3.1n). The number of respondents across the missing links who received the information about the missing links improvements is less than those who have not. In ML.3, 45.3% against 54.7% have received information while in MLs.6 and 7 are, 42.9% against 57.1% and 40.3% against 59.7%, respectively (table 5.3.1o). They obtained the information from the provincial staff, district staff, location staff, community staff, project staff and other sources (table 5.3.1p) such as observation of the survey work, rumours, City council, minister of planning and development, people around and workmates.

As presented in table 5.3.1q, the project staff was the main source of information across the missing links. It was a source of information to 26.7% in Ml.3, 19% in ML.6 and 20% in ML.7. The provincial staff was a source of information to 1.3% of respondents in ML.3, 1.1% in ML.7 and none in ML.6. Similarly, the district staff was a source of information to 1.3% in ML. 3, 0.5% in ML.7 and none in ML.6. The location staff was a source of information to 9.5% in ML. 6, 7% in ML. 7 and none in Ml. 3. The community was a source of information to 1.1%of respondents in ML.7 and none in both ML.3 and ML.6. Finally, the other sources of information (table 5.3.1r) provided information to 19.8% of respondents in ML.3 and 2.7% in ML.7.

Table5.3.1m: Responses on the Knowledge of the Existence of the Missing Links

Response	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	53	70.7	15	71.4	126	67.7
No	22	29.3	6	28.6	60	32.3
Total	**75**	**100**	**21**	**100**	**186**	**100**

Table 5.3.1n: Responses on the Knowledge of the Ownership of the Road Reserve

Response	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	53	70.7	19	90.5	71	38.2
No	22	29.3	2	9.5	115	61.8
Total	**75**	**100**	**21**	**100**	**186**	**100**

Table 5.3.1o: Information on the Missing Link Improvement Project

Response	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	34	45.3	9	42.9	75	40.3
No	41	54.7	12	57.1	111	59.7
Total	**75**	**100**	**21**	**100.0**	**186**	**100**

Table 5.3.1q: Sources of information on the Missing Link Improvement Project

Source of Information	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Provincial Staff	1	1.3	0	0	2	1.1
District Staff	1	1.3	0	0	1	0.5
Location Staff	0	0	2	9.5	13	7.0
Community Staff	0	0	0	0	2	1.1
Project Staff	20	26.7	4	19	52	28
No response	0	0	3	14.4	0	0
Other *	15	19.8	0	0	5	2.7
Total	**37**	**49.3**	**9**	**28.5**	**75**	**40.4**

NB: In ML.3, the number of responses is 37 from the 34 respondents (table 5.3.1o*) who indicated to have received information, because 3 respondents obtained information from more than one source.*

Table 5.3.1r: Other Sources of Information on the Missing Link Improvement Project

Other Sources of Information	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Observation of Survey work	7	9.3	0	0	0	0
People around	4	5.3	0	0	0	0
Workmates	1	1.3	0	0	0	0
Unknown people	1	1.3	0	0	0	0
Minister of Planning and development	1	1.3	0	0	0	0
Rumors	1	1.3	0	0	1	0.5
City Council			0	0	2	1.1
Local Media/Daily News			0	0	2	1.1
Total	**15**	**19.8**	**0**	**0**	**5**	**1.7**

Acceptance of the Project: The project is widely accepted by the respondents in all the missing links. It is acceptable to 90.7% against 9.3% in ML. 3, 100% in ML. 6 and 93.5% against 6.5% in ML.7 (table 5.3.1s).

The 9.3% in ML.3 do not accept the project because of fear of losing their source of livelihood (work places, businesses, customers and jobs) and also have nowhere to go. While in ML.7, the 6.5% do not accept the project because they will loss shelter, they will loss source of livelihood, is not beneficial to them, the priority should be given to the existing roads which are in bad state and unless they are resettled (see table 5.3.1t for the statistics of the respondents who do not accept the project).

Resettlement following the Missing Link Improvement: All the respondents 90.7% in ML.3 who accepted the project as indicated in table 18, 85.7% against 14.3% in ML.6 and 90.9% against 1.6% in ML. 7 (table 5.3.1u) agree to resettle in the event that their place is affected by the project. The 14.3% in ML.6, do not agree to resettle because:

(1) They have nowhere else to go
(2) The current place is source of livelihood
(3) The new place might not have electricity and water.

While 1.6% in ML.7 do not agree to resettle because they are used to the current place or fear loss customers.

Areas preferred by the respondents for resettlement: Most respondents across the missing links, 37% in ML.3, 66.7% in ML.6, and 68.8% in ML.7, prefer to be resettled in a Near-by area within the location, an equal percentage 0.5 % in ML.7 alone will move out of Nairobi City and did not respond (table 5.3.1v) while 1.1% gave other preferences (table 5.3.1w).

Requests of the Respondents following Resettlement: Majority of respondents, 86.7% in ML.3, 85.7% in ML.6 and 89.8% in ML.7 request for a place to resettle (table 5.3.1x). Less 15% in all the three Missing Links request for the compensation of the business and

compensation for the structures. 1.3% in ML. 3 alone want to be resettled as per government regulation while 30% made other requests such as financial support, employment or job opportunity, education of children and provision of permanent trading licence. A detailed list and statistics of other requests is provided in appendix3

Table 5.3.1s: Responses on acceptance/agreement about the Missing Links Improvement Project

Response	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	68	90.7	21	100	175	94.1
No	7	9.3	0	0	11	5.9
Total	**75**	**100**	**21**	**100.0**	**186**	**100**

Table 5.3.1t: Respondents' reasons for not accepting the project

Reason	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Loss of Livelihood	7	9.3	0	100	8	4.4
Loss of shelter			0	0	1	0.5
Not beneficial			0	0	1	0.5
Priority should be given to existing roads in bad state			0	0	1	0.5
Total	**75**	**100**	**0**	**0**	**11**	**5.9**

Table 5.3.1u: Responses with regard to agreeing to resettle in the event the project directly affect the places of respondents

Response	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	68	90.7	18	85.7	172	90.9
No	0	0	3	14.3	3	1.6
Total	**68**	**90.7**	**21**	**100.0**	**175**	**92.5**

Table 5.3.1v: Areas Preferred by the Respondents for Resettlement

Area of Preference	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Near-by area within the location	28	37.3	14	66.7	128	68.8
Anywhere within the district	28	37.3	2	9.5	18	9.7
Near-by area but different location	12	16.0	2	9.5	22	11.9
I will move out of the district	0	0	0	0	1	0.5
Other*	0	0	0	0	2	1.1
No Response					1	0.5
Total	**68**	**90.6**	**18**	**85.7**	**172**	**92.5**

* Refer to table 5.3.1w for other preferences

Value of the Existing Road: Over 80% against less than 20% of the respondents in all the missing find the existing road useful (table 5.3.1y). The respondents find them useful because they are accessible, provide farmland, promote businesses, are business sites, are residential sites, are short-cuts hence does not require bus fare, workplaces, no cases of theft and used in transportation of goods to business premises (table 5.3.1z).

However, to the respondents who does not find them useful, the conditions of existing road are deteriorating, they are emanating excessive dust, does not allow matatu to enter the project area, the deteriorating roads conditions cause low economic productivity, the deteriorated conditions of the existing roads emanate excessive dust and cause excessively long time to reach the places of work (table 5.3.1aa).

Table 5.3.1w: Other areas preferred by the respondents for Resettlement

Area of Preference	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Any where	0	0	0	0	1	0.5
The project proponent to choose for them	0	0	0	0	1	0.5
Total	**0**	**0**	**0**	**0**	**2**	**1.1**

Table 5.3.1x: Requests by respondents in the event of resettlement

Request	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Find a place to resettle	65	86.7	18	85.7	167	89.8
Compensation for the Business	7	9.3	2	9.5	23	12.4
Compensation for the structures	4	5.3	0	0	17	9.1
Compensation for the land	0	0	0	0	0	0
As per the government regulations	1	1.3	0	0	0	0
Other*	31	41.3	6	28.6	86	46.2
Total	**108**	**143.9**	26	100.0	**293**	**157.5**

NB: the number of responses in all the missing links can not compare with the number of respondents, 75 in Ml.3, 21 in ML.6 and 186 in ML.7, because some of the respondents made more than one requests.
** Refer to Appendix 3*

Table 5.3.1y:Responses Concerning the Usefulness of the Existing Road

Response	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	63	84	18	85.7	182	97.8
No	12	16	3	14.3	4	2.2
Total	**75**	**100**	**21**	**100.0**	**186**	**100**

Table 5.3.1z: Benefits of the existing road to the Respondents

Response	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
It is a farmland	0	0	2	9.5	1	0.5
Promote business	19	25.3	12	57.1	53	28.5
It is business site	4	5.3	2	9.5	24	12.9
It is residential site	0	0	1	4.8	2	1.1
Used on foot	23	30.7	0	0	7	3.8
It is a short-cut/does not require bus fare	9	12	0	0	6	3.2
Work place/source of income	5	6.7	0	0	81	43.5
Used in transportation of goods to the business premise	0	0	0	0	2	1.1
It is accessible	0	0	0	0	1	0.5
Business site as well as Residential site	0	0	0	0	2	1.1
No theft	0	0	0	0	1	0.5
No Response	3	4	1	4.8	2	1.1
Total	**60**	**80**	**17**	**80.9**	**180**	**96.7**

Table 5.3.1aa: Disadvantages of the Existing Road

Disadvantages of Existing Road	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Road conditions are deteriorating	6	8.0	2	9.5	4	2.2
Deteriorating road emanate excessive dust	7	9.3	1	4.8	4	2.2
Deteriorated road does not allow matatu entering to this area	2	2.7	0	0	1	0.5
It is simply uncomfortable to travel with my car	9	12	2	9.5	4	2.2
Deteriorating road causes to lower economic productivity	4	5.3	2	9.5	4	2.2
The existing road conditions take me to go to work excessively long time	4	5.3	1	4.8	3	1.6
Other	1	1.3	0	0	0	0
Total	33	43.9	**8**	**38.1**	20	10.9

Present Socio-economic Environment: Socio-economic contributions of existing roads: Residential development, business development, education/sport community development, tourism industry development, manufacturing industry development and agricultural development (table 5.3.1ab).

a) *Residential development:* 68% against 32% in ML.3, 61.9% against 33.3% in ML.6 and 81.2% against 15.6% of the respondents think that existing road contributes to the residential development of the area.
b) *Business area development:* 61% against 81.3% in ML.3, 71.4% against 28.6% in ML.6 and 96.8% against 2.7% in ML. 7 of the respondents think that existing road contributes to business area development.
c) *Education/Sport community development:* 69.3% against 29.3 in ML.3, 47.6% against 47.6% in ML. 6 and 75.3% against 23.9% of respondents think the existing road contribute to the educational/Sports community development.
d) *Tourism industry development**:*** 5.3% against 89.3% in ML.3, 14.3% against 85.7% in ML.6 and 42.5% against 55.9% in ML.7 think that the existing road contributes to tourism industry development.
e) *Manufacturing industry development:* 13.3% against 81.3% in ML.3, 95.2 against 4.8% in ML.6 and 23.1% against 75.8% in ML.7 think the existing road contributes to manufacturing industry development
f) *Agricultural area development:* 16% against 80% in ML.3, 28.6% against 71.4% in ML.6, and 15.1% against 83. 9% in ML. 7 respondents think that the existing road contributes to agricultural area development.

Table 5.3.1ab: Types of Developments Contributed by the Existing road to the Project Area

Type of Development	Missing Link											
	No. 3				No. 6				No. 7			
	. Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Residential area development	51	68.0	24	32	13	61.9	7	33.3	151	81.2	29	15.6
Business area development	61	81.3	14	18.7	15	71.4	6	28.6	180	96.8	5	2.7
Educational/Sports community development	52	69.3	22	29.3	10	47.6	10	47.6	140	75.3	44	23.9
Tourism industry development	4	5.3	67	89.3	3	14.3	18	85.7	79	42.5	104	55.9
Manufacturing industry development	10	13.3	61	81.3	20	95.2	1	4.8	43	23.1	141	75.8
Agricultural area development	12	16	60	80	6	28.6	15	71.4	28	15.1	156	83.9

The Main undesirable developments brought by the present road: 1.3% of the respondents in ML.3, 4.3% in ML.7 and none in ML.6 find slum areas as the main undesirable developments brought by the present roads (Table 5.3.1ac). To, 26.7% in ML3, 14.3% in ML. 6 and 13.4% in ML.7 is garbage dump. 57.3% in ML.3, 47.6% in ML.6 and 37.1% in ML.7 indicated narrowness of the roads, which are impassable for large tracks. While to 6.7% in ML.3, 19.0% in ML.6 and 8.6% in ML.7 is increase of air/noise/vibration pollution. In addition 24% in ML.3, 52.4% in ML.6 and 61.8% in ML.7 gave other main undesirable developments (table 5.3.1ad) of the present roads to include; insecurity, dust, bushes, poor sanitary conditions, impassable during rainy season, lack of lights, grabbing of road reserves and bridges in bad conditions.

Table 5.3.1ac: Undesirable Developments Brought by the Present Road

Undesirable development	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Slum area	1	1.3	0	0	8	4.3
Garbage dump	20	26.7	3	14.3	25	13.4
Narrow road impassable for large trucks	43	57.3	10	47.6	69	37.1
Increase of traffic congestions	5	6.7	0	0	0	0
Increase of Air/Noise/Vibration Pollution	5	6.7	4	19.0	16	8.6
Other*	18	24	11	52.4	115	61.8
Total	**92**	**122.7**	**28**	**133.3**	**233**	**125.2**

*Refer to table 5.3.1ad

Table 5.3.1ad: Other Undesirable Developments of the Existing Roads

Other Undesirable developments	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Insecurity	1	1.3	1	4.8	3	1.6
Bushes			1	4.8		
Poor sanitary conditions					1	0.5
Impassable during rainy season/Muddy					15	7.8
Lack of lights					1	0.5
Grabbing of road reserves	2	2.7				
Bridges in bad conditions	1	1.3			1	0.5
Floods					2	1.1
Potholes, Rough and Dusty	1	1.3	2	9.6	9	4.8
Total	**5**	**6.6**	**4**	**19.2**	**32**	**16.8**

The Social Impacts of the Missing Links Improvement Project: the majority of respondents,57.3 against 42.7% in ML.3, 90.5% against 9.5% in ML.6 and 55.4% against 43% in ML. 7, foresee the Missing Link Improvement project contribute value to their income (table 5.3.1ae). This is because: to 52% in ML.3, 57.1% in ML.6 and 39.8% in ML.7 the project will cause comfortable riding of vehicles; to 53.3% in ML.3, 61.9% in ML.6 and 39.2% in ML.7 it will lead to faster time for commuting to work, to 25.3% in ML.3, 57.1in ML.6 and 39.2% in ML.7 will result in reduced dust and exhaust fumes; to 45.3% in ML.3, 57.1% in ML.6 and 38.2% in ML.7 will lead to introduction of bus/matatu to the project area; to 42.7% in ML.3, 76.2% in ML.6 and 38.2% ML.7 it will cause promotion of business; to 24% in ML.3, 33.3% in ML.6 and 33.9% in ML.7 will lead to an increase of economic productivity of the society as a whole and to 26% in ML.3, 57.1% in ML.6 and 37.6% in ML.7 will lead to increase of employment opportunities for the construction works (table 5.3.1af).

However, to the respondents who did not foresee any value contribution of Missing Link Improvement Project, 2.7% in ML.3, 4.8% in ML.6 and 0.5% in ML.7, the project it will lead to increase in traffic volume and cause increase of vehicles causing air/noise pollution; to 0.5% in ML.7 it will lead to increase of spillage of oil, sand and gravels, soils, etc; to 14.7% in ML.3, 4.8% in ML.6 and 51.1% in ML.7 the project .has no significant impact to raise income; to 5.3% in ML.3, 4.8% in ML.6 and 1.1 in ML.7 the project has no significant impact to the society as a whole and 20% in ML.3, 4.8% in ML.6 and 9.7% in ML.7 (table 5.3.1ag) gave other reasons that include: eviction, rise in poverty, loss of work place, loss of customers, loss of business and loss of jobs (table 5.3.1ah)

Table 5.3.1ae: Responses Concerning Value Contribution of the Missing Improvement Project to the Incomes of the Respondents

Response	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	43	57.3	19	90.5	80	43.0
No	32	42.7	2	9.5	103	55.4
Total	**75**	**100**	**21**	**100**	**183**	**98.4**

Table 5.3.1af: Respondent's Concerns Why the Project will Contribute Value to their Income

Undesirable development	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Comfortable riding of vehicles	39	52.0	12	57.1	74	39.8
Faster time for commuting to work	40	53.3	13	61.9	73	39.2
Reduced dust and exhaust fumes	19	25.3	12	57.1	73	39.2
Introduction of bus/matatu to this area	34	45.3	12	57.1	71	38.2
Promotion of business	32	42.7	16	76.2	71	38.2
Increase of economic productivity of the society as a whole	18	24.0	7	33.3	63	33.9
Increase of employment opportunities for the construction works	20	26.7	12	57.1	70	37.6
Other*	3	4.0	0	0	1	0.5
Total	**223**	**297.3**	**95**	**452.2**	**583**	**313.4**

NB: the number of responses in all the missing links can not compare with the number of respondents, 75 in Ml.3, 21 in ML.6 and 186 in ML.7, because some of the respondents gave more than one reasons.

Table 5.3.1ag: Respondents' Concerns Why they do not Foresee the Value Contribution of the Project to their Income

Undesirable development	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Increase of traffic volume	2	2.7	1	4.8	1	0.5
Increase of traffic accident	0	0	0	0	0	0
Increase of vehicles causing air/noise pollution	2	2.7	1	4.8	1	0.5
Increase of spillage of oil, sand and gravels, soils, etc.	0	0	0	0	1	0.5
No significant impact to raise my income	11	14.7	1	4.8	95	51.1
No significant impact to the society as a whole	4	5.3	1	4.8	2	1.1
Other*	15	20.0	1	4.8	18	9.7
Total	**34**	**45.4**	**4**	**24**	**118**	**63.4**

* Refer to table 5.3.1ah for other Respondents' concerns

Table 5.3.1ah: Other Respondents' Concerns Why the do not Foresee the Value Contribution of the Project to their Income

Other Undesirable development	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Loss of business	1	1.3			1	0.5
Loss of work	8	10.7			8	4.2
Eviction/ Displacement	5	10.1	1	4.8	5	2.7
Loss of customers					2	1.1
Rise in poverty					2	1.1
Loss of jobs					2	1.1
Total	**14**	**22.1**	**1**	**4.8**	**20**	**10.7**

Effects of Missing Link Improvement Project on settlements patterns and economic productivity: Responses pertaining to the effects of the missing link improvement project on settlement patterns and economic productivity of the project areas are described below and in table 5.3.1ai.

(a) ***Residential area development:*** 78.7% against 21.3% of respondents in ML.3, 76.2% against 23.8% in ML.6 and 71.5% against 26.9% in ML.7 think that the project will enhance residential area development.

(b) ***Business area development:*** 49.3% against a similar 49.3% of respondents in ML.3, 81% against 14.3% in ML.6 and 55.9 against 42.5% in ML. 7 think that the project will enhance business area development.

(c) ***Education/Sports Community development:*** 68% against 32% of respondents in ML.3, 57.1% against 33.3% in ML.6 and 55.4% against 41.4% in ML.7 think that the project will enhance education/sports community development.

(d) ***Tourism industry development:*** 34% against 64% of respondents in ML.3, 33.3% against 57.1% in ML.6 and 54.3% against 42.5% in Ml.7 think that the project will enhance tourism industry development.

(e) ***Manufacturing industry development:*** 9.3% against 85.3% of respondents in ML.3, 19% against 66.7% in ML.6 and 285 against 67.7% in ML.7 think that the project will enhance manufacturing industry development.

(f) ***Agricultural area development:*** 5.3% against 90.7% of respondents in ML.3, 4.8% against 76.2% in ML.6 and 10.8% against 85.5% think that the project will enhance agricultural area development. 19% of respondents did not comment on this.

Table 5.3.1ai: Ways in Which the Missing Link Improvement Project will Affect Settlement and Economic Productivity of the Project Area

Type of Development	**Missing Link**											
	No. 3				No. 6				No. 7			
	. Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Residential area development	59	78.7	16	21.3	16	76.2	5	23.8	133	71.5	50	26.9
Business area development	37	49.3	37	49.3	17	81	3	14.3	104	55.9	79	42.5
Educational/Sports community development	51	68	24	32	12	57.1	7	33.3	103	55.4	77	41.4
Tourism industry development	26	34	48	64	7	33.3	12	57.1	101	54.3	79	42.5
Manufacturing industry development	7	9.3	64	85.3	4	19	14	66.7	52	28	126	67.7
Agricultural area development	4	5.3	68	90.7	1	4.8	16	76.2	20	10.8	159	85.5

Major undesirable developments that will be brought by the Missing Link Improvement Project: According to 4.8%, of respondents in ML.6 and 0.5% in ML. the major undesirable developments of the project are development of further slum area, to similar 4.8% in ML.6 and 1.1% in Ml.7 is increase of garbage dump, to 2.7% in ML.3 and another 1.1% in ML.7 is no improvement to the near-by narrow road impassable for large trucks; to 16% in ML.3, 4.8% in ML.6 and 3.2% in ML.7 is general traffic congestion and to 76% in ML.3, 90.5% in ML.6 and 97.8% in ML. 7 (Table 5.3.1aj) are others that include loss of shelter, loss of farmland, loss of jobs, loss of business, insecurity, eviction/displacement, increase in road accidents, increase in poverty and destruction of natural environment (table 5.3.1ak).

Table 5.3.1aj: Major Undesirable Developments of the Missing Improvement Project

Undesirable development	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Development of further slum area	0	0	1	4.8	1	0.5
Increase of garbage dump	0	0	1	4.8	2	1.1
No improvement to the near-by narrow road impassable for large trucks	2	2.7	0	0	2	1.1
General traffic congestions	12	16	1	4.8	6	3.2
Other*	57	76	19	90.5	182	97.8
Non Response	3	5.3	0	0	0	0
Total	**71**	**94.7**	**22**	**104.9**	**193**	**103.7**

**** Refer** table 5.3.1ak **for other undesirable developments***

NB: the number of responses in the missing links 6 and 7 can not compare with the number of respondents, 21 in ML.6 and 186 in ML.7, because some of the respondents indicated more than one undesirable developments

Table 5.3.1ak: Other Undesirable Developments of the Missing Improvement Project

Undesirable development	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Eviction/ Displacement/ Demolition of houses	9	12	5	23.8	53	31.4
Loss of Jobs/ business/ loss income/loss of customers	16	21.3	2	9.5	69	37.1
Insecurity	9	12	1	4.8	11	5.9
Loss of farmland			1	4.8	2	1.1
Failure to compensate those affected	1	1.3	0	0	0	0
Destruction of Natural environment	1	1.3	0	0	0	0
Pollution increase	0	0	0	0	2	1.1
Increase in Undesirable behaviour-Prostitution	0	0	0	0	2	1.1
Increase in road accidents	0	0	0	0	3	1.6
Pedestrians will not like using it	0	0	0	0	1	0.5
It will take a lot of land	0	0	0	0	1	0.5
Loss of Shelter	0	0	0	0	2	1.1
Increase in Poverty	0	0	0	0	7	3.8
Disturbance due to eviction	0	0	0	0	1	0.5
Total	**36**	**47.9**	**9**	**42.9**	**154**	**85.7**

Factor of Direct contribution of the project to the area: According to 58.7% of respondents in ML.3, 61.9% in ML.6 and 44.1% in ML. 7 the project will contribute to improved economic activity in the area, to 80% in ML.3, 76.2% in ML.6 and 79.6% in ML.7 it will contribute to comfort of commuting, to 8.0% in ML.3 and 37.6% in ML.7 it will contribute to any conveniences with through traffic, to 40% in ML.3, 71.4% in ML.6 and 62.9% in ML.7 it will contribute to direct employment in the construction works and to 9.3% in ML.3, 9.5% in ML.6 and 12.4% in ML.7 (table 5.3.1al) will contribute to other factors that include ease of traffic jam, availability of short-term jobs, benefit private vehicle owners and loss of business in cases of displacement (table 5.3.1am).

Table 5.3.1al: Factors of Direct Contribution of the Project to the Project Areas.

Factor	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Improved economic productivity	44	58.7	13	61.9	82	44.1
Comfort of commuting	60	80.0	16	76.2	148	79.6
Any conveniences with through traffic	6	8.0	0	0	70	37.6
Direct employment of us for the construction works	30	40.0	15	71.4	117	62.9
Other*	7	9.3	2	9.5	23	12.4
Total	**147**	**196**	**46**	**219**	**440**	**236.6**

NB: the number of responses in all the missing links can not compare with the number of respondents, 75 in Ml.3, 21 in ML.6 and 186 in ML.7, because some of the respondents gave more than one factors.
** Refer to table 5.3.1am below*

Table 5.3.1am: Other Factors of Direct Contribution of the Project to the Project Areas

Factor	**Missing Link**					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Loss of business in cases of displacement			1	4.8	1	0.5
Would benefit private vehicle owners	2	2.7				
Provide short term employment	1	1.3				
Will ease traffic Jam					6	3.2
Total	**3**	**4**	**1**	**4.8**	**7**	**3.7**

The Best type of new Road for Positive development of the Project area: According to 9.3% of respondents in ML.3, 57.1% in ML.6 and 8.6% the best type of road for the missing link improvement project is road without sidewalk (table 5.3.1an). To 41.3% in ML.3, 57.1% in ML.6 and 48.4% in ML.7 is road with sidewalk without greenbelts/landscaping. To 48% in ML 3, 33.3% in ML.6 and 30.1% in ML.7 is road with sidewalk with greens. And to 14.5% in ML.7, the other best road types for the project are: muram road which allow kiosks/informal business, one way road with road reserve alongside for business, road with sidewalk/without green belt/landscaping plus light a long the road, good road which take into consideration the welfare of all and a highway (Table 5.3.1ao).

Table 5.3.1an: Best Type of New Road for the Project

Type of Road	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Road without sidewalk	7	9.3	1	4.8	16	8.6
Road with sidewalk without greenbelts/landscaping	31	41.3	12	57.1	90	48.4
Road with sidewalk with greens	36	48.0	7	33.3	56	30.1
Other	0	0	0	0	27	14.5
No Response	1	0.3	1	4.8	0	0
Total	**75**	**100**	**21**	**100**	**189**	**101.6**

NB: the number of responses in the missing link No. 7 can not compare with the number of respondents, 186, because some of the respondents made more than one suggestions.

Table5.3.1ao: Other Best Type of New Road for the Project

Type of Road	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Murram Road					1	0.5
A Highway					1	0.5
Road with sidewalk/without green belt/landscaping plus light a long the road					1	0.5
Road reserve/ space allowed along side the road for informal business/kiosks					4	2.2
Murram road which allow Kiosks/Informal Business					2	1.1
One way road and a reserve alongside for business					1	0.5
Good road which take into consideration the welfare of all					1	0.5
Total					**11**	**5.8**

The Best type of Intersection for the new road: To 17.3% of respondents in ML.3, 28.6% in ML.6 and 8.6% in ML.7 the best type of intersection for the new road is roundabout system without signal; to 36% in ML.3, and 52.4% in ML. 6 and 61.3% in ML.7 is roundabout system with signal; to 22.7% in ML.3, 19% in ML.6 and 12.9% in ML.7 is conventional intersection with signal, to 20% in ML.3 and 3.2% in ML.7 is conventional intersection without signal and to 1.1% in ML.7 is a road with a fly over (table 5.3.1ap).

Table 5.3.1ap: Best Type of Intersection for the New Road

Type of intersection	Missing Link					
	No. 3		No. 6		No. 7	
	Number	Percentage	Number	Percentage	Number	Percentage
Roundabout system without signal	13	17.3	6	28.6	16	8.6
Roundabout system with signal	27	36.0	11	52.4	114	61.3
Conventional intersection with signal	17	22.7	4	19.0	24	12.9
Conventional intersection without signal	15	20.0	0	0	6	3.2
Other*	0	0	0	0	2	1.1
No Response	1	1.3	0		1	0.5
Total	**75**	**100**	**21**	**100**	**186**	**100**

NB: the number of responses in all the missing link 7can not compare with the number of respondents, 186, because some of the respondents made more than one suggestions.
*** Refers to fly-over.**

5.3.2 Socio-Demographic Characteristics of Permanent residents/ Business Owners Along the Missing Links

Majority of the respondents are males, 82.5% and 40% among the residents and businessmen respectively (table 5.3.2). In respect to age, majority of the respondents among residents are between 40-49 years whilst in case of the businessmen, they were within the age of 30-39. It is observed that majority of the respondents who were married are Kenyan by nationality and had a household size of four persons and above.

Table 5.3.2. Social-Demographic Characteristics of the Respondents (N=33)

Characteristics	**Residents (n=33)**	**Business (n=5)**
	Percentage	**Percentage**
Gender		
Male	82.5	40
Female	17.5	10
No response	0	50
Total	100	100
Age (yrs)		
15-19	6	0
20-29	15	0
30-39	21.1	60
40-49	45.4	0
50-59	3	0
>60	3	0
No response	6.5	40
Total	100	100

Marital Status		
Single	26.4	0
Married	82.5	60
Other	0	0
No response	0	40
Total	100	100
Nationality		
Kenyan	94	100
Non Kenyan	6	0
Total	100	100
Residential Status		
House Owner	36.4	40
Renting/leasing	63.6	60
Other		
Total	100	100
Size of household membership		
1	3	20
2	0	0
3	9	0
4	30.3	0
5	30.3	0
More than 5	21.2	0
No response	6.2	80 0
Total	100	100

5.3.3 Vehicle Ownership

About 80.9% and 90% respectively of the residents and businessmen own vehicles which are mainly private cars (Table 5.3.3). Only a few (6% and 3%), of the residents own bicycles and truck/commercial vehicles respectively, while 20% of businessmen own bicycles and trucks/commercial vehicles.

Table 5.3.3. Vehicle Ownership and Type

	Percentage	
Description	**Residents**	**Businesses**
Vehicle Ownership		
Yes	90.9	80
No	9.1	20
Total	100	100
Vehicle Type		
Private Car	91	60
Bus/Matatu	6	0
Bicycle	3	20
Truck/Commercial	0	20
Other	0	0
Total	100	100

5.3.4 Location of Work Place and Means of Transport

About 93.9% of respondents against 6.1% work away from their residences, while 84.8% drive own car to work (table 5.3.4), Most (60%) business people take public means to work.

Table 5.3.4: Responses on Working away from the Residence and Means of Transport to Work

Working away from the residence		
Yes	93.9	80
No	6.1	20
Total	100	100
Means of Transport to work		
Drive own Car	85	20
Take Public Transport	9	60
Use a bicycle	3	20
Walk	3	0
Other		0
Total	100	100

5.3.5 Reaction of the Respondents to the Government Proposal to Construct Roads on the Missing Links

About 91.3% and 100% of the residents and businesses respectively of the respondents welcome the Governments proposal to construct Roads to replace the missing links. The main reasons for welcoming the government's proposal include comfortable driving, reduction on commuting time and dust reduction (Table 5.3.5a).

Table 5.3.5a. Reasons for Welcoming the Government's Proposal to Construct Roads to replace the Missing Links.

Reasons	**Percentage**			
	Residents		**Businesses**	
	Yes	**No**	**Yes**	**No**
1. Comfortable using vehicles	69.7	29.3	60	40
2.Faster time for commuting to work	48.5	51.5	100	0
3. Reduces dust and exhaust fumes	45.5	54.5	60	40
4. Instruction of matatu I this area	12	88	20	80
5. Promotion of business	12	88	100	0
6. Increase of economic productivity of society as a waste	39	61	60	40
7. Increase of employment opportunities for the construction works	12	88	40	60

NB: Each reason was calculated out of 100%

Other reasons given by the residents and the business people that make them welcome the government's proposal to construct the missing links include:

- Will enhance security for the area
- Less maintenance of vehicles.
- Increased property value.
- Open up the area
- Reduce traffic jam in the city
- Ease congestion at the west lands roundabout

Only a few of the permanent residents (8.7%) did not welcome the government's decision to improve the missing links. Their major concerns include increased traffic flow, increased traffic accidents, and increased vehicular noise (table 5.3.5b).

Table 5.3.5b. Reasons not Welcoming the Government's Proposal to construct Roads to replace the Missing Links.

Reasons	**No. of Respondents**	**Percentage**
1. Increase of traffic volume	2	100
2. Increase of traffic Accidents	2	100
3.Increase of vehicles causing air/noise pollution	2	100
4. Increase of spillage of oil, sand & gravel soil etc.	1	50
5. No significant impact to the society as a whole	1	50
6. Other		

When the respondents were asked to say what is undesirable about the missing links as they are currently, majority of them mentioned that it is bumpy/rough and dusty (56.6%) and insecure (21.7%) (Table 5.3.5c).

Table 5.3.5c. Undesirable Factors About the Status quo of the Missing Links

Reasons	**Percentage**
1 Bumpy/rough	56.6
2. Insecure	21.7
3. Poor drainage	8.7
4 Dusty	52.2
5. Traffic congestion	4.3
6. Accidents.	4.3
7. Other	0

When asked what they will do if roads replace the missing links, majority (84.8%) said they would continue staying in the area.

5.3.6. Perceptioon of Impacts of Improving the Missing Links

The respondents said that road improvements along the missing links will affect the settlements patterns in various ways as shown in table 5.3.6.

Table 5.3.6. Ways in which the Missing Links Road Improvement will Affect the settlement patterns and Economic Productivity.

Reasons	Percentage			
	Residents		Businesses	
	Yes	No	Yes	No
1. Residential area development will be enhanced.	73.9	26.1	40	60
2. Business area development will be enhanced	8.7	91.3	100	0
3. Education/sports community development enhances	30.4	69.6	0	100
4. Manufacturing industry development will be enhanced	4.3	95.7	40	60
5. Agricultural area development will be enhanced	0	100	20	80
6. Tourism will be enhanced	8.7	91.3	0	100
7. Other	0	100	0	100

***NB**: Each response was calculated out 10%*

Other ways in which the road improvement will affect settlement patterns and economic productivity include:

- Fuel and time saving
- Increase property value
- Improvement of drainage in the area.

5.3.7. Desired Type of Road

Most residents (73.9 %) and businessmen (60%) said the construction of the missing links should have sidewalk with greens (Table 5.3.7).

Table 5.3.7. Preferred Type of Intersection by the Residents

	Percentage	
Reasons	**Residents (n=33)**	**Businessmen (n=5)**
1. Round about system without signal	12	0
2. Round about system with signal	45.5	0
3. Conventional intersection with signal	6	20
4. Conventional intersection without signal	3	0
5. Other – flyover	3.2	0
6. No Response	30.3	80
Total	100	100

***NB**: Other preferred structures were fly-over and underground road*

5.3.8. Recommendations by the Respondents

Most respondents recommended that the construction of the missing links should ensure provision of streetlights, proper drainage, security and removal of temporary structure (table 5.3.8).

Table 5.3.8. General/Special Recommendations on this Project

Recommendations (n = 38)		No. of Respondents	Percentage
1.	Construct a single lane	1	3
2.	Properly drained road	4	12
3.	Proper road signs (provide)	1	3
4.	Street lights (provide)	6	18
5.	Remove the many kiosks	1	3
6.	Security improvement	4	12
7.	Security gates	1	3
8.	Immediate construction	2	6
9.	Put up bumps	1	3
10.	Removal of temporary structure	3	12
11.	Marking the lanes with reflector lights	1	3
12.	Wide and well designed	1	3
13.	No responses		29
Total		26	110

***NB**. Some respondents never made recommendations while others made more than one recommendations*

5.4. Characteristics of Key Informants

Ten key informants responded to the questionnaire (table 5.4). Their respective age ranged from 33 years to 60 years. The duration in the current position ranged from 1 to 11 years.

Table 5.4. General/Special Recommendations on this Project

No.	Name	Age	Duration in current position	Role	Organization
1.	Otieno Kula Samson	53 yrs	11yrs	Provincial Applies Technology Officer	Ministry of Labour and Human Resource Development
2.	John K. Barreh	46 yrs	11/2yrs	Assistant Director Research section	City Planning Department, City Council of Nairobi.
3.	Benson Mbugua	No response	41/2 yrs	Chairman	Ring Road Jua Kali Association
4.	Robert Orina	37	1yr	Provincial Director of Environment	National Environment Management Authority (NEMA)
5.	Muyela Peter Amianda	46 yrs	Over 10 yrs	Chief	Provincial Administration
6.	Zadock Lisangali	60 yrs	10yrs	No response	Ring Road Westlands Jua Kali Association
7.	Charles Omulo	48 yrs	4 yrs	Chief	Provincial Administration
8.	Francis Kamiru Kamuri	30 yrs	3 yrs	Denis Pritt Village Elder	Dennis Pritt Village
9.	Charles Kamau Chege	46 yrs	6 yrs	Denis Pritt Village Chairman	Dennis Pritt Village
10.	W.A Kilong'i	33 yrs	2 yrs	District Officer	Provincial Administration

When the key informants were asked how they knew of government intention to open up Missing Links 3, 6 and 7 in the Kilimani-Kileleshwa area, 90% said they acquired the knowledge through Provincial Staff, District Staff, Location Staff, Research and reports from Jua Kali artisans.

Responses on the duration the respondents had stayed in the area varied. The duration ranged from 6 years to 20 years. The major social impacts reported included

- Better traffic flow
- Loss of earning
- Opportunity to develop Jua Kali
- More Noise
- Incentive in disputes
- Loss of shelter
- Disruption of learning for school children

The impacts mentioned above could be minimized in the following ways;

- Displace occupants to be relocated
- Get loans
- Compensation
- Public Awareness & sensitisation
- Employment should be offered

5.5. Traffic Counting at the Missing Link Roads Intersection of Nos. 6 and 7

The results of the counts of traffic at intersections of Missing Links No. 6 and No. 7 are given in tables 5.5a –5.5d.

Table 5.5a. Direction of Travelling From Missing Link No. 7 SE (From 6.30 am to 6.30 pm)

	Direction of Travelling to:		
	Missing Link No.6 SW	Missing Link No. 7 NW	Missing Link No. 6 NE
1) Pedestrians	221	747	1412
2) Bicycles	11	26	39
3) Motor Cycles	0	0	0
4) Private Cars	0	0	0
5) Taxies	0	0	0
6) Trucks	0	0	0
7) Bus	0	0	0
8) Matatu	0	0	0
9) Other			
a. Donkey-Drawn Cart	0	0	0
b. Man-Drawn Cart	0	0	0
c. Others	0	0	0

Table 5.5b. Direction of Travelling From Missing Link No. 7 NW (From 6.30 am to 6.30 pm)

	Direction of Travelling to:		
	Missing Link No.6 SW	Missing Link No. 7 SE	Missing Link No. 6 NE
1) Pedestrians	10	1023	62
2) Bicycles	1	23	5
3) Motor Cycles	0	0	0
4) Private Cars	0	0	0
5) Taxies	0	0	0
6) Trucks	0	0	0
7) Bus	0	0	0
8) Matatu	0	0	0
9) Other			
a. Donkey-Drawn Cart	0	0	0
b. Man-Drawn Cart	0	0	0
c. Others	0	0	0

Table 5.5c. Direction of Travelling From Missing Link No. 6 NE (From 6.30 am to 6.30 pm)

	Direction of Travelling to:		
	Missing Link No.6 SW	Missing Link No. 7 NW	Missing Link No. 7 SE
1) Pedestrians	341	321	1516
2) Bicycles	34	17	62
3) Motor Cycles	12	0	2
4) Private Cars	5	0	1
5) Taxies	0	0	0
6) Trucks	4	0	4
7) Bus	0	0	0
8) Matatu	0	0	0
9) Other			
a. Donkey-Drawn Cart	0	0	0
b. Man-Drawn Cart	0	0	0
c. Others	0	0	0

Table 5.5d. Direction of Travelling From Missing Link No. 6 SW (From 6.30 am to 6.30 pm)

	Direction of Travelling to:		
	Missing Link No.6 NE	Missing Link No. 7 NW	Missing Link No. 7 SE
1) Pedestrians	209	10	256
2) Bicycles	27	0	6
3) Motor Cycles	1	0	0
4) Private Cars	1	0	0
5) Taxies	0	0	0
6) Trucks	1	0	0
7) Bus	0	0	0
8) Matatu	0	0	0
9) Other			
a. Donkey-Drawn Cart	0	0	0
b. Man-Drawn Cart	0	0	0
c. Others	0	0	0

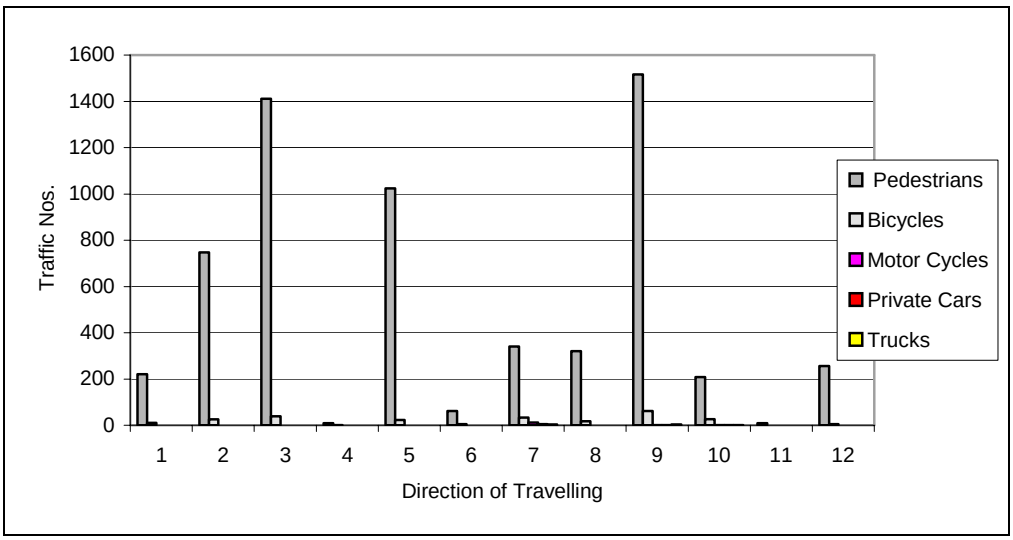

Figure 5.5. Traffic Counting at the Missing Link Roads Intersection of Nos. 6 and 7

Key:

1--- Travelling from Missing Link No. 7SE to Missing Link No. 6 SW
2--- Travelling from Missing Link No. 7SE to Missing Link No. 7 NW
3--- Travelling from Missing Link No. 7SE to Missing Link No. 6 NE
4--- Travelling from Missing Link No. 7NW to Missing Link No. 6 SW
5--- Travelling from Missing Link No. 7NW to Missing Link No. 7 SE
6--- Travelling from Missing Link No. 7NW to Missing Link No. 6 NE
7--- Travelling from Missing Link No. 6NE to Missing Link No. 6 SW
8--- Travelling from Missing Link No. 6NE to Missing Link No. 7 NW
9--- Travelling from Missing Link No. 6NE to Missing Link No. 7 SE
10-- Travelling from Missing Link No. 6SW to Missing Link No. 6 NE
11-- Travelling from Missing Link No. 6SW to Missing Link No. 7 NW
12-- Travelling from Missing Link No. 6SW to Missing Link No. 7 SE

Observations:

- The majority of the people counted were those travelling from 7SE to 6 NE and back from 6NE to 7 SE (Figure 5.1). It was claimed by one of the resident that this group of people travel all the way from Kibera slums to Kileleshwa (the Missing Links Roads No. 6 and No. 7) and even to the Westlands for work. The same resident further claimed that these people are employed in construction jobs, security firms, and as house helps in the said areas.
- No Taxi, Bus, Matatu, Donkey-Drawn Cart and Man-Drawn Cart ever passed through the intersection at the counting period.

5.6. Transport and Communication Infrastructure

Table 5.6.a Road Network and Conditions

Issues	Existing Conditions	Problems
1. Road Network		
(1) Sub-urban Area	・Lack of circumrerencial or ring road. ・Unplanned urban development along major road (ribbon type). ・Affection of topographic features.	・ International trunk roads (A104) carrying mixing traffic of international cargos and urban commuter. ・Frequent traffic accident and black spots. (Traffic accident prone area) ・Limits of road network development to the north, west, and south direction.
(2) Urban Area	・Radial road system concentrating on Nairobi City Centre. ・Dangerous geometrical conditions for traffic.	・The mixing traffic through the Nairobi City Centre. ・Reduction of the road capacity. ・ Vehicle traffic conflicting with NMT and resulting in accents.
(3) Urbanised Area	・An informal on highly distorted road network with two different urban development patterns between East and West due to income levels. ・Unclear road classification and hierarchy of NCC Roads. ・ No coordinating classification between MRPW and NCC. ・No progress of construction of 'missing link' roads. ・Nairobi rivers separating between CBD and Eastern commercial areas and residential areas each in west. ・ Railway cutting connection between City Centre and industrial area. ・Lack of NMT ways for pedestrian and bicycle. ・Missing links through the residential area. ・Planned roads improvement by GOK through the community. ・A lack of comprehensive IEA for the Southern Bypass construction.	・Sprawling in development in the eastern area. ・No planned road improvement. ・ No responsibility of road and traffic management. ・ No functional use of radial and circumferential road system. ・Inconvenience of transport for the poor. ・ Lack of communication between the City Centre and industrial area. NMT ・Increase of traffic accidents. ・Unfavourable to the poor. Environment ・Destruction of environment in residential area. ・ Expected decrease in quality of urban environment.
(4) City Centre	・ Individual two blocks separated by Uhuru Highway. ・Only two connecting roads (Kenyatta Avenue and Haile Selassie) ・ Mixed traffic of transit and commuter on Uhuru Highway.	・ Concentration of traffic on two intersections of Uhuru Highway. ・ Traffic congestions at major intersections at peak hour. ・Unclear road function and under-use of road capacity of Uhuru Highway.
(5) CBD	・ Dense regular grid road system with commercial and business activities but insufficient right of way for geometrical improvement. ・No utilisation of historical and tourism assets such as historical buildings and monuments near City Office.	・Limits of road widening. ・Compromising of using the limited road space with motorised and non-motorised transport. ・ Decay of urban façade and less attractiveness of tourists.

2. Road Maintenance	・Inadequacy of maintenance fund. ・Shortage of good gravel materials for maintenance. ・ A lack of equipment and experience in bridge maintenance. ・Delay of maintenance fund. ・Blockage and encroachment by the farmers. ・Inadequate staff and equipment. ・ A lack of proper schedule of procurement of materials. ・Over-loading and no-control. ・ A lack of research for available maintenance material.	・Poor condition of road. ・A lack of bridge maintenance. ・Deterioration of road in the rainy seasons. ・Poor drainage in form land. ・Fast deterioration of pavement. ・Delay of maintenance work.

Source: Republic of Kenya, 2005

Table 5.6b. Public Transport

Issues	Existing Conditions	Problems
1. Bus and Matatu	・Major public transport mode is Matatu with 14-seat capacity. ・Matatu caters as about 85% of total public transport and, 15% is Bus.	・ Small Matatus concentrate on major transport corridors. ・This cause the serious traffic congestions and traffic accidents.
2. Taxi and Others	Taxi, tuktuk and bicycle taxi operate in the study area. But no taxis have Taxi meter.	Inconvenience for taxi's users.
3. Railway	3-commuter lines are operated by Kenya Railway Corporation with 350,000 monthly passengers.	Commuter lines operate under the poor train coaches and station facilities.
4. Model Choice	High income people only use private cars at this moment.	Increase of private cars cause the traffic jams and deterioration of urban activities and environment.

Source: Republic of Kenya, 2005

Table 5.6c. Traffic Management

Issues	Existing Conditions	Problems
Traffic management administration	Many agencies and organisations involve the traffic management.	However, the actual actives of traffic management are being done individually.
Roundabout/ Intersection	There are still many roundabouts in the study area.	The causes of traffic congestions are not only lack of road space but also inadequate traffic management in and around roundabouts/ intersection.
Parking	Many road spaces in CBD are used for car parking.	Illegal on-street parking causes not only traffic jams but also deterioration of business/ commercial activities in CBD.
Traffic Safety	Traffic accidents in whole of Kenya drastically decreased since the enactment of new Matatu requlation.	However, traffic accidents in Nairobi are still at a high level ever.

Source: Republic of Kenya, 2005

Use of non-motorized transport (NMT): The expansion of urbanized area tends to increase the travel disturbance and time for the poor relying on non-motorized transport (NMT) as they have limited choice for their residence. Use of NMT in Nairobi City is generally disturbed by insufficient pedestrian/ bicycle lanes and road crossings, reckless driving, and poor security. Poor security especially after dark is a reason that motorcycles are not popular as well as bicycles**.**

Accessibility to public transport services: Currently, the public transport in Nairobi City depends almost entirely on private bus and matatu services. Recent increases in bus and matatu fares have reduced their use by the poor. Also the private bus services have effective monopoly in some areas including the central area of Nairobi City. Use of railway is constrained by limited service frequency and route**.**

Transport safety: Transport safety in the NMA is threatened in general by inadequate pedestrian/ bicycle lanes and crossings, insufficient traffic signals and street lighting, and poor design and management of some intersections. Moreover, public awareness of on transport safety is low not only among drivers but among pedestrians and cyclists as well.

Traffic-related pollution: Vehicles in Nairobi City are major sources of pollution due to noise, vibration and exhaust emission. These problems are aggravating with traffic congestion due to the lack of legal base to control them and poor traffic management.

Assessment of present transport network: For the objective of the transport policy and countermeasure studies, it was first assumed that no improvement would be applied to transportation supply at first. This is called as "Do-Nothing" case analysis. The car assignment results of existing case (2004) and Do-Nothing case in 2010, 2015 and 2025, are summarized in Table 5.6d.

Table 5.6d Car assignment results in Do-Nothing Case

	Year 2004	Year 2010	Year 2015	Year 2025
Total Vehicle Trips (in PCU)	779,774	1,055,821	1,331,490	1,933,581
PCU-Hour ('000)	286	554	903	2,484
PCU-Km ('000)	9,935	14,260	17,984	27,934
Average Speed (km/hr)	34.7	25.7	19.9	11.2

Comparing the future road traffic with the existing traffic, the radical corridors will becomes heavily congested in the future. Thus, the following remarks are pointed out. (See Republic of Kenya 2005, Pgs 12-34, 12-35)

- If any countermeasures against traffic congestion are not implemented on the transport sector, when road traffic volumes will drastically increase, level of service of the road will become worse.
- If improvement of level of service in public transport are not implemented, passenger

of public transport remains at the existing level or becomes worth. This will induce the financial position of public transport sector worsen.

- Some countermeasures to decrease car traffic and increase public mode transport are desired in near future.

CHAPTER SIX: PROJECT ACTIVITIES

The development of the missing road links will involve site clearing and construction, preparation of material site (including labour camp), construction of the road, and routine maintenance once it is completed and operational.

The proposed road works will involve the following amongst others:

a) Land acquisition and compensation
b) Construction of the resident Engineers office and camp, labour camp and material storage site
c) Opening up material borrow pit site i.e (sand and gravel), water sources and stone quarries and accessing them, quarrying, tar burning.
d) Bush clearance and clearing of the site of any unused materials
e) Earth works by reprocessing the existing surface material or adding gravel for improvement
f) Excavation and installation of pipe culverts
g) Surface dressing using bitumen, crushed stone and sand
h) Provision of bus bays and lay-bys in the settled areas.
i) Repair of bridge decks, installation of guardrails to the bridges.
j) Protection works to all drainage structures.
k) Erecting road furniture, pedestrian crossing, speed limits, road signs (narrow a head, children/ animals crossing, bend a head, dangerous change of direction, road marking lines), construction of hazard signs and guard rails
l) Grass planting
m) Transportation and storage of materials
n) Construction Camps (road works camps)
o) Rehabilitation
p) Sanitation (wastes)
q) Social welfare (heat house-shelter/tent, cooking)
r) Demolition of labour camps

CHAPTER SEVEN: MATERIALS TO BE USED

The materials to be used include:

a) Marrum
b) Cement/ Bitumen
c) Chipping (chips) ballast stones
d) Equipment –Heavy machinery

CHAPTER EIGHT: PRODUCTS AND WASTE

The products, by-products and waste, which will be created by the road project, include:

a) Engineers office and camp labour camp and material storage site
b) Borrow pits, stone quarries.

c) Installed pipe culverts
d) Bitumen road
e) Bus bays and lay-bys.
f) Road bridges, guardrails.
g) Erected road signs - pedestrian crossing, speed limits, road signs (narrow a head, children/ animals crossing, bend a head, dangerous change of direction, road marking lines), construction of hazard signs and guard rails
h) Transportation and storage of materials
i) Construction Camps (road works camps)

CHAPTER NINE: POTENTIAL IMPACTS OF PROPOSED PROJECT

9.1. Potential Impacts on the Natural Environment

The missing links under review i.e. 3, 6 and 7 contain trees and are also at different stages of growth. Some sections enjoy a tree cover of between 50-70% and have a mixture of both native and exotic ornamental tree. Some of the trees have grown into sizes that enable them to provide a wide canopy that is used by other animals such as birds and insects for example, in al the missing links the vegetation composition is very rich and the environment around is equally diverse. Among the notable key features in some sections include the riverine habitats as well as swampy areas. In the event of a construction, a number of these fragile areas may be affected and they will definitely interfere with the natural environment.
Majority of the plants found in the missing links are mainly exotic ornamentals, which are unique features during their flowering seasons and also protects the neighbourhood from scorching sunlight among other benefits. Clear felling of these trees to provide additional space for the road network will alter the scenery, civic pride and a number of environmental values associated with the trees.

9.1.1. Positive Impacts

- Landscaped Road Environment
- Improve international business
- Easier access to social amenities
- Enhanced security
- Positive foreign cultural values
- Enhanced non-motorist traffic safety
- Generated Employment opportunities.
- Enhanced accessibility
- Increased commerce
- Improved linkages between national regional and international carriage ways
- Economic interacting through improved transportation network

- Improved tourism and agricultural markets
- Improved roads safety measures
- Improved communication
- Poverty alleviation
- Reduced vehicle operating and passenger and commodity transport costs
- A well functioning and appropriate permanent, cost effective, safe, secure and sustainable road network in place.

9.1.2 Negative Impacts

- Removal of structures in the road reserve.
- Loss of vegetation by clearing the encroaching bushes.
- Increased litter
- Displacement of human settlement
- Noise, Gaseous and Dust pollution
- Traffic disruption and accidents
- Water pollution by accidental oil spillage
- Soil Erosion
- Disturbance of fauna and flora due to clearing of encroaching bushes
- Operational hazards of road workers (danger posed by careless motorists)
- Pollution by waste materials from drains clearing and pavement reconstruction.

Valuable Trees in the Missing Links: Trees provide a number of goods and services to the environment. The importance of any given tree depends on the quality of the goods and services and the demand placed on it by the users of the same.

During the survey, valuable tree species were encountered. The priority placed on their conservation in other habitats is the basis used to single them out in this study as well. Species such as *Milica excelsa, Olea europeae, Vitex keniensis, Brachylaena huielensis* and *Podocarpus sp* solicit greater conservation support and where possible could be left standing since they are threatened in their natural habitats of Kenya where demand for their exploitation is too high.

Efforts to pressure the above important species will go a long way in promoting the urban biodiversity conservation.

9.2. Potential Impacts on the Social Environment

Any project has both positive and negative impacts. From the information collected and analysed in this report, the following are the potential positive and negative impacts of the proposed project on the social environment.

9.2.1. Potential positive impacts

Time savings: By reducing traffic congestion motorists will save time as they attend their daily chores.

Comfort and Convenience*:* reduced road rage, which is experienced on the road due to traffic congestion.

Employment: during the construction phase casual labour will be engaged this will create income especially for the unemployed.

Traffic decongestion : The City of Nairobi is currently experiencing serious traffic congestion particularly during the "rush" hours.This will not only save time but also fuel and hence reduce air pollution from auto-mobiles in the city. This in turn will reduce respiratory symptoms in the city and potential lead poisoning.

Reduce insecurity: Among the missing links the kiosks that are built on the road missing links as encouraging insecurity in the area. During construction of the missing link roads, the owners of the kiosks will be relocated and the kiosks demolished.

9.2.2. Potential Negative impacts

Relocation of the kiosks owners/vendors: A very large number of people who get their livelihood and to a certain extent live on the missing road links will have to relocate to give way to the proposed construction.This will disrupt family incomes, going to school of children and possibly increase insecurity in the whole city.

Vehicular Noise: Inhabitants particularly along the missing links will have to bear with increased noise levels all the time and particularly during consruction period.

Dust : During the construction phase, there will be a lot of dust.

Pollution: permanent resident will have to cope with increased amount of vehicular pollution.

Aesthetics: Loss of flora during construction will reduce the greenery or aesthetics of the project area

Loss of Biodiversity: construction particularly in the missing links will contribute to loss of biodiversity especially the indigenous flora species.

CHAPTER TEN: PROPOSED MITIGATION MEASURES

10.1 Proposed Environmental Mitigation Measures

The proposed environmental mitigation measures to minimize potential negative impacts arising from the project activities are contained in Table 10.1.

Table 10.1: Mitigation Measures for the Potential Impacts

	Project Activity	Potential Impacts	Mitigation Measures
	A. Construction Phase		
1	Land acquisition, compensation and rehabilitation	Displacement of residents and businesses	Resettlement of displaced people
2	Construction of the resident Engineers office labour camp and material storage site.	• Poor sanitation and solid waste disposal in maintenance camps. • Soil and water contamination through accidental spillage of oil, grease and fuel in the mechanical plant workshop and along the road. • Possible transmission of communicable diseases from workers to local population and vice versa.	• Provide adequate located and well maintained sanitary and solid waste disposals facilities such as VIP latrines. • Collect, recycle and re-use oils for treating wood e.g. fencing posts. • Proper training and sensitization of mechanical staff. • Avoid accidental spillage through good mechanical practices and proper storage. • Create awareness on HIV/AIDS and other related diseases. • Avail health care services
3	Opening up of material borrow pit site (sand and gravel), marrum extraction/quarrying, stone quarries and accessing them.	• Open and devegetated sites. • Local dust and noise. • Landscape disfiguration, deep cuts, fills and quarries. • Creation of temporary breeding sites such as malaria, typhoid and bilharzias.	• Reshape the quarry and where mechanical material acquisition is udertaken. • Routine watering of diversion roads. • Use and architectural design to blend landscape. • Provide drainage works as needed to reduce risks. • Avoid use of stagnant water for drinking by provision of wells. • Recycle material sites into cattle watering points where possible • Routine maintenance to discourage habitation of plant and animal species.
4	Transportation, storage of materials, chipping, ballast stones.	• Air pollution from gaseous emissions, dust and litter	• Create awareness on proper litter disposal and use of road worth vehicles.
5	Bush clearance and clearing of the site of any unused materials.	Destruction of terrestrial wildlife habitats.	Routine maintenance to discourage habitation of plant and animals species.

6 7 8 9 10 11 12 13	• Earth works by reprocessing the existing surface material or adding gravel for improvement. • Excavation and installation of pipe culverts. • Cement/Bitumen and tar burning. • Surfacing dressing using bitumen, crushed stones and sand. • Provision of bus bays and lay-bays. • Protection works to all drainage structures. • Demolition of labour camps • Erecting road furniture, pedestrian crossing, speed limits, road signs, construction of hazard signs and guard rails.	• Increased sediments in streams affected by erosion during rehabilitation. • Erosion of lands below the road bed receiving concentrated outflow from covered or open drains. • Creation of temporary breeding habitats for mosquito vectors. • Local dust and noise emanating from the activities. • Soil Erosion	• Topsoil and the other material layers must be stockpiled separately in a planned and organized manner to facilitate reinstatement. • It is important to plan quarry excavation so that when one section has been exploited, it is rehabilitated. The reinstatement prevents erosion of soil and greatly improves aesthetics. • The quarry must be landscaped and fenced to encourage natural regeneration of vegetation to stabilize the ground. • Where water is available, dampening of the quarry surface will reduce dust emission. • Access routes to quarries shall be planned and stipulated in the contract documents. Protect susceptible surfaces with mulch or fabric, and plant vegetation on erodible surfaces. • Increased number of drain outlets drains so as to avoid cascade effect. • Incorporate filter sub drains below the sub-base or at the formation level. • Routine watering of diversions and installation of mufflers on equipment. • Provide drainage works as needed to reduce risks. • Avoid materials' extraction in human settlement areas where possible. • Gabions, stone pitching, scour checks, grassing and tree planting.
B. Operation and Routine Maintenance		•	•
1	Pothole patching	• Air and noise pollution from vehicle operation, in populated areas traversed by the road	• Include physical barriers to reduce noise levels. Enforce air and noise standards.
2	Encroachment along the road reserve	• Encroachment of the road through mushrooming of unplanned structures along the road reserves. • Human traffic conflict.	• Enforce section 91 of the Traffic Act, CAP 403 of the Laws of Kenya.
3	Road Operation	• Roadside litter. • Noise pollution from vehicle operation. • Accident risks associated with traffic and transport. • Accident spillage of oil and toxic materials. • Wearing of the road surface by human and vehicular traffic and subsequent use of the side slopes.	• Provide for disposal facilities. • Encourage anti littering laws and regulations. • Enforce use of service-able vehicles and ensure quality of petrol at filling stations. • Design and implement road safety measures. • Put in place emergency services to control accidental incidences. • Enforce freguent maintenance of the road and discourage off raod driving .

10.2 Environmental Mitigation Measures in Road Contractual Agreements

The following are some of the general environmental mitigation measures that should be in-built in the road contract agreements.

i) The contractor shall submit to the Roads Engineer a camp and site office plan defining all facilities to be created.
ii) The Contractor shall limit environmental degradation through minimal oil spillages, reducing dust and gaseous emissions and so on.
iii) The contractor to restore all excavated materials sites including quarries by:
    - Preserving trees during materials stockpiling
    - Selectively planting trees and grass and leveling steep ground to facilitate water percolation and check water ponding
    - Ensuring safety measures for local residents where a quarry has been identified as a watering point for livestock and people
    - Planting trees at project ecologically vulnerable sites and maintaining them for a specified period.

To ensure that these mitigation measures are included in the actual works, the Engineering Design shall incorporate them in the Bill of Quantities and subsequent Engineer's estimate. It is crucial that a record of all mitigation measures implemented be availed by the Contractor through the supervision Consultant to the Chief Engineer Roads for purposes of future mitigation, monitoring and evaluation.

It is crucial that a record of all mitigation measures implemented be availed by the Contractor through the Supervision Consultant to the Chief Engineer Roads for purposes of future mitigation monitoring and evaluation.

10.3 Establishment and Role of an Environment and Social Unit

The objectives of the Unit are:

- To achieve a comprehensive policy in terms of environmental management.
- To integrate environmental and social concerns into the road works activities.
- To created awareness within the Roads Department on the importance of environmental management in road construction, rehabilitation, improvement and maintenance.
- To strengthen the capacity within the Ministry of Roads and Public Works to be able to handle environmental and social issues pertaining to the road sub-sector.

The role of the Environmental and Social Unit will be to:

- Ensure compliance With Environmental Management and Coordination Act of 1999, and Environmental Impact Assessment and Audit Regulation of 2003 as it relates to the road sub-sector
- Review and update roads department document e.g. Standard Specification and Contract Documents to incorporate environmental concerns

- Participate in Inspection for Certificate of Substantial Completion carried out by the Roads Department
- Set up a system for continuous monitoring and periodic surveillance
- Audit road rehabilitation, improvement and maintenance activities
- Create awareness and sensitise the public with regard to proposed road projects, their potential impacts and the need for planning in the event that people are going to be affected
- Set up a computerised environment database relevant to the road works activities.

10.4 Capacity Building

Capacity building and creating awareness is necessary for the effective implementation of the Environmental Management Plan of the project. The Environmental and Social Unit in the MoRPW will ensure capcity building, creating awareness; mitigation measures and monitoring concerns are implemented.

This will be achieved by training the key target groups at all levels. These target groups can be divided into three groups:

Group 1- Road Workers: This group consists of Engineers (Resident, Provincial, Project,) Contractors, Supervisors, Site Agents, Site Managers and the Environmental and Social Unit in the MoRPW&H. These are the top management staff concerned with road construction and maintenance**.**

Group 2 - Road Users: Transport Associations: Examples include the Truck Drivers Association, and Matatu Drivers Association. For this group of people the road is their livelihood.

Group 3 - Project Affected People (PAP), Casual (skilled or unskilled) labourers and business operators: These people have businesses (e.g. kiosks, garages, carpentries, etc.) that can potentially be affected by the road, or they live by the road. Training will be based on modules aimed at:

(a) Developing awareness of the need to consider environmental issues during construction, operation and maintenance of roads

(b) Creating awareness and understanding of the environmental legal framework pertaining to roads

(c) Developing skills for
   - Identification and assessment of environmental impacts of road projects
   - Incorporation of mitigation measures at all stages of road development
   - Reviewing EIA reports and incorporating measures during the decision making process

Table 10.2 presents the recommended topic modules and costs for each of the three target groups necessary to implement the Environmental Management Plan. Table 10.3 presents a breakdown of the target groups for training necessary to implement the environmental management plan during construction.

Table 10.2. Recommended topic modules and costs for each of the target groups

Topic modules	Target Group	No. of participants	No. of days	Cost per unit (Kshs)	Cost in (Kshs)
1. Understanding of EIA legislation in Kenya 2. Develop awareness of the environmental implications of roads and procedures for assessing them 3. Develop awareness and understanding of the human resource and institutional arrangements for managing environmental impact studies 4. Develop an understanding of how policy can be developed and incorporated into environmental management 5. Importance of incorporating mitigation measures during road planning and design and implementing an environmental monitoring programme 6. Impart skills on environmental auditing and monitoring during road construction and maintenance	Group 1 Road Workers	To be decided upon later	To be decided upon later	Subbject to choice of venue and materials required	Subject to number of participants, venue and materials
7. General understanding of EIA legislation in Kenya 8. Sensitisation on health (STDs including HIV/AIDS), littering, solid and liquid waste management	Group 2 Road Users	To be decided upon later	To be decided upon later	Subject to choice of venue and materials required	Subject to number of participants, venue and materials
9. Brief overview of EIA legislation in Kenya 10. Sensitisation on health (STDs including HIV/AIDS), littering, solid and liquid waste management 11. Implications of encroachment onto the road reserve	Group 3 Project Affected People (PAPs)/Casuals/ skilled and unskilled	To be decided upon later	To be decided upon later	Subject to choice of venue and materials required	Subject to number of participants, venue and materials

Table 10.3 Breakdown of the target groups for training during the construction phase

	Category
Supervision	
Group 1	Civil Engineers
	Provincial RoadsEngineer
	Project Engineer
	Resident Engineer
	Assistant Engineers
Group 2	Surveyor
	Inspector of Works
Group 3	Project Affected Persons (PAPs)/ Casuals/skilled and unskilled Casuals/unskilled labour
	Sub Total
Contractor	
Group 1	Site Managing Engineer
	Site Agent
	Site Manager
Group 2	Foremen

Group 3	Project Affected Persons (PAPs)/casuals/skilled and unskilled
	Sub Total

CHAPTER 11: ANALYSIS OF ALTERNATIVES

This chapter will analyse alternatives in terms of project site, design, construction techniques and “no other route alternatives”

11.1 Construction Techniques

The various techniques to improve the proposed road project would involve either use of both heavy machinery and labour intensive. Labour intensive approach alone will have certain limitations, which include, inability to excavate and slow progress. From positive perspective labour intensive techniques are environmentally friendly compared to the use of heavy machinery. In respect to the construction of the missing links, it is recommended that a combination of both labour intensive and heavy machinery be employed for speedy implementation of the project.

11.2 Alternatives

There are no alternative routes. The only option is to construct the Missing Links. Doing so, will facilitate the transport system in the city of Nairobi and also contribute to the socio-economic development of the project area and the City at large.

CHAPTER 12: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

12.1 General

The Environmental Management Plan (EMP) is the synthesis of all proposed mitigative and monitoring actions, set to a time-line with specific responsibility assigned and follow up actions defined.

The Environmental Management Plan in the road sector is one of the most important outputs of the environmental impact assessment, which ensures that the implemented mitigations are sustained. It outlines the monitoring frequency, cost measurable and verifiable indicators as well as individual institutions to undertake the required actions. The proposed mitigation measures will be implemented under the contractual arrangement during rehabilitation and maintenance monitoring phases.

The EMP outlined in table 7.1 is in respect of the environmental issues, which have been derived from the potential impacts whose mitigation measures are tabulated in chapter 5.

12.2 Monitoring and Auditing

Environmental monitoring establishes benchmarks to judge the nature and magnitude of potential environmental and social impacts. Monitoring and auditing are conducted to ensure that negative impacts are minimized through adequate implementation of mitigation measures.

Some of the key parameters for monitoring and auditing of the Project include the following *inter-alia*:

- Soil erosion and siltation.
- Oil spillages
- Dust and gaseous emissions.
- Water quality
- Bush encroachment
- Traffic flow/accidents
- Noise and vibration
- Change in biodiversity
- Socio-economic change
- Land use changes.
- Goods/commodities transported

Table 12.1: Environmental Management Plan*

Environmental Concerns	Mitigation Measures	Responsibility During Rehabilitation & Maintenance	Monitoring Means
1. Soil Erosion	Grassing Cut-water Drains Culverting	Project Engineer Supervision Consultant Approved Contractor Roads Dept. MoRPW	During Rehabilitation Routine and Periodic maintenance.
2. Air pollution by dust	Regular watering of diversion road Encourage use of dust masks Quarry location should minimizing haulage distance	Project Engineer Supervision Consultant Approved Contractor Roads Dept. MoRPW	Surprise checks During Rehabilitation
3. Noise	Roadside tree planting Enforcement of Standards	Project Engineer Supervision Consultant Approved Contractor Roads Dept. MoRPW	During Rehabilitation Maintenance
4. Conservation of Bio-Diversity (Vegetation)	Create awareness on importance of bio-diversity amongst the road maintenance workers. Discourage site clearance beyond the road reserve.	Project Engineer Supervision Consultant & Approved Contractor Roads Dept. Provincial Environmental Officer Provincial Administration.	During routine and periodic maintenance
5. Health and Sanitation	Provide adequately located and maintained latrines. Avail health care services Provide drinking water services.	Project Engineer Supervision Consultant Approved Contractor Roads Dept. MoRPW Provincial Administration Water dept. MOE & Local NGOs Public Health Dept. -MOH	during routine and periodic maintenance
6. Impeded drainage and or inefficiency of drainage	Desiltation Repair of Drainage Structures	Project Engineer Supervision Consultant Approved Contractor	During Rehabilitation and Maintenance
7. Material Sites (a) Unrehabilitated	Rehabilitation of the Material Sites and controlled fencing and tree planting.	Project Engineer Supervision Consultant Approved Contractor Quarry owner Roads Dept. MoRPW&H-Environment and Social Unit Provincial Environmental Officer. PDE.	During rehabilitation
(b) Rehabilitation	Proper quarrying techniques. Uniform training of supervisory personnel.	Project Engineer Supervision Consultant Approved Contractor Roads Dept. MoRPW&H –Envi. and Social Unit, PDE, DEO	During rehabilitation
8. Temporary Mosquito Breeding Sites	Create awareness on the dangers posed by stagnant water.	Project Engineer Supervision Consultant Approved Contractor Roads Dept. MoRPW&H-	During Rehabilitation and Maintenance
9. Traffic Accidents	Provision of proper road safety elements such as adequate shoulders,	Project Engineer Contractor	During Rehabilitation

	road signs and furniture.	Road Safety unit Traffic Police Department	and Maintenance
10. Increased vehicular traffic	Encourage use of public transport. Driver sensitization on road safety.	Roads Dept. Traffic Police Dept. The Media	During Rehabilitation
11. Liter alon g the Roadside	Create awareness on the importance of a clean environment. Install permanent litterbins (Concrete) as part of the road furniture at preset intervals to be emptied regularly.	Project Engineer Supervision Consultant Approved Contractor Roads Dept. Provincial Environment Officer. Provincial Administration The Media	During Rehabilitation and maintenance
12. Soil and water contaminat ion by accidental spillage of oil, grease and fuel in mechanical plant workshop and on the road.	Collect, recycle and re-use oils for treating wood e.g Fencing posts. avoid accidental spillage through good mechanical practices and proper storage. Proper training and sensitization of mechanical staff.	Project Engineer Supervision Consultant Contractor's Mechanical Team Roads Dept. MoRPW&H-Environment and Social Unit PDE, PEO.	During Rehabilitation
13. Lack of Road Signs and other Road Furniture	Install sufficient and adequate road furniture especially road signs	Project Engineer Approved Contractor Supervision Consultant Roads Design Section –MoRPW	During Rehabilitation and Maintenance

12.3 Decommissioning

Decommissioning refers to the final disposal of the project and associated materials at the expiry of the project life span. In respect of the roads, decommissioning is not anticipated. Obsolete equipment and dismantled camp materials will however be salvaged and removed from the road by the contractor on completion of the construction works.

CHAPTER 13: RESETTLEMENT ACTION PLAN FOR THE SELECTED PROJECTS OF MISSING LINK NO.3, NO. 6 AND NO. 7 OF THE STUDY ON MASTER PLAN FOR URBAN TRANSPORT IN THE NAIROBI METROPOLITAN AREA IN THE REPUBLIC OF KENYA

13.1. Background of the Project

JICA study team on behalf of the Government of the Republic of Kenya is in the process of developing a Master Plan for Urban Transport in the Nairobi Metropolitan area in the Republic of Kenya. Part of this work is the construction of the road Missing Links numbers, 3, 6 and 7 located in Westland Division, Nairobi City.

13.2 Objectives of the Missing Links Improvement Project

The objectives of the Missing Links Improvement Project, according to the study on Master Plan for the Nairobi Metropolitan Area in the Republic of Kenya Progress Report are as follows:

13.3 Overall Objective

- To contribute to the economic growth of the Nairobi Metropolitan Area

Transport objectives

- To reduce traffic congestions
- To strengthen the urban road system and make it more efficient and economical

13.4. Impacts of The Project

The impacts of the Project are expected to occur right from the construction phase to the utilization of the road. A summary of the potential impacts of the Project is presented in the Table 13.1.

Table 13.1: Positive and Negative Impacts of Missing Links Improvement Project

Positive Impacts	*Negative Impacts*
• Comfortable riding of vehicles • Faster time for commuting to work • Reduced dust and exhaust fumes • Introduction of bus/matatu to the area • Promotion of business • Increase of economic productivity of the society as a whole • Increase of employment opportunities for the construction works •	• Increase of traffic volume. • Increase of vehicles causing air/noise pollution. • Eviction/ Displacement of the Missing Links occupiers • General traffic congestions • Lose of Jobs of the Missing Links occupiers • Lose of business of the Missing Links occupiers • Lose of income of the Missing Links occupiers • Lose of customers of the Missing Links occupiers • Insecurity • Lose of farmland • Destruction of Natural environment

13.5. Objectives of the Resettlement Action Plan

The primary objective of the resettlement action plan is to provide policy and procedural guidelines for land acquisition, compensations, resettlements, income and livelihood restoration for the affected people.

13.5.1 Resettlement Principles

Resettlement Action Plan should minimize acquisition of land and other assets and reduce negative environmental and socio-economic impacts. It should ensure that Project affected persons (PAPs) are not left worst off after the Project implementation. This can be ensured by compensating them for the loss they incur in the event of implementation of the Project. Special consideration should be given to women, children and vulnerable persons like the old, disabled, handicapped, orphans and destitutes. In oder to obtain cooperation, participation and feedback, the affected hosts and PAPs need to be systematically informed and consulted.

13.5.2 Land Acquisition

The land for the three Missing Links Improvement Project is in place and currently occupied by the informal businesses and residential units. It is a government land that had been allocated for road construction. The only form of land acquisition that will be done is the removal of the present occupiers and resettled elsewhere. About 900 people are likely to be affected by the Project, 75 in ML.3, 21in ML. 6 and 730 in ML. 7. The properties likely to be affected are summarised Table 13.2 and Appendices 4-.11

Table 13.2. Temporary Residents/Businessmen Likely to be Affected by the Proposed Project.

Item No.	Descriptions	Number in each Missing Link			
		3	**6**	7	**Total**
1	Kiosks	10	23	101	134
2	Vendors without shelter	5	20	39	64
3	Motor garages	3	0	21	51
4	Temporary Residents	0	1	3	4
5	Social Facilities	1	0	0	1
6	Gardening	2	10	8	20
7	Tree nurseries	2	0	1	3
8	Religious Buildings/Offices	1	0	0	1
9	Car Parks	0	0	3	3
10	Other	0	0	0	0

13.6. Measures to Minimise Land Acquisition and Losses

Since no land will be acquired for the Project because it is already available, measures should only be taken to minimise losses likely to occur in displacing the present temporary occupiers of the Missing Links. The following measures can therefore be taken:

(a) Appropriate time for notice to enable to them prepare for relocation;
(b) Utilise the humane approach in removing the occupiers to minimise rush and unplanned relocation processes which in the past has characterised the demolition/displacement exercises in the City of Nairobi;

(c) Relocate the occupiers systematically i.e quantifying their businesses and compensating them appropriately according to laws and regulations;
(d) Provision of transport for relocation process; and
(e) Provide security during removal of property and settling in the new site(s).

13.7 Socio-economic Profile of the Project-affected Persons (PAPS)

A Social impact survey was conducted on a total of 282 (table) temporary residents/business owners in the three Missing Links, representing about 30% of the estimated total occupiers of Missing Links, who would be directly affected. The following are their socio-demographic characteristics:

13.7.1Gender

The survey interviewed 70 (93.3%) males and 5 (6.7%) females in the ML 3, 11 (52.4%) males and 10 (47.6%) in ML 6 and 144 (77.4%) and 42 (22.6%) females in ML. 7 (Table5.3.1a). In total 225 males and 57 females were interviewed in the three missing links. The high number of male respondents is because of the dominance of male-oriented automobile activities, Jua Kali garages, in the MLs. 3 and 7. All sort of mechanics are employed in these Jua Kali garages

13.7.2 Ages Distribution

The sampled population of the PAPs is characteristically youthful, over 70% fell within the age brackets of 20-29 and 30-39 in ML Nos. 3 and 7 and about 70% in the ML No. 6 (table5.3.1b). This composition is a reflection of the youthful population that characterizes Kenya's population. Less than 10% fell within the age brackets of 15-19 and 50-59 in ML Nos. 3 and 7 and no respondent was recorded for the age bracket 15-19 for ML No.6. Those falling in the age bracket of 40-49 were less than 20% in all the three Missing Links

13.7.3 Marital Status

Over 70% of the respondents were married in all the three Missing Links while less than 30% were singles and only one (4.8%) respondent was divorced in the ML No. 6 (table 5. 3. 1c).

13.7.4 Parental Status and the Number of Children of the Respondents

The majority of the respondents 69.3% against 30.7%of the respondents in ML No. 3, 81% against 19% in ML.6 and 90.3% against 9.7% in ML.7 had children (table 5.3.1d). This compared fairly with their marital status where almost all the married had children and almost all the singles did not have children.

The number of children of the respondents ranged between 1 and 20. Over 10% of the respondents in all the missing links had children between 1 and 4 while those with more than five children were below 10% across the missing links (table 5.3.1e).

13.7.5 Location of Schools Attended by Respondents' Children

The majority of the respondents across the missing Links send their children to schools outside the project area but within Nairobi city with the exception of ML 6 where the majority 33.3% have their children attending schools outside Nairobi City. Less than 10% of the respondents in the three missing links have children attending schools within the project area while another less than 10% in MLs. 3 and 6 and 16.7% in ML. 7 having children who have not reached school going age or have completed their education (table 5.3.1f).

13.7.6 Residential Status of the Respondents

There are three residential categories of the respondents in all the three Missing Links (table 5.3.1g). These are:

(d) Those owning residential houses/structures within the project area,
(e) Those renting residential house/structures within the project area
(f) Those who have other residential arrangements such as residing with relatives outside the project.

About 9.5% of respondents in ML. 6 and 12.9% in ML 7 own a residential place in the project area. None was recorded for ML.3 (table 5.3.1g), while 38.1% of respondents in ML 6 and 23.7% in ML 7 rent a flat/apartment in the project area. None of the respondent in the ML3 was recorded for this category.

All respondents in ML 3 and over 50% in both ML 6 and ML7 are either renting, owning or have other residential arrangements outside the project area (see Appendix1 for a detailed presentation).

13.7.7 Respondents' Cohabitants

In ML 3, more than 10% of respondents have from 1 to more than 6 dependants living with them. In ML6, about 23.8% of respondents have 3 or 4 dependants, while in ML7, about 28% of respondents have more than 6 dependants living with them (table 5.3.1h

13.7.8 Occupations of the Respondents

The respondents in the missing links engage in informal employments/businesses. They operate kiosks and engage in other occupations such as street vending, laundry, construction works, hairdressing, mechanics, farming, carpentry, salesmanship, tailoring, shoe-mending and pastoring /preaching among others (Appendix2). Less than 10% of the respondents in MLs. 3 and 7 and 47.6% in ML.6 operate kiosks with daily permit. Those operating kiosks with annual permit were less than 10% across the missing links. Other occupations described in Appendix 2 are engagements of 77.3%of the respondents in ML.3, 52 % in ML.6 and 67.6% in ML. 7 (table 5.3.1i).

13.7.9 Dependants on the Respondent's Occupation

Majority of the respondents in all the missing links 78.7% in ML.3, 23.8% in ML.6 and 76.9% in ML.7 have more than 5 people depending on their occupations (Table 5.3.1j).

Those with dependents less than 5 were less than 10% across the missing links. This dependence compared fairly with the respondents' cohabitants.

13.7.10 Acceptance of the Project

The project is widely accepted by the respondents in all the missing links. It is acceptable to 90.7% against 9.3% in ML. 3, 100% in ML. 6 and 93.5% against 6.5% in ML.7 (table 5.3.1s).

The 9.3% in ML.3 do not accept the project because of fear of losing their source of livelihood (work places, businesses, customers and jobs) and also have nowhere to go. While in ML.7, the 6.5% do not accept the project because they will loss shelter, they will loss source of livelihood, is not beneficial to them, the priority should be given to the existing roads which are in bad state and unless they are resettled (see table 5.3.1t for the statistics of the respondents who do not accept the project).

13.7.11 Resettlement following the Missing Link Improvement Project

All the respondents 90.7% in ML.3 who accepted the project as indicated in table 18, 85.7% against 14.3% in ML.6 and 90.9% against 1.6% in ML. 7 (table 5.3.1u) agree to resettle in the event that their place is affected by the project. The 14.3% in ML.6, do not agree to resettle because:

(4) They have nowhere else to go
(5) The current place is source of livelihood
(6) The new place might not have electricity and water.

While 1.6% in ML.7 do not agree to resettle because they are used to the current place or fear loss customers.

13.7.12 Resettlement Options

Most respondents across the missing links, 37% in ML.3, 66.7% in ML.6, and 68.8% in ML.7, prefer to be resettled in a Near-by area within the location, an equal percentage 0.5 % in ML.7 alone will move out of Nairobi City and did not respond (table 5.3.1v) while 1.1% gave other preferences (table 5.3.1w).

13.7.13 Requests of the Respondents following Resettlement

Majority of respondents, 86.7% in ML.3, 85.7% in ML.6 and 89.8% in ML.7 request for a place to resettle (table 5.3.1x). Less than 15% in all the three Missing Links request for the compensation of the business and compensation for the structures. 1.3% in ML. 3 alone want to be resettled as per government regulation while 30% made other requests such as financial support, employment or job opportunity, education of children and provision of permanent trading licence. A detailed list and statistics of other requests is provided in appendix3

13.7.14 Social Impacts of the Missing Links Roads Improvement Project

The majority of the respondents, 57.3 against 42.7% in ML.3, 90.5% against 9.5% in ML.6 and 55.4% against 43% in ML. 7, foresee the Missing Link Improvement project contribute value to their income (table 5.3.1ae). This is because: to 52% in ML.3, 57.1% in ML.6 and 39.8% in ML.7 the project will cause comfortable riding of vehicles; to 53.3% in ML.3, 61.9% in ML.6 and 39.2% in ML.7 it will lead to faster time for commuting to work, to 25.3% in ML.3, 57.1in ML.6 and 39.2% in ML.7 will result in reduced dust and exhaust fumes; to 45.3% in ML.3, 57.1% in ML.6 and 38.2% in ML.7 will lead to introduction of bus/matatu to the project area; to 42.7% in ML.3, 76.2% in ML.6 and 38.2% ML.7 it will cause promotion of business; to 24% in ML.3, 33.3% in ML.6 and 33.9% in ML.7 will lead to an increase of economic productivity of the society as a whole and to 26% in ML.3, 57.1% in ML.6 and 37.6% in ML.7 will lead to increase of employment opportunities for the construction works (table 5.3.1af).

However, to the respondents who did not foresee any value contribution of Missing Link Improvement Project, 2.7% in ML.3, 4.8% in ML.6 and 0.5% in ML.7, the project it will lead to increase in traffic volume and cause increase of vehicles causing air/noise pollution; to 0.5% in ML.7 it will lead to increase of spillage of oil, sand and gravels, soils, etc; to 14.7% in ML.3, 4.8% in ML.6 and 51.1% in ML.7 the project .has no significant impact to raise income; to 5.3% in ML.3, 4.8% in ML.6 and 1.1 in ML.7 the project has no significant impact to the society as a whole and 20% in ML.3, 4.8% in ML.6 and 9.7% in ML.7 (table 5.3.1ag) gave other reasons that include: eviction, rise in poverty, loss of work place, loss of customers, loss of business and loss of jobs (table 5.3.1ah)

13.7.15 Major Potential Undesirable Developments of the Missing Links Improvement Project

According to 4.8%, of respondents in ML.6 and 0.5% in ML. the major undesirable developments of the project are development of further slum area, to similar 4.8% in ML.6 and 1.1% in Ml.7 is increase of garbage dump, to 2.7% in ML.3 and another 1.1% in ML.7 is no improvement to the near-by narrow road impassable for large trucks; to 16% in ML.3, 4.8% in ML.6 and 3.2% in ML.7 is general traffic congestion and to 76% in ML.3, 90.5% in ML.6 and 97.8% in ML. 7 (Table 5.3.1aj) are others that include loss of shelter, loss of farmland, loss of jobs, loss of business, insecurity, eviction/displacement, increase in road accidents, increase in poverty and destruction of natural environment (table 5.3.1ak).

13.7.16 Factor of Direct Contribution of the Project to the Area

According to 58.7% of respondents in ML.3, 61.9% in ML.6 and 44.1% in ML. 7 the project will contribute to improved economic activity in the area, to 80% in ML.3, 76.2% in ML.6 and 79.6% in ML.7 it will contribute to comfort of commuting, to 8.0% in ML.3 and 37.6% in ML.7 it will contribute to any conveniences with through traffic, to 40% in ML.3, 71.4% in ML.6 and 62.9% in ML.7 it will contribute to direct employment in the construction works and to 9.3% in ML.3, 9.5% in ML.6 and 12.4% in ML.7 (table 5.3.1al) will contribute to other factors that include ease of traffic jam, availability of

short-term jobs, benefit private vehicle owners and loss of business in cases of displacement (table 5.3.1am)

13.8. Resettlement Policy and Entitlement

Kenya does not have a resettlement policy that can be adopted in this RP. However, there exist legislations governing expropriation of land for development, which have been used in similar Projects in the past. These legislations are: sections 75, 117 and 118 of the Constitution, which give general guidelines and Chapter 288 and 295 of the Land Acquisition Act, which provide detail procedures. Chapter 295, section 6(1) of the Land acquisition Act deals with the acquisition of private land, while Chapter 288 deals with unregistered trust lands. With regard to the Missing Link Improvement Project, none of the above legislations may be invoked in the resettlement process. This is because the occupiers (PAPs) who are squatters (Missing Link No. 7, section 5) and the rest who are operating informal businesses do not have any legal title to the Missing Links Land. It belongs to the government.

13.8.1 Compensation Policy

In the event that a private land is to be acquired for the Project, the stipulation of Land Acquisition Act, Chapter 295 is to be applied. Section 9 of the same Act deals with the inspection of land for compensation by the Valuation Officer/Collector of compensation who will award value to land according to his assessment. The award is issued in a prescribed from, together with a statement form. The former indicates the amount of compensation awarded while the latter gives the landowners option of acceptance or rejection of the award. If the landowner accepts the award, the collector will issue a cheque in settlement together with a formal " Notice of Taking Possession and Vesting"(Section 19). The notice gives instructions to the landowner to take his title for amendment or cancellation. In case the landowner rejects the value award, the collector deposits the money in court pending the former's appeal. Compensation is based on open market value (Section 9 (3) and 23(2).

Compensation for other properties such residential structures, business structures and other property that are in the possession of the PAPs can be done in accordance with the relevant legislations and policy of the Government of Kenya. The Kenya Law recognizes compensation for loss of property due to implementation of development projects (Republic of Kenya, 2003). The law includes houses, crops and trees.

13.8.2 Eligibility for Compensation/Assistance

The social impact survey conducted in this study identified the persons who will be affected by the Missing Links Improvement Project. However, their eligibilities for assistance and benefits need to be addressed further. In line with this therefore, a socio-economic survey need to be carried out to assess the level of asset loss as either temporary or permanent and assign economic values to them. The proposed survey should mainly review documentary evidence such as permits for assets to be lost in the Missing Links Improvement Project and also review whether the assets are individually owned or belong to a group. It should also conduct meaningful consultations with the affected persons (directly and through representatives), local authorities and appropriate

NGOs in order to establish criteria by which PAPs will be deemed eligible for compensation and other resettlement assistance.

Compensation should be done based on the legal rights PAPs have for the various properties. In case they have none, which could be possible for most of the Missing Links occupiers, resettlement assistance in lieu of compensation for the land they occupy and other assistance need to be considered. This should only apply to those who occupy the Missing Links prior to the cut off date.

Eligibility criteria may be determined by:

Loss of property such as houses, crops, trees, business structures which common in the Missing Links.

Entitlement Matrix: The entitlement matrix outline (table13.3) for the RAP may have the following components: the types of acquisition-caused losses (land, shelter, livelihood), the various categories of PAPs and the various entitlement options.

Table 13.3: Missing Links Nos. 3, 6 and 7 Improvement Project: Proposed Entitlement Matrix

Resettlement Impact	Entitled Persons (Eps)	Subcategory of Entitled Persons	Entitlement Options
Lose of Agricultural Land	With Valid Title	Title holders	a) Cash and/or land-based compensation for land and asset losses at market/replacement value as per the Land Acquisition Act, b) All fees, taxes and other incidental charges and damages, as applicable under relevant laws, accrued in relocation and resource establishment to be borne by the Project. c) Land for land with equivalent production potential in case of total or adverse loss of land, subject to availability. d) Alternative Economic Rehabilitation Scheme and training for the same if required for a shift from land to non-land based income.
Squatters			a) Squatters will not be entitled for any compensation for land but will be compensated for the structures and other lost assets at assessed replacement cost. b) Where squatters are from vulnerable groups, they will be assisted on a case-by-case basis c) Shifting allowance
Lose of Residential / Business Structure			a) Compensation for new construction costs as per valuation by the concerned authority. b) Permission to dismantle the structure and remove it. c) Cash compensation for transportation of family assets and other inconveniences. d) Rental assistance e) Shifting allowance f) Maintenance allowance g) Resettlement grant f) Business capital
Vulnerable groups: women headed household/ elderly/ handicapped			a) Assistance in relocation in addition to (a), (b) and (c) above.

13.8.4 Cut-off date

The Cut-off date for PAPs without legal titles should be the date of the proposed socio-economic survey. While for the PAPs who have legal titles is the date of notification of acquisition under Section 6 (2) of Land Acquisition Act, Chapter 295 of the laws of the Republic of Kenya

13.9. Resettlement Site

The key informants in this study made suggestions on the possible resettlement sites during the social impact survey and among them are: Kitengela, Mulolongo and Athi River. Other options available to the government should be considered together with these two.

13.9.1. Method of site selection and site alternatives

The best option for the resettlement should determined by:

- Conducting pre-feasibility studies
- Consider building codes and Public Health Regulations
- Carry out EIA

13.9.2. Location, layout, and design of resettlement site

The location, layout and design of resettlement site for this study are still pending because none has already been identified.

13.9.3. Resettlement Site Development (infrastructure, social service, etc).

Resettlement site development is very critical if the statuses of PAPs are not to be worse off at the implementation of the Project. The suggestions (table) made by the PAPs should be considered in the development of the resettlement site.

13.10. Income Restoration Program.

13.10.1 Objective and policy of income restoration

The objective of Resettlement Plan income restoration activities is to ensure that no PAP shall be worse off than he or she was before the Project. Restoration of pre-Project levels of income is an important part of rehabilitating individuals, households and socio-economic and cultural systems in affected communities.

13.10.2 Income Restoration (IR) Program

There are two types of Resettlement programs that aim at preventing impoverishment and restoring incomes and livelihoods of PAPs; land-based programs that provide resettlers with land to regain and build agriculture farms and small rural businesses and; non-land based income generating activities such as small business, enterprise development, vocational training, employment, credit, etc., which will help the PAPs to restore any lost income opportunities, or improve their income generating capacity. For the PAPs of the Missing Link Improvement Project, the second resettlement program is most appropriate since the land they are occupying is not theirs and therefore they will not lose land but the businesses, structures and crops they have on it. In the light of this, the following steps

will apply to the PAPs in the Missing Links who will lose livelihood, income, business, residence and crops in the event of execution of the Project:

13.11. Non-Land Based Income Restoration

The Ministry of Roads and Public Works (MRPW) should liaise with the relevant NGOs in helping the PAPs to identify suitable alternative economic rehabilitation schemes through counseling and consultation. Various occupation options may be provided depending on the occupations of the PAPs This will require training that can be facilitated by the Ministry of Roads and Public Works in collaboration with appropriate departments and agencies.

13.11.1. Loans

Financial support is very critical in income restoration programme. As suggested by some of the PAPs, the government may consider providing soft/subsidized loan to PAPs such as the mechanics in the Missing Link No. 7 Sections 6 and 7; and Squatters in section 5 of the same Missing Link who have some organised groups. The Ministry of Roads and Public Works should facilitate access to such funds as Constituency Development Funds loans from SACCOs, micro-credit schemes and donors.

The PAPs who are more than six years old; 3 (4%) in ML.3, 1 (4.8%) in ML.6 and 4 (2.2%) in ML.7 (table5.3.1b) may not have the capacity to engage in any form of productive activity in the new site should be covered in some form of welfare scheme which can be created by the government.

13.11.2. Labour

PAPs should be given the priority in the civil works of the Missing Links Project .The contractor should be encouraged to hire qualified PAPs so that these persons will be able to develop valuable income generating skills for their future.

13.11.3. Vocational Training

PAPs, particularly those who engage in automobile activities (mechanics) in Missing Links 3 and 7, who may not have sufficient training should be assisted. Training should be organized with the assistance of NGOs/CBOs and facilitated by the Ministry of Roads and Public Works. The training should be done in relevant institutions such as the Kenya Polytechnic, Kabete Technical Institute and Nairobi Technical Institute among others. Funds for such training may be obtained from the government or other sources.

Training should also be offered on entrepreneurship and marketing to ensure that the income restoration of PAPs is put onto a sustainable basis. A team comprising of the representatives of PAPs, an official from the MRPW, Development Officer of Nairobi City Council, an official from Ministry of Planning and Development, and relevant NGOs should be formed to assist in identifying more potential areas for Income Restoration and implement the same to help restore and enhance the income levels of the PAPs.

13.11.4 Short-term Income Restoration Activities

The following short-term income restoration strategies as suggested by the PAPs may be used for immediate assistance during relocation and rehabilitation:

- Compensation for, structures, and all other lost assets to be paid in full before relocation;
- House construction grants and relocation subsistence allowances to be paid for the full duration of the period of disruption and re-establishment;
- Free transport or costs of removal and re-establishment for relocation;
- Subsidized inputs for agricultural, and livestock production until income levels are restored;
- Temporary or short term employment in civil construction activities at the resettlement or Project construction sites; and
- Special assistance, as appropriate, to vulnerable groups such as women, and the aged.

13.11.5 Long-term IR Activities

Long-term IR strategies involve activities that will provide a sustained source of income over a longer period of time and will enable restoration of, or improvements in, the PAPs standard of living. They may include purchase of tools and equipment for the Mechanics, provision of permanent land for resettlement of squatters, employment, training and various inputs for income generation and establishing linkages to local or national economic development.

13.11.6 Monitoring of IR Schemes

An external agency should be contracted to monitor income-generating schemes together with other components of the resettlement plan. The MRPW should compile the reports submitted by the external agency and NGO so as to evaluate the success of the resettlement scheme and make corrections or improvements where necessary.

13.12. Implementation Arrangement of the Income Restoration Program

13.12.1. MPRW Project Implementation Unit

In case one does not exist, there is need to establish a unit in the Ministry of Roads and Public Works to oversee Project implementation. Among the responsibilities of the unit are:

(a) To ensure that appropriate agencies that are mandated to plan and implement compensation, income restoration, and rehabilitation programs are identified as early as possible in Project preparation.
(b) To finalize the designs, tenders and award of contract and construction supervision
(c) To ensure compliance with the Resettlement Plan and environmental management plan.

(d) To acquire the required land and pay compensation to the PAPs during the pre-construction period, and taking over the completed facilities for operation and maintenance during the prost-construction period.

13.12.2 Resettlement Unit (RU)

Still in MRPW, there will be need to establish a Resettlement Unit whose mandate will include:

(a) Identification of appropriate agencies to undertake income restoration programs
(b) Oversee the implementation of resettlement plan
(c) To ensure that grievances are properly addressed and resolved in a fair and impartial manner.
(d) Initiate actions to establish institutional linkages necessary for timely delivery of PAP entitlements and assure coordination across agencies and between the various social and economic mitigation measures identified in resettlement plan, and
(e) Conduct internal monitoring and evaluation of the resettlement plan implementation

13.12.3 NGOs

NGOs with experience in social development and poverty alleviation programs and a verifiable track record should be included as partners in the resettlement plan implementation. Selected NGOs should be engaged to support site-level resettlement plan implementation in coordination with Resettlement Unit personnel. Among the areas where the NGOs will provide assistance are in:

- Gathering and sharing information and avoiding potential problems;
- Mobilization and motivation to PAPs to form community based organizations;
- Planning and implementing income-generating schemes;
- Developing information campaigns and community participation;
- Strengthening local institutions and community self-reliance; and
- Delivering services to hard-to-reach communities in a more efficient and cost-effective manner.

13.12.4 Independent Agency/Sociologist

Under the coordination of the RU, an independent agency/sociologist should be contracted to assist in monitoring and evaluating the resettlement and rehabilitation activities, and to assist in grievance redressal.

13.12.5 PAPs' Representative Committee

A committee representing the PAPs should be formed headed by the chairman elected by the PAPs. The mandate of the committee shall include:

(a) Liaise with the RU in the implementation of RAP
(b) Redress grievance at the site level

13.13. Implementation Schedule

13.13.1 Implementation Procedure

The following four components will form part of Implementation of the:

a) Identification of cut-off date and notification;
b) Verification of properties of affected persons and estimation of their type and level of losses;
c) Preparation of entitlement persons for Land Acquisition; and
d) Relocation and resettlement of the PAPs, if required.

a. Identification of cut-off date and notification

In this first stage, the cut-off date of PAPs is determined. Cut-of date for PAPs without legal titles should be the date of the proposed socio-economic survey for the Missing Links Nos. 3, 6 and 7. While for the PAPs who have legal titles is the date of notification of acquisition under Section 6 (2) of Land Acquisition Act Chapter 295 of the laws of the Republic of Kenya.

b. Verification of properties of PAPs and losses:

This is a second stage, which should be undertaken by the RU with the assistance from the PAPs' representatives and local NGOs. They should identify all PAPs and check records of addresses, type of property, estimation of type and level of losses. The procedure should also include consultations for explaining the entitlement framework to the PAPs, methods of payment of compensation, assistance entitlements, grievance procedures and participation in implementation.

c. Preparation of PAPs relocation

In this third stage the PAPs are prepared to surrender their property. This may be achieved through ways that include giving information in written form and individual consultations. The role of the partnering NGOs in this respect will be very significant. Consultation with the community will be done throughout the Project transactions, and efforts will be made to continue with all the development activities. No physical relocation from the Missing Links should begin before alternate arrangements have been made.

d. Compensation, relocation and resettlement

This is the fourth stage where compensation is made in accordance with standard Government procedures and the policies set out in the resettlement plan. The PAPs especially those in Missing Link No. 3 who claim to have some form of legal titles from the City Council for some properties in the Missing Link should be compensated only when the claim is verified. The residential/business structures should be demolished and reconstructed once the new site has been identified and necessary amenities such as electricity and water provided.

13.13.2 Resettlement Plan Implementation Activity Schedule/Work Plan

Once the Resettlement Plan obtains approval from the government and from a funding body in case there is one and has policies regarding resettlement plans, the implementation of RAP may proceed in the following sequence:

1. MRPW establishes a Resettlement Unit;
2. Preparation of RAP report- preparation of drafts, editing and reviewing;

4. Recruitment of specialists; sociologist, development experts;
5. Training of the RU staff on Project-associated resettlement and rehabilitation responsibilities;
6. Selection of NGOs working with the affected community;
7. Consultations with PAPs for entitlements;
8. Hearing objection;
9. Grievance redress;
10. Identity card distribution to the PAPs;
11. Implementation of RAP - Disbursement of compensation, Income Restoration, Relocation, Resettlement activities;
12. Demolition and Reconstruction of residential and business structures and
13. Appointment of Monitoring and Evaluation agency/specialist;

The duration for each of the above activities should be determined by the MRPW, PIU.

13.14. Participation and Public Consultations

It is very important to involve the PAPs, host communities and local governments in preparation of resettlement plan in order to win their cooperation and participation and to avoid the severe problems of involuntary resettlement. In the past, some relocations or rather movement of the occupiers of the road reserves in the Nairobi City has been conducted without prior information and more so in a very unkind way. During social impact survey of this study, it was reported that the demolition of kiosks along the Section one of ML.3 (Appendix 2-) was characterised by wanton destruction of properties and theft, which consequently led to one victim committing suicide for losing his source of livelihood. Such ugly scenarios can be avoided during implementation of this resettlement plan if the PAPs are informed and consulted about the Project, their situation, and preferences, and are permitted to present their choices. Information and consultation with the host communities is important in preparing them to co-exist with the new settlers.

The consultation and participation process may be accomplished using: Key informants, focus group discussions and interview schedule, and other consultative and assessment. The process should as much as possible cover every PAP. In the process, efforts should be made to:

- Understand views of the PAPs and people affected in the Missing Links improvement project;
- Identify and assess all major economic and social characteristics of PAPs to enable effective planning and implementation; and
- Understand issues relating to effects on private, public and community property resources.

13.15. Monitoring and Evaluation

A monitoring and evaluation (M&E) program is required to be developed to provide feedback to Project management which will help keep the programs on schedule and successful. Monitoring provides both a working system for effective implementation of the RAP by the Project managers, and an information channel for the PAPs to assess how

their needs are being met. It should give particular attention to the Project-affected vulnerable groups such as women headed households, children and elderly among others.

Monitoring should be conducted in two ways: by external agency and internally by RU.

(i) External monitoring

An independent agency/specialist should be hired to carry out monitoring and evaluation of RAP implementation. The agency/specialist should begin the work right from the implementation of RAP and should meaningfully and realistically monitor and evaluate the R&R programs on a periodic basis so that all the vital activities are successfully implemented. External monitoring and evaluation is useful in formulation of corrective measures by identifying the problems and difficulties faced by the PAPs and bringing them to the notice of the RU. The agency has to:

- Verify results of internal monitoring.
- Assess whether resettlement objectives have been met; specifically, whether livelihoods and living standards have been restored or enhanced.
- Assess the resettlement efficiency, effectiveness, impact and sustainability, drawing lessons for future resettlement activities and recommending corrections in the implementation process.

- Ascertain whether the resettlement entitlements were appropriate to meeting the objectives, and whether the objectives were suited to PAPs conditions.

Methodology for External Monitoring: The external agency/specialist should develop detailed indicators that may include the following:

a) Administrative monitoring

Administrative monitoring should be carried out periodically, depending on the gravity of issues and their requirements. It might require two types of information. (i) Individual files on each PAP and (ii) action plan and progress reports.

This will help ensure timely implementation of the RAP and proper and quick solution of problems.

b) Socio-economic monitoring

The purpose of socio-economic monitoring is to ensure that PAPs are compensated and recovering on time. It should go on during and after the relocation process, to assess whether the compensation paid, income restored and resettlement objectives were appropriate and met by the Project.

c) Impact evaluation

It should be carried out after the implementation of RAP is over. The objective is that the income and standard of living of the PAPs has at least been restored and has not declined.

(ii) Internal Monitoring

This should be the responsibility of the RU. It will look into the conventional indicators viz. assistance provided to the affected families, number of affected families, families resettled, infrastructure facilities allocated, etc. It will also monitor the financial aspects, which include payment of compensation, grants, income restoration, etc. Regular progress reports shall be prepared and submitted to the MRPW in a timely manner.

13.16. Grievance Redress

In order to deal with the grievance that may arise during the implementation of the RAP, there is need to incorporate a grievance redressal process with RU and with PAPs representative committee to hear the complaints and provide solutions, and reduce unnecessary litigation by resolving disputes through mediation.

PAPs' Representative Committee: The committee headed by a chairman elected by the PAPs shall carry out following as regard to redressing grievances:

(a) Hear the grievances of the PAPs, and provide an early solution to those they able to.
(b) Immediately bring any serious matters to the attention of the RU
(c) Inform the aggrieved parties about the progress of their grievances and the decisions of the RU.

RU Grievance Redress Committee: Grievance Redress Committee within RU needs to be constituted to:

(a) Register the grievance raised by the PAPs; and
(b) Address the grievance forwarded by the PAPs' representative committee.

RU Grievance Redress Committee should try as much as possible to arrive at a compromise for complains raised. This may be obtained through series of conciliation, mediation and negotiation exercises conducted with the PAPs. If PAPs accept the recommendations made by the committee, the committee along with PAPs who are willing to take part in these proceedings may hold mediations at the appointed places. In situations where PAPs are not satisfied with the decision of RUs' Grievance Redress Committee, the PAPs can approach the court of law.

The response time for cases handled in both committees will depend on the issues addressed but it should be as short as it is possible.

13.17. Cost Estimate

This RAP does not provide cost estimate for resettlement implementation, training for RU staff and affected persons, services of NGOs, monitoring and evaluation, and other incidental costs, but provides estimated costs (table 13.17) for the various categories of temporary structures likely to be lost in the event of demolition. The MRPW Project Implementation Unit (PIU) should determine costs for every activity to be undertaken

during resettlement implementation and factored in the overall cost of improving the three Missing Links, No. 3, No. 6 and No. 7.

Table 13.17: Estimated Compensation Costs for Demolition of the Structures on MLs. 3, 6 and 7.

Category of the Structure	**Source of Information**		
	Chairman Denis Prits Squatter Village	Chairman Jua Kali Garages Ring Road Kilimani	Professional Carpenter-Ring Road Kilomani
	Estimated Cost	**Estimated Cost**	**Estimated Cost**
16 M^2 (4*4)	**23,250.00**	**40,000.00**	**58,455.00**
25-100M^2 (5*5-10*10)	**36,316.50**	**60,000.00**	**8,9656.44**
100-225 M^2 (10*10-15*15)	**3,7781.25**	**80,000.00**	**365,343.75**

NB: See Appendix 3 for details.

CHAPTER 14: CONCLUSION AND RECOMMENDATIONS

13.1 Conclusions

The construction of the Missing Links will enhance economic growth at the local level and reduce congestion on Ngong Road. The integration of environmental concerns in the implementation strategy of the Road Project will enhance environmental practices amongst all stakeholders. This will ultimately enhance sustainable development in Kenya.

The construction of the Missing Links in Westlands area will reduce congestion on Ngong Road and at Westlands intersection as part of the traffic will be re-routed to the intersection. However, it will have serious social impacts as the people occupying the links will have to be relocated/resettled.

13.2 Recommendations

It is recommended that:

a) The implementing agency should address and implement all the proposed mitigation measures.

b) Environmental mitigation measures should be incorporated into the roads sector tender dossiers and contractual agreements.

c) The appropriate training needs identified should be implemented.

d) Capacity building, creating awareness, implementing proposed mitigation measures and monitoring are essential to the effective implementation of the Environmental Management Plan. To achieve this key target groups, such as road workers, road users and project-affected people must be trained.

e) Resettlement action plans and procedures should take into consideration various aspects of the people being resettled eg. Schooling of children and viable alternative places.

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