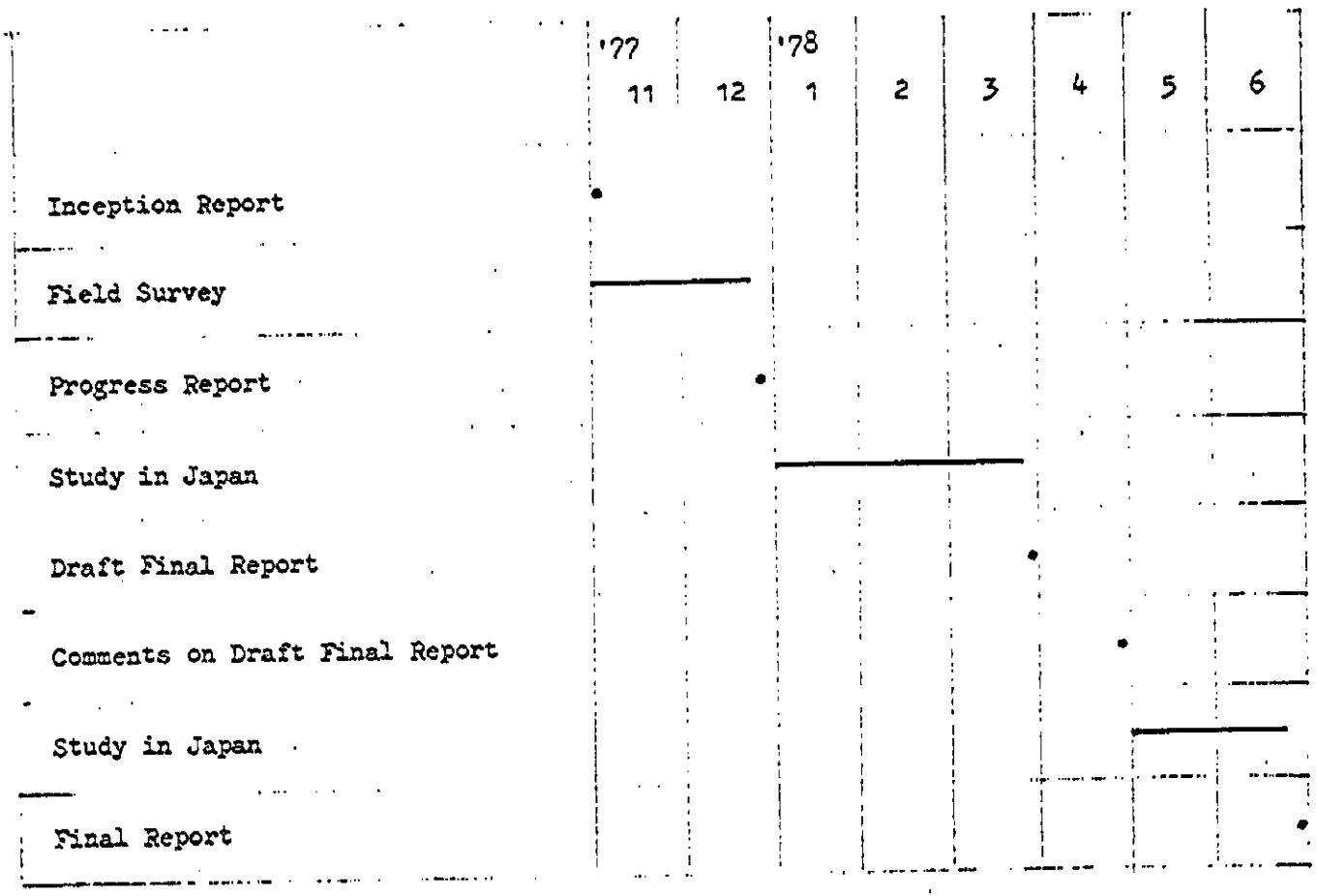
VII TENTATIVE SCHEDULE



MINUTES

FEASIBILITY AND PRELIMINARY ENGINEERING STUDY
FOR BEAU BASSIN - PORT LOUIS LINK ROAD
IN MAURITIUS

MINUTES OF THE MEETING HELD ON TUESDAY, 23RD AUGUST, 1977, IN THE OFFICE OF THE PERMANENT SECRETARY, MINISTRY OF WORKS, AT 11 A.M.

.....

Present:

Mr D. Rayeed	-	Permanent Secretary, Ministry of Works (Chairman)
Mr Kikio Chiba	-	Director, Toyama Construction Office Regional Bureau Ministry of Construction (Head of the Japanese Team)
Mr Koichi Tsuchiya	-	Deputy Director, Highway Traffic Control Division, Road Bureau, Ministry of Construction
Mr Naoichi Takemoto	-	Deputy Director, International Affairs Division, Planning Bureau, Ministry of Construction
Mr Mizuo Kishita	-	Senior Engineer, Project Division, Kanto Regional Bureau, Ministry of Construction
Mr Hiroyoshi Kurihara	-	Japan International Cooperation Agency, (Coordinator of the Japanese Team)
Mr I. Limbada	-	Chief Engineer, Ministry of Works
Mr R. Honore	-	Principal Assistant Secretary, Ministry of External Affairs, Tourism and Emigration
Mr J. Lechartier	-	Principal Assistant Secretary, Ministry of Works
Mr T.F. Chan Fong	-	Administrative Officer, Ministry of Finance
Mr B. Kistnasamy	-	Senior Economist, Ministry of Economic Planning and Development
Mr S.K. Ah Kin	-	Administrative Officer, Ministry of Works
Mrs A. Bellepeau	-	Administrative Officer, Ministry of Works (Secretary)

1. The Chairman informed the Committee that the Japanese team of five experts had come to Mauritius to discuss the scope of work in connection with the feasibility study of a new link road between Port Louis and Beau Bassin. The feasibility study which would be financed by the Japanese Government, would provide the basis for a decision as to the most suitable alignment of the proposed road having regard to the needs and requirements of Mauritius.

2. At the request of the Head of the Japanese team it was decided that general problems, not technical ones, would be discussed at that meeting.

3. Mr Takemoto told the Committee that any economic study of the proposed road depended largely on the amount of money which the Government can make available for the construction of the road. It was therefore essential that the team be informed, at that stage, whether any financial limits would be set for the cost of constructing the road.

4. The Japanese team was informed that a decision will be taken on the amount to be allocated for the construction of the road in the light of recommendations of the consultants. Advice would have to be tendered not only on the most suitable design for the road which should, as far as possible, follow the disused railway track but also on the alternative of enlarging the existing main road between Port Louis and Beau Bassin. To allow a decision to be reached as to the type of road to be actually built, comparative statements of the cost of the alternative projects should also be submitted.

5. The Japanese team was informed that the existing road between Beau Bassin and Port Louis was already heavily congested. The situation will be worse in the future as it is expected that there will be a higher volume of traffic using that road when the industrial zone at Coromandel will become fully operated and when the project for a residential and industrial zone at La Tour Koenig near Grand River North West will be implemented. Any recommendation regarding the alignment of the proposed road should therefore take account of those developments. Consideration should also be given to the fact that a Ring Road may be constructed around Port Louis and the alignment of the proposed road should therefore provide an easy access to the Ring Road if the project is implemented.

6. At that stage, the representative of the Ministry of Economic Planning and Development suggested that the link road could be aligned otherwise than along the disused railway track which may then be reserved for the use by monorails owing to the public transport problem. It was however pointed out to him that a thorough study of the traffic system would be necessary before a decision could be reached as to the advisability of introducing monorails in Mauritius.

7. After discussions, it was agreed that, if a new road is to be constructed, the consultants who would carry out the feasibility study should submit separately costs of constructing the link road:

(a) with a central verge of 7 metres large to accommodate eventually a two-track monorail, and

(b) with a central verge of only 4½ metres large.

8. The consultants should submit as well -

(a) the estimated cost of the project if the proposed road is constructed in two stages i.e. a first stage to cater for the existing level of traffic and a second stage to cope for a higher level of traffic; and

(b) the cost of constructing the two stages of the proposed road in one step.

The proposed road should be of a motorway standard and so designed as to enable vehicles to travel at a maximum speed of 60 miles an hour. The junctions and intersections of the motorway should be carefully studied.

9. The Japanese team agreed to the above-mentioned proposals and was advised that the Mauritian Government would welcome any advice that would be tendered, at the same time, to solve the problem of traffic congestion between Beau Bassin and Port Louis.

10. The meeting ended at 12.15 p.m.

Ministry of Works

NOTES OF THE MEETING HELD ON MONDAY 29TH AUGUST,1977, IN THE OFFICE OF THE PERMANENT SECRETARY, MINISTRY OF WORKS AT 10 A.M.

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Present

Mr D. Rasyead	-	Permanent Secretary, Ministry of Works (Chairman)
Mr Kimio Chiba	-	Director, Toyama Construction Office Regional Bureau, Ministry of Construction (Head of the Japanese Team)
Mr Koichi Tsuchiya	-	Deputy Director, Highway Traffic Control Division, Road Bureau, Ministry of Construction
Mr Mizuo Kishita	-	Senior Engineer, Project Division, Kanto Regional Bureau, Ministry of Construction
Mr Hiroyoshi Kurihara	-	Japan International Cooperation Agency. (Coordinator of the Japanese Team)
Mr I. Limbada	-	Chief Engineer, Ministry of Works
Mr T.F. Chan Fong	-	Administrative Officer, Ministry of Finance
Mrs V.L. Saha	-	Ministry of Housing, Lands, Town and Country Planning
Mr B. Kistnasamy	-	Senior Economist, Ministry of Economic Planning and Development
Mr R. Tin Sive	-	Economist, Ministry of Economic Planning and Development
Mr S.K. Ah Kin	-	Administrative Officer, Ministry of Works
Mrs A. Bellepeau	-	Administrative Officer, Ministry of Works (Secretary)

Absent (with apologies)

Mr R. Honore	-	Principal Assistant Secretary, Ministry of External Affairs, Tourism and Emigration

1. The Japanese team handed over copies of the draft "scope of work" in connection with the feasibility and preliminary engineering study for the Beau Bassin - Port Louis Link Road.

2. The various items of the scope of work were examined in detail and approved, with certain amendments, by the parties present:-

I - Introduction

The coordinator of the Japanese team explained that the "laws and regulations in Japan" referred to in the first paragraph were actually the

laws and regulations governing financial and technical cooperation between Japan and other countries.

The second paragraph of that section was amended to read "The study will be financed by the Government of Japan, in accordance with technical cooperation agreement between the Government of Japan and the ADB/F."

II - Outline of the study

(i) Period of the study

The study would last for about 8 months as indicated in the tentative schedule annexed to the scope of work.

(ii) Road proposed

The Japanese team confirmed that the feasibility study of the Beau Bassin - Port Louis road would include the study of any other alternative alignments besides those already proposed, including enlargement of the existing road.

The team was also requested to bear in mind that the proposed ring road around Port Louis would eventually be a continuation of the link road between Beau Bassin and Port Louis.

(iii) Description of study

At this stage, the Japanese team explained that the study report would recommend the best alignment for the proposed road. Should the consultants recommend more than one possible alignment, preliminary designs of each of the proposals would be submitted to enable the costs of each proposal to be compared and a decision taken as to the best alignment.

III - Study schedule

The draft final report would be submitted, around April 1978, to the Government of Mauritius which would have one month to study it and to indicate its agreement, or otherwise, to the recommendations contained therein.

IV - Reports

The Japanese team suggested that discussions on the preliminary report be held between the Government of Mauritius, officials of the ADB/F and members of the Japanese team before the draft final report was actually prepared by the Japanese consultants.

The team also agreed to submit, to the Government of Mauritius, forty (40) copies of the Final Report.

V - Undertaking of the Government of Japan

Mauritian counterparts (engineers and economists) would need to be attached to consultants during the period of study. Those Mauritian officers would undergo training in the conduct of such type of study.

The Japanese team also pointed out that provision has been made for two of the Mauritian counterparts to be trained in Japan during the actual preparation of the draft final report, i.e. from January to March 1978.

VI - Undertaking of the Government of Mauritius

(i) Exemption of Customs duties and income tax

The Japanese team was informed that equipment and materials required for the study could be imported duty free and the Japanese team would be exempted from payment of income tax in Mauritius.

The word "Japanese" was inserted in the third lines between the words "the" and "team" to make it clear that the exemption from income tax would not apply to any Mauritian employed under the project.

(ii) Mauritian counterparts

It was agreed that at least one engineer and one economist would be attached to the consulting team.

(iii) Office Accommodation

Accommodation would be made available at the Ministry of Works sub-office at Phoenix, which was only about 15 kilometers from the proposed site of work.

(iv) Data

All necessary data and information would be made available to the consultants on request.

(v) Vehicles

It was agreed that suitable transport i.e. one Land Rover and two or three cars, would be made available to the team during the period of the study in Mauritius. for work to be undertaken under the project.

(vi) Labour force

Labourers would be attached to the team for the performance of manual work involved during the study period. It was also agreed that arrangements would be made for University students or policemen to conduct the traffic survey.

(vii) Medical Services

The team was informed that priority service in Goverment Hospitals

would be provided to them in case of need.

(viii) Survey equipments and materials laboratory facilities

As the equipments available at the Ministry of Works were outdated and, consequently, not very reliable for surveys of such importance, the Japanese team was advised to bring with them the equipment needed for the work.

Boring machines could be hired from a private firm while the services of the Ministry of Works' material testing laboratory would be put at the disposal of the consultants.

The expenditure involved in the hiring of the boring machines and in the use of the material testing laboratory will be borne by the Japanese team.

3. Copies of "Terms of Reference" for the study were handed over. It was noted that the study would be carried out in two phases, namely:

Phase I - economic and feasibility study and preliminary engineering study.

Phase II - detailed engineering study.

It was agreed that, in accordance with the scope of work already approved, the study to be undertaken by the Japanese team would be limited, for the time being, to Phase I.

The Mauritian side expressed the wish that, after the approval of the feasibility report, the Government of Japan would finance the detailed engineering study of the project.

4. It was decided that another meeting would be held on Tuesday 30th August at 10.30 a.m. at the Ministry of Works.

5. The meeting ended at 11.45 a.m.

Ministry of Works

ADB/JAPAN COOPERATIVE PROGRAMME

Meeting of September 7, 1977

Place: Caisse Building

Present:

Japan: M/S Kimio Chiba, Director, Toyama Construction Office Ministry of Construction

Koichi Tsuchiya, Deputy Director, Highway Traffic Central Division

Hiroyoshi Kurihara, staff member, development survey Division (Jica)

Mizuo Kishita, Senior Engineer, project Division

Toyoda, Embassy of Japan, Abidjan.

ADB : M/S G. Dossou, Ag.Director, Projects Department

IBC John, Deputy Director, Projects Depat.

Dei Anang, Director, Legal Department

Tayfour, Division Chief I

Kandé, Aid-Coordinator

Jarik, Loans Officer

Hoyah, Transports Economist

Amenta, Civil Engineer.

AGENDA

- Discussions of Terms of Reference, Port Louis Beau-Bassin Road.
- TA Experts
- Problems on the implementation of the Cooperative Programme
- Other mattèrs.

I TOR AND SCOPE OF WORKS OF THE PORT LOUIS BEAU-BASSIN ROAD

1- The agreed TOR and minutes of 23 and 29 August meetings between Mauritius and Japan delegation were distributed and examined by the parties.

2- After discussions on the TOR, it was agreed that since the study consists of two phases:

- phase I : feasibility study and preliminary engineering studies
- phase II : detailed engineering studies,

only phase I will be financed and implemented by the Japanese Government for the time being.

3- It was confirmed by the Japanese delegation that the feasibility study would provide the basis for a decision as to the most suitable alignment of the proposed Road.

4- The Bank representatives noted out that it is not necessary to submit to the Bank more than 5 copies of each report. This was agreed by the Japanese delegation.

5- The ADB representatives requested the Japanese delegation to include in the scope of works, the clause that the cost of training of local counterpart staff in Japan will be borne by the Japanese Government.

6- After review of the documents, the Bank decided to approve the TOR and the scope of works.

Notes of the meeting held on Wednesday 30th November, 1977, in the office of the Permanent Secretary, Ministry of Works at 10 a.m

Present:

Mr. D. Ramyead, Permanent Secretary, Ministry of Works (in the chair)
Mr. S. Minami, Head of the Japanese Survey Team
Mr. S. Iwata)
Mr. K. Kuwata)
Mr. I. Onishi) members of the Survey team
Mr. K. Tuchiya)
Mr. S. Kanai)
Mr. Limbada, Chief Engineer, Ministry of Works
Mr. D. Rajah Gopal, Principal Engineer, Ministry of Works
Mr. Elliah, Traffic Superintendent, Police Department
Mr. Tirvengadum, Town and Country Planning Officer, Ministry of Housing, Lands and Town & Country Planning
Mr. D. Paillat of the MATIM, Ministry of Housing, Lands & Town and Country Planning
Mr. D. Stewart, Traffic Engineer, Ministry of Works
Mr. B. Kistnasamy, Senior Economist, Ministry of Economic Planning & Development
Mrs. A. Bellepeau, Administrative Officer, Ministry of Works (Secretary)

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1. The Permanent Secretary welcomed the members of the survey team who were in turn introduced to the other persons present.

2. The Chairman informed the Committee that the purpose of the meeting was to discuss the contents of the Inception Report which had been prepared following the previous visit of a preliminary survey team in Mauritius in August, 1977.

3. The Chairman said that before the report was considered in detail he would like to invite the team's attention to a suggestion made by the Minister of Finance, Sir V. Ringadoo, to the members of the preliminary survey team, namely that consideration be given to the study of a possible extension of the proposed link road to Quatre Bornes, using the old railway track. The portion of road from Beau Bassin to Quatre Bornes would pass right through the town of Rose Hill and would therefore have to function as an urban road and not as a motorway.

4. Mr. Paillat observed that it would be preferable if the extension of the link road towards Quatre Bornes would by pass the town of Rose Hill.

5. The members of the team took note of the suggestion made by the Honourable Minister of Finance but expressed doubts as to whether a thorough study of the proposal could be undertaken by them. They however agreed to take into account, in their study, the fact that the link road might, in the future, be extended to Quatre Bornes.

6. The attention of the team was also drawn to a proposal that the link road be extended to provide for vehicular traffic in the direction of Port Louis to by-pass the city centre. This could be achieved by providing for the link road to follow a coastal alignment and to accede to the city centre at the Southern Entrance (near Caudan Roundabout). This proposal would have the advantage of easing the traffic flow that would be generated by the setting up of the Bulk Sugar Terminal.

7. The suggestion was discussed and the concensus of opinion was that since the bulk of the traffic from the South of the island leading to the Sugar Terminal would continue to use the trunk road, an extension of the road, as proposed, was not essential.

8. At this stage, the Chief Engineer said that what was important was that the traffic from the South should be made to avoid the city centre and the solution to the problem would be to provide for the traffic from the link road to join, at some point, the proposed ring road around Port Louis.

9. Mr. Iwata said that a study of the possibility of connecting the link road to the Port Louis Ring Road was already provided for in the scope of work of the team and due consideration would be given to this problem.

10. The contents of the Inception Report were then discussed and approved by all parties concerned. At the request of Mr. Stewart the members of the survey team agreed that items such as Government of Mauritius vehicle operating costs and vehicle prediction figures be used in the carrying out of the sensitivity tests.

11. The representatives of the Japanese team also agreed to give special attention to the problems which would crop up when the traffic along the link road from Beau Bassin would overflow on the motorway.

12. Mr. S. Konai then handed over to the Chairman four copies of application forms in respect of the training of Mauritian counterparts in Japan. The application forms should be duly filled in and forwarded, as soon as possible, to the Japanese Embassy in Tananarive.

13. The Japanese Government was prepared to welcome four Mauritian counterparts in Japan as follows:

(a) January-February, 1978

Two officers would stay in Japan for a period of about one or two months to undergo training in connection with the preparation of the draft report;

(b) April-May 1978

Two senior officers would be involved during a period of two weeks, in the preparation of the final report.

14. It was also decided that all persons present would meet again on Monday, the 5th December, at 10 a.m. in the office of the Permanent Secretary of the Ministry of Works.

15. The meeting ended at 11.50 a.m.

1st December, 1977

Ministry of Works

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Notes of the meeting held on Monday, 5th December, 1977, in the office of the Permanent Secretary, Ministry of Works at 10 a.m.

Mr. D. Ramyead	- Permanent Secretary, Ministry of Works (in the chair)
Mr. S. Hinami	- Head of the Japanese Survey Team
Mr. S. Iwata) Mr. K. Kuwata) Mr. I. Onishi) Mr. K. Tuchiya) Mr. S. Kanai) Mr. A. Hikawa)	- Members of the Survey Team
Mr. I. Limbada	- Chief Engineer, Ministry of Works
Mr. D. Rajah Gopal	- Principal Engineer, Ministry of Works
Mr. S. Elliah	- Traffic Superintendent, Police Department
Mr. Tirvengadum	- Town & Country Planning Officer, Ministry of Housing, Lands & Town & Country Planning
Mr. D. Kistnasamy	- Senior Economist, Ministry of Economic Planning & Development
Mr. D. Paillat of the MATIM	Ministry of Housing, Lands - & Town & Country Planning
Mrs. A. Bellepeau	- Administrative Officer, Ministry of Works (Secretary)

The notes of the meeting held on the 30th November were circulated, read and approved.

2. Mr. Iwata said that, before proceeding further with the study, the team would like to hear the opinion and comments of the Mauritian side on the preliminary suggestions of the team regarding the proposed alignment of the link road.

3. The alignment of the link road could be divided into the following sections:-

(i) From Beau Bassin to 'S' Hill along the existing road or along the old railway track.

(ii) From 'S' Hill to the Southern Entrance of Port Louis and using the G.R.N.W. bridge.

(iii) From 'S' Hill to the Trunk Road and passing on the disused railway bridge

(iv) From the access point on the trunk road to the junction with the proposed Port Louis Ring Road.

4. Discussions followed and Mr. Limbada pointed out that should the widening of the existing road from Beau Bassin to 'S' Hill be recommended a lot of money would be involved in land compensation as the areas on both sides of the road were highly developed. Besides, the problem of the various existing roads that would accede to the motorway would eventually crop up. It was therefore unanimously agreed that the proposal to improve the existing road from Beau Bassin to 'S' Hill should not be retained.

5. It was also agreed that the link road should follow partly the old railway track from Beau Bassin roundabout up to a point approximately one km. and then leave the former railway alignment in order to avoid the bulge. The alignment would be between the former railway track and the Grand Malabar Hill - the actual alignment to be determined on the basis ofthe studies to be undertaken by the team. A decision as to whether a dual or a single carriage way would be constructed would then be made.

6. It was decided that from 'S' Hill the link road would join the trunk road by passing over the old railway bridge. At the initial stage only a single carriage way road would be constructed.

7. The desirability of improving the existing road from 'S' Hill to the Southern entrance of Port Louis was then discussed. Mr. Limbada said that the existing G.R.N.W. bridge, which had been built as far back as 1925, could no longer cope with the existing flow of traffic going in and out of Port Louis and consideration would have to be given either to its improvement or to its replacement. Mr. Limbada was of the opinion that, in view of the increasing traffic that would be generated in future years by the housing and industrial development of the regions near Pointe aux Sables and La Tour Koenig, the best solution would be the construction of another bridge some 200 or 300 feet from the existing one. Mr. Limbada also said that, according to him, the road from 'S' Hill to the Southern entrance of Port Louis should be improved whether it was decided, or not, to build a road to join the 'S' Hill to the existing motorway.

8. The Japanese team noted the above arguments and agreed to take same into account when preparing the report.

9. Mr. Iwata said that in order that the survey team might make recommendations as to the best alignment of the proposed link road it was essential that they know whether and when the regions from Beau Bassin to Port Louis would be developed. Mr. Limbada said that that was very difficult to say as the development of these regions depended on so many factors but that it could reasonably be assumed that, within the next five years, the construction of a ring road to Port Louis would become a matter of vital importance.

10. The survey team was also requested to make recommendations regarding the alignment of that section of the link road from Beau Bassin Roundabout.

11. The meeting ended at 11.30 a.m.

7th December, 1977

Ministry of Works,
Port Louis

Memorandum of the meeting held on 6th December, 1977, in the Office of the Chief Engineer, Ministry of Works at 9.50 a.m.

Present:

Mr. I. Limbada	- Chief Engineer, Ministry of Works
Mr. D. Rajah Gopal	- Principal Engineer, Ministry of Works
Dr. T.Kunihiro) Mr. Y. Shioi) Mr. I. Ohnishi) Mr. M. Matakeyama)	- Members of the Survey Team

1. Dr. Kunihiro and Mr. Shioi presented the following specifications in Japan and booklets.

a) Steel Road Bridge Design Specifications
b) Specification for Highway Bridge Substructure Design
c) Outline of Research Works in Foundation Engineering Section
d) Public Works Research Institute
e) Public Works, Chiba Branch
f) Road Engineering in Japan, 1976
g) Road in Japan, 1977
h) Civil Engineering in Japan, 1976
i) Annual Report of Roads, 1977
j) 10 Years History of Bridge, written by Dr. Kunihiro

Dr. Kunihiro explained the content of each booklet briefly.

2. Dr. Kunihiro expressed his opinion that the possibility of the re-use of the existing Grand River North West Railway Viaduct (hereinafter G.R.N.W. Viaduct) should be studied as one of the alternatives.

3. Mr. Limbada pointed out the following three reasons why he had doubts about the re-use of it.

a) maintenance of a steel bridge is quite hard and expensive in Mauritius

b) vertical alignment between G.R.N.W. Viaduct and A1 Road would be a problem, because minimum vertical clearance of 5.7 metres should be provided at the junction of A1 road and the proposed link road and future 2-lane roadway bridge, which might be erected on the downstream side of G.R.N.W. Viaduct, has to maintain almost the same alignment as the viaduct.

c) The bridge material might have no weldability, so that it would be very difficult to convert the railway bridge to a roadway bridge.

He added that it may be possible to use the piers if they are improved.

4. Dr. Kunihiro answered that

a) Vertical alignment would be studied after levelling survey had been completed.

b) Weldability of the bridge material might be doubtful.

He explained that Japan imported bridge parts from England about 60 years ago. He tested several bridge material of that time and the result showed that material has the untimate strength of 40 kg/mm^2. Therefore the said bridge material might have almost same strength, however, test pieces would be taken from the bridge and tested in Japan for the confirmation of the actual strength.

He also asked the bridge width required and necessity of a sidewalk, because these factors affect the possibility of the re-use of G.R.N.W. Viaduct.

5. Mr. Limbada answered that the carriageway width of 24' (7.2 metres) with no shoulder is enough and the sidewalk will be necessary at least one side along the carriageway. Minimum sidewalk width will be 60 centimetres. When new bridge is considered, width of motorway (M2) shall be adopted.

6. Dr. Kunihiro explained that G.R.N.W. Viaduct was erected about 60 years ago, therefore, the bridge life is limited. However, if we could success in utilizing it, the initial cost of the project could be reduced.

7. Mr. Rajah Gopal pointed out that if the bridge life is limited, the bridge must be replaced with new one after 10 or 20 years later. In that case, new material provided to the existing bridge such as deck slab, stringers etc, would be useless.

Mr. Limbada said that the utilization of G.R.N.W. Viaduct might be economical from short term point of view, however, it might not be economical from long term point of view in consideration of re-erection of the bridge and the maintenance cost.

8. Dr. Kunihiro answered that the team would study the matters mentioned above and select the best solution.

9. Mr. Limbada said that it might be necessary to drill a pier and grout it with mortar. If new bridge is proposed, a capping beam might have to be provided because coping width of the existing pier would not be wide enough.

10. Mr. Shioi answered that it could be possible to provide new capping beam. The pier is founded rather shallow place, so that some anti-scour measures might be necessary.

The appearance of the bridge should be taken into account.

Dr. Kunihiro pointed out that the bearing shoes at both ends of the girder were almost fixed and that new ones should be installed.

11. Mr. Limbada said that concrete rocker bearing shoes or neoprene bearing shoes which require less maintenance would be preferable.

12. Dr. Kunihiro, on the basis of investigation of several bridges in Mauritius, advised that steel bridges should be more carefully maintained.

13. Mr. Limbada requested that the team study alternatives without being influenced by his opinions.

14. Dr. Kunihiro answered that the team would study alternatives carefully and select the best solution.

15. The meeting ended at 11.20 a.m.

Minutes of the meeting held on 16th December, 1977, in the office of the Chief Engineer, Ministry of Works at 2.00 p.m

Present:

Mr. D. Rajah Gopal - Principal Engineer, Ministry of Works

Mr. I. Ohnishi
Mr. M. Hatakeyama) - Members of the Survey Team

The following subjects were discussed and agreed by both parties. These subjects were also approved by the Chief Engineer of Ministry of Works, Mr. I.Limbada.

1. Design Standards for Bridges

a) Loading .....B.S. HA Loading
b) Materials .....B.S..or equivalent
c) Allowable Stresses...B.S.

Allowable stresses in case of re-use of existing railway bridges to be decided after analysis of bridge material in Japan.

d) Bridge dimensions ..... Refer to Fig 1 & 2
e) Vertical Clearance..... 5.5 m.
f) Bridge Accessories
To be decided by Japanese Team. Japanese Team will give consideration to maintenance problems when choosing type of accessories.

g) Bearing capacity of soil to be decided after analysis in Japan of tests carried out in Mauritius.

h) Earth pressure on abutments.
To be determined when results of these tests are known. Cohesion faction may be taken into consideration.

i) Scour of river bed
The soil at the footing of the piers will perhaps need stabilising and method and cost of stabilisation will be included in the report.

2. Alternative solutions to bridge problems

Following alternatives will be studied.

a) Old Railway Bridge G.R.N.W.
i) Utilize existing structure
ii) Utilize piers only
iii) Have a completely new bridge.

b) G.R.N.W. Road Bridge

i) Construction of a new bridge downstream of existing truss bridge - the bridge to have only two or three lanes.
ii) Replacement of the existing truss bridge which is too narrow.

3. Bridge of second carriageway

The future bridge for the second carriageway will have to be constructed upstream of the railway bridge.

The gradient of Road A1 at 'S' Hill is fairly steep and the vertical alignment cannot be improved.

If the bridge is constructed downstream of the railway bridge, the level of A1 will have to be raised thereby worsening the vertical alignment.

4. Unit
Metric System will be used.

Notes of the meeting held on Tuesday, 27th December, in the office of the Acting Permanent Secretary of the Ministry of Works at 9.30 a.m.

Present

Mr H. Duval, Acting Permanent Secretary (in the chair)
Mr I. Onishi, Mr S. Iwata, Mr K. Kumata } members of the Japanese survey team
Mr I. Limbada, Chief Engineer, Ministry of Works
Mr D. Rajahgopel, Principal Engineer, Ministry of Works
Mr D. Stewart, Traffic Engineer
Mr D. Paillat of the MATIH, Ministry of Housing, Lands, Town and Country Planning
Mr Tirvengadum, Town and Country Planning Officer, Ministry of Housing, Lands, Town and Country Planning
Mr S. Elliah, Traffic Superintendent, Police Department
Mrs A. Bellepeau, Administrative Officer, Ministry of Works (Secretary)

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The Chairman welcomed the persons present and invited representatives of the Ministry of Housing, Lands Town and Country Planning, as well as the Chief Engineer, to seek any enlightenment they needed from the Members of the Japanese Survey Team on the Progress Report which they had submitted in connection with the feasibility study of the proposed link road from Beau Bassin to Port Louis.

2. Mr Tirvengadum said that he had noticed that alternative routes 2 and 4 would eventually be retained for further study by the team. He wanted to point out that the 'Government Lands' shown on sketch, at page 41 of the Report, were not actually vacant lands. The land had been alloted to certain people and would have to be taken back if it was decided that the link road should follow the alignment proposed either in Alternative 2 or Alternative 4. Compensation would have to be paid to the people who would be requested to vacate the lands before the termination of their lease.

3. The plan showing the location of the alternative routes proposed by the team was examined and it was found that whatever alignment was chosen, eventually, it would have to pass across that portion of crown land. It was therefore agreed that it would be advisable to notify as early as possible the lessees of the Crown Land that the land would be required by the Government and that they would have to vacate it.

4. On a question from Mr Tirvengadum, Mr Iwata confirmed that Alternative Route (No 4) would pass near the C.H.A. estate but would not cut across the Housing Estate.

5/...

5. Mr Iwata also said that a recommendation would probably be made for the construction of a single carriage way in the first stage, provision being made for a dual carriage way to be constructed at a later stage. However the final recommendation would only be submitted after more detailed study.

6. Mr Stewart said that if the proposed road was to follow a steep slope it would be preferable to construct a dual carriage way straight away.

7. The Chief Engineer and the Principal Engineer however pointed out that since the alternative routes proposed by the team had much less gradient than either Chapman Hill or Lapeyre Hill, the possibility of vehicles experiencing difficulties because of the steepness of the slope was very remote.

8. On a question from the Chairman, Mr Iwata confirmed that the possibility of the link road being extended to Quatre Bornes had been borne in mind in the preparation of the Progress Report.

9. Mr Paillat expressed the opinion that the final report should contain more complete data concerning the capacity of junctions so as to enable the efficiency of different types of junctions to be compared. He also stated that from a planning point of view, alternative 4 was preferable to alternative 2.

10. After discussions it was agreed that alternative routes 1 and 3 should be rejected and consideration should be given only to alternatives 2 and 4. It was also noted that the survey team would be guided in their final choice by the cost of the alternative routes.

11. Mr Iwata said that the team was anxious to obtain certain "cahiers" published by MATIM on such topics as 'Circulation', "Population" and which contained valuable data.

12. Representatives of the Ministry of Housing, Lands, Town and Country Planning pointed out that the Reports prepared by MATIM contained only proposals which had not so far been approved by the Government. Besides the data and information contained therein were of a very confidential nature and distribution of the reports was restricted.

13. After discussions it was finally agreed that the reports needed by the team could be released provided that the data contained therein be treated as strictly confidential. The team should also bear in mind that only estimated and approximate figures were quoted in the reports which contained only mere recommendations.

14. Mr Iwata said that he wanted to register the survey team's appreciation of the cooperation and help extended to the team during their stay in Mauritius.

15/...

15. The Chairman thanked the Japanese experts for the good work performed by them and wished them bon voyage. He added that necessary steps were being taken for two Mauritian counterparts to go to Japan, not later than the end of January, in connection with the preparation of the draft report. He said that it would be appreciated if the Japanese experts could help in pushing the application forms through.

16. The meeting ended at 10.30.

Ministry of Works
4.1.78

MINUTES OF THE MEETING

(Draft Report Beau Bassin-Port Louis Link Road)

The Japanese team of five experts visited Mauritius to present the Draft Final Report of the Feasibility Study of the Beau Bassin-Port Louis Link Road and to discuss the report with officials of the Government of Mauritius.

The meetings were held in the M.O.W. Office in Phoenix where detailed discussions on the various aspects of the report took place.

Details of the meetings and lists of memberspresent follow hereundor.

1. Schedule and members present

Date	Agenda	In Attendance
24.4.78 9.00 am to noon 13.30 to 16.00	Explanation and Discussion of Chapters 1 - 6 & 11	Mr. I. Limbada - Chief Engineer, M.O.Works Mr. D. Rajah Gopal - Principal Engineer, " Mr. G. D. Hurree - Foundation Engineer, " Mr. N.V.P.Sarathi - Adviser, " Mr. Tirvengadum - Town and Country Officer Ministry of Housing, Lands, Town and Country planning Mr. Paillat - N.A.T.I.M. Mr. K. Chiba - Chairman of Supervising Committee Mr. S. Minami - Leader of Survey Team Mr. K. Kuwata - Deputy Leader of Survey Team (Highway Engineer) Mr. S. Iwata - Deputy Leader of Survey Team Mr. K. Matsuoka - Coordinator
25.4.78 9.00 am to 10.00 13.30 - 16.00	Explanation and Discussion of Chapters 7, 9 and 10	Mr. I. Limbada, Mr. D. Rajah Gopal, Mr. Hurree, Mr. N.V.P.Sarathi, Mr. K. Chiba, Mr. S. Minami, Mr. K. Kuwata, Mr. S. Iwata, Mr. K. Matsuoka
26.4.78 9.00 am to noon 14.00 - 16.00	Discussion	Mr. I. Limbada, Mr. D. Rajah Gopal, Mr. N.V.P.Sarathi, Mr. Tirvengadum, Mr. D. Paillat, Mr. K. Chiba, Mr. S. Minami, Mr. K. Kuwata, Mr. K. Matsuoka, Mr. S. Iwata

1. Pavement Design

The JICA Survey team explained that the design of the pavement took into consideration the following factors:

(i) regional characteristics, e.g., availability of materials,

(ii) reduction of pavement cost and minimization of the foreign exchange component of the cost by the use of locally produced road making materials as far as possible.

Explanations and full details will be given in the final report.

2. Motorway Junction

The Junction of the proposed road with the motorway (M1) at Bell Village is the most important one. Fears were expressed that this junction might reach its capacity soon after the proposed road is opened. It was agreed that this problem should be looked into in more detail when the feasibility of the proposed "Ring Road" is to be carried out.

Meanwhile the JICA Survey Team would further investigate this junction's capacity, particularly that of the weaving section where the 'S' Hill to Port Louis traffic will merge with the St. Jean to Port Louis traffic.

3. Engineering Cost

Engineering cost must be expressed as a percentage of the Construction cost, excluding land acquisition cost rather than as a percentage of the total cost, i.e., construction and land acquisition costs.

4. Maintenance Cost

The basis of calculating maintenance costs shown in Table X-5 will be clarified.

5. Construction Cost of Second Phase

A basis for allocating the construction cost of the second phase will be clarified in accordance with the construction schedule which will also be worked out.

6. Capacity figures and Speed Congestion Curves

It was pointed out that the capacity figures and speed congestion curves which have been used in the study are somewhat optimistic. The basis on which the study stands will be clarified.

7. The year to which all the annual costs and benefits are discounted will be changed from 1982, the opening year of the proposed road, to 1978, the first year when the construction cost occurs, in order to reflect more realistic figures of costs (benefits) which have been estimated on 1977 prices.

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8. Although traffic which will be generated by the implementation of La Tour Koenig development project is partly considered in this study, this traffic will be analysed in greater datail.

9. The JICA Survey Team was asked to consider the irrigation schems of the Ministry of Agriculture when selecting the best altornative for the section between 'S' Hill and Beau Bassin.

From the engineering point of view the West route is preferable because of more favourable gradients and a shorter length of climbing lane while from the point of land use and city planning, the East route is preferable, the proposed road providing a phyaical separation between urbanized and agricultural areas.

The results of B/C analysis show only a slight difference between the two alternatives with a slight preference for the West route. The matter will be discussed between Mauritian government officials and the alignment chosen will be included in the final comments.

The final comments of the Government of Mauritius on the Draft Report will be forwarded to JICA by the 15th May, 1978.

I. LIBBADA
Chief Engineer,
Ministry of Works.

K. CHIBA
Chief of Japanese Mission.

27th April, 1978.

COPY

MINISTRY OF WORKS

MW/AG-V/122 7th July, 1978

Dear Mr. Minami,

Link Road Beau Bassin/Port Louis

At the issue of your last visit in Mauritius, in April, you requested that the final comments of the Government of Mauritius on the draft feasibility report of the abovementioned project should be communicated to you as early as possible.

2. The two alternative proposals for the alignment of the motorway as contained in the report have been carefully studied by all the Ministries concerned and after lengthy discussions it has finally been decided that Alternative 2 (the West Route) should be preferred to Alternative 4 (the East Route) because of its better geometric characteristics. The representative of the Ministry of Agriculture has, on the other hand, confirmed that Alternative 2 (the West Route) will not cause any prejudice to the 'La Chaumiere' Irrigation Project.

3. Mr. Sarathi, the Transport Adviser of this Ministry has raised several points which are listed on the enclosed statement and which would require clarification. Some of the points may not materially affect the recommendations of the report. Others are of more fundamental importance, for instance the design of the pavement and the design of the motorway intersection. It is accordingly suggested that these points should be investigated further.

4. Another important issue which should be examined at this stage, is that of the junction of the Link Road with the existing motorway near St Louis Power Station. It is generally considered that the proposed surface level junction will prove inadequate and that an interchange at this junction will be the only satisfactory solution. Planning of the interchange should take into account that the proposed Port Louis Ring Road will in fact be a continuation of the Beau Bassin to Port Louis Link Road.

5. You may also wish to know that the African Development Bank has recommended that, in view of the small size of the road as well as the anticipated future increases of construction costs and the vitality of the project to ease traffic congestion between Port Louis and the industrial areas, the construction of the road should be implemented in one phase rather than in staged construction. This recommendation is fully supported.

6. As regards the visit of the Mauritian counterparts in Japan to assist in the drafting of the final report, arrangements are being done for the early departure of the officers to Japan.

Yours sincerely,

(Sd) D. Ramyead
Permanent Secretary

Mr. Shunji Minami,
Head of the JICA Survey Team,
10,3 - Chome Nishiokubo, Shijuku-ku,
Tokyo, Japan.

Copy to: Financial Secretary
Director, Ministry of Economic Planning & Development
P.S., Ministry of Agriculture, & Natural Resources and the Environment
P.A.S., Ministry of Housing, Lands and Town and Country Planning
Chief Engineer, Ministry of Works

COMMENTS ON THE DRAFT FINAL REPORT ON FEASIBILITY STUDY OF BEAU BASSIN - PORT LOUIS MOTORWAY ROAD, MARCH 1978, JICA

BY

H.V.P. SARATHI

CHAPTER I

Page I-1 Paragraph 3 - The Peak hour traffic volume of 1500 pcu (two ways) along the Motorway appears to be an underestimate.

Page I-8 The recommended phasing of construction along the links B,C, E F is alternative P_3W-1, as follows:

1982 - Two-lane road between the Motorway Junction to Beau Bassin

1990 - Extension to dual carriageway along the complete length

Reference to Table XI-4-1 shows that this alternative does not give either the highest B/C Ratio or the maximum IRR. The reasons for adoption of this phasing are not made clear.

Page I-9 Table I-4 - It is presumed that the cost of entire Land Acquisition is provided in Stage I itself.

CHAPTER II No Comments

CHAPTER III The data may be updated according to the latest available information, as far as possible.

CHAPTER IV Page IV-9 The discussion with MATIM reveals that their objective is towards creation of Growth Poles at Flacq, Goodlands and Rose Belle and not dispersion to Rural Areas.

Line 3 from bottom of page. The population increase rate of 1% is not for 1977 as stated.

Page IV-17 The Table in this page should include Coromandel industrial estate also.

2/..

CHAPTER V

Page V-9 The location map of survey stations may preferably be given in the main Report.

Page V-13 The reference to table A-V-10 given in the last line appears to be incorrect.

Page V-22 Table V-3-4. The capacity figures are very much on the conservative side. Recommended design capacities for Urban Roads adopted by the Department of Environment, U.K. are shown in Table I. (enclosed)

CHAPTER VI No comments.

CHAPTER VII No comments.

CHAPTER VIII The weakness of the factor method of trip distribution is that it cannot predict travel patterns where land use changes are likely to occur. It also assumes that the present-day travel resistance factors will remain constant. The best way to deal with this situation may be to make manual corrections to the computer outputs to account for new traffic likely to be developed between the zones.

Page VIII-14 In order to appreciate the methodology of traffic assignment, it is requested that a copy of the assignment programme be supplied.

Page VIII-21 The speed congestion curve may be reviewed in relation with the new capacity figures of Table I, given above.

CHAPTER IX

Page IX-10 The speed distance curves for a Typical heavy Truck operating on various grades are on the conservative side. Further, the maximum permissible speed for a truck on any road in Mauritius is 40 mph.

Page IX-16 The Pavement design procedure followed in Mauritius is in accordance with Road Note 29. The structural layer according to this method works out to the following.

3/..

A. Asphaltic Concrete

Wearing Course - 4 cm thick

Base Course - 11 cm thick

B. Crushed Stone

Road Base - 25 cm thick

C. Subbase

Minimum CBR value of Subbase - 30% } - 15 cm thick on soils of CBR 9%

Total 55cm

This is also the thickness provided for the proposed Through Road. The above road structure can take up to 30 million equivalent standard axles over a design period of 20 years. Rough cost estimates indicate that cost economies are marginal. The pavement design may be reviewed in the light of above comments.

Page IX-20 Intersection design

Rough calculations made for the Motorway junction Vide Appendix IX.1 indicate that within five years of construction, the congestion ratio will have exceeded 1. Details are lacking to determine when the saturation actually occurs. According to the phasing of works, this situation may continue till 1992 when dual carriageway is completed with grade separated structure. The advisibility of providing a grade separated structure during the first stage i.e. 1982 may please commented.

It is presumed that the effects of junction impedence (where speeds are between 10 - 15 mph) on expressway capacity and speed are taken into account while making traffic assignments to the different links.

4/..

CHAPTER X

Page X-6 The work schedule of Table X-1 becomes irrelevant as a different phasing of works is being considered.

Page X-8 The Detailed Design (6.5%) and supervision (6%) may perhaps not be added on Land Acquisition Costs.

Page X-10 The basis for arriving at maintenance costs in Table X-5 is not clear.

CHAPTER XI

Page XI-4 Stage Construction Plan P_3W-6 which is given in Appendix A-XI-1.3 is not shown in Table XI-2.1.

Page XI-7 In the absence of details, it is not possible to verify these values. It is presumed that care is taken to see that there is no double-accounting of benefits due to vehicle-kilometres and vehicle-hours.

Page XI-20 The discounting of costs and benefits may be done for the start year 1979 instead of for 1982. Further, the procedure followed is to compare each alternative with the existing situation. This is likely to lead to inaccuracies. The correct procedure is to compare each alternative with each other in accordance with the principle of differences. It is only by applying the incremental benefit/cost ratio method can the alternative giving the greatest economy be determined.

(N.V.P. SARATHI)

TABLE I

Recommended design capacities for urban roads

Effective width of carriageway (excluding refuges or central reservation) m		2-lane			3-lane		4-lane				6-lane	
		6.1	6.7	7.3	9.1	10.0	12.2	13.4	14.6	18.3	20.1	21.9
Type of road	Description	Capacity in p.c.u./h Total for both directions of flow							For one direction of flow			
A	Urban motorway, no frontage access, grade separations in intersections								3000			4 500
B1	All purpose road, no frontage access, no standing vehicles, negligible cross traffic	1200	1350	1500	2000	2200	2000	2200	2400	3000	3300	3600
C1	All purpose street, 'no waiting' restrictions on parking of vehicles, high capacity junctions	800	1000	1200	1600	1800	1200	1350	1500	2000	2250	2 500
D1	All purpose streets, capacity severely restricted by waiting vehicles and intersections	300 to 500	450 to 600	600 to 750	900 to 1100	1100 to 1300	800 to 900	900 to 1000	1000 to 1200	1300 to 1700	1500 to 2000	1600 to 2200

Source Highways, by C.A. O'Flaherty (Volume I)

The Answers for the Comments

CHAPTER I Page I-1 Paratraph 3 - The Peak hour traffic volume of 1500 P.C.U. (two ways) along the Motorway appears to be an understimate.

The peak hour traffic volume would be altered to 1500-2300 P.C.U. instead of 1500 P.C.U.

Page I-8 The recommended phasing of construction along the links B,C, E F is alternative P_3W-1, as follows:

1982 - Two-lane road between the Motorway Junction to Beau Bassin.
1990 - Extension to dual carriageway along the complete length.

Reference to Table XI-4-1 shows that this alternative does not give either the highest B/C Ratio or the maximum IRR. The reasons for adoption of this phasing are not made clear.

As has been mentioned in Chapter XI, the highest benefit-cost ratio or the maximum IRR has been calculated, followed by the following order: (1) P_3-W-5, (2) P_3-W-3 and (3) P_3-W-1. The eventual adoption of P_3-W-1 is based on the following two reasons:

(i) The construction works of Alternative P_3-W-5 are divided into three stages and such staged construction works would be deemed inappropriate as far as its construction scale is concerned; and
(ii) Alternative P_3-W-3 is identified as a two-year delay in the second construction works of Alternative P_3-W-1 and, thereby generating traffic congestion that would be anticipated (see Table VIII.3.2).

Page I-9 Table I-4 - It is presumed that the cost of entire Land Acquisition is provided in Stage I itself.

We shall agree to your comments.

CHAPTER II No Comments

CHAPTER III The data may be updated according to the latest available information, as far as possible.

Since there exist no up-to-date data available in Mauritius at present, some possible modifications required for the obtained data would be made at a minimum.

CHAPTER IV Page IV-9 The discussion with MATIM reveals that their objective is towards creation of Growth Poles at Plaeq, Goodlands and Rose Belle and not dispersion to Rural Areas.

As you have pointed out, we shall deal with your comments (eliminating the description of decentralization to rural areas under regional development).

Line 3 from bottom of page The population increase rate of 1% is not for 1977 as stated.

Since we have mistaken 2007 for 1977 in typewriting, we shall alter to the correct year.

Page IV-17 The Table in this page should include Coromandel industrial estate also.

Coromandel is separate from the three points shown in the table at page IV-17, because the Coromandel Industrial Development Plan is not under contemplation and some industries have been already located there. Detailed explanation given at page IV-17 would weaken the necessity of accepting your comments.

CHAPTER V Page V-9 The location map of survey stations may preferably be given in the main Report.

We shall approve of your comments.

Page V-13 The reference to table A-V-10 given in the last line appears to be incorrect.

As what is meant by your comments seems to be indistinct and you might have misunderstood the average daily traffic for a one-week traffic volume, we would like to note it explicitly.

Page V-22 Table V-3-4. The capacity figures are very much on the conservative side. Recommended design capacities for Urban Roads adopted by the Department of Environment, U.K. are shown in Table I. (enclosed)

With respect to the design standards of road traffic capacities adopted in the current survey, the Standards of Japanese Road Ordinance have met the standard requirements of Mauritius and have been deemed more appropriate than the design capacities based on the standards of H.C.M. in the U.S. and of the U.K. in consideration of the present road traffic situation (particularly, the spread of medium- and small-sized cars) and the level of driving technique.
The degree of traffic congestion estimated by adoption of this method indicates the present situation that congestion is about to begin, showing 1.26 (morning peak hour) at G.R.N.W. Bridge which is forming a bottleneck.

CHAPTER VI No comments.

CHAPTER VII No comments.

CHAPTER VIII The weakness of the factor method of trip distribution is that it cannot predict travel patterns where land use changes are likely to occur. It also assumes that the present-day travel resistance factors will remain constant. The best way to deal with this situation may be to make manual corrections to the computer outputs to account for new traffic likely to be developed between the zones.

With respect to the matter that the distribution patterns of generated traffic volume need to be predicted by using the other method, your comments would be consistent with theoretical-point-of-view. However, the common method would be used for the prediction of distribution patterns on the following reasons:

(1) The development plan, which has been used as a prerequisite reference for the current survey, does not make clear in view of the distribution patterns of generated traffic volume which vary with industrial types and scales;

(2) By taking into account the development plan, however, some considerations have been given to originating and terminating traffic volumes by different zones;

(3) A comprehensive analysis on the distribution of traffic volume would be required for the purpose of making a distribution pattern model of generated traffic volume. However, the current survey based on the origin-destination study, which has been made by means of ground count, has proved difficulties in making the model; and

(4) Judging from the scale of the development plan, remarkable variations in the entire traffic pattern would not be conceived. Hence, distributed traffic volume has been estimated by use of the current pattern method in consideration of the overall scale of the current survey.

Page VIII-14 in order to appreciate the methodology of traffic assignment, it is requested that a copy of the assignment programme be supplied.

The traffic assignment programme, which has been made in the Draft Report, involves some considerations of a computer centre in multifarious viewpoints and cannot be confided because of a secret of the computer centre. In addition, it has been judged from the estimation of the present traffic volume and the examination of the observed traffic volume that sufficient releability would be promising.

Page VIII-21 The speed congestion curve may be reviewed in relation with the new capacity figures of Table I, given above.

As has been mentioned before, the standards of road capacity adopted in the Draft Report would be deemed consistent with the standard requirements of Mauritius and the speed-congestion curve, which has been obtained from the results of the traffic studies on congestion and speed in comparison with the ovserved traffic volume, would not be necessary to be altered, because it meets the road utilization requirements in Mauritius. For instance, the traffic volume and its speed measured in the vicinity of the G.R.N.W. Bridge have been determined at 1815 vehicle/hour (P.C.U.) and approximately 20 km/hour, respectively. Judging from the standards of road capacities adopted by the Department of Environment, U.K., the maximum capacity would be 800 vehicle/hour. In this case, the degree of congestion, which has been determined at 2.27, would be inconsistent with the road traffic flow theory.

CHAPTER IX Page IX-10 The speed distance curves for a Typical heavy Truck operating on various grades are on the conservative side. Further, the maximum permissible spend for a truck on any road in Mauritius is 40 mph.

As long as we see, the present truck conditions are, to a high degree, becoming obsolete in Mauritius. At the stage of completion of the link road, however, much improvement is deemed possible. As has been described in the Report, such improvement has been assumed by typically adopting a truck which has about 10 ps/ton in its power. This adoption is equivalent to a common practice in Japan. In addition, vehicles, which have considerably different speed, are dangerous to run together on highly standard roads such as motorways. It should be deemed that this is also applied to trucks. Under the design standards arrived at approval at the beginning, the design speed has been determined at 100 km/hour.

Page IX-16 The Pavement design procedure followed in Mauritius is in accordance with Road Note 29. The structural layer according to this method works out to the following.

A.	Asphaltic Concrete	
	Wearing Course	- 4 cm thick
	Base Course	- 11 cm thick
B.	Crushed Stone	
	Road Base	- 25 cm thick
C.	Subbase	
	Minimum CBR value of Subbase - 30%	- 15 cm thick on soils of CBR 9%
	Total	55 cm

This is also the thickness provided for the proposed Through Road. The above road structure can take up to 30 million equivalent standard axles over a design period of 20 years. Rough cost estimates indicate that cost economies are marginal.

The pavement design may be reviewed in the light of above comments.

Referring to the motorways M_1 and M_2 and the access road to the new airport, the pavement structure has been designed by taking into consideration regional particularities of Mauritius, i.e. meteorology, easy acquisition of construction materials (the utilization of local materials) and a reduction in construction costs (particularly, the foreign portion). From the aspects of traffic volume and its construction costs, the pavement structure has been so designed as to be usable for the staged construction of pavement (that was done in the past in Mauritius), i.e. as traffic volume is increased, the surface course would be additionally paved one over another. As far as its construction costs are concerned, the pavement structure would cost nearly equivalent to that of the Through Road.

Page IX-20 Intersection design

Rough calculations made for the Motorway junction Vide Appendix IX.1 indicate that within five years of construction, the congestion ratio will have exceeded 1. Details are lacking to determine when the saturation actually occurs. According to the phasing of works, this situation may continue till 1992 when dual carriageway is completed with grade separated structure. The advisibility of providing a grade separated structure during the first stage i.e. 1982 may please commented.
It is presumed that the effects of junction impedence (where speeds are between 10 - 15 mph) on expressway capacity and speed are taken into account while making traffic assignments to the different links.

We shall approve of your comments. However, it is difficult to discuss with the Motorway junction irrespective of the traffic demand for the Port Louis Link Road Plan which will

be worked out in the future. Accordingly, this problem should be dealt with in detail when the feasibility study on the plan is made.

CHAPTER X

Page X-6 The work schedule of Table X-1 becomes irrolevant as a different phasing of works is being considered.

Table X-1 indicates the work schedule of only the stage I for Alternative P3-W-1. The work schedule of the stage II would be added to the Final Report.

Page X-8 The Detailed Design (6.5%) and supervision (6%) may perhaps not be added on Land Acquisition Costs.

We shall agree to your comments. As required, we shall revise.

Page X-10 The basis for arriving at maintenance costs in Table X-5 is not clear.

The Section 4 of Chapter 10, the Operation and Maintenance Costs, provides some grounds for your comments. Supplementary explanation would be given and then would make it clear. An example would be given below Table X-5.

CHAPTER XI

Page XI-4 Stage Construction Plan P3W-6 which is given in Appendix A-XI-1.3 is not shown in Table XI-2-1.

We shall approve of your comments. Alternative P3-W-6 has been examined when working on the Draft Report and would be eliminated from the Final Report.

Page XI-7 In the absence of details, it is not possible to verify these values. It is presumed that care is taken to see that there is no double-accounting of benefits due to vehicle-kilometres and vehicle-hours.

Vehicle-kilometres and vehicle-hours are shown in the Appendix and those by different alternatives, vehicular types and project years are categorized in a table. If more details are required, the conception of different road links should be taken into account and, thereby making the volume of the Report large. Therefore, this does not meet your request for cutting down the volume of the Report. The explanation that there is no double-accounting would be made as an additional remark.

NOTES OF MEETING

Date: 12 September, 1978 (10:00 a.m.)

Place: Conference Room, JICA, TOKYO

Topic: Port Louis - Beau Bassin Link Road Project

Attendance:

Mauritius Government

1.	Mr. Ismael Ahmad Limbada;	Chief Engineer, Ministry of Works
2.	Mr. Devarajoo Rajah Gopal;	Principal Engineer, Ministry of Works
3.	Mr. Guy Edmond Danjoux;	Chief Town & Country Planning Officer, Ministry of Housing, Lands and Town

JICA Survey Team

1.	Mr. K. Chiba;	Chairman of Supervisory Committee
2.	Mr. S. Minami;	Team Leader
3.	Mr. K. Kuwata;	Team Member
4.	Mr. I. Onishi;	Team Member
5.	Mr. S. Iwata;	Team Member
6.	Mr. H. Wakatabi;	Team Member
7.	Mr. K. Matsuoka;	JICA Coordinator

I. Purpose of Meeting

To discuss the answers prepared by the Survey Team according to the Comments raised by the Mauritius Government on the Final Draft Report; and

To hold the preliminary discussion on the scheduled Detail Engineering Study.

II. The Meeting

1. The Survey Team presented an explanation of the answers for the Comments dated 7th July, 1978 prepared by Ministry of Works. The Comments and the answers are contained in the statement attached hereafter. The meeting agreed the answers.

2. The Meeting confirmed that the Project shall be constructed in one phase rather than in staged construction according to the recommendation made by the African Development Bank and the Mauritius Government decided to select the West Route.

3. Mr. Limbada requested JICA that the Port Louis - Beau Bassin Link Road Project cover the grade separation at Motorway Junction in

the initical stage of the construction although the Junction was supposed to be constructed as roundabout and would be developed as grade separation when the Ring Road Project would be implemented. As the construction cost of interchange at Motorway Junction is not included in the Link Road Project, JICA requested the Mauritius Government to inform the AFDB of the matter for its approval. Discussion of the detailed study of the interchange would be carried out in the detail design stage when and if necessary.

4. Mr. Danjoux explained that the feasibility study of the Pointe aux Sable Regional Development Project will soon be commenced by the Australian Team and the target population of the Project have been expanded to 60,000 inhabitants from 20,000 in the original plan. The Mauritius Government asked the JICA Survey Team if the proposed interchange at S. Hill Junction could be expanded to such extent that it could serve the traffic of all possible directions. The Survey Team will study the point preliminarily both from engineering as well as traffic point of view to recommend the most likely solution, which will be presented in the separate papers from the main feasibility study report.

5, As of the asphalt content of surface courses which has been asked by Mr. Rajah Gopal, the Survey Team answered the followings:

With respect to the asphalt content of surface course, the upper course has been so designed as to be paved with dense grained asphaltic concrete and the lower course, on the other hand, with coarse grained asphaltic concrete. Accordingly, the different asphalt content ratios (%) between the upper and the lower courses have been additionally explained and then it has arrived at our agreement.

Mr. Ismael Ahmad Limbada
Chief Engineer,
Ministry of Works,
MAURITIUS

Mr. Kimio Chiba
Chairman of JICA Supervisory Committee

JICA