

GUYANA

SUPPLEMENT TO CAPITAL ASSISTANCE PAPER - LOAN 504-L-010

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GUYANA

SUPPLEMENT TO CAPITAL ASSISTANCE PAPER - LOAN 504-L-010

IMPROVEMENT OF GEORGETOWN STREETS AND APPROACHES

I. INTRODUCTION

This CAP supplement presents the modifications of project design and financial plan which are required as a result of significant increases in the estimated project costs over those contained in the original CAP. The project elements discussed herein are only those directly affected by the redesign of the project. Additional information on these and other project elements is in the original CAP.

The "Background" section covers both this loan and loan 504-L-011 (New Amsterdam Streets and Approaches and Canje River Bridge) since they are being restructured concurrently.

II. BACKGROUND

A.I.D. executed two loans with the Government of Guyana for improvement of its coastal road system: Loan 504-L-010 (\$8.9 million) for improvement of Georgetown Streets and Approaches was authorized on September 30, 1971 and Loan 504-L-011 (\$3.0 million) for improvement of New Amsterdam Streets and Approaches and replacement of the Canje River Bridge was authorized on May 31, 1972. The two loans provided financing for 20 different city street and approach road subprojects, and derived from the GOG's concern for traffic congestion in and around Guyana's two major coastal cities, Georgetown and New Amsterdam. The subprojects were considered in, and recommended by, a feasibility study carried out by Parsons, Brinckerhoff, Quade and Douglas ("PBQ&D) between late 1969 and early 1971.

The authorization for the New Amsterdam loan required that the Canje Bridge and certain Georgetown approach sections be bid simultaneously. Early in CY 1974, in preparation for the bidding exercise, revised engineering cost estimates were made by both the Consultant engineers and the GOG Ministry of Works. Both revised

estimates revealed a significant increase in costs (i.e., approximately 180%) over the original cost estimates. Since these cost increases had rendered obsolete the original PBQ&D economic feasibility study for the two projects, A.I.D. and the GOG agreed that the study should be updated prior to any restructuring of the loans.

The GOG's consulting engineer, PBQ&D, completed the revised economic feasibility study in September 1974. The study analyzed each of the individual subprojects contained in the Georgetown and New Amsterdam projects and indicated the highest priority subprojects for financing within the total funding available (AID plus GOG) under the combined projects. Because of a reordering of relative priorities between the Georgetown and New Amsterdam projects, the revised study called for a shift of available funds from the Georgetown to the New Amsterdam project. This formed the basis for the GOG request to A.I.D., submitted in December 1974, to restructure the two loans in order to accommodate the revised priorities. The change in overall funding requirements indicated in the revised economic analysis and reflected in the GOG request is as follows:

	(In Millions US \$)		
	<u>AID and GOG Combined Funding</u>		
	<u>Georgetown</u>	<u>New Amsterdam</u>	<u>Total</u>
	<u>-010</u>	<u>-011</u>	
Original Program	11.9	4.0	15.9
Revised Program	<u>8.3</u>	<u>7.6</u>	<u>15.9</u>
Increase (Reduction)	(3.6)	3.6	-

A.I.D. reviewed the revised economic analysis and concurred in its findings relative to the streets and roads subprojects. The PBQ&D analysis of alternative bridge types and locations was redone by A.I.D. jointly with PBQ&D using a different methodology. Although A.I.D.'s analysis produced somewhat different rates of return for the various alternatives, it agreed with the PBQ&D selection of a medium level bridge at the existing site as the most desirable alternative.

A.I.D. and the GOG agreed that the scope and financing of the Georgetown project (-010) should be reduced to accommodate only the higher priority subprojects. In addition, A.I.D. agreed to seek authorization to finance 50% of the estimated overrun on the New Amsterdam project (-011) with the GOG financing the balance of the overrun. The effect of these decisions on the overall financial plan would be as follows:

(In Millions US \$)

	<u>Georgetown (010)</u>			<u>New Amsterdam (011)</u>			<u>Combined Projects</u>		
	<u>AID</u>	<u>GOG</u>	<u>Total</u>	<u>AID</u>	<u>GOG</u>	<u>Total</u>	<u>AID</u>	<u>GOG</u>	<u>Total</u>
Original Program	8.9	3.0	11.9	3.0	1.0	4.0	11.9	4.0	15.9
Revised Program	6.2	2.1	8.3	4.8	2.8	7.6	11.0	4.9	15.9
Increase (Reduction)	(2.7)	(.9)	(3.6)	1.8	1.8	3.6	(.9)	.9	-0-

A.I.D. further agreed that the GOG could construct all streets and road projects by force account, however, the Canje River Bridge would be constructed by a Code 941 Contractor.

It was recommended and agreed that reimbursement for force account work would be by the Fixed Amount Reimbursement Method with certification of satisfactory completion of subprojects or sub-elements thereof, to be made by the GOG's consulting engineer.

III. REVISED PROJECT DESCRIPTION

The individual subprojects to be included within the reduced project scope of Loan 010 are described below (see also Annex A "Map of Project Area"):

A. Georgetown Bypass and City Streets

1. The Bypass subproject consists of improvements to Ruinveldt Avenue from Public Road to Sheriff Street, a new road along Sheriff Street from Ruinveldt Avenue to Princess Street and improvements to Sheriff Street from Princess Street to the East Coast Road. Project length is about 4.5 miles.

2. The City Street Improvement subproject totals approximately 2.1 miles as follows:

Croal Street:	Sheriff Street to Vlissengen Road - two lanes with shoulders.
Camp Road:	Carifesta Avenue to Cummings Canal - four lanes with shoulders.
Young Street:	High Street to Camp Road - two lanes with shoulders.
Vlissengen Road:	Carifesta Avenue to Lamaha Street - four lanes with shoulders.

Construction of the bypass and city streets is underway and scheduled to be completed in 1975. Total cost of Georgetown Bypass and city streets is \$4,530,000 of which approximately \$3,000,000 has already been expended by the GOG.

B. East Coast Demerara Road: Kitty (Sea Wall) D'Aguiar's Bend to Plaisance

It is proposed to add two lanes to the two-lane road presently in existence. The project, about 3.8 miles in length was selected because it has one of the highest daily traffic volumes in all of Guyana. Estimated cost of the project is US \$2,800,000. Construction would start in July 1975 and is scheduled for completion by December 1977.

C. East Bank Demerara Road: Laing Avenue to Houston

A two-lane highway 0.7 miles in length, with shoulders, is proposed. This highway will connect the Georgetown Bypass traffic as well as traffic from the center of Georgetown directly to the East Bank Demerara Road at Houston. Project length is about 0.7 miles, cost about \$470,000. Construction would be scheduled for 1975.

D. East Bank Demerara Road: Sarah Johanna Deviation

Project consists of eliminating sharp curves and introducing other highway improvements on the East Bank Demerara Road. Proposed

highway will be two lanes wide with shoulders. The road is 1.5 miles in length and will cost \$420,000.

This project is under construction and is being used as a test section. Bauxite overburden (low grade bauxite) from the bauxite mining operations is being used on an experimental basis to determine its suitability as base course material. Completion is scheduled for July 1975.

IV. PROJECT ANALYSIS

A. Engineering Feasibility

The type of road construction proposed remains the same as for the original loan, only the amount thereof has been substantially reduced. Meanwhile the Ministry of Works has proven its ability to construct satisfactorily several roads and streets of the same type of construction, both in Georgetown and New Amsterdam.

The only real question remaining then is how much time the Ministry of Works force account crews would require to complete the less than six miles of remaining road.

The question is complicated by the following three factors:

1. West Bank Demerara Highway Project. A portion of the Ministry's force account capacity has had to be diverted to the West Bank Demerara Highway Project. This IBRD-financed project was originally contracted to a private construction firm, but after failure of the contractor, the Ministry had to take over the job in November of 1974 and the IBRD is insisting that the project be completed by December 1976.

2. Bulk Transport Capacity. The remaining sections of the road will require substantial amounts of fill and aggregate materials. These materials are only available at substantial distances from the construction sites and must be transported by water from pits and quarries up the Demerara and Essequibo Rivers. Unfortunately, the local availability of tugs and barges is very limited and subject to competing demands from the IBRD-financed Sea Defence project as well as the West Bank Demerara Highway project. The GOC has tried unsuccessfully to contract additional

tugs and barges, but delivery is not expected until late 1976.

3. Lack of Detour Routes. The section of highway between Bel Air Gardens and Plaisance is one of the most heavily travelled in Guyana. It provides the only access to and from Georgetown on the East. There is no other route of any kind to handle vehicular traffic during the construction work on the coast road. The resulting necessity for construction "under traffic" will substantially complicate and delay the project, particularly in view of the need to truck in the fill and aggregate materials over the busy coastal highway from the Georgetown barge landing.

The Ministry of Works has indicated that barring further complications, it probably could finish the work by December 1977. The Ministry will finish all subprojects other than Kitty-Plaisance section in July 1975 and should have it completed by December 1977. After carefully reviewing the situation, the USAID engineer concurs in the Ministry's estimates.

As for alternatives, we do not see that bringing in a contractor for the Kitty-Plaisance section would expedite construction. The contractor could bring in engineers, but otherwise it would be subject to the transport and traffic problems mentioned above, and the time required for bidding, contracting, and mobilization would delay initiation of construction by upward of six months.

B. Economic Evaluation

The revised economic analysis of the coastal road program prepared by PBQ&D, using the same methodology applied in the original feasibility study, resulted in the following internal rates of return for the four selected Georgetown subprojects:

2. Source of Financing

As in the original plan the reduced A.I.D. loan represents approximately 75% of the total project costs and the GOG contribution is maintained at 25%. Except for the small amount of U.S. dollar cost of the certifying engineer all future reimbursements to the GOG will be based on the Fixed Amount Reimbursement Method. The following disbursement schedule is based on the projected construction schedule contained in Annex B.

(In Thousands US \$)

	Work Completed & Approved To Date	Work Completed but not yet Approved	Forecast 5/01/75- 12/31/75	Forecast CY 1976	TOTAL
AID	956*	1,432	1,525	2,287	6,200
GOG	140	477	593	890	2,100
	<u>1,096</u>	<u>1,909</u>	<u>2,118</u>	<u>3,177</u>	<u>8,300</u>

V. LOAN ADMINISTRATION

A. Execution Plan (010)

It is anticipated that the loan amendment will be authorized during May 1975. As the Government of Guyana and the Ministry of Works and Housing are well acquainted with A.I.D. loan agreements and as detailed discussions have been held with the Guyanese concerning the financial, engineering and construction conditions of the loan, the loan amendment should be negotiated and signed within two weeks from the date of authorization. The remaining subprojects to be built have already been designed. They will be constructed by force account work which may begin in July 1975, after termination of the rains.

Inspection of work previously performed, and certification of substantial completion in accordance with designs, to authorize payment, will be made by a new engineering consultant currently being selected by the Ministry of Works. The Consultant

* Includes \$535,000 reimbursement for costs of consultant engineer.

<u>Subproject</u>	<u>Internal Rate of Return</u>
East Bank Demerara Road: Laing Avenue - Houston (010)	45%
East Coast Road: Kitty- Plaisance (010)	27%
Georgetown Bypass and City Streets	20%
East Bank Demerara Road: Sarah Johanna Deviation (010)	13%

Excerpts from the PBQ&D analysis are shown in Annex C.

A.I.D. reviewed and concurred in the above findings.

C. Financial Analysis

1. Funding Requirements

The total cost of the reduced project stated in U.S. dollar equivalent is \$8,300,000 and is comprised of the following specific subprojects:

<u>Subproject</u>	<u>Foreign^{/1} Exchange Costs</u>	<u>Local Costs US \$ Equiv.</u>	<u>In Thousands US \$ Total</u>
i) Georgetown Bypass and City Streets	563,000	3,967,000	4,530,000
ii) East Coast Demerara Road: Kitty-Plaisance	55,000	2,825,000	2,880,000
iii) East Bank Demerara Road: Laing Avenue to Houston	9,000	461,000	470,000
iv) East Bank Demerara Road: Sarah-Johanna Deviation	8,000	412,000	420,000
	<u>635,000</u>	<u>7,665,000</u>	<u>8,300,000</u>

^{/1} Of this amount \$535,000 has been disbursed to date for the supervisory services of the consulting engineers. Use of the Fixed Amount Reimbursement Method will significantly reduce the future costs of engineering services since their responsibilities will be limited to periodic inspection for the purpose of certifying substantial compliance with project specifications.

will also certify for payment work to be performed on the remaining subprojects.

Bar charts for the two remaining subprojects, Laing Avenue to Houston and Kitty to Plaisance, are included as Annex B. This shows that the larger sub-project, Kitty-Plaisance, will require July 1975 through July 1978 to complete.

B. Disbursement Procedures

1. Disbursements for United States Dollar Costs

United States dollar costs will be reimbursed through the letter of commitment procedure.

Following the contract approval by A.I.D. and the signing of the contract by the GOG and the contractor, the GOG will submit to the USAID Controller an application requesting AID/W to issue a letter of commitment to a specified U.S. bank designated by the Contractor. The designated bank will, as stated in the letter of commitment, open a letter of credit in the name of the Contractor.

Payments by the bank to the Contractor will be made upon presentation of such supporting documentation as specified by A.I.D. in the letter of commitment and letters from the GOG to the bank.

Dollar reimbursements to suppliers for commodities required for the project will follow the same procedures specified above.

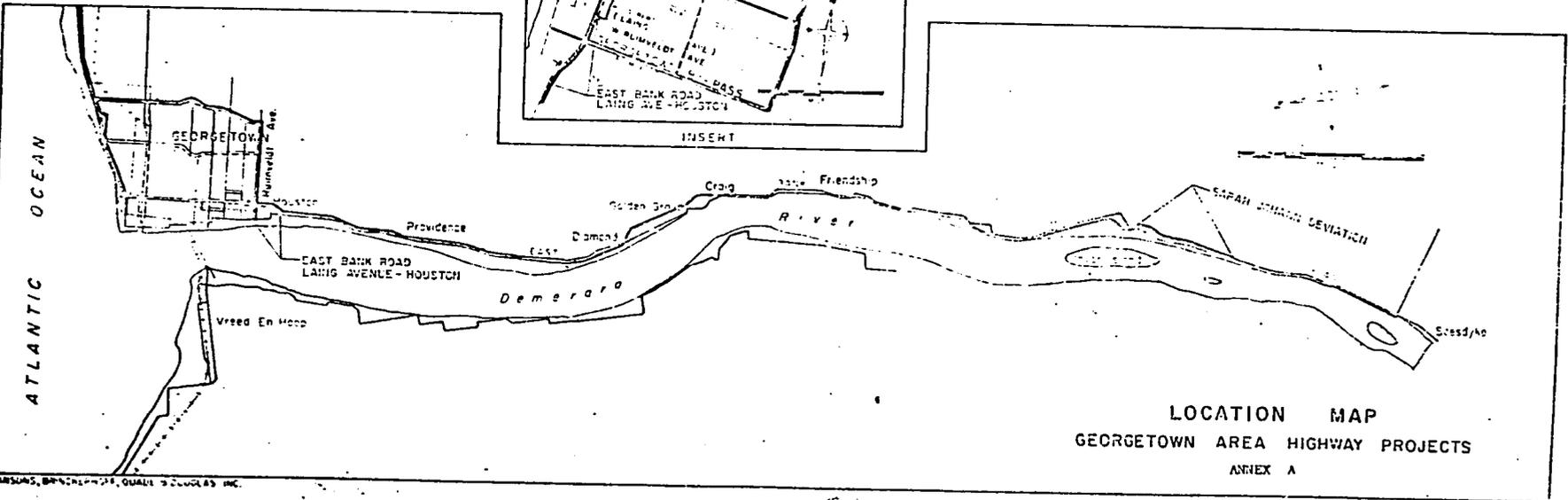
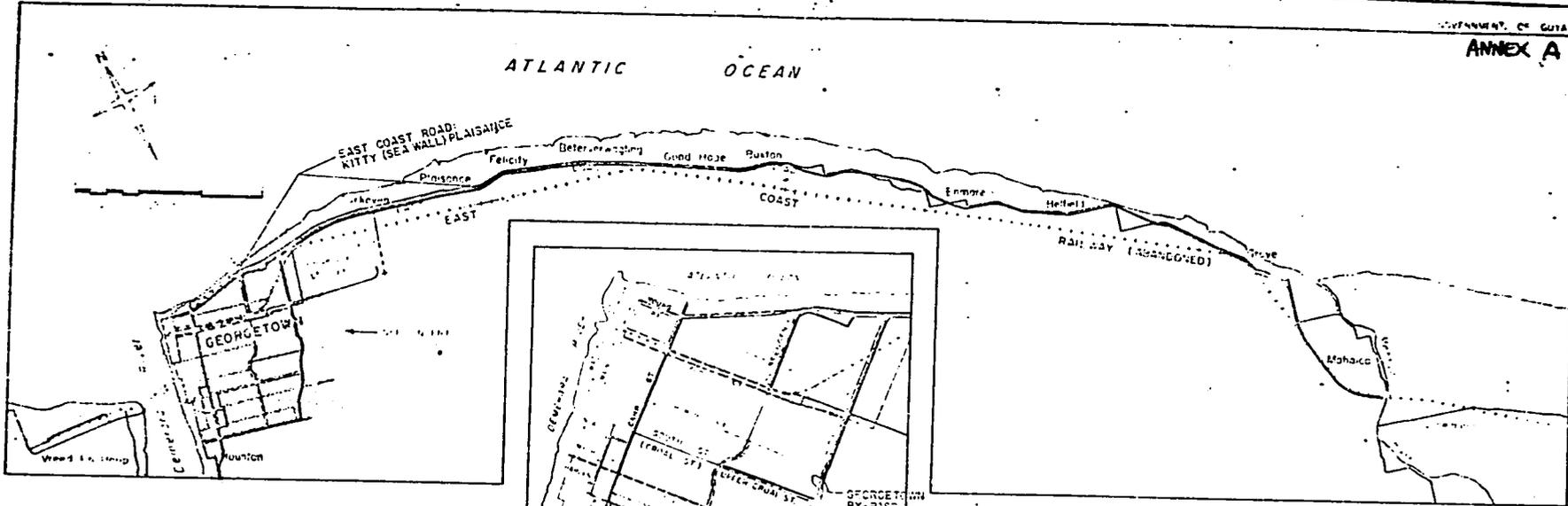
2. Disbursements for Local Currency Costs (Fixed Amount Reimbursement)

The amount of local currency for each subproject and/or element to be financed under this loan will be fixed in advance based upon reasonable cost estimates reviewed and approved by A.I.D. Local currency reimbursements will be made to the host government for the A.I.D. percentage of the costs upon physical completion of a subproject or other quantifiable element within the project. Local currency costs will be reimbursed through the Direct Reimbursement Authorization (DRA) Method.

Initially the estimated local currency costs for each of the subprojects or elements thereof must be fixed and approved by A.I.D. and A.I.D. must determine that the GOG has made available sufficient financial resources to provide the necessary working capital for their percentage of the work to be completed, as well as sufficient qualified staff and experience to proceed with effective implementation of the project. Then the GOG may request the USAID Controller to open a DRA for the percentage of the fixed local currency amount of the project.

Reimbursement will be made to the host government following submission to the USAID Controller of a Request for Reimbursement statement showing the fixed amount of the sub-project or other quantifiable element within the project for which reimbursement is requested, and other supporting documentation requested by A.I.D. Reimbursement is contingent upon certification by the Consulting Engineering that periodic inspections have been undertaken and that the subproject or elements for which reimbursement is requested have been completed in substantial compliance with the project's plans and specifications. Reimbursements will be made only up to the fixed amount of the project. If unforeseen cost increases are encountered, these will be borne by the host government. If costs are less than the fixed cost estimates, A.I.D.'s contribution will be reduced.

ATLANTIC OCEAN



LOCATION MAP
GEORGETOWN AREA HIGHWAY PROJECTS
ANNEX A

PARSONS BRINCKERHOFF QUALITY SERVICES INC.

CONSTRUCTION SCHEDULE

	75					76					77					78																					
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
<u>Kitty-Plaisance</u>																																					
Grading & Drainage																																					
Structures & Miscellaneous																																					
Paving																																					
<u>Laing Ave.-Houston</u>																																					
Grading & Drainage																																					
Paving																																					
Structures and Miscellaneous																																					

ECONOMIC ANALYSIS OF SELECTED SUBPROJECTS

(Excerpts from Chapter V of PBQ&D Report dated August 1974)

This chapter presents an analysis and summary of the economic justification for the selected highway projects.

The benefits are defined as those accruing directly to the present and future users of the highway projects expressed as the net savings in vehicle operating and time costs. The net savings are found by computing the difference between the vehicles operating and time costs before and after implementation of the proposed improvements. The benefits are then compared to and with the construction and maintenance costs, all reduced to their present worth (1974) to determine the benefit-cost ratios. The analyses were prepared assuming that all projects will be built by force account. The benefit-cost ratios were determined for three discount rates; 10, 12, and 15 percent. The internal rate of return was also determined for each highway project.

Construction and maintenance costs as well as project phasing were developed by the Roads Division. In a few cases costs were obtained from Central Transport Planning unit or some other source.

The present worth of the benefits and of the costs (in thousands of Guyana dollars), the benefit-cost ratios and the internal rate of return for each project are summarized in the following section.

East Coast Demerara Road: Kitty (Sea Wall) to Plaisance

<u>Discount Rate</u>	<u>Benefit/Cost</u>	<u>Ratio</u>
10%	G \$11,808/3,826	3.10
12%	G \$ 9,626/3,725	2.68
15%	G \$ 7,462/3,579	2.08

Internal rate of return, approximately 27%

East Coast Demerara Road: Plaisance to Buxton

<u>Discount Rate</u>	<u>Benefit/Cost</u>	<u>Ratio</u>
10%	G \$ 8,578/2,499	3.42
12%	G \$ 6,957/2,369	2.94
15%	G \$ 5,179/2,191	2.36

Internal rate of return, approximately 33%

East Canje Road: Corentyne Road to South of Rosehall

<u>Discount Rate</u>	<u>Benefit/Cost</u>	<u>Ratio</u>
10%	G \$ 4,097/2,901	1.40
12%	G \$ 3,400/2,776	1.23
15%	G \$ 2,624/2,657	1.00

Internal rate of return, approximately 15%

Georgetown Bypass, Croal Street, Camp Road,
Young Street, Vlissengen

Benefits were calculated only for the bypass proper as no traffic counts or projections were made for the other streets... Costs include all streets named above.

<u>Discount Rate</u>	<u>Benefit/Cost</u>	<u>Ratio</u>
10%	G \$ 3,289/1968	1.68
12%	G \$ 2,753/1967	1.40
15%	G \$ 2,157/1960	1.10

Internal rate of return, approximately 20%

East Bank Demerara Road: Laing Avenue to Houston

Proposed improvement is a two-lane highway with shoulders. For the peak periods, highway capacity will be reached by about 1986. The benefits used are the total accrued to 1986. After 1986, since highway capacity is reached, it was assumed that the operating costs using the existing highway and the improved highway will be the same and that there are no more users operating cost and time cost savings. Costs, however, were calculated for the full 20 year life of the pavement.

<u>Discount Rate</u>	<u>Benefit/Cost</u>	<u>Ratio</u>
10%	G \$ 2,990/818	3.63
12%	G \$ 2,663/804	3.32
15%	G \$ 2,254/783	2.88

Internal rate of return, approximately 45%

East Bank Demerara Road: Ramsburg to Diamond Place

<u>Discount Rate</u>	<u>Benefit/Cost</u>	<u>Ratio</u>
10%	G \$ 5,354/3,006	1.78
12%	G \$ 4,428/2,927	1.51
15%	G \$ 3,397/2,819	1.21

Internal rate of return, approximately 18%

East Bank Demerara Road: Diamond Place to
Sarah-Johanna Deviation

<u>Discount Rate</u>	<u>Benefit/Cost</u>	<u>Ratio</u>
10%	G \$ 7,005/2,046	3.42
12%	G \$ 5,597/1,961	2.85
15%	G \$ 4,109/1,842	2.23

Internal rate of return, approximately 30%

East Bank Demerara Road: Sarah Johanna Deviation

<u>Discount Rate</u>	<u>Benefit/Cost</u>	<u>Ratio</u>
10%	G \$ 911/670	1.36
12%	G \$ 777/677	1.15
15%	G \$ 624/686	0.91

Internal rate of return, approximately 13%

East Bank Demerara Road: Sarah Johanna Deviation to Soesdyke

<u>Discount Rate</u>	<u>Benefit/Cost</u>	<u>Ratio</u>
10%	G \$ 846/1,009	0.84
12%	G \$ 678/939	0.72
15%	G \$ 498/843	0.59

ANNEX D
A.I.D. Loan No. 504-L-010
(Ref: AID-DLC/p-988)

DRAFT LOAN AUTHORIZATION (Amendment No. 1)

Provided from: Alliance for Progress Funds
Guyana: Georgetown
Purpose of Amendment: To authorize a reduction in the amount of the loan from \$8,900,000 to \$6,200,000

Pursuant to the authority vested in the Deputy U.S. Coordinator, Alliance for Progress, by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby amend the Loan Authorization for A.I.D. Loan No. 504-L-010 dated September 30, 1971:

1. In the first paragraph, delete "eight million nine hundred thousand United States dollars (\$8,900,000)" and substitute "six million two hundred thousand United States dollars (\$6,200,000)".

Except as expressly amended hereby the Loan Authorization remains in full force and effect.

Deputy U.S. Coordinator

Date