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UNITED NATIONS

ECONOMIC and SOCIAL COUNCIL

Distr.
LIMITED

E/CN.14/TRANS/56
3 April 1972

ENGLISH
Original: FRENCH

ECONOMIC COMMISSION FOR AFRICA
Second Meeting of the Trans-African
Highway Co-ordinating Committee
Bangui, 10-14 April 1972

TRANS-AFRICAN HIGHWAY
SUMMARY OF THE PRE-FEASIBILITY STUDY

Note: This document is to be read in conjunction with the report: "Trans-African Highway - Pre-feasibility Study".

72-495

P.A. in file on Development of Transport & Telecom Network in Africa - 67(ii) 28/4/72

I. KENYA

From Mombasa to Busia or Tororo

1. Mombasa - Nakuru - Mount Mau 189 km.

The present layout is suitable, the route is bitumen surfaced over a width of 6 to 7 metres with 2.5 metre shoulders and satisfactory draining.

By 1980 the traffic flow will be between 2500 to 16000 vehicles per day, 35 to 40 per cent lorries and buses.

From Nairobi to Mombasa: a few small sections require minor repairs as a matter of normal maintenance.

From Nairobi to Nakuru: There are places where the geometry is below modern standards and long lengths without shoulders and with a pavement width of 5.5 metres. There are signs of failure in places.

From Nakuru to Mau Summit: the geometry is adequate, but the road strength requires reinforcements.

The Kenya Gouvernment has worked out a road programme on this axis running to US $62 million, US $11.6 million of which are committed or spent.

2. Nakuru (Mau Summit) - Kenya/Uganda boundary

(a) North via Eldoret: The route has a 6.10 metre bitumen surface up to Eldoret, and needs strengthening. From Eldoret to Malaba 20 km from Tororo, the route has recently been surfaced and is perfectly suitable for modern traffic.

(b) South via Kisumu: The route is bitumen surfaced except for an 80 km stretch before reaching the boundary (Busia) where it is made of gravel.

The Kenya Government has prepared a works programme estimated at: US $8.7 million for construction and improvement on the route via Eldoret (North), US $5.8 million being already committed.

US $20.9 million, US $10.1 of which is already committed or spent on the southern route (via Kisumu).

Distance

The Mombasa-Tororo stretch is 926 km and will be 928 km after the improvements now in progress are completed.

The Mombasa-Busia stretch is 943 km and will be 896 km after realignment mainly to avoid the Kisumu centre.

Distance: Mombasa - Buwayo = 926 km at present
= 915 after the completion of work.

Recommended route

Mombasa - Nairobi - Nakuru - Kisumu - Busia : 896 km after the completion of work now in progress.

II. UGANDA - ZAIRE (up to Mombasa)

There are three routes referred to as the southern, median and northern routes. The first two start from Busia and pass through Kampala and west via the Lake George crossroads, before reaching the Zaire boundary at Kasindi.

The third passes through Tororo, Soroti, Lira, Pakwach and rejoins the Zaire boundary at Mahagi in the north. Up to Pakwach, this route has a railroad as well. There is also a railroad which passes through Tororo, Kampala and Kasese on the banks of Lake George.

The western sections of these two railroads are at present under-utilized; their annual tonnage respectively is only approximately 100,000 from Soroti to Pakwach and 125,000 from Kampala to Kasese.

A. Southern Route: 612 km

The portion between Busia and Kampala is common to the median route as well as the western section between Lake George and Kasindi.

1. Busia-Buwayo: 19 km: a gravel road requiring bitumen surfacing estimated at approximately US $840,000. From Tororo to Buwayo, 34 km the route is bitumen surfaced but work will have to be carried out on a stretch of approximately 11 km. The cost is estimated at US $350,000.

2. Buwayo-Jinja: 94 km, a fairly good bitumen surfaced route. A certain amount of work has been planned quite apart from the Trans-African Highway (TAH) as part of the national maintenance programme.

3. Jinja - Kampala: 69 km, a good route, no additional expenditure is forecast.

4. Kampala - Mbarara: 267 km, a good route, bitumen surfaced throughout, geometry is good. No additional expenditure forecast as a result of TAH.

5. Mbarara - Lake George: 136 km, this route has recently been rebuilt on high geometric standards and is bitumen surfaced all the way.

6. Lake George-Kasindi: 33 km, a mediocre earth road

B. Median Route: 623 km

1. Busia - Kampala: 182 km, see above

2. Kampala - Mityana: 56 km, a fairly good route, bitumen surfaced. The traffic flow is 900 vehicles per day.

3. Mytiana - Mubende - Portal Fort: 252 km, part earth, part gravel surface, 6 to 7 metres wide; the last 30 km into Portal Fort are bitumen surfaced.

   There is an IBRD construction programme for this road up to 1975.

4. Portal Fort - Lake George: 100 km, a route recently built and bitumen surfaced.

5. Lake George - Kasindi: 33 km, see above.

6. Kasindi - Béni: (Zaire) 80 km, a dry weather earth road which should be completely upgraded.

   Costs: From Kasindi to Bwera: US $350,000 to bring it up to the standard of an all-weather motorable gravel road.

   From Bwera to Beni: US $725,000 to bring it up to similar standards.

7. Beni - Komanda: 108 km, 96 km of this road up to the new bridge near Ngeleza, is an earth road varying in length, and in poor condition. It is estimated that US $ 2 million will have to be spent on it to bring it up to the standard of an all-weather motorable road. From Ngeleza to Komanda, a non-bitumen surfaced road in good condition.

8. Komanda - Mombasa: 94 km. this road is in very poor condition, and without any maintenance. It is estimated that US $ 400,000 will have to be spent on this section to bring it up to the minimum standards for a non-bitumen surfaced motorable road.

C. Northern Route

1. Busia - Tororo: 22 km, non-bitumen surfaced road, work estimated at US $1 million.

2. Tororo - Mbale - Soroti: 153 km. From Tororo to Mbali: a 6.5 bitumen surfaced road with 2 metres stabilized shoulders; good geometric standards.

From Bwera to Beni: US $725,000 to bring it up to similar standards.

7. Beni - Komanda: 108 km, 96 km of this road up to the new bridge near Ngeleza, is an earth road varying in length, and in poor condition. It is estimated that US $ 2 million will have to be spent on it to bring it up to the standard of an all-weather motorable road. From Ngeleza to Komanda, a non-bitumen surfaced road is in good condition.

8. Komanda - Mombasa: 94 km, this road is in very poor condition, and without any maintenance. It is estimated US $400,000 will have to be spent on this section to bring it up to the minimum standards for a non-bitumen surfaced motorable road.

C. Northern Route

1. Busia - Tororo: 22 km, non-bitumen surfaced road, work estimated at US $ 1 million .

2. Tororo - Mbale - Soroti: 153 km. From Tororo to Mbale: a 6.5 bitumen surfaced road with 2 metres stabilized shoulders; good geometric standards.

   From Mbale to Soroti: comdition and standards similar to those just mentioned.

3. Soroti - Lira: 132 km, gravel surface, 6 metres wide, the road is maintained but is of mediocre quality. A substantial amount of work will have to be done on it because of the local traffic flows, quite apart from TAH.

4. Lira - Kamdini: 80 km. Work on bitumen surfacing and a new layout will be completed in 1972: the distance will be reduced to 62.5 km.

5. Kamdini -Karuma Falls: 10 km. Geometry good, the route is bitumen surfaced over 8.8 metres and has 2 metre shoulders. No improvement is required.

6. Karuma Falls - Pakwach: 114 km. A 6 to 7 metre wide laterite route. Good layout, good maintenance. The route is adequate for present requirements, but in view of the economic activity of the western Nile region and traffic flows, it would be advisable to have it resurfaced in 2 to 3 years.

7. Pakwach - Nebbi: 55 km. The road is in poor condition, pot-holes and corrugations: upkeep very inadequate, width 4.5 to 7 metres. To make it safe for travel at any time, it would be advisable to give it a new gravel surface and improve the layout. The cost is estimated at US $610,000.

8. Nebbi - Goli: 20 km. Conditions on this stretch are bad and the road should be rebuilt. Present traffic flows vary from about 30 vehicles per day. With an increase of 5 per cent at the least, the work suggested would have to be completed before 1975. It should cost about US $200,000.

TOTAL: Uganda: 586 km.

9. Goli - Mahagi - Djugu - Bunia: 183 km.

From Goli to Mahagi: poor layout, poor route. Motorable surface approximately 4 metres wide, partly rocky, partly silt, red and badly drained, maintenance poor.

From Djugu to Bunia: 71 km, the route is similar to that between Goli and Djugu. Only the last 24 kilometres into Bunia show any sign of maintenance under the "Convention" system. Bridges are narrow and made of timber.

Traffic flow: 90 vehicles per day between Mahagi and Djugu; 60 vehicles per day between Djugu and Bunia. Heavy vehicles account for 2/3 of the traffic flows.

We suggest the improvement of this route between now and 1975, at a total estimated cost of US $25,000 per km or US $4.4 million; this would include improvement of the geometry and provision of a 15 cm. gravel running course, improved drainage and replacement of some of the timber bridges.

10. Bunia - Komanda: 74 km. The works required are less than elsewhere in the region. The geometry of the road is good and the running surface with a sandy silt or lateritic soil is about 5 metres wide with grass shoulders in places.

The traffic load is 60 vehicles per day, 60 per cent of these being heavy vehicles. Some improvement necessary before 1975, estimated cost US $ 400,000.

Recommended Route

Busia - Jinja - Kampala - Kasaka - Mbarara - Lake George - Kasindi Beni - Komanda - Mambasa :900 km.

ZAIRE (from Mombasa)

1. Mombasa - Kisangani: 531 km. The road goes through thick forest and varies in width from 4 to about 7 metres. The surface is mostly a poor quality lateritic material. Some lengths have a good alignment and riding surface, while in other parts there are pot-holes, and sharp curves restrict sight distances and speed. The section of 55 km which had been surfaced prior to 1959 is still in very reasonable condition, apart from some pot-holes and signs of wear.

   Present traffic flows are estimated at:

   20 vehicles per day between Mombasa and Bafwasende

   50 vehicles per day between Bafwasende and the first part of the section which is surfaced 15 km from Kinshasa.

   200 vehicles per day over the fifteen (15) last kms.

   The road has not been maintained to an all-weather standard. The geometry is reasonably good over most of the route and adequate for the traffic levels expected for some years to come; but a programme of gravelling and general rehabilitation is required.

   Cost: Not given.

2. Kisangani - Buta: 332 km. Two lengths: Kisangani - Banalia 135 km; Banalia - Buta 197 km.

   From Kisangani to Banalia, there is an old laterite surfaced road which has not been maintained, with the result that the surface is very irregular and eroded down to underlying silt, sand or clay. Road drainage is inoperative.

   From Banalia to Buta (north of the Aruwimi river) the road crosses a low plain of silt; further north still, several lengths make the road practically impassable after the rains, in spite of an abundance of laterite and silt which is to be found on almost every stretch and could be used for improving the state of the road.

   Even before 1960, traffic on this road was under 50 vehicles per day. We consider that the traffic flow is now about 40 vehicles per day between Kisangani and Banalia and about fifteen vehicles per day between Banalia and Buta, with 75 to 80 per cent heavy vehicles in each case. Taken over a whole year, even these figures may be high due to the almost impassable condition of the road at times. In 1975, we believe that there will be about 65 vehicles per day between Kisangani and Banalia and 30 between Banalia and Buta.

ZAIRE - CENTRAL AFRICAN REPUBLIC (to Bangui)

1. Buta - Dulia - Bondo - Bangassou - Bambasi - Sibut - Bangui 1152 km.

2. Buta - Dulia - Aketi - Bumba - Lisala - Akula - Gemena - Boyabo - Zongo - Bangui - 1050 km.

1. Buta - Dulia: 77 km. A section common to the two alternatives. An earth track, 3 to 4 metres wide, over most of the length, with gravel surface in places. A limited programme of gravelling, secondary bridges and normal maintenance would make it an all-weather motorable route at an approximate cost of US $ 150,000.

Southern Alternative Route

2. Dulia - Aketi: 50 km. Apart from a few oilseeds, there is little economic activity and the population is sparse. Prior to 1960, there were approximately 100 vehicles per day but now only 20 vehicles per day. Thirty km (30) require to be almost completely rebuilt; on the assumption that use will be made of rail bridges, US $ 900,000 will be required for this section and US $60,000 for repairs on the first 20 km.

TOTAL: US $960,000.

3. Aketi - Bumba: 194 km.

From Aketi to Yalingimba 135 km, the road passes through sandy soil. The alignmentment is good but the route is not well maintained.

From Yalingamba to Bumba, the soil becomes more clayey and the rains make conditions difficult. The area is marshy and the road often flooded.

Work required: From Yalingimba to Bumba, the level of traffic flows (90 vehicles per day) justifies improvements which would include raising the road level and giving it a gravel surface at a cost of approximately US $240,000 to bring it up to the standard of an all-weather motorable or bitumen surfaced road.

4. Bumba - Lisala (153 km)

This is a natural soil road, over sandy, silt, clay mixtures with varying proportions of clay. There are several low-lying stretches on low embankments which require improvement.

Traffic flows are estimated at 50 vehicles per day. They may be nearer 60 vehicles per day by 1975 and 100 vehicles per day by 1985.

There is every justification for improvements to bring the road up to an all-weather motorable standard. The cost is estimated at US $2 million.

5. Lisala - Gemena: 314 km

There are three possible routes two of which pass through Gemena, the most southerly route avoids Gemena. It is impracticable.

From Lisala to the Akula ferry the road is narrow and poorly maintained. The soils are generally well graded. Through the large rubber plantation at Binga, the road is very well maintained (Convention system) over a distance of thirty km.

It is understood that FED is now financing the improvement of this stretch of road.

Some raising and gravelling is required on the road from Akula to Gemena to bring it up to the minimum standards for a non-bituminous surface road.

At present, the traffic flow on this stretch is about 30 vehicles per day, and could be 50 per day by 1975.

The cost of work on this section to bring it up to the minimum standards is US $1 million and the work from Lisala to Akula US $ 0.9 million.

6. Gemena - Zongo (Bangui) : 254 km.

Between Gemena and the Ferry at Bogilima, the road is very uneven and only low speeds are possible. The ferry at Bogilima is old and dilapidated. From Bogilima to Boyabo, long lengths of the road are at or below ground level through poor silts or silty clays. It is estimated that about 20 per cent of this length requires embankment of between 0.5 and 1.00 metre hight to avoid flooding and saturation of the sub-grade.

From Buwayo to Zongo, the soils are rather better; the road runs through areas of swamp but with good lateritic deposits between.

The traffic levels are very low and it is difficult to see how they will rise much above 30 vehicles per day for the next 20 years, apart from near the main settlements. It would be difficult to justify major improvements before about 1985, on purely economic grounds.

We estimate the cost of bringing this length of road up to minimum all-weather standards at US $1.6 million including the cost of the new ferry.

Northern Alternative Route

1. Dulia - Bondo - Ndu (Bangassou) : 332 km.

In the past, the road from Dulia - Bondo was a gravel road about 3 to 4 metres wide, but it is now severely eroded in places and the surface is overgrown and very uneven. The vertical and horizontal alignments are for the most part acceptable.

There are 3 ferries at Bondo, Monga, and Ndu. Those at Bondo and Ndu are motor driven. The ferry at Monga is hand propelled.

Here economic development has lagged so far behind development in other areas of the north of Zaire and the Equator Province that one cannot envisage any great progress here without very considerably inputs or unless there is a significant growth of trade between the Central African Republic and Zaire (Kisangani).

Improvements to this road to bring it to a reasonable all-weather standard for light traffic, would cost US $1.5 million including the cost of a motor ferry at Mongo and the construction of embankments where necessary, i.e. in sections where the road level is low.

(ALTERNATIVE NORTHERN ROUTE CONTINUED:
Central African Republic)

2. Bangassou - Alindao - Bambari : 354 km.

The whole of the road is good except for a few short sections which require reshaping or regravelling. We estimate these at no more than 5 to 10 per cent of the total length, say about 25 km in all.

From Bangassou to Alindao (236 km) the road is between 4 and 6 metres wide and constructed of a good laterite, but with short stretches of silty clays and some rock outcrops. The road is well shaped and drained, in spite of some short portions which are not so good.

Between Alindao and Bambari (118 km) the riding surface is better. The alignment throughout is good and requires no improvement. Maintenance is effective and adequate.

Work required: The work to be done could be undertaken as part of normal maintenance; since maintenance organization is obviously effective, the cost should be around US $ 25,000.

3. Bambari - Grimari - Sibut : 197 km.

Built over silty clays, this road has a laterite surface, 6 to 7 metres wide, and the drainage is good. The geometry of the road and maintenance are also good.

The work required on this road does not amount to more than regravelling an aggregate of about 10 km, with 15 cms of durable material. This work could be carried out as a normal maintenance process.

4. Sibut - Damara - Bangui : 155 km

From Sibut to Damara (110 km), the road consists of a recently constructed 8 metre wide laterite surface with a high engineering standard. Alignment is good.

Surfacing of the Damara-Sibut section is included in the development programme of the Central African Republic for 1971 - 1975 and FED has offered assistance for this work.

From Damara to Bangui (45 km) the route is bitumen surfaced over a distance of 6 metres, with 1 metre shoulders. The horizontal and vertical alignments are good.

Conclusion: The report recommends the northern route (Buta - Dulia - Bondo- Bangassou - Bambari - Sibut - Bangui) since it is less costly.

According to tables at page 79 and 80, the northern alternative route would require US $1.7 million to bring it up to all-weather standards as against US $ 7.9 million for the work required on the southern alternative.

THE CENTRAL AFRICAN REPUBLIC (continued) from Bangui to the Cameroon border

1. Bangui - Bossembele (164 km)

The first 10 kms (10 km) are bitumen surfaced with an 8 metre width and 2 metre laterite shoulders on either side.

For the next 70 km, the road has a well-constructed and maintained laterite surface, 8 to 9 metres wide. Alignment is generally good.

The traffic flow on this section is estimated at 50 vehicles per day, 60 per cent of these being heavy vehicles.

The bitumisation of this road is proposed in the current highway development programme of the Central African Republic, at an estimated cost of US $ 6.2 million, to be financed partly by IBRD.

2. Bossembele - Baoro: 226 km

Although this part of the route is well maintained, the horizontal alignment coupled with some grades of up to 10 per cent , limit average speeds to 60 kph. There are also a number of sub-standard bridges.

We have estimated traffic at 30 vehicles per day.

The improvements which are desirable to certain parts of this road can be carried out within a normal maintenance programme.

3. Baoro - Bouar - Garou - Boulai: 217 km

The road width varies between about 3 and 5 metres and alignments are generally good, although in places there are sharp curves and gradients up to ten per cent. The surface is mostly of sandy silts with isolated patches of gravel or clay.

Due to the hilly terrain in parts, improvement of the geometry would be expensive.

In general, there seems to have been little routine maintenance between Bouar and Garma Boulai, quite unlike the case to the east of Bouar.

The traffic flow is estimated at 20 vehicles per day.

Recommended route

Bangui - Bossembele - Bossemtele - Baoro - Bouar - Baboua - Garoua - Boulai: 607 km.

CAMEROON

I. Southern Alternative Route

Garoua Boulai, Bertoua, Nanga - Eboko, Batchanga, Bafoussam:

1. Garoua - Boulai - Bertoua : 255 km

The whole of this length has a four to five metre wide laterite surface. The road runs over plastic sub-grades for much of the way, but it is well drained and well maintained. There are poor horizontal alignments. Gradients are mostly less than 5 per cent with an overall maximum of 10 per cent.

There are traffic flows of 45 vehicles per day (70 per cent heavy vehicles) near Garoua Boulai and 96 vehicles per day (60 per cent heavy vehicles) near Bertoua.

Given the present quite good gravel standard of the road, and continuing reasonable maintenance, we do not consider that any major improvements are called for.

2. Bertoua - Nanga Eboko - Yaoundé: 338 km.
(276 km up to Batchenga)

For the first 268 km from Bertoua, the road is mostly gravel surfaced on sub-soils containing various amounts of clay. The width is between 5 to 7 metres, but the geometric standards are poor in many parts, with sharp curves and short, steep gradients.

For the last 70 km into Yaounde, there is a two-lane bitumen surface which shows failures in places especially on the 8 km stretch east of Batchenga.

Estimated traffic flows:

Bertoua - Nanga Eboko	85	vehicles/day	(35	%	heavy	vehicles)
Namga Eboko - Batchenga	130	"	"	25 %	"	"
Batchenga - Yaoundé	900	"	"	15 %	"	"

Work required:

The section between Bertoua and Naga Eboko require some minor realignments and widening of bridges. This work is immediately justified.

We do not consider that the designation of this route as part of TAH will make any significant difference to traffic flows here. The surfacing of the whole route and widening of the section near Yaoundé may be required, but this is not likely to become an urgent problem before about 1985.

3. Yaoundé (Batchenga) - Bafoussam: 245 km

This road runs through flat country as far as Bafi (100 km) with easy grades and good alignment. The width of the gravel surface varies between 6 metres and the width for a single lane, and parts of the gravel surface are badly worn.

For the first 40 to 50 km beyond Bafia, the country remains flat, though the horizontal alignment of the road contains many sharp bends and the riding surface is not good. The remainder of the distance to Bafoussam, goes through more hilly country with poor alignments, although the standard of the riding surface is good.

The two ferries, operating between Yaoundé and Bafia, delay traffic and some improvements to their service are necessary.

Work required:

The Cameroon Govern Government Third Development Plan contains two proposals: either to improve and gravel this section at a cost of CFA fr. 1,000 million or otherwise provide a bituminous surface at a cost of CFA fr. 3,000 to 4,000 million. Either of these alternatives will suffice to bring this road to standards that are fully adequate now and for the future.

II. Alternative Northern Route

1. Garoua - Boulai - Meiganga: 94 km

This is a well maintained laterite route, 4 to 6 metres wide. Alignment is reasonably good.

Traffic is officially estimated at 120 vehicles per day on this section.

The relatively minor amount of improvement desirable on this section would be economically justified by present traffic, and could in fact be done under a normal maintenance-improvement programme.

2. Meiganga - Tibati : 238 km.

At this point, the road becomes an unimproved earth track running generally along the top of a ridge but descending to cross, throughout most of its stretch, occasional drifts over streams.

No traffic counts are available for this section, and during the field survey, no vehicles were met. At first sight, the probable traffic flow in 1975 would seem to justify improving the route between Meiganga and Tibati.

3. Tibati - Bafoussam

This is one of the main north - south routes through the Cameroon from the ports to the north of the country and to Fort Lamy in Chad.

For the first 50 km from Tibati, the horizontal alignment is good but the vertical alignment is poor, because of undulations and a number of unbridged water courses. Close to Banyo, more hilly country causes worsening alignments, and the road is often reduced to a single lane. The same type of country continues from Banyo to Foumban, over a distance of 214 km and on some sections both alignment and gradients are below the required standards.

However, over the rest of the route, the laterite surface is up to 10 metres wide and the road is well maintained.

Similar good conditions extend to the last 71 km between Foumban and Bafoussan, with a good laterite road and a good alignment.

These conditions continue up to the last 16 km into Bafoussan, which is surfaced.

The official estimate of traffic is as follows:

Tibati - Banyo	150 vehicles/day
Banyo - Foumban	270 vehicles/day
Foumban - Bafoussam	600 vehicles/day

Between Tibati and Banyo, there is need for embankments in places and replacement of drifts by bridges.

Between Banyo and Foumban, improvements are desirable in places, but wholesale improvement would be expensive because of the nature of the terrain.

From Foumban to Bafoussam, improvements are suggested in the Third Development Plan of the Cameroon Government. On present trends, paving would probably be justified in the next few years.

4. The common portion from Bafoussam to the Nigerian border

Bafoussam - Bamenda: 90 km

The route runs at first through slightly undulating country on a good alignment. For the last half of the section, the terrain is very hilly and the road bends and twists with sharp grades into Bamenda, where there is a bituminous surface for the last 5 km.

The proposal to pave this section at an estimated cost of CFA fr. 1,200 million is contained in the Third Development Plan. The Technical studies are in their final phase.

5. Bamenda - Mamfe: 152 km.

Alignment over most of this part is restricted to a narrow valley. For the first 50 or 60 km, there is a laterite surface of variable quality, and with poor horizontal alignment. The road is then no more than a single track with exceptionally sharp curves and gradients.

The Government's estimate of traffic on the Bamenda-Mamfe link is 10 vehicles per day.

This part of the route is generally below the minimum TAH standards, but the Cameroon Government proposes an expenditure of CFA fr. 800 million to improve it during the period 1971-1975.

6. Mamfe - Ekok (Nigerian border) : 73 km

Starting as a good surfaced road from Mamfe, the road deteriorates steadily and is so bad in places, that parts have been broken up and re-compacted to form a good gravel road about 8 metres wide. There is then a length of about 40 km of reasonable although narrow laterite road. For the last 15 km, the road consists of a single lane track, with poor sight distances and considerable encroachment of the forest.

Traffic is estimated at 10 vehicles per day.

Work required:

Adequate maintenance as well as improvement on the last 20 km are required to bring the road to all-weather standards. The estimate of costs may be put at US $220,000.

Selection: Although the route is 100 km shorter northwards, the southern route would cost considerably less to be brought up to the standard of a minimum all-weather road.

Moreover, the southern route would serve a larger population, ensure closer contact with the port in the Douala commercial centre, the Yaoundé capital, without losing sight of the fact that the Batchenga - Bafia - Bafia - Bafoussam road is to be improved in the near future.

Recommended route

Garoua - Boulai - Bertoua - Batchenga (Douala) - Bafia - Bafoussam - Bamenda - Mamfe - Ekok : 1203 km.

NIGERIA

Only one route is proposed:

Ekok- Ikomi- Abakaliki- Enugu- Onitsha- Abaua- Benin City- Ejebu Ode-Shagamu-Lagos.

The Nigerian transport network has traditionally been based on north-south routes, linking to the four major seaports at Lagos, Wari, Port Harcourt, and Calabar.

The characteristic feature of the proposed route is that it goes from East to West which is quite different from the direction in which traditional transport runs; it, therefore, provides a link with the main forms of transport: road, rail and river and with the large population centres.

During the war years and immediately after, many of the major links deteriorated due to lack of maintenance, the impact of unusually high and heavy traffic, and the more direct impact of hostilities. Only two ports are at present accessible by rail.

1. Ekok - the Ogoja/Enugu Junction: 144 km.

   This is the only unsurfaced part of the TAH route in Nigeria. It is at present a gravel road reasonable well maintained and with a surface width going up to 9 metres.

   Improvement of the road from Calabar running northwards is now being undertaken by USAID and this would connect to the TAH route at Ikom.

   Also, the route from Calabar to OTU (Cameroon border) and Mamfe is being rehabilitated as far as Ikpai.

2. Ogeja/Enugu road junction - Enugu: 147 km.

   This part of the route has a bituminous surface which has deteriorated badly over the past few years. Rehabilitation is due to commence in 1972, and to be completed in 1973-1974, for the portion between Enugu - Abakaliki.

3. Enugu - Onitsha: 108 km

   This is a good bituminous surfaced road. Although it would appear to satisfy today's traffic needs, the Nigerian Government are aware of the potential development in this area and hence the necessity to provide for increased traffic along this section of the route. They have, as a result, made arrangements for a feasibility study in 1972.

4. Onitsha - Asaba : 1 km

The Niger bridge was partially demolished during the war and traffic is now restricted. Tenders have been invited for the replacement of the damaged permanent spans, the work being due for completion in 1973.

5. Abasa - Benin City : 137 km.

This section has suffered most in recent years. A contract has been let for rehabilitation and work has started. Moreover, a feasibility study is programmed for the section in the Development Plan.

6. Benin - Shagamu : 264 km.

This section has stood up remarkably well to ten years of heavy traffic. Minor improvements to the alignment are desirable. Apparently, reconstruction of all bridges is programmed for 1972-1973. The new bridges are to be constructed 24 ft. wide with 4 ft. footpaths for all bridges up to 55 ft. spans. For spans in excess of 55 ft. new decks 36 ft. wide between kerbs are to be provided.

7. Shagamu - Lagos: 54 km

This section is being rehabilitated at present; it is being widened to 7.3 metres, in addition to extra traffic lanes being constructed on short stretches of the existing carriage way.

A four-lane motorway on a new alignment is being designed from Lagos to Ibadan. It will bypass Shagamu, but a link is planned. Construction will probably start on this before 1974.

The proposed TAH in Nigeria is designated a Federal Road and a significant amount of the ₦N 93.9 million allocatedto Federal Roads is to be spent on rehabilitating and reconstructing long sections of it.

Recommended Route

Ekok - Abakaliki - Enugu - Onitsha - Asaba - Benin City - Shagamu - Lagod : 855 km.

TRANS—AFRICAN
(PROPOSED)

AXE ROUTIER TRAI
(PROPOSÉ)

TERR. FR. DES AFA
ET DES ISSAS

10°

20°

30°

40°

N I G E R

T C H A D

S U D A N

DAHOMEY

N I G E R I A

C A M E R O U N

REP. CENTRAFRICAINE

E T H I O P I A

S O M A L I A

GUINEE EQU.

G A B O N

C O N G O

Z A I R E

RWANDA

BURUNDI

U G A N D A

K E N Y A

T A N Z A N I A

ANGOLA

CABINDA

ATLANTIC OCEAN

OCEAN ATLANTIQUE

INDIAN OCEAN

OCEAN

NIAMEY
Zinder
Kano
Maiduguri
L. TCHAD
FORT LAMY
Zaria
Kaduna
Jos
Bauchi
Maroua
Bousso
Garoua
Fort-Archambault
KHARTOUM
BLUE NILE
L. TANA
L. ALBERT NILE
DJIBOUTI
ADDIS ABABA
BAHR AL GHAZAL
BAHR AL JABAL
NIGER
CROSS
Ibadan
LAGOS
PORTO-NOVO
Benin city
Enugu
Port Harcourt
Makurdi
Banyo
730
Tibati
Bamenda
Mamfe
Bafoussam
Garoua-boulai
Bouar
Bambari
1115
Sibut
Tambura
Zemio
Obo
Bangassou
Bossembele
Damara
Zongo
Libenge
Monga
Bondo
Berberati
BANGUI
Douala
826
SANAGA
YAOUNDE
Bertoua
Ebolowa
Nola
Gemena
1024
Aketi
Dulia
Buta
Nimule
L. RUDOLF
Moyale
Gulu
593
Mahagi
232
Goli
Lisala
CONGO
Bumba
Mambasa
Kisangani
Fort Portal
Beni
KAMPALA
Buwayo
Tororo
282
Eldoret
Kasindi
459
Mbarara
L. EDWARD
L. VICTORIA
Kisumu
Kisimaio
MOGADISHU
NAIROBI
KIGALI
L. KIVU
BUJUMBURA
Arusha
Voi
Mombasa
DAR-ES-SALAAM
L. TANGANYIKA
BATA
Bitam
Ouesso
LIBREVILLE
Kango
Makoua
Obouya
LIBANGUI
CONGO
L. LEOPOLD
Dolisie
BRAZZAVILLE
KINSHASA
Pointe-Noire
CABINDA

The distances shown refer to alternate routes.

Les distances indiqueès se rapportent aux differentes alternatives

The boundaries shown on this map are not, in some instances, finally determined and their reproduction does not imply official endorsement or acceptance by the United Nations.

Dans certains cas, les frontières indiquées sur la présente carte ne sont pas définitivement fixées. Le fait qu'elles sont indiquées ne signifie pas que l'Organisation des Nations Unies les reconnait ou les approuve officiellement.

LEGEND - LEGENDE

170 Kms — Trans-African Hi
Route Transafric

Alternate Road
Autre Route Pos

Feeder Roads
Routes de desser

Capitals
Capitales

International boun
Frontières Internat

Kms. 100 0 100 300

CART-M-72-9 (Rev.1)