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UNCLASSIFIED

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

BELIZE

PROJECT PAPER

RURAL ACCESS ROADS & BRIDGES

AMENDMENT NO. 4

AID/LAC/P- 414
CR P-164 & P-164/1

Project Number: 505-0007
Loan Number: 505-K-505

UNCLASSIFIED

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET	1. TRANSACTION CODE <input checked="" type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number 4	DOCUMENT CODE 3
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2. COUNTRY/ENTITY Belize	3. PROJECT NUMBER 505-0007
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4. BUREAU/OFFICE USAID/Belize	5. PROJECT TITLE (maximum 40 characters) Rural Access Roads & Bridges
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6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 04 30 91	7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4) A. Initial FY 83 B. Quarter 4 C. Final FY 91
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8. COSTS (\$000 OR EQUIVALENT \$1 =)						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total						
(Grant)	(5,000)	()	(5,000)	(7,850)	()	(7,850)
(Loan)	()	()	()	(4,150)	()	(4,150)
Other U.S.						
1.						
2.						
Host Country		1,720	1,720		6,550	6,550
Other Donor(s)						
TOTALS	5,000	1,720	6,720	12,000	6,550	18,550

9. SCHEDULE OF AID FUNDING (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) ARDN	220		061	6,150		1,700	4,150	7,850	4,150
(2)									
(3)									
(4)									
TOTALS				6,150		1,700	4,150	7,850	4,150

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each) 720	11. SECONDARY PURPOSE CODE
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12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)	
A. Code	
B. Amount	

15. PROJECT PURPOSE (maximum 480 characters)

To further strengthen and institutionalize the capability of the Ministry of Works to maintain and protect Rural Access Roads and Bridges.

14. SCHEDULED EVALUATIONS Interim MM YY 07 89 Final MM YY	15. SOURCE/ORIGIN OF GOODS AND SERVICES <input type="checkbox"/> 000 <input type="checkbox"/> 941 <input type="checkbox"/> Local <input type="checkbox"/> Other (Specify)
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16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a page PP Amendment.)
 This Amendment will increase AID funding by \$5,850 million of which \$1,700 million will be Grant and \$4,150 million will be Loan. The PACD has been extended from December 12, 1987 to April 30, 1991.

The Controller hereby certifies that he reviewed the methods of finance and implementation and hereby approves pertinent sections.

Mohamed Tanamly
Mohamed Tanamly, Controller

17. APPROVED BY	Signature <i>Peter B. Lapera</i> Peter B. Lapera	Date Signed MM DD YY 09 30 91	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY
	Title Acting AID Representative		MM DD YY

PROJECT AUTHORIZATION

(Amendment Number 4)

Name of Country : Belize
Name of Project : Rural Access Roads and Bridges
Number of Project : 505-0007
Loan Number : 505-K-505

I. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, the Rural Access Roads and Bridges Project for Belize was authorized on September 29, 1983 (the Authorization). The Authorization was amended on May 22, 1984; May 24, 1984 and November 2, 1984 and is hereby further amended by deleting:

Paragraph 1 in its entirety and substituting in lieu thereof the following:

"1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Rural Access Roads & Bridges Project (the "Project") involving planned obligations of not to exceed Seven Million Six Hundred and Fifty Thousand United States Dollars (\$7,850,000) in Grant funds ("Grant") and Four Million Three Hundred and Fifty Thousand United States Dollars (U.S.\$4,150,000) in Loan funds ("Loan") over a ninety month period from date of authorization, subject to the availability of funds in accordance with A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project. The planned life of the Project is ninety (90) months from the date of the initial obligation."

II. Interest Rate and Terms of Repayment to A.I.D.

The Government of Belize (the "Cooperating Country") shall repay the Loan to A.I.D. in U.S. dollars within twenty-five (25) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The Borrower shall pay to A.I.D. in U.S. dollars interest at the rate of two (2) percent for the first five (5) years, three (3)

percent for the next five (5) years and five (5) percent for the remaining fifteen (15) years on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

III. Source and Origin of Commodities, Nationality of Services (Loan)

Commodities financed by the Loan shall have their source and origin in Belize or in countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services financed under the Loan shall have Belize or countries included in A.I.D. Geographic Code 941 as their place of nationality, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Loan shall be financed only on flag vessels of countries included in Geographic Code 941, except as A.I.D. may otherwise agree in writing.

IV. Conditions Precedent to First Disbursement of Loan Funds

Prior to any disbursement, or the issuance of any commitment documents pursuant to which disbursement would be made, of Loan funds for the Project, the Cooperating Country shall, except as A.I.D. may otherwise agree in writing:

A. Provide a plan for the assignment of Ministry of Works (MOW) personnel to serve as counterparts to each A.I.D.-funded technical assistance advisor under Phase II of the Project; and

B. Name the individual within the Roads Division of the MOW who will have primary responsibility for all secondary road maintenance.

V. Covenants

In addition to the covenants already established for the Project, the Cooperating Country shall covenant:

A. To identify all A.I.D.-financed mobile maintenance equipment with distinctive color and/or markings, clearly indicating the district to which it is assigned, and to

use such equipment exclusively for authorized routine maintenance activities;

B. To provide, or cause to be provided, qualified and experienced management personnel for the Project and train, or cause to be trained, such staff as may be appropriate for the execution of the Project;

C. To provide promptly as needed all funds and resources, in addition to the A.I.D. Grant and Loan, for the punctual and effective carrying out of the Project, and will seek to increase the annual allocation to the MOW recurrent budget; and

D. To submit to A.I.D., within one month after the end of each fiscal year, an annual workplan for all secondary road maintenance activities.

VI. Except as previously amended or amended herein, the Authorization remains in full force and effect.



Peter B. Lapera
Acting Aid Representative
USAID/Belize

Date:

9/30/87

Drafted By:RLA:RJohnson while TDY in Belize 9/25/87

Cleared By:ADO:SASzadek Szadek 30 Sept 87

Cont:MTanamly MTanamly 9/30/87

TABLE OF CONTENTS

Project Data Sheet

Project Authorization

List of Tables, Acronyms and Project Committees

	<u>Page</u>
I. SUMMARY AND RECOMMENDATIONS	
A. Recommendations	1
B. Summary Project Amendment Description	1
II. BACKGROUND	
A. Project History	3
B. Progress, Evaluations, Audits	4
C. Existing Road Network	8
D. The Ministry of Works	8
E. Other Donor Activities	12
III. PROJECT AMENDMENT RATIONALE	
A. Relationship to A.I.D. Policies and Strategies	13
B. Major Development Problems Being Addressed	13
IV. PROJECT AMENDMENT DESCRIPTION	
A. Goal and Purpose	14
B. Amendment Outputs and Inputs	14
C. Project Activities	
1. General Overview	19
2. Road Maintenance Units	19
3. Maintenance Planning and Budgeting	20
4. Road Rehabilitation Units	21
5. Bridge Installation	22
6. Central and District Repair Shop Improvements	23
V. FINANCIAL PLAN, COST ESTIMATES, AND PAYMENT POLICY VERIFICATION	24
VI. IMPLEMENTATION PLAN	
A. Revised Implementation Plan	29
B. Procurement Plan	
1. Technical Assistance	30
2. Commodities	30
C. Monitoring Plan	30
D. Evaluation Plan	31
VII. PROJECT ANALYSIS	
A. Technical	
1. Direction of Rehabilitation and Maintenance	33
2. A.I.D.-Financed Equipment	33
3. Spare Parts, Tires and Tools	34
4. Technical Feasibility	35
B. Financial Analysis	35
C. Economical Analysis	38
D. Social Analysis	40
E. Administrative Analysis	41
F. Environmental Analysis	42
VIII. WAIVERS, CONDITIONS PRECEDENT AND COVENANTS	43

ANNEXES:

- I Logistical Framework.
- II Checklist of Statutory Criteria
- III Spare Parts and Tire Requirements
- IV Detailed Illustrative Budget for Technical Assistance Contract.

TABLES:

- 1. Project Progress-Phase I
- 2. Belize Road Network
- 3. Existing Documented Organizational Structure (MOW)
- 4. Sample Divisional Layout (MOW)
- 5. Illustrative Financial Plan For Total Project
- 6. Financial Plan for Project Amendment
- 7. Financial Plan For AID Financing For Total Project
- 8. ESF Local Currency Programming-Phase I
- 9. IRR For Phase II
- 10. Tire and Tube Estimates-Phase II

ACRONYMS

A.I.D.	Agency for International Development
AIDAR	Agency for International Development Acquisition Regulations
BIM	Belize Institute of Management
ESF	Economic Support Fund
FAA	Foreign Assistance Act
FAR	Federal Acquisition Regulation
GOB	Government of Belize
IBRD	International Bank for Reconstruction and Development
IRR	Internal Rate of Return
LOP	Length of Project
MOW	Ministry of works
OYB	Operational Year Budget
PACD	Project Assistance Completion Date
PSC	Personal Service Contracts
RMU	Road Maintenance Unit
ROCAP	Regional Office for Central American and Panama
RR&B	Rural Access Roads and Bridges
RRU	Road Rehabilitation Unit
TDY	Temporary Duty
UK	United Kingdom
USAID	United States Agency for International Development

PROJECT DESIGN COMMITTEE

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2. Dr. Gilbert H. Canton, Agricultural Development Office, USAID/Belize
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5. Mr. Mohamed Tananly, Controller, USAID/Belize
6. Mr. David Gibson, Permanent Secretary, Ministry of Works and Housing.

I. SUMMARY AND RECOMMENDATIONS

A. Recommendations

USAID/BELIZE recommends the authorization of an additional \$1,700,000 grant and a \$4,150,000 loan over a forty month period to the Government of Belize (GOB); for the Rural Access Roads and Bridges Project (RR&B), and the extension of the Project Assistance Completion Date (PACD) from December 31, 1987 to April 30, 1991.

B. Summary Project Amendment Description

The Project Paper Amendment will extend the existing project from January 1, 1988 to April 30, 1991. The original project will hereafter be referred to as Phase I and the project amendment will hereafter be referred to as Phase II. The Goal of Phase II is to increase agricultural production in Belize by improving farm to market access. The Purpose of Phase II is to further strengthen and institutionalize the capability of the Ministry of Works (MOW) to maintain and protect RR&B. The goal remains the same. The purpose of strengthening the road maintenance capabilities of the MOW remains essentially the same; however, it has been slightly sharpened to embrace the target of institutionalizing a national road maintenance program.

It should be noted that the reconstruction efforts which largely comprised Phase I and the maintenance efforts planned for Phase II are directly related, utilize the same GOB personnel, skills and similar equipment, and are both required to achieve the objective of improved access. Over 50 percent of the gravel roads in Belize have deteriorated to the point where routine maintenance efforts are no longer effective until comprehensive reconstruction or rehabilitation has been undertaken. Once this has been accomplished a road should be able to be kept in prime condition by routine grading and filling operations for about five years, until heavy maintenance or rehabilitation is again required.

There are five major Phase II outputs. The first involves the development at the district level of an improved ability to manage and conduct routine maintenance operations on the gravel roads which comprise about 80 percent of Belize's road system. A.I.D. financing will provide new construction equipment and spare parts to complement the existing equipment inventory, part of which was furnished under Phase I. Technical assistance at the district road maintenance unit level will include a road maintenance management engineer advisor, short-term training programs, and some participant training.

In order to maintain and repair the heavy equipment utilized by the gravel road maintenance units, adequate shop facilities must be available at the district level and supported by a repair facility for specialized repair work. District shops and a Central Workshop are presently in existence and have been strengthened by Phase I activities. Phase II financing will provide additional shop equipment and tools and much-needed rehabilitation of the shop buildings at the district level and at the central facility in Belmopan. Repair shop personnel capacities will be upgraded by technical assistance inputs which include one equipment repair advisor and short-term training programs.

The third output seeks to establish in the MOW the managerial and financial systems necessary to support a gravel road maintenance capability that can perform routine maintenance operations on about 1,000 miles of road annually. A.I.D. financing will provide the necessary physical and personnel inputs to strengthen the MOW. In addition, the Phase II project will require certain undertakings by the GCB to provide necessary administrative and financial support. The first priority will be to assure that the roughly 200 miles of road rebuilt under Phase I are properly maintained. A second priority will be rehabilitation of an estimated 150 miles of roads under Phase II; and the third priority will be to routinely maintain approximately 615 miles of road which will not be rebuilt by the end of this project.

Upon completion of Phase I, approximately 200 miles of gravel road will have been rehabilitated by the two Road Rehabilitation Units which were established, equipped and trained under this project. Phase II will continue to supply spare parts for the A.I.D.-financed equipment; however, the management and operation of the two units and the maintenance of their equipment will become the responsibility of the MOW. The two A.I.D.-financed advisors will work with the Reconstruction Units as well as the Maintenance Units, but the intensive technical assistance inputs at the field level of Phase I will no longer be required. Upon completion of Phase II the two Rehabilitation Units should be sufficiently institutionalized to proceed with rehabilitation operations on about 100 miles of gravel road annually.

II. BACKGROUND

Rural Access Roads and Bridges, Phase II, will be the fourth amendment to the original Project Agreement. The original Project and the first three Amendments will henceforth be referred

to as Phase I. The Phase II project goal and purpose are similar to those in Phase I; the Phase II outputs and inputs are slightly different from those in Phase I. The Phase II Amendment will extend the life of the existing project from January 1, 1988 to April 30, 1991 and will increase A.I.D. financing by \$5.850 million of which \$4.150 million will be a loan and \$1.700 million will be an additional grant.

A. Project History

The original RR&B was authorized on September 29, 1983. It provided \$5 million in incremental grant financing for the rehabilitation and maintenance of rural access roads and bridges and required a host country contribution of \$2.050 million equivalent. A Project Agreement was executed September 30, 1983. This agreement was amended (Amendment One) on December 19, 1983 to provide additional grant financing of \$400,000.

In early 1984 the Project Paper was amended to include the provision of USG excess property bridging material for the construction of up to 54 high-level, all-weather river crossings on roads selected for rehabilitation, and the provision of the services of a rural sociologist to assist the GOB in road selection, developing base-line data and evaluating the impact of the project. The MOW undertook to contract for construction of the requisite bridge abutments and center piers. The Project Authorization was amended on May 22, 1984, and on May 24 the second amendment to the Project Agreement was signed increasing A.I.D. grant financing to \$5.950 million and raising the GOB contribution to \$3.020 million equivalent.

On November 20, 1984 the third amendment to the Project Agreement was signed. It increased A.I.D. grant financing to \$6.150 million to provide additional technical assistance in bridge installation and raised the GOB contribution to \$4.530 million equivalent to finance the construction of additional bridge abutments.

As of June 30, 1987, A.I.D. financing in the amount of \$6.150 million has been authorized and obligated. A total of \$5.743 million has been expended. The required GOB contribution is \$4.530 million equivalent. About \$3.034 million equivalent has been made available to the MOW from the ESF Economic Stabilization Program, Counterpart Fund II for GOB contribution of which \$1.667 million equivalent has been expended on bridge construction, fuel and lubricants, and shipping and transportation costs. In-kind contributions are composed mainly of salaries to the level of U.S. \$850,000 equivalent.

10-

B. Progress, Evaluations, and Audits

Phase I progress against targeted outputs is shown in Table 1. Progress against eight of the eleven outputs is satisfactory; the remaining three output objectives will require additional inputs which are the subject of the Phase II Amendment.

The Phase I Project, as amended, had five components: road reconstruction, road maintenance, equipment repair and maintenance, management training, and bridge construction. Road reconstruction efforts have been satisfactory. Two reconstruction units were created, equipped and staffed and over 195 miles of gravel road, which had deteriorated to the point where routine maintenance efforts could no longer be effective, have been rebuilt. On-the-job training totaling over 9000 person-hours was provided by the Road Specialists to some 120 MOW personnel in the four districts where Road Rehabilitation Unit operations have been undertaken and completed.

The second component, road maintenance, envisioned the development of a road maintenance training unit that would work at the district level to upgrade maintenance procedures and operations. This unit was to be supported by the two Road Specialists financed under the Project. Additionally, each district received a complement of maintenance equipment comprised of a grader, a brush cutter, a dump truck and a pickup truck. The operation of the two Road Rehabilitation Units absorbed so much of the time of the Road Specialists that formalized and extensive road maintenance training and operational development was not possible except for sporadic assistance during the period (about 10 months) when one of the Rehabilitation Units was operating in a given district. While some maintenance training was provided and the A.I.D.-financed maintenance equipment was utilized reasonably well, an effective national road maintenance system was not established or institutionalized.

A Phase I output contemplated that per-mile road reconstruction costs would be reduced by 50 percent and road maintenance costs by 33 percent. These outputs implicitly assume that some base line data existed from which to measure a reduction, or that cost data could be generated that would show decreasing costs for similar levels of operation on similar road segments. Unfortunately, no base line data exists. Moreover, since the level of maintenance or reconstruction effort applied to bring a road up to an agreed-upon standard is a function of the deterioration of the segment, there is

TABLE 1: Project Progress-Phase I

OUTPUTS	PROGRESS TO JUNE 30, 1987	ANTICIPATED PROGRESS TO DECEMBER 31, 1987
1) Rehabilitate 300 miles of gravel road	195 Miles completed	220 miles
2) Train 150 MOW personnel in gravel road reconstruction techniques	80 personnel received training 40 personnel in training	120 personnel received training.
3) Reduce per mile road reconstruction costs by 50%	Sufficient operating data should be available by December 1987 to permit calculations of reconstruction costs which in future years may reflect declining levels.	
4) Improve internal management control and system for the MOW	Basic system has been established and is being continuously upgraded.	
5) Train 75 equipment shop personnel	30 personnel received training	No technical assistance was to be provided after 12/31/86 when the advisor's contract terminated. (See discussion below).
6) Prepare a national rural access roads inventory	Completed	
7) Construction of abutments for 54 new all-weather river crossings using the 103 bridge sets obtained from USG excess property	4 completed, 6 underway, 11 designed. Anticipate that a total of 6 crossings will be completed by 12/31/87.	
8) Increase existing private sector contracting capability through involvement in bridge abutment construction.	Construction on the six pairs of abutments identified in 7 above is being undertaken by private local contractors.	
9) Train 100 MOW personnel in gravel road maintenance techniques.	A number of MOW personnel (see 2 above) have received training in road rebuilding/maintenance techniques and related equipment operation; but this output target as originally conceived has not and will not be met. (See discussion below.)	
10) Reduce per mile road maintenance costs by 33%	As the MTU conceived in the original project never came into being, routine maintenance operations have not substantially changed. Comment under 3 above applies. (See discussion below.)	

12

no simple way to make cost comparisons. A sophisticated cost comparison would be required which is beyond the present abilities of MOW accounting procedures and considered beyond the needs of the project. Thus, an evaluation of these outputs is not possible at this time.

In the area of equipment maintenance and repair, some 30 MOW central and district repair facility personnel received on-the-job training and the inventory of central and district shop tools and equipment has been improved. The major efforts in this area focused more on meeting operational requirements (i.e., supporting the existing fleet operations) than on training activities specifically designed to improve personnel capabilities.

The management training component of Phase I has been completed and has resulted in the establishment within the MOW of an operations programming and budget planning capability, an improved internal management and control system, and a national rural access road inventory. Three man-years of technical assistance were provided.

Three of the Phase I outputs (See Table 1) dealt with the training of MOW personnel in road reconstruction and maintenance and in equipment repair techniques. However, the Phase I financing plan did not provide for training activities beyond what could be furnished by the road and equipment specialists and other advisors assigned to the project, and for the most part all of the seven advisors had operational roles. This resulted in a significant amount of on-the-job training, as noted above, but little in the way of formal training activities. The Phase I training outputs will not be completely met.

A final component, bridge installation, was incorporated in the project by Amendment two to the Project Paper when the MOW had the opportunity to acquire 103 bridge sets from USG Excess Property. A bridge set is all of the structural steel and related hardware necessary for one single lane span. Sets come in various lengths and installation requires construction of two abutments and possibly related center piers. Fifty-four priority crossings were identified, and it was contemplated in the Amendment that up to 40 crossings might be completed by December 1987. It is now apparent that this was too ambitious an undertaking in terms of both time and cost. At the completion of Phase I it is expected that six river crossings will have been completed. Another four crossings will be under construction, and design work completed on eleven more. It is important to note that the cost, time and technical difficulty of abutment construction and erection of the bridge sets varies

widely. Major variables are the length of the span, characteristics of the water flow and subsurface geology. The 10 crossings undertaken in Phase I are among the largest and most difficult of the 54 identified.

Since initial authorization in September 1983, the Phase I Project has been the subject of two evaluations and included in one Mission audit. In August 1985, an external evaluation was undertaken which concluded that: (i) project progress was reasonable when compared to similar A.I.D. activities, (ii) the project paper implementation schedule was unrealistically optimistic, (iii) the GOB did not seem to be as effectively engaged in the project as it might, (iv) the project was funded and staffed only to carry out on-the-job training, (v) GOB austerity budgets were effecting the ability of the 'OW to carry out its maintenance programs, and (vi) the project life should be extended for six months.

In November 1986 an in-house evaluation resulted in the following recommendations: (i) the PACD should be extended to December 31, 1987, (ii) expatriate advisors should be reorganized, (iii) original project outputs should be reevaluated and possibly revised, (iv) funding availabilities should be analyzed, (v) the two rehabilitation units should move to Orange Walk and Corozal Districts the end of February 1987, (vi) a comprehensive plan for implementation of the bridge program was needed, (vii) closer working relationships between the Mission Agriculture Office and the PSC Project Manager were needed, and (viii) a Phase II Amendment was needed. To the extent possible, the findings of these two evaluations were addressed by the Mission.

In June 1987, the Regional Inspector General conducted an "Audit of A.I.D./Belize Portfolio and Operating Expenses". The audit and the Mission response is in final. Because of its nature, this audit report touches on a number of projects and a range of Mission activities. It is critical of the RR&B Project in a number of areas: contracting for technical assistance, procurement procedures for equipment and spares, project management linkages, management of the bridge program, inventory controls, reporting, and training. In spite of major Mission disagreement on almost all findings, this audit has served one useful purpose: it has prompted a searching investigation of this project, the results of which have proved extremely useful to the management of the project. It can be stated at this time that the Mission has given serious consideration to all of the areas noted above and has been guided by the audit in structuring the design of this amendment.

C. Existing Road Network

Belize's road network links the main centers of population and development areas. The location of major roads is dictated mainly by the swampy conditions prevalent in Belize and, particularly in the south, by river crossings. In terms of coverage, the network is adequate and standards are generous for traffic levels. Rural Access Road conditions, except on those roads recently rehabilitated, are generally unsatisfactory because of inadequate maintenance combined with problems such as frequent flooding, unsatisfactory drainage, limited availability of good road-making materials in some parts of the country and inadequate construction specifications and quality control.

The main road system follows three principal corridors:

- the Northern Highway, which connects Belize City with the northern districts and Mexico;
- the Western Highway, which runs from Belize City to the capital city of Belmopan and continues on to the Guatemalan border; and
- the Hummingbird/Stann Creek Highway, which connects Belmopan with Dangriga town and to the Southern Highway, a gravel road which provides access to the Stann Creek and Toledo districts.

The Belize road network by district and by type of road is shown in Table 2. Of the total mileage of 1,328 miles, 1,065 miles or about 80 percent, is composed of gravel or dirt roads. The MOW calculates that approximately 209 miles of gravel road is in fair condition. Another 178 miles has been rehabilitated under Phase I (as of June 30, 1987). This leaves some 678 miles of gravel road which require immediate rehabilitation.

D. The Ministry of Works

The responsibility for the construction and maintenance of all roads lies with the MOW. Its organizational structure is outlined in Tables 3 and 4. Under the Minister of Works and Housing and the Permanent Secretary, the Chief Engineer is responsible for all MOW activities including road maintenance and bridge construction. Reporting to the Chief Engineer are the heads of six functional divisions which include the Roads Division (responsible for maintenance of macadam and gravel roads), the Engineering Services Division (responsible for new road construction carried out under contract), and the Bridges Division (responsible for the construction and maintenance of bridges). The Head, Roads Division manages the six district level maintenance operations each headed by an Inspector of Works. Within the Roads Division are located the Office of Planning and Budget as well as the Soil Laboratory.

TABLE 2: BELIZE ROAD NETWORK

<u>District</u>	<u>Paved</u>	<u>Gravel</u>	<u>Dirt</u>	<u>Total Unpaved</u>	<u>Total Mileage</u>	<u>Rehab/AID 6/30/87</u>
Belize	107	101	4	105	212	50
Corozal	26	190	6	196	222	--
Orange Walk	33	239	--	239	272	--
Cayo	67	147	36	183	250	49
Stann Creek	30	184	1	185	215	43
Toledo	<u>--</u>	<u>146</u>	<u>11</u>	<u>157</u>	<u>157</u>	<u>36</u>
Total	263	1,007	49	1,065	1,328	178

1/6

TABLE 4: Sample Divisional Layout (MOW)

ROADS DIVISION
=====

HEAD OF DIVISION
(Senior Executive Engineer)

.....
Overall management of the division; Staff Levels; Overall
Specialist matters; Execution of Policy and recommendations
Overall control of investigations, design and supervision
Preparation of records for the Chief Engineer
Data processing; Roads Division representation at meetings
Training; Administration of Materials Laboratory
Management of roading and drainage maintenance
.....

EXECUTIVE ENGINEER

.....
Field Investigations; Design; Document Preparation;
Materials Laboratory; Crushing Plants; Pipe Plants; Surface
Maintenance; Data Collection; Specific Projects
.....

DATA PROCESSING

TRAINING OFFICE

ENGINEERING ASSISTANT 1

.....
Control of Maintenance
Field data Collection
Equipment Maintenance
Maintenance Scheduling
Specific Projects
.....

ENGINEERING ASSISTANT 2

.....
Field Investigations
Surveys; Materials
Roading and Drainage Plans
General Drafting
Data collection
Specific Projects
.....

Best Available Document

18

Responsibility for equipment maintenance and repair resides with the Shop Superintendent located in the central workshop in Belmopan. Each district has a mechanical repair shop managed by the District Chief Mechanic which carries out preventive maintenance and minor repairs. Major repair and overhaul work is done in the central workshop.

Operational responsibility for the project rests in large part on the MOW Chief Engineer. The immediate operating responsibility for project management will reside in the newly reorganized Roads Division which is headed by a recently appointed Senior Executive Engineer. He will be assisted by an Executive Engineer and two engineering assistants yet to be named. A condition of Phase II will require that the MOW designate an individual who will have direct and immediate responsibility for all secondary gravel road maintenance. The bridge component of the project will be administered by the Head of the Bridges Division.

Road expenditures are financed by Government by annual budget allocations to the MOW and by grants and loans from bilateral and multilateral sources. The dominant source for external financing of road development has been the UK Overseas Development Administration. Information on government receipts from road user charges is fragmentary; however, an examination of tax rates and estimates of receipts indicates that road user charges in recent years have met routine maintenance and perhaps one-quarter of capital requirements.

In spite of the fact that budget allocations have increased each year, they are still only about half of the budget request. A covenant of the project will require that the GOB acknowledge the necessity of providing adequate MOW maintenance budgets to sustain the purpose of this project.

E. Other Donor Activities

No other donors are involved in this project, however it builds upon assistance provided by British and Canadian agencies and the International Bank for Reconstruction and Development (IBRD). The UK has recently completed reconstruction of four large and important bridges on the Southern Highway while the IBRD rehabilitated and improved drainage structures along this 100 mile route, as well as resurfacing some 13 miles on the Western Highway. In addition, the IBRD financed a just-completed four-year road maintenance and training project which was focused on the primary road system, but, as noted above, provided an important spill-over into this rural roads project.

19

III. PROJECT AMENDMENT RATIONALE

The underlying rationale for the project is set forth in the original Project Paper for Phase I.

A. Relationship to A.I.D. Policies and Strategies

The project represents USAID's major effort in expanding and improving the infrastructure in Belize as part of the National Bipartisan Commission on Central America (NBCCA) goal of laying the basis for long-term growth. The Phase II Amendment will continue to address the major infrastructural constraints facing the development of Belize's agriculture sector by improving and maintaining rural access roads to all-weather standards. The beneficiaries will be the farmers who will have all-weather access to markets, agricultural inputs, and social services. The successful implementation of the project and its amendment will help not only in achieving its own benchmarks relating to rehabilitation of rural access roads and bridges and improving the Ministry of Works capacity to maintain this infrastructure, but also will enable the achievement of targets under other projects which will relate to the increase agricultural production and promote exports objectives.

B. Major Development Problem Being Addressed

If Belizean farmers are to adopt more intensive modern farming methods and produce for the market and not for subsistence alone, slash-and-burn (milpa) farming must be discouraged and investment in land improvement must be promoted. This has already happened in several areas of the country, and the main cause has been the construction of high-quality all-weather roads. A good all-weather road provides a number of incentives for farmers to settle down and intensify farming efforts; most important are access to markets for produce, improved education, health services, and technical inputs. Rises in land values along good roads also promote stability of settlement and land improvement. Where the GOB has built major highways and adequate all-weather feeder roads, population has increased and cash crop production has risen markedly during the last ten years (as in Cayo, Orange Walk, and Corozal districts). Where roads remain inadequate, and passable only during the dry season, population remains dispersed and at subsistence level. The Belizean agricultural population is very small and thinly scattered. The high cost of providing

20

services to scattered rural settlements has been prohibitive. From a long-term land use planning perspective, the Government should pursue a policy which encourages more intensive use of areas already settled, rather than opening up new marginal lands to slash-and-burn agriculture. The improvement of the existing rural road system will be a crucial step in this development.

IV. PROJECT AMENDMENT DESCRIPTION

A. Goal and Purpose:

The goal of the Project is increase agricultural production in Belize by improving farm-to-market access. The purpose of the Project is to further strengthen and institutionalize the capability of the MOW to maintain and protect Rural Access Roads and Bridges Project.

B. Amendment Outputs and Inputs:

The following are outputs for Phase II of the Project:

1. Six district level gravel road maintenance units created, equipped and staffed
2. Central and district equipment repair shop personnel, equipment and capabilities upgraded
3. Capability to maintain up to one thousand miles of gravel access roads annually
4. Two hundred fifty miles of gravel access roads rebuilt by the already established road rehabilitation units
5. Capability to rehabilitate up to 100 miles of gravel access roads annually

There are five major Phase II outputs. The first involves the development at the district level of an improved ability to manage and conduct routine maintenance operations on the gravel roads which comprise about 80 percent of Belize's road system. These maintenance operations, conducted and managed by MOW's six district maintenance facilities, are quite distinct from the maintenance operations required for the country's roughly 300 miles of macadam roads. Different equipment, personnel skills and materials are required. The nature of gravel road maintenance lends itself to the creation of discrete units with

their own equipment, personnel and programs. A.I.D. financing will provide new construction equipment and spare parts to complement the existing equipment inventory, part of which was furnished under Phase I, and part of which is comprised of old, worn-out British equipment. Technical assistance at the district maintenance unit level will include one road maintenance management engineer advisor, short-term training programs, and some participant training.

In order to maintain and repair the heavy equipment utilized by the gravel road maintenance units, shop facilities must be available at the district level and supported in turn by a central repair facility. Such shops are presently in existence and have been strengthened by Phase I activities. Phase II financing will provide additional shop equipment and tools and much-needed rehabilitation of the shop buildings at the district level and at the central facility in Belmopan. Repair shop personnel capacities will be upgraded by technical assistance inputs which include one equipment repair advisor and short-term training programs.

The third output seeks to establish in the MOW the managerial and financial systems necessary to support a gravel road maintenance capacity that can perform routine maintenance operations on about 1,000 miles of road annually. As noted above, A.I.D. financing will provide the necessary physical and personnel inputs to strengthen the MOW. In addition, the Phase II project will require certain undertakings by the GOB to provide necessary administrative and financial support. The first priority will be to assure that the roughly 200 miles of road rebuilt under Phase I are properly maintained. A second priority will be to rehabilitate an estimated 250 miles of road, and the third priority will be to routinely maintain approximately 615 miles of road which will not be rebuilt by the end of this project.

Upon completion of Phase I, approximately 200 miles of gravel road will have been rehabilitated by the two Road Rehabilitation Units which have been established, equipped and trained under this project. Phase II will continue to supply spare parts for the A.I.D.-financed equipment; however, the management and operation of the two units and the maintenance of their equipment will become the responsibility of the MOW. The two A.I.D.-financed advisors identified above will work with the Reconstruction Units as well as the Maintenance Units, but the intensive technical assistance inputs at the field

level of Phase I will no longer be required. Upon completion of Phase II the two Rehabilitation Units should be sufficiently institutionalized to proceed with rehabilitation operations on about 100 miles of gravel road annually.

The Following are inputs for Phase II of the Project:

1. Four man-years of technical assistance
2. Short-term training
3. Participant training
4. Road maintenance equipment and spare parts
5. Repair shop tools
6. Central and district equipment maintenance and repair shop improvements
7. Information and education campaign

The MOW has identified four areas where technical assistance inputs are considered critical:

- (a) Management development for middle and top MOW managers covering such areas as management by objectives, performance budgeting, cost control, project design, programming, evaluation techniques, personnel management, and the use of the computer as a management tool.
- (b) Equipment maintenance and repair training for personnel in the central workshop at Belmopan and in the six district workshops. This will cover specific maintenance and repair operating, maintenance program management, inventory control, workshop practices and management practices.
- (c) Computer applications. MOW believes that its computer facilities are not being utilized to capacity and is seeking expanded usage in such areas as accounting procedures, inventory control, road, bridge and culvert design and soil test analysis.
- (d) Bridge design and inspection. This will include training for soil test procedures using the rotary-drill rig included under Phase II and training of bridge inspectors.

These requirements will be best met by the provision of technical advisors, specific training and short courses conducted in country, and limited participant training. Therefore, the Project will finance the following related inputs:

(i) Management Engineer Advisor, two person-years. This advisor will have the MOW Chief Engineer as a counterpart and will work directly with the Head of the Roads Division, and the six District Inspectors of Works in order to upgrade general management techniques, coordinate training, advise on the implementation of the maintenance program and provide operational expertise in all aspects of gravel road maintenance. His role will be neither wholly advisory nor operational, but a combination of each. He should have the capacity to advise by doing, both in the central office and in the field. He will be expected to accompany the Chief Engineer on field inspections. This advisor will be an engineer with hands-on experience in all aspects of the management and operation of gravel road maintenance programs and that he have the capacity to instruct. Experience as a County Engineer would be desirable.

(ii) Equipment Specialist Advisor, two person-years. This advisor will work directly with the Superintendent of Equipment Maintenance at the Central Repair Facility in Belmopan and with the six Chief Mechanics at the district level in order to improve their management and workshop practices including warehousing and inventory control of spare parts, and provide hands-on expertise in the maintenance and repair of equipment. This advisor will have direct experience in his field at the foreman level and be a master mechanic, as well as have experience in both formal and on-the-job training.

(iii) Computer specialist approximately two person-months. This advisor will analyze the MOW computer system to ascertain software programs requirements in such areas as accounting, inventory control, technical design and soils test analysis that could improve MOW management and administration. The specialist will make recommendations, identify software programs, assist in procurement, and, very importantly, provide training and on-the-job instruction to MOW computer personnel.

(iv) Soils-test engineer for approximately one person-month. This advisor will work with the MOW team to be assigned to the new rotary drill rig. This individual presumably would be furnished by the company from whom the rig is purchased and be a part of that procurement.

(v) Short-term courses for top and middle-level MOW managers conducted by the Belize Institute of Management (BIM), a successful private training institution. These courses will be specifically tailored by BIM working in conjunction with the American Management Association to meet the kind of MOW requirements identified in (a) above. They will involve participatory seminars and workshops for groups of MOW personnel with similar management, administrative or operational duties.

(vi) Participant training. Certain MOW personnel will be identified for specific functional short-term participant training where it can be demonstrated that such training is more cost effective than in-country training. An already identified example of such training is bridge inspection. Courses providing appropriate training for this skill are conducted by State Highway Departments in the U.S. Other requirements include training in fuel injection, sleeve metering, welding and body work and electronic ignitions. The identification of participant trainees will be the responsibility of the MOW, assisted by the Management Engineer Advisor, and concurred to by the Mission.

General management and administration training for the Chief Engineer and the Senior Executive Engineer will also be financed by the Project. Specifically, each individual will receive approximately three months of training offshore. A number of institutions offer short, highly-specialized management training for mid-career senior executives. Selection and planning of this training will be undertaken by the Management Engineer Advisor, and concurred to by A.I.D.

(vii) Other training requirements and opportunities may be identified during the execution of the project and will be filled to the extent of budget availabilities.

The estimated cost of the several elements comprising project technical assistance and training is US\$1,500,000 and is carried to the financial plan as a line item.

25

C. Project Activities

1. General Overview

The Phase II Amendment will extend the existing project from January 1, 1988 to April 30, 1991. The Phase II goal remains the same as that of Phase I. The Phase II purpose of strengthening the road maintenance capabilities of the MOW also remains essentially the same; however, it has been slightly sharpened to embrace the target of institutionalizing a national road maintenance program. To achieve this, the Government's commitment to the objective of reasonably maintained roads needs to be strengthened, prioritized, and evidenced by the allocation of adequate budgetary resources. Project covenants and conditions will focus on these requirements.

It should be noted that the reconstruction efforts which largely comprised Phase I and the maintenance efforts planned for Phase II are directly related, utilize the same personnel, skills and similar equipment, and are both essential to achieve the objective of improved access. Over 50 percent of the gravel roads in Belize have deteriorated to the point where routine maintenance efforts are no longer effective until comprehensive reconstruction or rehabilitation has been undertaken. This can involve total reconstruction of drainage and culverting, reshaping the road profile and resurfacing. Once this has been accomplished a road should be able to be kept in prime condition by routine grading and filling operations for about 5 years, until heavy maintenance or rehabilitation is again required.

2. Road Maintenance Units (RMU)

A national program for the maintenance of roads was developed by the MOW under a 1982 IBRD loan. This program has been updated each year and is currently used as the main planning and programming tool for road maintenance. A detailed review of this program identified several problem areas which have hampered the MOW in carrying out routine maintenance activities: aging equipment, lack of spare parts and tires, unsuitable equipment, insufficient funds and the diversion of equipment to activities other than road maintenance. This project will address these areas.

RMU will be created, staffed and equipped in each of the six districts. In aggregate, they will have the capacity to maintain to reasonable all-weather access standards 1,000 miles

of gravel road annually. Phase II financing will provide most of the equipment for these units together with a three-year supply of spare parts and tires. Equipment not provided under this project (tankers and roller) will be furnished from the MOW fleet and dedicated to the RMU.

Each of the six RMUs will have the following equipment fleet:

- 2 - Graders, Caterpillar 120G or equivalent
- 4 - Dump trucks, Ford 8000
- 1 - Loader, Caterpillar 930 or equivalent
- 1 - Loader/backhoe, Caterpillar Mod. 416
- 1 - Pick-up truck, Ford F-150
- 1 - Flatbed stake truck, Ford 350
- 1 - Bulldozer, Caterpillar D-7-G or equivalent
- 1 - Water tanker
- 1 - Fuel Tanker
- 1 - Roller

As in the case of the Road Rehabilitation Units, described below, the services of low bed trailers and prime movers will be available as needed from the MOW equipment yard.

Road crews for the six RMUs will each require roughly 20 MOW personnel with similar skills and experience required for rehabilitation work. Such crews will be assembled at the district level from the pool of personnel trained under Phase I.

3. Maintenance Planning and Budgeting

The Office of Planning and Budget in the Roads Division is staffed, trained and equipped to provide necessary planning and financial support for Phase II and for ongoing MOW maintenance operations. It has been the recipient of considerable donor assistance. Under IBRD-financing 48 man-months of advisory services were provided over a two and one-half year period to design and implement a road maintenance plan. This planning work, ranging from operational manuals to computer programs, is now in operation. Under Phase I, three years of management advisory services were provided to further develop and implement planning.

Another important Phase I planning input was two man years of technical assistance to create and implement a rural road selection program that would permit the identification and prioritization of road segments for rehabilitation based on such key factors as physical deterioration and economic and social impact. Economic base-line data were also established which will be of direct use in evaluating this project and in future maintenance planning.

Phase II financing includes a small amount for additional computer software and training to enhance planning capabilities.

4. Road Rehabilitation Units (RRU)

The two RRUs created, equipped, staffed and trained under Phase I will continue operations under MOW control. These units will have a target of rehabilitating 250 miles of gravel road during the three-year Project Amendment and 100 miles annually thereafter. Phase II financing will provide a three year supply of spare parts and tires.

Each of the two RRUs currently has the following equipment inventory:

- 2 - Graders, Caterpillar 130G
- 1 - Bulldozer, Caterpillar D7G
- 1 - Front-end loader, Caterpillar 930
- 4 - Dump trucks, Ford 8000 with Caterpillar 3208 engine
- 1 - Pick-up truck, Ford F-150 (six cylinder supercab)
- 1 - Fuel tanker (2,000 gal.)
- 1 - Water tanker (2,000 gal.)
- 1 - Roller, 13 wheel rubber tired
- 4 - Water and fuel trailer (700 gal.)

Virtually all of this equipment was furnished under Phase I, USG excess property, or from the MOW inventory. The services of low bed trailers and prime movers will be available as needed from the MOW equipment yard. The road crew for each unit consists of about 20 MOW personnel:

- 1 - Supervisor
- 5 - Equipment operators
- 4 - Truck drivers
- 2 - Tanker drivers
- 1 - Mechanic
- 7 - Alternate personnel, watchmen and workmen

While the RRU Units work in a given district, equipment is deployed and operated and maintained by MOW personnel from that district. Thus, by early 1988 road crews in each of the six districts should have received over 9000 person-hours of on-the-job training in equipment operation and rehabilitation from the US Road Specialists.

5. Bridge Installation

Under Phase I, 103 bridge sets (excess property) was acquired and transported from Germany to Belize utilizing DA Grant Funds provided in Amendment Number Two to the project. Amendment Number Two also budgetted \$3,000,000 from Host Country Contribution for Bridge Construction costs. To date, of the \$3,000,000 approximately \$1,500,000 has been allocated from Local Currency generated from the Economic Stabilization Fund Project No. 505-0012 to bridge construction. This \$1,500,000 has provided financing for ten crossings.

As at June 30, 1987 the status of the ten crossings are as follows:

<u>Crossing</u>	<u>Committed</u>	<u>Status</u>
1. Rancho Dolores	MOW BZ.\$392,393.14	Under Construction
2. Bermudian Landing	HLC Engineering BZ.\$718,131.08	Under Construction
3. Lemonal Bridge	Henry Williams BZ.\$654,510.35	Under Construction
4. Sebastian Bridge	MOW BZ.\$554,912.79	Completed
5. Santa Familia	Mennoe Loewen BZ.\$41,957.48	Completed
6. Juan Chun	Merton Engineering	Under Construction
7. Crique Jute	Merton Engineering	Under Construction
8. Rio Blanco	Merton Engineering BZ.\$438,987.20	Under Construction
9. Mullins river	MOW/US Corps of Eng. BZ.\$100,000	Completed
10. Big Creek	MOW BZ.\$118,439.00	Completed

Total funds committed amount to BZ.\$3,019,331.01 or U.S. \$1,509,665.51 equivalent.

The MOW estimates that by the "Project Assistance Completion Date (PACD) of December 31, 1987" for Phase I, six crossings will be completed leaving four under construction and to be completed during Phase II, possibly by mid-1988. Site location has been established and final engineering design completed on eleven more crossings.

In summary, the Bridges Division has the necessary engineering design and supervisory capabilities to handle this type of heavy construction and has demonstrated its abilities. Construction and installation under Phase II will be carried out by private contractors who are prequalified and have demonstrated their competence. The role of the Bridges Division will be in the design and supervision of the additional crossings and the maintenance and repair of all bridges.

The MOW Soil and Materials Laboratory is considered to be well equipped and staffed and has received direct support from the IBRD. Phase II financing will provide a soils test drilling rig and related training in drilling operations and soil-test methodology.

6. Central and District Repair Shop Improvements

While the central and district workshops have received considerable technical and commodity assistance, as noted in Section III, they still do not have adequate physical facilities to perform their function. For example, several of the district shops lack electric power, several others have dirt floors, storage facilities are neither adequate nor secure, and the compounds require fencing. The central workshop building is quite adequate, but requires reappportioning and rehabilitating the storeroom, toolroom, machine shop, and office, improving security and upgrading specialized facilities. The improvements outlined below will substantially assist in upgrading maintenance and repair work.

Improvements to the central workshop in Belmopan (U.S. Dollar 000 equivalent):

Relocate storeroom	\$42.5
New tool room, extend injector repair room	10.0
Extend office	10.0
New electrician shop	5.0
Rehabilitate compound	17.5
Relocate machine shop	10.0
Security fencing	7.5
Sub-total	<u>\$102.5</u>

District workshop improvements:

Relocate workshops in -	
Belize	25.0
Cayo	25.0
Corozal	25.0
Orange Walk	25.0
Improve workshops (electric power, shelving, benches, floors, communications, etc.):	
Toledo	12.5
Stann Creek	5.0
Security fencing for all shops	30.0
Rehabilitate compounds for all shops	<u>25.0</u>
Sub-total	\$172.5
Contingency	<u>25.0</u>
TOTAL	<u>\$300.0</u>

Design and construction of all work will be the responsibility of the MOW except for the provision of electric service and communications which will be contracted to the Belize Electricity Board and the Belize Telecommunication Authority, respectively.

V. FINANCIAL PLAN, COST ESTIMATES AND PAYMENT VERIFICATION

A comprehensive financial plan for the entire project is presented in Table 5.

The Total Cost of the Project (Phases I and II) will be U.S.\$18,550,000 of which U.S.\$7,850,000 will be an AID Grant, U.S.\$4,150,000 will be an AID Loan, U.S.\$3,034,000 will be host country contribution in local currency generated from ESF, and the remaining U.S.\$3,516,000 will be Host Country in-kind contribution. The Host Country Local Currency and In-Kind Contribution total U.S.\$6,550,000 represent 35 percent of total project costs. The Project Amendment will provide a U.S.\$1,700,000 Grant and a U.S.\$4,150,000 Loan.

Table 6. presents the Summary Financial Plan for the Project Amendment.

24

Table 5. Illustrative Financial Plan For Total Project

	PHASE I		PHASE II		PROJECT TOTAL	
	AID FX	HOST LC	AID FX	HOST LC	AID FX	HOST LC
Technical Assistance and Training	1,840,201	0	1,500,000	0	3,340,201	0
Equipment	2,481,896	0	2,346,000	0	4,827,896	0
Spare Parts	607,310	0	500,000	0	1,107,310	0
Fuel and Lubricants	0	400,000	0	800,000	0	1,200,000
Shop Tools	198,900	0	75,000	0	273,900	0
Shop Improvements	0	0	300,000	0	300,000	0
Tires	0	0	450,000	0	450,000	0
Shipping and Transport	472,958	200,000	0	0	472,958	200,000
Local Labor Costs	0	850,000	0	1,000,000	0	1,850,000
Construction Materials	286,534	0	0	50,000	286,534	50,000
Contract Construction Costs (Bridges)	0	3,000,000	0	0	0	3,000,000
Administrative Expenses	155,563	0	90,000	0	245,563	0
Evaluation/Audit	0	0	50,000	0	50,000	0
Contingency	76,117	47,000	500,000	120,000	576,117	167,000
Inflation	30,521	33,000	39,000	50,000	69,521	83,000
Total	<u>6,150,000</u>	<u>4,530,000</u>	<u>5,850,000</u>	<u>2,020,000</u>	<u>12,000,000</u>	<u>6,550,000</u>

10

TABLE 6: Financial Plan for Project Amendment

<u>INPUTS</u>	<u>AID FX</u> <u>US\$000</u>	<u>HOST LC</u> <u>US\$000</u>	<u>TOTAL</u> <u>US\$000</u>
Technical Asst. and Training	* 1,500	---	1,500
Equipment	2,346	---	2,346
Spare Parts	500	---	500
Fuel and Lubricants	---	800	800
Shop Tools	75	---	75
Shop Improvements	300	---	300
Tires	450	---	450
Shipping and Transport	---	---	---
Local labor Costs	---	1,000	1,000
Construction Materials	---	50	50
Contract Construction Costs	---	---	---
Administrative Expenses	* 90	---	90
Evaluation/Audit	* 50	---	50
Contingency	* 500	120	620
Inflation	39	50	89
Total	5,850	2,020	7,870

* These line items will be wholly grant-financed, except for contingencies, which will be \$60,000 in Grant and \$440,000 in Loans. All other line items will be loan-financed.

13

The largest line item in the Summary Financial Plan for the Project amendment is Equipment representing 30 percent of total project costs. The second largest line item is Technical Assistance which accounts for 19 percent of total project costs. Host Country contribution accounts for 26 percent of the total cost of the amendment and of the host country contribution, local labor costs and fuel and lubricants account for 50 percent and 40 percent respectively. Funds totalling U.S.\$50,000 have been budgetted for evaluations and audit. Finally U.S.\$500,000 of AID FX and U.S.\$ 120,000 of host Country Contribution has been budgetted for Contingencies. The estimated Life of the Project (LOP) is three and a half years from FY 88 to FY 91. Tentative Schedule for obligation of AID funding for the project amendment is as follows:

<u>Fiscal Year</u>	<u>Grant</u> US\$000	<u>Loan</u> US\$000	<u>Total</u> US\$000
1987	---	2,140	2,140
1988	700	600	1,300
1989	500	700	1,200
1990	<u>500</u>	<u>710</u>	<u>1,210</u>
TOTAL	<u>\$1,700</u>	<u>\$4,150</u>	<u>\$5,850</u>

Annex IV. contains the detailed illustrative budget to support the Technical Assistance and Training line item of the above Summary Financial Plan for the Project Amendment. The Technical Analysis, below contains an illustrative list of equipment to be acquired, including estimated costs.

Preferred methods of payment contained in the Payment Verification

Policy Statement will be used, as outlined in the table below:

<u>Assistance</u>	<u>Implementation</u>	<u>Payment</u>	<u>Amount</u> <u>US\$000</u>
TA and Training	Aid Direct Contract US Firm	Direct Payment	1,500
Equipment	Host Country Contract	Direct L/Com w/Supp.	2,346
Spare Parts	Host Country Contract	(1) Direct L/Com w/ PSA (2) Bank L/Com w/Supp	500
Shop Tools	Host Country Contract	(1) Direct L/Com w/ PSA (2) Bank L/Com w/Supp.	75
Shop Improvements	Host Country Contract	Direct Reimbursement	300
Tires	Host Country Contract	Direct L/Com w/Supp.	450
Evaluation/Audit	AID Direct Contract US Firm	Direct Payment	50
Admin. Expenses	AID Personal Services Contract		90
Cont/Inflation			<u>539</u>
Total			<u>US\$5,850</u>

All goods and services procured under the Project Amendment will be competed to the extent possible. The Technical Assistance and Training Contract will be awarded to a US Firm using full and open competition procedures and according to AID regulations. Justification for proprietary procurement of the Project equipment will be provided and contracts, purchase orders, etc. for other commodities provided under the Project

35

will be awarded using competitive procedures and according to AID regulations. To ensure sound financial management and procurement practices, USAID will utilize the services of an Certified Public Accounting firm to conduct audits through an IQC arrangement.

VI. IMPLEMENTATION PLAN

A. Revised Implementation Plan

The following time schedule identifies the major steps in Phase II implementation.

-- Authorization	September 1987
-- Obligation	September 1987
-- Prepare and issue RFP	November 1987
-- Project Manager on board	November 1987
-- Phase I PACD	December 1987
-- Prepare and issue IFBs for equipment	February 1988
-- Award equipment contracts	March 1988
-- Two advisors on board	March 1988
-- Equipment delivery begins	May 1988
-- Equipment delivery complete	July 1988
-- Evaluation I and audit	July 1989
-- Evaluation II	October 1990
-- PACD	April 1991

In order for Phase II financing and activities to follow Phase I without disruption, it is important that the A.I.D. Project Manager be on-board as early as possible. His presence will be critical in devising implementation arrangements and in assisting the GOB and the MOW in the multitude of administrative steps necessary for the loan element of the project to become operational.

The proposed Implementation Schedule only projects five months from issuance of an RFP to the award of contract. It is recognized that this extremely tight timing will require careful attention by the Mission. While it is hoped that the Contractor will be on board in time to directly assist in equipment procurement, this may not be possible. If not, the Mission will assist the MOW to commence equipment procurement by A.I.D. TDY assistance. Assuming the proposed schedule can be maintained, the key A.I.D.-financed inputs should be in place by about April 1988.

B. Procurement Plan

A detailed and comprehensive procurement plan will be developed prior to the start of any procurement. The procurement plan will be developed with the assistance of the Regional Commodity Management Officer based in ROCAP/Guatemala. The following is a very general procurement plan that sets the parameters for the detailed and comprehensive plan to follow.

1. Technical Assistance

The Mission proposes to execute a AID Direct Contract with a US Firm for the Technical Assistance and Training components which would utilize the Grant Funds in the Project. The Grant funds will be obligated within a Project Grant and Loan Agreement with the Government of Belize. In conformance with United States Government Policy that a reasonable share of Federal Government-financed contracts be awarded to small business firms and to small economically and socially disadvantaged the Mission will work with the Office of Small and Disadvantaged Business Utilization in determining if a set aside program is appropriate under this Project. If a set aside program is not appropriate the Mission will follow full and open competition procedures in accordance with FAR Part 15 and AIDAR 715.

2. Commodities

All equipment and Commodities procured under the project will be procured with AID loan funds. The Mission proposes to use Host Country Contracting to procure the commodities. Host Country Contracting was utilized for Equipment and Commodity procurement in Phase I and the MOW has demonstrated its capability to contract in conformance with AID Handbook 11 guidance. The services of a Procurement Services Agent will be used by the MOW for procurement that involves numerous, diverse commodities. The Procurement Services Agent will be selected using Handbook 11, Chapter 1 procedures.

C. Monitoring Plan

Monitoring the physical accomplishments of the Road Maintenance and Rehabilitation Units will be a key responsibility of MOW management, and will be undertaken as part of the already operating computerized road maintenance program. This program

not only schedules routine maintenance operations by road segment, but provides necessary cost data and a means of checking and evaluating progress.

The monthly reporting requirements to be imposed on the MOW will be designed to disclose:

- 1) Mileage, level of maintenance, and cost of road segments maintained and rehabilitated by each District Road Maintenance and Rehabilitation Unit.
- 2) Degree of compliance with scheduled road maintenance operations for the preceding month.
- 3) Scheduled road maintenance operations for the coming month.
- 4) Equipment fleet status for each Unit.
- 5) Spare part and tire inventories and usage, including end user verification.
- 6) Training conducted.
- 7) Amount and cost of central and district workshop operations.
- 8) Equipment diversion.
- 9) Status of bridge abutment construction by bridge.
- 10) Status of workshop improvements by shop.
- 11) Receiving Reports for all commodities procured with project funds.
- 12) Report on Host Country Project expenditure including In-kind expenditures.

A substantial amount of these reporting requirements will derive from the computer program and other MOW records. It will be the responsibility of the Management Engineer and Equipment Specialist to work with the MOW to develop and coordinate the required reporting.

The focal point for A.I.D. monitoring will be the A.I.D. Project Manager. He will be expected to visit each district-level maintenance facility once a month on a regular basis and keep in close contact and communication with all elements of the project.

D. Evaluation Plan

As noted in Section IIB, the Phase I project has had two evaluations and was included in one audit. Because of the

rather extensive review of project progress, management and accounting procedures in connection with the recent audit, and the review of project implementation conducted by the Mission in connection with this Phase II amendment, the Mission does not feel that an additional evaluation is needed at this time, even though Phase I is drawing to a close. A Project Activity Completion Report for Phase I will be prepared in early 1988. Two evaluations are planned for Phase II. The first is scheduled 15 months after April 1988, the time when the key A.I.D.-financed inputs should be in country. A second evaluation is scheduled 15 months later, in October 1990, six months before the PACD.

In view of the nature of this project, the fact that the MOW will have major operating responsibility, and the substantial requirement for extensive and detailed monthly reporting, the Mission feels that one major mid-project audit will be sufficient. Indeed, the structure of Phase II requires a continuing review and monitoring effort to provide reasonable project administration.

The key factors identified for examination during the April 1988 evaluation are --

- 1) Quality of operation and level of performance of the eight Road Maintenance and Rehabilitation Units
- 2) Performance and capabilities of the central and six district workshops
- 3) MOW management practices and capabilities
- 4) GOB budget allocations to the MOW
- 5) Level of GOB and national support to the objective of secondary road maintenance
- 6) Degree of diversion of A.I.D.-financed equipment from scheduled maintenance activities
- 7) Degree to which MOW secondary road maintenance capabilities have been institutionalized

VII. PROJECT ANALYSIS

A. Technical

1. Direction of Rehabilitation and Maintenance

The MOW administrative structure is outlined under Section II above. All maintenance and reconstruction activities financed under Phase II will be under the operational control and management of the Chief Engineer of the MOW. During Phase I the Mission has had the opportunity to assess the technical and managerial capacities of the MOW and concludes they are adequate to assume direction of Phase II. The Reconstruction Unit presently operating in the Orange Walk and Corozal Districts are under MOW control and management, with the U.S. Technicians acting in more of an advisory and less of an operational capacity. By the December 31, 1987 PACD, responsibility for the effective utilization and maintenance of all in-country A.I.D.-financed equipment will have passed to the MOW. The new equipment, spares, tires and tools, to be procured under Phase II will be placed under MOW control with AID monitoring. A system for handling of spare parts and tires, will be developed and agreed to in Project Implementation Letters prior to the procurement of new and the turnover of existing spare parts and tires to the MOW. As discussed more fully below, Phase II financing will provide some technical and management support in the form of a management engineer and an equipment maintenance and repair specialist.

In addition, the MOW will have responsibility for all aspects of design engineering including field surveys, horizontal and vertical alignments, establishment of grade lines, designation elevation and location of culverts, drainage structures and bridges. It will also provide construction supervision of work undertaken by private contractors in the bridge program.

2. A.I.D.-Financed Equipment

The Project Design committee Engineer has reviewed condition reports on existing MOW equipment and is satisfied that large scale replacement is necessary. A large amount of existing equipment is antiquated British machinery in poor condition and without spare parts. The MOW does not feel it is economical to attempt repairs, and the project design engineer concurs.

The following equipment has been identified for procurement under Phase II:

		<u>Cost (\$000)</u>	<u>Total</u>
18	Dump trucks, Ford 8000 with 3208 Caterpillar engine	52	936
6	Flatbed stake trucks, Ford F350	20	120
6	Loader/backhoes, Caterpillar Model 416	50	300
3	Loader, Caterpillar 930	85	255
3	Bulldozers, Caterpillar D-7-G	190	570
1	Lowbed trailer (35 ton) with prime mover	150	150
1	Soil drill rig trailer mounted	15	<u>15</u>
			<u>2,346</u>

*The above costs are estimated CIF Belize.

This equipment list specifies the manufacturer for five of the seven categories of equipment for two reasons. First the MOW, which owns major equipment from almost 20 different manufacturers (mostly British) is standardizing its fleet on Ford and Caterpillar products. Secondly, Ford and Caterpillar are the only U.S. manufacturers of the type of road building equipment required by the MOW that have distributors and service facilities in Belize. Subsequent to project amendment authorization a proprietary procurement waiver for the five categories of items identified above will be requested. The aggregate value of the waiver is \$2.181 million.

3. Spare Parts, Tires and Tools

Spare parts for the new equipment to be procured under Phase II have been set at approximately \$300,000 based on prior experience. Equipment procured under Phase I financing is now three years old and will require major maintenance and overhaul during the next three years. Spare part requirements for Phase I equipment overhaul and maintenance are estimated at \$200,000. Thus, line item total of \$500,000 for spare parts is included in the financial plan. (See Annex III for additional detail.)

Tire requirements for all A.I.D.-financed equipment in the eight units are estimated at \$450,000 over the project life, and this line item is incorporated into the financial plan. (See Annex III.)

The MOW has identified a number of hydraulic, air-impact and welding tools needed to provide an adequate level of equipment service (routine maintenance and minor repair at the district level; major repair and overhaul at the central shop). The tools, together with those already available at the MOW workshops, will provide the basic and necessary tool inventory to service the complete MOW equipment fleet. During the Project Amendment Design, tool requirements were reviewed and costed as follows:

Hydraulic tools	\$30,000
Air-impact tools	42,000
Welding and body work tools	<u>3,000</u>
	<u>\$75,000</u>

A line item of \$75,000 is included in the financial plan.

4. Technical Feasibility

Based upon the data supplied by the MOW, the experience gained by MOW and USAID during Phase I, and the planning underlying this Amendment, the Project Design Committee Engineer, certifies that (a) adequate engineering and financial planning necessary to carry out the assistance has been met and (b) a reasonably firm estimate of the cost to the U.S. for this assistance has been made. Section 611(a)(1) of the FAA has been met. (Annex V State Cable 273067)

B. Financial Analysis

AID Financing:

A comprehensive financial plan for AID financing for the entire project including new Phase II financing is presented overleaf in Table 7.

TABLE 7: Financial Plan For AID Financing For Total Project
(\$000)

	<u>Phase I Project Incl. Amendments</u>	<u>Phase II Project</u>	<u>Total A.I.D. Financing</u>
Technical assistance and Training	1,840	1,500	3,340
Equipment	2,482	2,346	4,828
Spare parts	431	500	931
Tires	176	450	626
Tools	199	75	274
Construction materials	287	--	287
Shop improvements	--	300	300
Shipping and transport	473	--	473
Administrative expenses	156	90	246
Evaluation/Audit	--	50	50
Contingency and inflation	<u>106</u>	<u>539</u>	<u>645</u>
Total	<u>6,150</u>	<u>5,850</u>	<u>12,000</u>

The entirety of A.I.D. financing for Phase I as amended has been by grant. Phase II financing will be a combination of grant and loan obligations as reflected in the Financial Plan Table above. Grant funds will be used for technical assistance and training, administrative expenses, evaluation and audit, while Loan funds will finance equipment, spare parts, tires, tools, ship improvements and most of the contingency line item.

GOB Financing:

In addition to AID financing of U.S.\$12,000,000, the Government of Belize is financing U.S.\$6,550,000 equivalent through the Economic Stabilization Fund Project No.505-0012 Local Currency Generation and In-Kind Contributions. The Local Currency generated in the ESF project was programmed in the following manner as specified in the Project Agreement dated September 30, 1983:

TABLE 8: ESF Local Currency Programming-Phase I:

	<u>U.S. Dollar</u>
Fuel and Lubricants	\$400,000
Shipping and Transport	\$470,140
Contingency	\$129,460
Inflation	<u>\$35,400</u>
Total	<u>US\$1,035,000</u>

43

Amendments No. 2 and No. 3 provided AID FX financing for the procurement and shipping of the 103 bridge sets and the MOW was to finance to the level of U.S.\$3,000,000 the bridge construction costs outside of ESF local currencies. However, the MOW was not able to secure the finances and as specified in the Memorandum of Understanding on the use of ESF local currencies and confirmed in Implementation Letter No. 10 of Project No. 505-0012, U.S.\$1,500,000 was allocated from ESF generated local currency specifically for the construction of project bridges. Subsequently, Amendment No. 2 to the Memorandum of Understanding allocated a total of U.S.\$3,034,000 to Rural Access Roads and Bridges up to March 30, 1988. As of June 30, 1987 the MOW had committed the U.S.\$1,500,000 allocated to bridge construction. Therefore with U.S.\$1,500,000 committed for bridges and U.S.\$1,035,000 allocated for other project local currency costs (fuel, lubricants, shipping, transport, contingency, and inflation), there remains US\$ 499,000 out of the total U.S.\$3,034,000 which will be allocated in Phase II for fuel and lubricants to support project equipment.

Salaries and wages, fuel and lubricants, and other equipment and project support costs outside of this "Assistance" will be met from the MOW's recurrent budget.

Loan financing in 1987 will consist entirely of a reobligation of deobligation of Project 505-0005, Loan 505-K-002. Total A.I.D. financing for the entire project will be \$7.850 million grant and \$4.150 million loan. The loan component of the project will be extended to the GOB over 25 years with a 10-year grace period. Interest will be charged at 2 percent during the first five years and, 3 percent during the second five-year period and 5 percent during the remaining fifteen years. Thus, total project costs are \$18.550 million with A.I.D. contributing 65 percent of project costs and the GOB 35 percent.

The incremental nature of Phase II funding will require that procurement arrangements for equipment, spare parts, tires, and tools be carefully structured in order to avoid a time-consuming, long series of procurement actions. The fact that much of the equipment and related spares will be procured through local Caterpillar and Ford dealers will tend to reduce this problem.

C. Economic Analysis

The economic analysis contained in the original Phase I Project Paper projected benefits derived from estimated reductions in road maintenance. Ministry of Agriculture technicians estimate that Belizean farmers will, where necessary, transport agricultural inputs and outputs an average of one mile to and from the existing road network which provides some form of vehicular transport. Given the Northern road system and the greater number of farms, it is probable that the service areas of a given road may be less than one mile, and in the South probably more. Thus, looking at national averages, it appears that any given mile of road would have a service area extending roughly a mile on either side of the road containing about 42 farms.

There is general agreement that the availability of market access is one of the major variables influencing a farmer's decision to produce. Anticipated product price, cost of inputs, credit availability, and the state of the export market are other major variables for the Belizean farmer whose production is heavily concentrated in sugar, citrus, bananas and cocoa for the export market and corn, rice and red beans for domestic consumption. The exact economic relationship between the availability and quality of market access (which also includes the availability and cost of vehicular transport) and acreage planted is difficult to measure, varies by crop and locality, but nonetheless exists.

In the opinion of the USAID and GOB agricultural advisors, improved all-weather farm-to-market access on an average mile of secondary road could reasonably be expected to attract one or two additional farm families into the service area of the road which now contains an average of 42 farms. If this happens, average annual agricultural production increases of \$2,340 to \$4,680 might be anticipated. These increases would be attributable solely to increases in the number of farm families.

Calculating total project costs of \$18.550 million (A.I.D. \$12 million, GOB \$6.55 million) spread over a six year period against annual benefits of \$2,492,100 (production increase of \$2340 per mile for each of the 1,065 miles of improved farm-to-market access) accruing from the third year of the project, results in an IRR of 13.2 percent on a 15-year time frame. Estimating the number of new farms at one and one-half per mile of improved farm-to-market access would result in production increases totaling \$3,735,000 per mile and yielding an IRR of 24.9 percent. (See Table 9).

Table 9: IRR for Phase II

I. ONE FARM PER MILE INCREASE					II. ONE AND ONE HALF FARM PER MILE INCREASE			
YEARS	COSTS	BENEFITS	NET BENEFITS		YEARS	COSTS	BENEFITS	NET BENEFITS
1	\$3.00		(\$3.00)	+	1	\$3.00		(\$3.00)
2	\$3.00		(\$3.00)	+	2	\$3.00		(\$3.00)
3	\$4.00	\$2.49	(\$1.51)	+	3	\$4.00	\$3.74	(\$0.26)
4	\$3.00	\$2.49	(\$0.51)	+	4	\$3.00	\$3.74	\$0.74
5	\$3.00	\$2.49	(\$0.51)	+	5	\$3.00	\$3.74	\$0.74
6	\$2.00	\$2.49	(\$0.11)	+	6	\$2.00	\$3.74	\$1.14
7		\$2.49	\$2.49	+	7		\$3.74	\$3.74
8		\$2.49	\$2.49	+	8		\$3.74	\$3.74
9		\$2.49	\$2.49	+	9		\$3.74	\$3.74
10		\$2.49	\$2.49	+	10		\$3.74	\$3.74
11		\$2.49	\$2.49	+	11		\$3.74	\$3.74
12		\$2.49	\$2.49	+	12		\$3.74	\$3.74
13		\$2.49	\$2.49	+	13		\$3.74	\$3.74
14		\$2.49	\$2.49	+	14		\$3.74	\$3.74
15		\$2.49	\$2.49	+	15		\$3.74	\$3.74
16		\$2.49	\$2.49	+	16		\$3.74	\$3.74
17		\$2.49	\$2.49	+	17		\$3.74	\$3.74
=====				+	=====			
TOTAL	\$18.00	\$37.35	\$19.75	+	TOTAL	\$18.00	\$56.18	\$37.52
		IRR =	10.21%	+			IRR =	24.91%
		*****		+			*****	

46

These calculations ignore several other benefits that are likely to accrue from the project. Some agricultural production increases could reasonably be expected to derive from increases in acreage planted by the existing farmers in the road service area. For every one percent increase in agricultural production, annual benefits of \$257,000 would accrue. Another benefit results from reductions in vehicle operating costs. The Phase I project paper calculates these rather substantial benefits. Additional benefits could reasonably be expected from the larger number of miles of road being maintained as a result of the Phase II amendment. A final agricultural benefit might result from a shift from less intensive to more intensive agriculture (e.g., from rough pasture to crops) as a result of improved access. The impact from this kind of shift has not been estimated, but to the extent it occurred, the above estimates of production increases would appear conservative.

It seems reasonable to expect that this project would show an economic return well in excess of the opportunity costs of capital in Belize, estimated by the GOB at 12 percent.

D. Social Analysis

1. Analysis -- The Social Soundness Analysis presented in Section IV-D of the Phase I Project Paper, and slightly augmented by Amendment I to the Project Paper, is fully applicable to this Phase II Amendment. The social environment of the Phase II project (encompassing 80 percent of the road system of Belize) is essentially unchanged from 1983, and there are no new considerations interjected by the Phase II financing.

2. Information and Education -- The maintenance of gravel roads by any government is not in itself a terribly difficult technical task. But it absolutely requires annual financing, government commitment to do the job, and the recognition that it is a continuing job. This project is providing the financial support to permit the GOB to substantially upgrade the level of maintenance applied to its secondary road system, thereby improving access in the short-term. The question is whether the GOB will see fit to allocate the necessary resources to institutionalize a reasonable level of maintenance in the period following completion of this project.

As in most democratic countries, government budget allocations in Belize reflect the desires of the governed. If this significant project does not impress the government and the

citizenry of Belize with the agricultural and social benefits of an improved secondary road system, it is likely that the level of road maintenance after completion of the project will soon revert to its pre-project state.

In order to develop an increased public consciousness of road maintenance, the Phase II project will incorporate several approaches unusual for A.I.D. projects. First, all of the A.I.D.-financed equipment will be distinctively identified by color and/or markings in addition to the usual A.I.D. markings, making the equipment easy to identify by Government and citizens alike. If the equipment is diverted from its assigned task, it should be visibly apparent.

Secondly, funding will be made available to mount an education campaign to inform the public about road maintenance and to convey the message that improved secondary road access is everyone's problem. (Obviously, such an effort would not mention A.I.D.) There are presently two very impressive information and education campaigns which have caught the attention of Belizeans and foreigners alike. One is directed at the need for natural resource conservation and the other to "Buy Belize." Financing will be made available to employ a local public relations firm to produce such media items as press releases, posters, bumper stickers, etc., designed to heighten national awareness of the problem and the steps being taken to deal with it.

E. Administrative Analysis

Management and administration of the Phase I project was directly controlled by USAID/Belize. Seven advisors including a Project Manager and Deputy Project Manager were under personal service contracts (PSC) to USAID/Belize. These advisors had operational responsibilities for the conduct of the project (not merely advisory). This arrangement had two advantages. Seven advisors were put into the field at a relatively modest cost, and due to their operational roles, the project output of miles of road rehabilitated was satisfactory. One apparent disadvantage was that some training had to be traded for production. Another was that insufficient progress was made toward the institutionalization of road maintenance operations within the MOW. The Phase II Amendment seeks to deal with these two objectives: training and institutionalization.

18.

There is a trade-off between A.I.D. administration, on the one hand, and the objective of institutionalization on the other. Based on an assessment of MOW technical and managerial operating capabilities, the Mission has made a decision to transfer responsibility for Phase II to the MOW. Day-to-day operating responsibility will rest with the Chief Engineer of the MOW and be exercised through the organizational structure and by the individuals outlined and discussed in Section II-D.

Duties of the two Phase II advisors are described in Section VI-B1. It is noted that these people will be acting primarily in an advisory, training and reporting capacity although they will presume operational responsibilities.

Mission administration of Phase II will be exercised through a Project Manager to be employed by the Mission and financed under the project. This manager will have sufficient technical background and/or experience to be comfortable with the technical nature and problems of road maintenance. It is considered mandatory that he hold an engineering degree or significant experience in related areas. The A.I.D. Project Manager's responsibilities will extend to monitoring all aspects of project operations which will require that he visit each district at least once a month. Additionally, he will be responsible for assisting the MOW in all phases of A.I.D. project administration including preparation of specifications, procurement, contracting, satisfaction of conditions, enforcement of covenants, reporting, financial control, and evaluation.

Phase II financing will be provided to the MOW in the form of an A.I.D. loan to the GOB. It will be the responsibility of the MOW to manage and administer the loan in accordance with the usual A.I.D. requirements conveyed in a Project Agreement and subsequent Implementation Letters. While the MOW has had no experience with A.I.D. loan financing, it has successfully managed an IBRD loan/grant and has, in the Mission's view, the needed personnel skills and capacities to implement Phase II as planned.

F. Environmental Analysis

The Environmental Analysis presented in Section IV-E and Annex 5 of the Phase I Project Paper and slightly augmented by Amendment I to the Project Paper, is full, applicable to this

Phase II amendment. There is no change in the secondary road system being rehabilitated and maintained and no change in the manner in which these activities are being undertaken. Exactly the same considerations apply and the same safeguards will be applied.

VII. WAIVERS, CONDITIONS, PRECEDENT AND COVENANTS

A. Waivers

Upon the authorization of this Project USAID/Belize will request AID/W approval of procurement waivers as discussed below:

1. Equipment: The MOW has requested that certain of the equipment procured under Phase II be of specific manufacture, thereby requiring a proprietary procurement waiver. This equipment is as follows:

	<u>Cost</u> US\$000	<u>Total</u> US\$000
18 Dump trucks, Ford 8000 with 3208 Caterpillar engine	52	936
6 Flatbed stake trucks, Ford F350	20	120
6 Loader/backhoes, Caterpillar Model 416	50	300
3 Loader, Caterpillar 930	85	255
3 Bulldozers, Caterpillar D-7-G	190	<u>570</u>
		<u>2,181</u>

The waiver can be justified on the following grounds:

The MOW currently uses predominately Caterpillar construction equipment. Procurement of Caterpillar-brand heavy equipment will help the MOW in standardizing its fleet around Caterpillar, streamline its parts and tool supplies, and take advantage of mechanics' and operators' familiarity and experience with the brand.

Caterpillar is the only U.S.-manufactured heavy construction equipment with representation in Belize. The local dealer has an excellent repair and spare parts facility which is well stocked with an inventory of over U.S.\$200,000 in spare parts.

The GOB has begun to standardize its truck fleets around the U.S.-manufactured Ford Motor Company line of trucks. In addition to the MOW, the Ministry of Natural Resources and Ministry of Trade and Industry have, upon retirement of trucks of other manufacture, purchased Ford-brand equipment as replacements. The GOB has set this policy based on its experience with local costs, availability of parts and service, and its desire to reduce spare parts and specialized tool inventories to a minimum.

The local Ford dealer is the only U.S. manufacturer's representative to stock spare parts and provide maintenance and repair services.

The USAID will base its justification for a proprietary procurement waiver for Caterpillar and Ford equipment on the above factors.

2. Shipping: There is very limited ocean freight service to Belize from the U.S. on U.S.-registered bottoms or by U.S. shipping firms. One U.S. ship per week sails for Belize from West Palm Beach, offering neither convenient nor reasonable service. While one Miami-based shipping firm maintains a biweekly container schedule to Belize, it is incorporated in Grand Cayman.

Project procurement will not be made in such fashion that it will be feasible to hire an entire vessel for a single shipment.

Given these constraints, it will be necessary also to seek AID/W approval for a blanket certification of non-availability of U.S. flag vessels and a waiver to permit payment for shipment on vessels registered in A.I.D. Geographic Code 899 countries, subject to reexamination if additional U.S. flag vessel service becomes available at a later date.

B. Conditions, Precedent and Covenants

Conditions precedent to the disbursement of loan funds and new covenants relevant to Phase II acting are described in the Project Authorization, which is shown at the beginning of this paper.

Table 10: Tire and Tube Estimates-Phase I

Application Zone: Tires wear out normally but others fail prematurely due to rock cuts, rips, and non-repairable punctures.

Machine	Tire Life (hrs) (low end)	Hrs./Yr. (high end)	Tire Life (yrs)	Project Life	No. changes
1. Motor Grader	3000	3600	1.00	3	3.00
2. Loader	1000	2000	0.50	3	6.00
3. Gas Tractor	2000	3600	0.67	3	4.50
4. Loader Backhoe	2000	2000	1.00	3	3.00
5. Water Tanker	2000	1600	2.00	3	1.50
6. Fuel Tanker	2000	1600	2.00	3	1.50
7. Pickup Truck	2000	3600	0.67	3	4.50
8. Flat Bed Truck	2000	3600	0.67	3	4.50
9. Trailer	2000	1600	2.00	3	1.50

	No.	Tires/Veh.	Changes	Tires	Unit Cost	Est. Cost	Tubes	Unit Cost	Est. Cost	Total
1. Gas Tractor (F-8000)										
Maintenance Units (6)	24	10	4.5	1050	\$79.00	\$101,920.00	1050	\$8.00	\$8,400.00	\$110,320.00
Rehabilitation Units (2)	8	10	4.5	360	\$59.00	\$35,640.00	360	\$8.00	\$2,880.00	\$78,520.00
2. Road Graders (1200-Maint., 1300- Rehab)										
Maintenance Units (6)	12	6	3	216	\$222.00	\$43,632.00	216	\$17.50	\$3,780.00	\$47,412.00
Rehabilitation Units (2)	4	6	3	72	\$222.00	\$14,544.00	72	\$17.50	\$1,260.00	\$15,804.00
3. Loader/Backhoe (Cat 412)										
Maintenance Units (6)	6	2	3	36	\$114.00	\$4,116.00	36	\$16.54	\$595.44	\$4,711.44
		2	3	36	\$412.07	\$14,834.52	36	\$48.37	\$1,680.32	\$16,514.84
4. Pickup Truck (F-150)										
Maintenance Units (6)	6	4	4.5	108	\$61.44	\$6,655.72	108	\$4.50	\$486.00	\$7,141.72
Rehabilitation Units (2)	4	4	4.5	72	\$61.44	\$4,423.68	72	\$4.50	\$324.00	\$4,747.68
5. Flatbed Stake Truck (F-250)										
Maintenance Units (6)	6	4	4.5	108	\$80.00	\$8,640.00	108	\$6.00	\$648.00	\$9,288.00
6. Water Tanker (2000 gal)										
Maintenance Units (6)	6	6	1.5	54	\$59.00	\$3,186.00	54	\$8.00	\$432.00	\$3,618.00
Rehabilitation Units (2)	2	6	1.5	18	\$59.00	\$1,062.00	18	\$8.00	\$144.00	\$1,206.00
7. Fuel Tanker (2000 gal)										
Maintenance Units (6)	6	6	1.5	54	\$59.00	\$3,186.00	54	\$8.00	\$432.00	\$3,618.00
Rehabilitation Units (2)	2	6	1.5	18	\$59.00	\$1,062.00	18	\$8.00	\$144.00	\$1,206.00
8. Fuel and water Trailers (700 gal)										
Rehabilitation Units (2)	8	2	1.5	24	\$59.00	\$2,376.00	24	\$8.00	\$192.00	\$2,568.00
9. Front End Loader (Cat 920)										
Maintenance units (6)	6	4	6	144	\$205.00	\$43,920.00	144	\$28.00	\$4,032.00	\$47,952.00
Rehabilitation Units (2)	2	4	6	48	\$205.00	\$14,640.00	48	\$28.00	\$1,344.00	\$16,984.00
TOTAL FOR PROJECT LIFE (3 YEARS)										\$241,546.16
Shipping, Handling, Insurance (15%)										\$36,231.92
GRAND TOTAL										\$277,778.08

52

PROJECT DESIGN SUMMARY

LOGICAL FRAMEWORK

Life of Project
 From FY 83 to FY 91
 Total U.S. Funding \$12,000,000
 Date Prepared: 9/30/87

Project Title and Number : Rural Access Roads & Bridges Project (Phase II)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Program or Sector Goal:</u></p> <p>To increase agricultural production in Belize by improving farm-to-market access.</p>	<p><u>Measures of Goals Achievement:</u></p> <p>-Increased agricultural output in the service area of the gravel roads -Improve quality of life for the farm families served by the better maintained roads.</p>	<p>-National accounts data -Sampling techniques -Numbers of people actually receiving education and health services</p>	<p><u>Assumptions for achieving Goal targets:</u> Agricultural development continues to be a top priority of the GOB.</p>
<p><u>Project Purpose:</u></p> <p>To further strengthen and institutionalize the capability of the MOW to maintain and protect rural access roads and bridges.</p>	<p>-Annually increasing rural roads maintenance budgets. -Maintenance budgets adequate to finance target maintenance and rehabilitation programs -Adherence to scheduled maintenance programs. -Low diversion rate of equipment -Increased accessability on rural roads.</p>	<p>-MOW records -National Accounts -Site inspections -Visual verification -Cost analysis -Project reports</p>	<p>-GOB will appropriate necessary operating funds for labor, fuel and staff support. -MOW management will keep project equipment engaged in scheduled maintenance rehabilitation programs.</p>

65

PROJECT DESIGN SUMMARY

LOGICAL FRAMEWORK

Life of Project
 From FY 83 to FY 91
 Total U.S. Funding \$12,000,000
 Date Prepared: 9/30/87

Project Title and Number : Rural Access Roads & Bridges Project (Phase II)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<u>Outputs:</u>	<u>Magnitude of Outputs:</u>		<u>Assumptions for achieving outputs:</u>
1. Road Maintenance Units, created, equipped and staffed.	1. Each district will have one fully operational unit (6 units)	1. MOW records, site visits, Project reports	Ministry of Works is committed to maintaining wholly complete and fully operational units.
2. MOW capable of maintaining Rural Access gravel roads	2. Up to 1000 miles of rural access gravel roads maintained to all weather status annually.	2. Field trips, MOW Records ,Project reports	2. Ministry of Works is committed to fully supporting the maintenance units and will project equipment engaged in scheduled maintenance activities.
3. Rural Access Roads Rehabilitated	3. Up to 100 miles of Rural Access Roads rehabilitated annually by the RRU's	3. MOW Records, Project Reports, field inspections	3. Ministry of Works is fully committed to supporting this rehabilitation units and will keep project equipment engaged in scheduled rehabilitation activities.
4. Central Workshop in Belmopan and District workshop improved.	4. The Central Workshop and six district workshop fully functional with adequate work space, power, communications, security, etc.	4. Site Inspections, Project Reports.	4. Work is performed on a timely basis

PROJECT DESIGN SUMMARY

LOGICAL FRAMEWORK

Life of Project
 From FY 83 to FY 91
 Total U.S. Funding \$12,000,000
 Date Prepared: 9/30/87

Project Title and Number : Rural Access Roads & Bridges Project (Phase II)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<u>Inputs:</u>	<u>Implementation Target (Type & Quan.)</u>		<u>Assumptions f/providing inputs:</u>
-Technical assistance and training	1,500,000	Review of Project	Inputs are Provided in a timely manner, no anticipated delays in meeting CP's set forth in this Project Agreement Amendment Four.
-Equipment	2,346,000	Financial records,	
-Spare parts	500,000	Project reports, etc.	
-Fuel and Lubricants	800,000		
-Shop Tools	75,000		
-Shipping and Transport	-0-		
-Local Labor Costs	1,000,000		
-Construction Materials	50,000		
-Contract Construction Costs (Bridges)	-0-		
-Contingency	600,000		
-Inflation	89,000		
-Administrative Expenses	90,000		
-Evaluation/Audit	50,000		
-Shop Improvements	300,000		
-Tires	450,000		
Total	<u>7,870,000</u>		

5C(1) - COUNTRY CHECKLIST

Listed below are statutory criteria applicable to: (A) FAA funds generally; (B)(1) Development Assistance funds only; or (B)(2) the Economic Support Fund only.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

FY 1987 Continuing Resolution Sec. 526.

Has the President certified to the Congress that the government of the recipient country is failing to take adequate measures to prevent narcotic drugs or other controlled substances which are cultivated, produced or processed illicitly, in whole or in part, in such country or transported through such country, from being sold illegally within the jurisdiction of such country to United States Government personnel or their dependents or from entering the United States unlawfully?

No

FAA Sec. 481(h). (This provision applies to assistance of any kind provided by grant, sale, loan, lease, credit, guaranty, or insurance, except assistance from the Child Survival Fund or relating to international narcotics control, disaster and refugee relief, or the provision of food or medicine.) If the recipient is a "major illicit drug producing country" (defined as a country producing during a fiscal year at least five metric tons of opium or 500 metric tons of coca or marijuana) or a "major drug-transit country" (defined as a country that is a significant direct source of illicit drugs significantly affecting the United States, through which such drugs are transported, or through which significant sums of drug-related profits are laundered with the knowledge or complicity of the government), has the President in the March 1 International Narcotics Control Strategy Report (INSCR) determined and certified to the Congress (without

Congressional enactment, within 30 days of continuous session, of a resolution disapproving such a certification), or has the President determined and certified to the Congress on any other date (with enactment by Congress of a resolution approving such certification), that (a) during the previous year the country has cooperated fully with the United States or taken adequate steps on its own to prevent illicit drugs produced or processed in or transported through such country from being transported into the United States, and to prevent and punish drug profit laundering in the country, or that (b) the vital national interests of the United States require the provision of such assistance?

a) Yes

b) Yes

3. Drug Act Sec. 2013. (This section applies to the same categories of assistance subject to the restrictions in FAA Sec. 481(h), above.) If recipient country is a "major illicit drug producing country" or "major drug-transit country" (as defined for the purpose of FAA Sec 481(h)), has the President submitted a report to Congress listing such country as one (a) which, as a matter of government policy, encourages or facilitates the production or distribution of illicit drugs; (b) in which any senior official of the government engages in, encourages, or facilitates the production or distribution of illegal drugs; (c) in which any member of a U.S. Government agency has suffered or been threatened with violence inflicted by or with the complicity of any government officer; or (d) which fails to provide reasonable cooperation to lawful activities of U.S. drug enforcement agents, unless the President has provided the required certification to Congress pertaining to U.S. national interests and the drug control and criminal prosecution efforts of that country?

a) No

b) No

c) No

d) No

4. FAA Sec. 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government?
 - a) No
 - b) No

5. FAA Sec. 620(e)(1). If assistance is to a government, has it (including any government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? No

6. FAA Secs. 620(a), 620(f), 620D; FY 1987 Continuing Resolution Secs. 512, 560. Is recipient country a Communist country? If so, has the President determined that assistance to the country is important to the national interests of the United States? Will assistance be provided to Angola, Cambodia, Cuba, Iraq, Syria, Vietnam, Libya, or South Yemen? Will assistance be provided to Afghanistan without a certification? No

7. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, damage or destruction by mob action of U.S. property? No

8. FAA Sec. 620(l). Has the country failed to enter into an investment guaranty agreement with OPIC? No

9. FAA Sec. 620(o); Fishermen's Protective Act of 1967 (as amended) Sec. 5. (a) Has the country seized, or imposed any penalty or sanction against, any U.S. fishing vessel because of fishing activities in international waters?
 - a) No
 - b) N/A(b) If so, has any deduction required by the Fishermen's Protective Act been made?

10. FAA Sec. 620(q); FY 1987 Continuing Resolution Sec. 518. (a) Has the government of the recipient country been in default for more than six months on interest or principal of any loan to the country under the FAA? (b) Has the country been in default for more than one year on interest or principal on any U.S. loan under a program for which the FY 1987 Continuing Resolution appropriates funds?
- a) No
- b) No
11. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the percent of the country's budget and amount of the country's foreign exchange or other resources spent on military equipment? (Reference may be made to the annual "Taking Into Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)
- N/A
12. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have relations been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?
- No
13. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the A.I.D. Administrator in determining the current A.I.D. Operating Year Budget? (Reference may be made to the Taking into Consideration memo.)
- Current
14. FAA Sec. 620A. Has the President determined that the recipient country grants sanctuary from prosecution to any individual or group which has committed an act of international terrorism or otherwise supports international terrorism?
- No

15. ISDCA of 1985 Sec. 552(b). Has the Secretary of State determined that the country is a high terrorist threat country after the Secretary of Transportation has determined, pursuant to section 1115(e)(2) of the Federal Aviation Act of 1958, that an airport in the country does not maintain and administer effective security measures? No
16. FAA Sec. 666(b). Does the country object, on the basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. who is present in such country to carry out economic development programs under the FAA? No
17. FAA Secs. 669, 670. Has the country, after August 3, 1977, delivered to any other country or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards, and without special certification by the President? Has it transferred a nuclear explosive device to a non-nuclear weapon state, or if such a state, either received or detonated a nuclear explosive device? (FAA Sec. 620E permits a special waiver of Sec. 669 for Pakistan.) No
18. FAA Sec. 670. If the country is a non-nuclear weapon state, has it, on or after August 8, 1985, exported (or attempted to export) illegally from the United States any material, equipment, or technology which would contribute significantly to the ability of a country to manufacture a nuclear explosive device? No
19. ISDCA of 1981 Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 36th General Assembly of the U.N. on Sept. 25 and 28, 1981, and failed to disassociate itself from the communique issued? If so, has the President taken it into account? (Reference may be made to the Taking into Consideration memo.) No

20. FY 1987 Continuing Resolution Sec. 528.
Has the recipient country been determined by the President to have engaged in a consistent pattern of opposition to the foreign policy of the United States? No
21. FY 1987 Continuing Resolution Sec. 513.
Has the duly elected Head of Government of the country been deposed by military coup or decree? No

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria

FAA Sec. 116. Has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy? No

2. Economic Support Fund Country Criteria

FAA Sec. 502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the President found that the country made such significant improvement in its human rights record that furnishing such assistance is in the U.S. national interest? No

5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A includes criteria applicable to all projects. Part B applies to projects funded from specific sources only: B(1) applies to all projects funded with Development Assistance; B(2) applies to projects funded from Development Assistance loans; and B(3) applies to projects funded from ESP.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT

1. FY 1987 Continuing Resolution Sec. 523; FAA Sec. 634A. Describe how authorization and appropriations committees of Senate and House have been or will be notified concerning the project. Congressional Notification which expired on August 10, 1987
2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$500,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance, and (b) a reasonably firm estimate of the cost to the U.S. of the assistance? a) Yes. The LAC Bureau Engineer assisted with the Planning of the Project.
b) The LAC Bureau Engineer has certified that estimated costs are reasonable.
3. FAA Sec. 611(a)(2). If legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance? N/A
4. FAA Sec. 611(b); FY 1987 Continuing Resolution Sec. 501. If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See A.I.D. Handbook 3 for guidelines.) N/A

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and total U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project? Yes
6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. No
7. FAA Sec. 601(a). Information and conclusions on whether projects will encourage efforts of the country to:
(a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
(a) Yes, Export of Non-Traditional Agricultural Commodities to CARICOM, European and U.S. Markets.
(b) Yes, the Project facilitates private land development, the flow of goods and services to and from rural areas.
(c) No
(d) Yes, by increasing the number of producers having access to markets.
(e) Yes, improves efficiency of services of private/ public sectors to farm and rural areas.
(f) No, effect likely.
The U.S. private Sector will provide equipment, technical assistance and training.
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
The U.S. private Sector will provide equipment, technical assistance and training.
9. FAA Secs. 612(b), 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.
The Host Country will contribute local currency to finance cash costs of labor, construction, fuel and in kind services.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release? No

11. FY 1987 Continuing Resolution Sec. 521.
If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?

No

12. FY 1987 Continuing Resolution Sec. 558
(as interpreted by conference report).
If assistance is for agricultural development activities (specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities (a) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (b) in support of research that is intended primarily to benefit U.S. producers?

a) N/A

b) N/A

FY 1987 Continuing Resolution Sec. 559.
Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel?

N/A

14. FAA Sec. 118(c). Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16? Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (a) stress the importance of conserving and sustainably managing forest resources; (b) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (c) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (d) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (e) help conserve forests which have not yet been degraded, by helping to increase production on lands already cleared or degraded; (f) conserve forested watersheds and rehabilitate those which have been deforested; (g) support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (h) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (i) conserve biological diversity in forest areas by supporting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, and by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas; (j) seek to increase the awareness of

The Project complies with AID environmental procedures. Project activities do not directly apply to the questions listed, however, the total agricultural portfolio of the Mission address the concerns regarding forest resources.

U.S. government agencies and other donors of the immediate and long-term value of tropical forests; and (k) utilize the resources and abilities of all relevant U.S. government agencies?

15. FAA Sec. 119(g)(4)-(6). Will the assistance (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas? N/A
16. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (either dollars or local currency generated therefrom)? N/A
17. FY 1987 Continuing Resolution Sec. 532. Is disbursement of the assistance conditioned solely on the basis of the policies of any multilateral institution? No

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

- a. FAA Secs. 102(b), 111, 113, 281(a). Describe extent to which activity will (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and

a) The Project will directly effect the quality of life of the rural population by improving access to markets, education and health by upgrading a farm to market road system.

insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.

- b) No
- c) Yes
- d) The Project will allow - greater participation in social and economic activities thereby benefitting women.
- e) Yes

b. FAA Secs. 103, 103A, 104, 105, 106, 120-21. Does the project fit the criteria for the source of funds (functional account) being used? Yes

c. FAA Sec. 107. Is emphasis placed on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)? Yes

d. FAA Secs. 110, 124(d). Will the recipient country provide at least 25 percent of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)? Yes

e. FAA Sec. 128(b). If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if it attempts to stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority? Yes, the primary beneficiaries are farm and rural poor.

f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government.

The Project has been designed to further strengthen and institutionalize the capabilities of existing MOW personnel to maintain and rehabilitate the rural road system. Improved rural roads will encourage Agricultural Development, a primary need for economic, social and political stability. Technical Assistance and Training are major project inputs.

g. FY 1987 Continuing Resolution Sec. 540. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions?

No

Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilizations?

No

Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning?

No

h. FY 1987 Continuing Resolution. Is the assistance being made available to any organization or program which has been determined to support or participate in the management of a program of coercive abortion or involuntary sterilization?

No

If assistance is from the population functional account, are any of the funds to be made available to voluntary family planning projects which do not offer, either directly or through referral to or information about access to, a broad range of family planning methods and services?

No

i. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes

68

- j. FY 1987 Continuing Resolution. How much of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)?
- k. FAA Sec. 118(c)(13). If the assistance will support a program or project significantly affecting tropical forests (including projects involving the planting of exotic plant species), will the program or project (a) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and (b) take full account of the environmental impacts of the proposed activities on biological diversity?
- l. FAA Sec. 118(c)(14). Will assistance be used for (a) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; or (b) actions which significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas?
- m. FAA Sec. 118(c)(15). Will assistance be used for (a) activities which would result in the conversion of forest lands to the rearing of livestock; (b) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undegraded forest lands; (c) the colonization of forest lands; or (d) the construction of dams or other water

Approximately twenty-five percent of the total funds are budgeted for technical assistance and disadvantaged enterprises will be considered

control structures which flood relatively undegraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?

2. Development Assistance Project Criteria
(Loans Only)

- a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan at a reasonable rate of interest. GOB's dollars obligations, balance of payments performance with Major donors concludes that Belize has the capacity to repay an AID loan at a reasonable rate of interest.
- b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of the enterprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest? N/A
- c. FY 1987 Continuing Resolution. If for a loan to a private sector institution from funds made available to carry out the provisions of FAA Sections 103 through 106, will loan be provided, to the maximum extent practicable, at or near the prevailing interest rate paid on Treasury obligations of similar maturity at the time of obligating such funds? N/A
- d. FAA Sec. 122(b). Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities? Yes. The project will provide incentive to increase agricultural production.

3. Economic Support Fund Project Criteria

- a. FAA Sec. 531(a). Will this assistance promote economic and political stability? To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of Part I of the FAA? Yes
- b. FAA Sec. 531(e). Will this assistance be used for military or paramilitary purposes? No
- c. ISDCA of 1985 Sec. 207. Will ESF funds be used to finance the construction, operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such country is a party to the Treaty on the Non-Proliferation of Nuclear Weapons or the Treaty for the Prohibition of Nuclear Weapons in Latin America (the "Treaty of Tlatelolco"), cooperates fully with the IAEA, and pursues nonproliferation policies consistent with those of the United States? No
- d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? N/A

Annex III

Date: August 5, 1987
To: Dalton A. Griffith
Subject: Rural Access Roads and Bridges, Project No. 505-0007
Spare parts, Tires and Tube Usage
Reply To: Gilbert Canton, Ag. Project Manager

Under the Rural Access Roads and Bridges Project, No. 505-0007, spare parts were procured for Caterpillar, Ford, and Excess Property equipment. With the exception of the Ford 8000 Dump Truck spares recently purchased and stored at the MOW Unallocated Stores Warehouse in Belize City, all Caterpillar and Ford spare parts were warehoused at and distributed from Belize Cemcol's (Belize Caterpillar Dealer) facilities at Ladyville, Belize District. Excess Property spare parts were warehoused at and distributed from the MOW Unallocated Stores facility in Belize city.

Aside from the spare parts procured in large orders and stored as described above for anticipated use during project life, the project procured spare parts on a as-needed, emergency basis from both local and offshore firms.

In totality and according to Mission records, it can be estimated that approximately U.S.\$683,000 was committed to procurement of spare parts, tires, and tubes for project equipment. (Note: A detailed analysis of procurement documentation, i.e., invoices, was not made. Estimates are made from MAC's Comprehensive pipeline reports). These commitments were contained in the following elements:

Element No.3, Spare Parts	\$607,000
Element No.5, Construction Materials	\$38,000
Element No.7, Contingency	\$10,000
Element No.8, Inflation	\$28,000
TOTAL	\$683,000

Of the \$683,000 approximately \$161,000 is estimated to be for Tire and Tube purchases. This leaves \$522,000 which can be attributed to spare parts procurement.

Of the total \$522,000, Belize Cemcol received and warehoused approximately \$280,000 of caterpillar equipment spares and approximately \$76,000 of ford equipment spares. Excess Property Equipment spare parts and spares in general, purchased on an as needed, emergency basis (\$109,000), plus Ford 8000 Dump Truck spares, warehoused at MOW Unallocated Stores (\$57,000), make up the remaining \$166,000. Spares purchased on as-needed, emergency basis are usually placed immediately on the equipment and are not placed in stock.

An inventory of the Caterpillar and Ford project stocks maintained at Belize Cemcol was undertaken in June, 1987. Results indicate that as of June 30, 1987 some \$159,000 and \$32,000 of Caterpillar and Ford spare parts remain in stock. An inventory was also conducted on the Ford Dump Truck Spare parts at the MOW Unallocated Stores and these were untouched with a remaining value of \$57,000. There were also significant amounts of Excess Property spare parts and tires and tubes at the MOW Unallocated warehouse. However, an inventory of these was not conducted at the time to provide an estimated value in stock for these items.

Therefore, it can safely be said that in excess of 48% in value (\$248,000) of spare parts procured in the original Rural Access Roads and Bridges Project remained in stock on June 30, 1987.

Furthermore, Spare parts procured accounted for 23% (\$522,000/\$2,270,000) of Equipment cost; spare parts utilized accounted for less than 12% (\$274,000/\$2,270,000) of Equipment cost; and tires and tubes procured accounted for 7% (\$161,000/\$2,270,000) of Equipment cost. These figures will increase somewhat as there is still six months of project implementation until PACD and with the realization that as the equipment ages, spare part usage increases.

In regards to Phase II of the Rural Access Roads and Bridges Project, the following recommendations are made:

1. Spare Parts: This can be broken down into two categories: (1) support for the original equipment; and (2) support for proposed new equipment. In regards to support for the original equipment, a figure of 19% of original cost of the equipment (\$2,270,000) for the next three and a half years of project

13

ANNEX IV. DETAILED ILLUSTRATIVE BUDGET FOR TECHNICAL ASSISTANCE
 27-Sep-97

Line Item	Unit	Year 1 Rate	Est. Cost	Unit	Year 2 Rate	Est. Cost	LDP Total	
I. Salaries	p/a	\$						
Home Office Support	2	4500	\$9,000	2	4815	\$9,630	\$18,630	
Management Engineer	12	4500	\$54,000	12	4815	\$57,780	\$111,780	
Equipment Specialist	12	4000	\$48,000	12	4280	\$51,360	\$99,360	
II. Fringe Benefits	\$	111000	0.22	\$24,420	118770	0.22	\$26,129	\$50,549
III. Consultants	p/d	\$	261	\$26,100	0	261	\$0	\$26,100
IV. Overhead	\$	135420	1.25	\$169,275	144599.4	1.25	\$180,749	\$350,024
V. Travel and Transportation								
A. International Travel	trips	\$						
Home Office	2	450	\$900	2	450	\$900	\$1,800	
Management Engineer								
To Post (one way)	4	400	\$1,600	0	400	\$0	\$1,600	
R&R (round trips)	0	573	\$0	4	573	\$2,292	\$2,292	
End of Tour (one way)	0	400	\$0	4	400	\$1,600	\$1,600	
Equipment Specialist								
To Post (one way)	4	400	\$1,600	0	400	\$0	\$1,600	
R&R (round trips)	0	573	\$0	4	573	\$2,292	\$2,292	
End of Tour (one way)	0	400	\$0	4	400	\$1,600	\$1,600	
B. Local Travel								
Vehicle Fuel			\$2,500			\$2,500	\$5,000	
Vehicle main/tic/ins			\$1,000			\$1,000	\$2,000	
Fares (taxi, bus, air)			\$500			\$500	\$1,000	
C. Transport/Storage	pounds	\$		pounds	\$			
Household Effects	14400	0.35	\$5,040	14400	0.35	\$5,040	\$10,080	
Unaccompanied Baggage	1400	1.43	\$2,002	1400	1.43	\$2,002	\$4,004	
Excess Baggage	trips	\$	100	\$500	trips	\$	100	\$500
Storage and back HSE	pounds	\$	21500	0.5	\$10,750	21500	0.5	\$10,750
Ship PDV	no.	\$	2	1600	\$3,200	2	1600	\$3,200
VI. Allowances	base	\$		base	\$			
Post Differential	102000	0.25	\$25,500	109140	0.25	\$27,285	\$52,785	
Post Allowance			\$1,950			\$1,950	\$3,900	
Draught Allowance	p/d	\$	9500	\$9,500	p/d	\$	9500	\$19,000
Temporary Quarters	no.	\$	180	50	\$9,000	60	50	\$3,000
Education	no.	\$	4	15500	\$62,000	4	15500	\$124,000
Per Diem	200	68	\$13,600	50	68	\$3,400	\$17,000	
Residential Support	p/a	\$						
Housing	12	1200	\$14,400	12	1200	\$14,400	\$28,800	
Utilities	12	500	\$6,000	12	500	\$6,000	\$12,000	
Furnishing			\$8,000			\$8,000	\$16,000	
Appliances (fridge, freez., etc.)			\$3,750			\$3,750	\$7,500	
Air Conditioners			\$2,000			\$2,000	\$4,000	
Generators			\$1			\$1	\$2,000	
Shipping (furniture and appliances)			\$2,000			\$2,000	\$4,000	
VII. Other Direct Costs	alts.	\$		alts.	\$			
Expendable Supplies	12	250	\$3,000	12	250	\$3,000	\$6,000	
Communications	12	200	\$2,400	12	200	\$2,400	\$4,800	
Physical Excess	persons	\$	8	100	\$800	8	100	\$800
SEA	base	\$	111000	0.027	\$2,997	118770	0.027	\$3,207
Insurance (SOB)	persons	\$	8	180	\$1,440	8	180	\$1,440
VIII. Commodities and Equipment								
Office Equipment	no.	\$		\$3,000		\$3,000	\$6,000	
Vehicles	2	13000	\$26,000	0	13000	\$0	\$26,000	
IX. Participant Training								
In-Country (10%)	p/a	\$		\$50,000		\$50,000	\$100,000	
Offshore Short Term	9	8000	\$72,000	9	8000	\$72,000	\$144,000	
TOTAL COST			\$675,174			\$680,431	\$1,355,605	
X. Fixed Fee or Profit	base	\$	675174	0.1	\$67,517	612431.44	0.1	\$61,243
EUEFOPL			\$742,691			\$742,675	\$1,416,800	
Contingency							\$20,000	
GRAND TOTAL							\$1,436,800	

75

life is probably safe a equipment will be approaching end of useful life. This would amount to approximately \$431,000 of which over \$248,000 of spares are already procured and in stock. This would leave a balance of \$183,000 to be budgetted in Phase II for the support of the original equipment. In regards to support for equipment to be procured in Phase II, a figure of 13% of equipment cost (\$2,346,000) would be appropriate based on industry standard. This would amount to \$305,000. Therefore for budgetting purposes a figure of US\$ 500,000 should be used.

2. Tires and Tubes: An estimate of tire and tube usage for all project equipment is contained in Table 10. For budgetting purposes a figure of U.S. \$450,000 should be used.