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UNCLASSIFIED

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

BELIZE

PROJECT PAPER

RURAL ACCESS BRIDGES

AID/LAC/P-693

PROJECT NUMBER: 505-0042

UNCLASSIFIED

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET	1. TRANSACTION CODE <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number _____ DOCUMENT CODE 3
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2. COUNTRY/ENTITY Belize	3. PROJECT NUMBER 505-0042
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4. BUREAU/OFFICE LAC/CAR	5. PROJECT TITLE (maximum 40 characters) Rural Access Bridges
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6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 09 30 96	7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4) A. Initial FY 91 B. Quarter 4 C. Final FY 96
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8. COSTS (\$000 OR EQUIVALENT \$1 =)						
A. FUNDING SOURCE	FIRST FY 91			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	220	780	1,000	900	5,600	6,500
(Grant)	(220)	(780)	()	(900)	(5,600)	(6,500)
(Loan)	()	()	()	()	()	()
Other U.S. 1.						
Other U.S. 2.						
Host Country			2,470		2,470	2,470
Other Donor(s)						
TOTALS			3,470	900	8,070	8,970

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) FN						1,000		6,500	
(2)									
(3)									
(4)									
TOTALS						1,000		6,500	

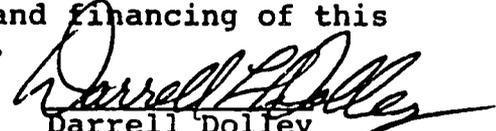
10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)	11. SECONDARY PURPOSE CODES (maximum 6 codes of 3 positions each)
12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each) A. Code _____ B. Amount _____	

13. PROJECT PURPOSE (maximum 480 characters)

The purpose of the project is to construct bridges and rehabilitate rural roads with emphasis on private sector participation.

14. SCHEDULED EVALUATIONS Interim MM YY MM YY Final MM YY	15. SOURCE/ORIGIN OF GOODS AND SERVICES <input checked="" 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.)
 The USAID Controller hereby indicates his concurrence with the assessment of the methods of accountability, implementation and financing of this proposed project and approves pertinent sections.


 Darrell Dolley
 Controller

17. APPROVED BY	Signature: Barbara Sandoval  Title: A.I.D. Representative	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION Date Signed MM DD YY 10/01/96
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Rural Access Bridges Project

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PROJECT AUTHORIZATION

Name of Country: Belize
Name of Project: Rural Access Bridges
Number of Project: 505-0042

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Rural Access Bridges Project for Belize involving planned obligations not to exceed Six Million Five Hundred Thousand United States Dollars (US\$6,500,000) in grant funds over a five-year period from date of authorization, subject to the availability of funds in accordance with the 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 sixty (60) months from the date of initial obligation.

2. The project consists of assistance to the Government of Belize to help finance the construction of bridges and rehabilitation of rural roads primarily through use of private sector contractors.

3. The Project Agreement, which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority, shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

a. Source and Origin of Commodities, Nationality of Services

Commodities financed by A.I.D. under the project shall have their source and origin in the United States, except as A.I.D. may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have the United States as their place of nationality, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Grant shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States.

b. Conditions Precedent

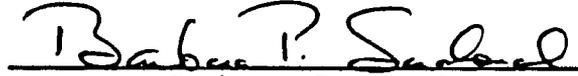
In addition to such other conditions as may be appropriate, the agreement shall include the following:

Prior to any disbursement for road rehabilitation or bridge construction, or to issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the GOB will, except as A.I.D. may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., an assessment of the environmental impact of the proposed construction.

c. Waivers

(1) Ocean Shipping: In blanket waiver no. 90-B-11, which expires October 29, 1991, AID/W waived the requirement for shipping by U.S. flag vessels and authorized shipment on vessels registered in A.I.D. Geographic Code 935 countries. An extension of the blanket waiver is under review by AID/W.

(2) Nationality of Services: The requirement that technical assistance services be of U.S. nationality is hereby waived to permit procurement of technical assistance from Belize up to a maximum aggregate amount of \$550,000.



Barbara P. Sandoval
A.I.D. Representative
Belize



Date

Clearances:

ADO:GLike	<u>draft</u>	Date:	<u>9/12/91</u>
PDO:PBisek	<u>draft</u>	Date:	<u>9/5/91</u>
CONT:DDolley	<u>draft</u>	Date:	<u>9/13/91</u>
RLA:MWilliams	<u>draft</u>	Date:	<u>9/5/91</u>
(For waiver)			
LAC/DR:	<u>STATE 285159</u>	Date:	<u>8/29/91</u>

Drafted: ADO/JMcGann; rev. PDO/PBisek; 8/15/91; 1111p

ANNEXES

1. Redelelegation of Approval Authority
2. Logical Framework
3. Statutory Checklist
4. Host Country Request for Assistance
5. Section 611(e) Certification
6. Process for Selection of Bridges and Road Sections
7. Financial and Economic Analysis
8. Contractors Considered by MOW as Qualified for Bridge Construction--June 30, 1991
9. Environmental Assessment
10. List of Contacts and Bibliography

SUMMARY AND RECOMMENDATION

A. Project Summary

Belize's land area is about 6 million acres, small in absolute terms, but large relative to its 200,000 population. Agriculture remains the country's most important economic sector, followed by tourism, which depends heavily on the country's natural and archaeological attractions. Only about 15 percent of the potential agricultural land is now in production, and access to many potential tourism sites is difficult. Heavy rains and flooding are seasonably important obstacles to transportation.

There are no railroads in Belize. The road system is under improvement, but poor conditions of feeder roads remain a serious constraint. Lack of all-weather river crossings further constrain agricultural investment. While there is substantial clearing of land for agriculture, better and more secure access would encourage more stable and intensified efforts in areas where this is economically and environmentally desirable, instead of the shifting, subsistence cultivation which currently impinges on areas that should be protected.

This project is a follow-on effort to the Rural Access Roads and Bridges project initiated in FY 1983. Under that project, substantial investments were made in increasing the capacity of the Ministry of Works (MOW) to rehabilitate and maintain the rural access road network. Rehabilitation of rural roads, undertaken by two MOW rehabilitation units, fell short of targets. In part this was because the targets were too high, failing to take into account the long rainy season, low level of managerial skills, and problems with available surfacing materials. Diversion of equipment and inadequate budgets also contributed to the disappointing performance.

The predecessor project also provided bridge sets for 54 stream crossings from U.S. excess property. Because the GOB did not allocate sufficient funds, only about 12 bridges were constructed. Another 10 bridges are being constructed by the GOB prior to initiation of this project.

The financial resources to be provided under this project will enable the Government of Belize to complete the construction of about 24 additional bridges and to rehabilitate 120 miles of rural access roads. Besides this primary infrastructure objective, the project is designed to encourage increased use of private contractors for road rehabilitation (private contractors are already used for bridge construction).

The goal of the project is to increase economic production, particularly in agriculture and tourism, by providing all-weather

access in key rural areas. Its purpose is to construct bridges and rehabilitate rural roads with emphasis on private sector participation.

The total estimated cost of the project is US\$9.0 million, of which A.I.D. will contribute \$6.5 million, or 72 percent. A.I.D. financing of construction costs will be on a Fixed Amount Reimbursement basis, calculated at 67 percent of the approved cost estimate for each bridge or road segment. A.I.D. will also provide limited equipment--computers needed to complete automation of the MOW Maintenance Management System and a drilling rig needed for bridge foundation design work--as well as technical assistance for environmental impact assessments of each proposed bridge and road segment prior to approval. The budget also includes funds for A.I.D. project management, evaluations and audits, and inflation and contingencies.

The GOB will contribute \$2.5 million, or 28 percent of the total project costs, including 33 percent of the estimated construction costs.

Summary of Project Costs - US\$000

	<u>A.I.D.</u>	<u>GOB</u>	<u>Project</u>
Bridge Construction	2,230	1,110	3,340
Road Rehabilitation	2,110	1,040	3,150
Commodities	<u>250</u>	-	<u>250</u>
Subtotal	4,590	2,150	6,740
Project Management	650	-	650
TA, Environment Impact	200	-	200
Evaluation & Audit	<u>220</u>	-	<u>220</u>
Subtotals	<u>1,070</u>	-	<u>1,070</u>
Inflation & Contingency	840	320	1,160
Totals	<u>6,500</u>	<u>2,470</u>	<u>8,970</u>
	=====	=====	=====

The MOW will be responsible for implementing the project. USAID will obtain services of a local engineer, who will be supervised by a USDH or USPSC engineer, to review designs and costs estimates, monitor construction and certify completed construction for reimbursement. The duration of the project is five years.

B. Recommendation: That the Rural Access Bridges project be authorized for grant funding totalling U.S.\$6,500,000 over a life-of-project of five years.

CONDITIONS, COVENANTS, WAIVERS, AND NEGOTIATING STATUS

A. Conditions and Covenants

The following conditions precedent and covenants are proposed for inclusion in the project agreement to be executed with the Government of Belize:

1. Conditions Precedent to Disbursement

a. Initial Disbursement: Prior to any disbursement or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made under the Agreement with the Government of Belize (GOB), the GOB will, except as A.I.D. may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D.:

(1) An opinion of the Attorney General of the Government of Belize that this Agreement has been duly authorized and/or ratified by, and executed on behalf of the Government of Belize, and that it constitutes a valid and legally binding obligation of the Government of Belize in accordance with all of its terms;

(2) A statement of the name of the person holding or acting as representative of the GOB and of any additional representatives, together with a specimen signature of each person specified in such statement.

b. Additional Disbursements: Prior to any disbursement for road or bridge construction, or to issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the GOB will, except as A.I.D. may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D.:

(1) for each bridge or road segment, an assessment of the environmental impact of the proposed construction;

(2) evidence of the appointment of the full-time head of the Rural Roads Unit and a full-time Bridge Engineer within the Ministry of Works (MOW), who will be responsible for the proper and timely implementation of the Project;

(3) a copy of the official geometric and structural design standards which the MOW intends to use for all rural road rehabilitation and improvement works under the Project;

(4) written certification by the Road Priority Committee (RPC) that it has recommended the selection of the bridges to be installed and the rural-road sections to be rehabilitated.

2. Covenants

The GOB covenants that, except as A.I.D. otherwise agrees in writing:

- a. The GOB will allocate annually to the MOW sufficient funds to permit adequate maintenance of the designated rural-roads network, the quantity of said funds to be that which the Maintenance Management System (MMS) indicates are required.
- b. The GOB will, after the completion of the Project, provide adequate funding levels for the MOW district maintenance offices to continue to carry out maintenance operations at a satisfactory level on its rural-road network.
- c. The GOB will assure the continuing use and refinement of the MOW Maintenance Management System (MMS) for roads, establishing an evaluation unit to periodically audit reports, review the applicability of performance standards, and provide MMS data to the office responsible for medium-term planning of maintenance needs.
- d. Roads in and through designated national parks, forests, wildlife reserves, and other recognized ecologically sensitive areas will not be rehabilitated with resources from this Grant, except with written approval from A.I.D. and after stringent safeguards are in place to restrict settlement and otherwise protect the area influenced by the road.
- e. Mayan ruins or other archaeological sites will not be used as a source of construction material or in any other ways destroyed or damaged in the process of implementation of this Project. The Commissioner of Archaeology, Ministry of Tourism and Environment, will be advised opportunely by the MOW of its intention to carry out any construction or rehabilitation under the Project and will assist MOW in the identification of acceptable sites for borrow pits, gravel pits and deposits, or other sources of construction materials.

B. Waivers

The following waivers are recommended for approval in the Project Authorization:

1. Ocean Shipping: There is no U.S. flag service to Belize. Only Central Gulf Lines may occasionally call Belize on inducement cargoes of at least 500 revenue tons. Blanket waiver No. 90-B-11 extended approval of financing of costs of transportation on ocean vessels under flag registry of Free World (Code 935) countries through October 29, 1991. AID/W is reviewing whether an extension of the blanket waiver is appropriate. To reflect this blanket waiver and the expectation that U.S. flag vessels will continue to be unavailable, the following language is recommended for inclusion in the Project Authorization:

In blanket waiver No. 90-B-11, which expires October 29, 1991, AID/W waived the requirement for shipping by U.S. flag vessels and authorized shipment on vessels registered in A.I.D. Geographic Code 935 countries. An extension of the blanket waiver is under review by AID/W.

2. Nationality of Services: Under the Fixed Amount Reimbursement procedure contemplated for construction financed by the project, A.I.D. will be expending local currency for the end product and not controlling the procurement decisions of the recipient. Consequently, no source/origin waiver is needed for construction. Technical assistance to be procured for environmental impact assessments is expected to be primarily from the U.S. However, if suitable local expertise is available, the cost would be less than half the cost of similar services procured from the U.S. In addition, the involvement of Belizeans in the assessments will both facilitate the assessment process and provide professional opportunities which will enhance the country's ability to attract and retain these human resources in an area of emerging critical importance. Furthermore, the practice of environmental impact assessments is more likely to be adopted for future construction without donor input if it has been demonstrated using locally available expertise. Depending on the adequacy and availability of individuals with requisite skills in Belize, up to \$100,000 of the amount budgeted for these services may be from local sources.

Project funds will also be used for USAID project management support, including a local engineer who will review plans and cost estimates, monitor construction and inspect completed construction prior to certification for reimbursement. A USDH or USPSC engineer will be brought in periodically to supervise the local engineer, but it would not be cost effective to use full time engineering services by a U.S. national. The estimated maximum cost for locally hired project management and engineering services is \$450,000. The following waiver is recommended:

Nationality of Services: The requirement that technical assistance services be of U.S. nationality is hereby waived to permit procurement of technical assistance from Belize up to a maximum aggregate amount of \$550,000.

C. Negotiating Conditions

The Project Paper has been developed through discussions with representatives of the GOB and local environmental non-government organizations. Support for the project objectives is high and the Ministry of Works has indicated its interest in moving to greater use of private contractors. USAID/Belize anticipates that a Grant Agreement with the GOB will be signed promptly after Authorization of the project.

LIST OF ABBREVIATIONS AND ACRONYMS

A.I.D. / AID	Agency for International Development
B.E.S.T	Belize Enterprise for Sustained Technology
CIF	Cost plus Insurance and Freight
CP	Conditions Precedent
FAR	Fixed Amount Reimbursement
FX	Foreign Exchange
GOB	Government of Belize
IFB	Invitation for Bids
ICB	International Competitive Bidding
IRR	Internal Rate-of-return
LCB	Local Competitive Bidding
MM	Millions
mm	Millimeters per Kilometer of Roughness
MOF	Ministry of Finance of Belize
MOW	Ministry of Works of Belize
PACD	Project Assistance Completion Date
PP	Project Paper
PSC	Personal Services Contract
RR	Rural Roads
RPC	Road Priority Committee
RPS	Resident Project Supervisor
TOR	Terms of Reference
USAID	United States Agency for International Development

BELIZE

PROJECT PAPER

Rural Access Bridges Project

(Project No. 505-0042)

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I. BACKGROUND AND RATIONALE

A. Background

1. Economic Overview

a. Introduction

Belize's land area is about 6 million acres, small in absolute terms but large in relation to its population of 200,000. Agriculture, including small contributions by fisheries and forestry, has recently provided as much as 22 percent of GDP and approximately 40 percent of national employment. More than three-quarters of its export earnings come from farm products, especially sugar, citrus, and bananas. However, domestic food supplies depend to a substantial extent on imports, and food accounts for over one-quarter of Belize's import bill. Petroleum products and manufactured goods are other major imported items.

The economy of the country is highly susceptible to outside forces due to its almost total dependency on exterior markets and sources of supply. For example, between 1980 and 1989 the real Gross Domestic Product fluctuated from a negative 1.0 percent in 1982, a year of world recession, to 5.5 percent in 1987, 9.9 in 1988, 8.9 in 1989, and 12.0 percent in 1990.

Per capita income (at constant 1984 prices) remained almost level between 1982-1986 at approximately US\$1,000, but reached \$1,285 by 1989. Literacy exceeds 90 percent, and other socio-economic indicators are equally high relative to surrounding countries in the region.

The government is a parliamentary democracy that welcomes external investment and the development of the private sector. Major agricultural development goals of the Government of Belize (GOB) are an expansion of exports, greater domestic food production and import substitution, and a higher standard of living for all people in the nation's agricultural sector.

b. Physical Environment and Land Use

Belize is a sub-tropical country with high temperatures and abundant (though seasonally and regionally erratic) rainfall. It is estimated that as much as 2.2 million acres (of a total land area of 5.7 million acres) are suitable for agriculture, but existing vegetation and soil limitations are major deterrents to the expansion of cultivated lands. Only about 15 percent of potential farm and range lands are now in production.

Heavy rains and flooding are seasonally important obstacles to transportation, especially in the southern part of the country. Hurricanes occasionally cause extensive agricultural damage. Three million acres are officially classified as suitable for forestry, the dominant economic activity in Belize until the

1950's. Forests of varying composition and commercial value still cover 93 percent of Belize, although this figure includes extensive areas of "milpa", or slash-and-burn, cultivation in some districts. Only 2.1 million acres of the total land area are privately owned, with the remainder being held by government, principally as preserves. On the private land, ownership is highly skewed with 2 percent of the holdings corresponding to 85% of the private acreage. Under a land reform program begun in 1960, the national government now acquires, sells, and titles land suitable for farming; some 2.2 million acres are potentially available for private settlement under this program.

Land leased by the government under long-term agreements (0.6 million acres) is the most common form of tenure for small farmers. Forest reserves (1.6 million acres) and a residual of national land (1.4 million acres) not now devoted to sale, lease, or forestry, account for the remaining acreage.

c. Infrastructure

There are no railroads in Belize. The bridge and highway network is under improvement, but rural feeder roads, in particular, are one of the foremost constraints on the agricultural sector.

If Belizean farmers are to adopt more intensive modern farming methods and are to produce for the market and not for subsistence alone, 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 and intensify their 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, the 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, the population remains dispersed and at subsistence level. Given the stimulus which the provision of all-weather road access usually creates, it is vital that the GOB carefully select road rehabilitation and improvement projects so that increased settlement and cultivation is encouraged only in those areas where land-use studies have shown that to be economically and environmentally desirable.

Even with all-weather roads, agricultural production will still be constrained if wet-season (7 months of the year) access is periodically impeded by flooding of river crossings. Poor roads lead to high transport costs, but low-water river crossings create an element of risk in agriculture which is unacceptable for market-oriented farmers.

The primary problems caused by inadequate river crossings relate to the interrupted flow of crop inputs from market centers and of crops to markets. Investment in capital-intensive farming methods is unlikely if the farmers cannot be assured of the necessary fertilizer, seed, and agrochemicals at the times when they are needed. Capital equipment can be tied up for long periods if crops cannot be hauled to market. The production of delicate crops (vegetables, fruits) is discouraged. Even if a river crossing is impassable for only a few weeks during the year, the effects can be highly disruptive. The risk of being caught at or away from the farm without access militates against intensive market-oriented farming.

Communications are adequate in urban areas, but telephones, television, newspapers, or other sources of farm market news are rare in most rural areas. Electricity is also unavailable to many rural inhabitants, and its cost is high due to the cost of the imported fuel used to produce it. Consequently, cold storage services are limited.

d. Human Resources

Belize's population is evenly divided between urban and rural, with the rural segment growing slightly faster. Its age structure has heavily disproportionate numbers below 30, and especially below 15 years of age, because young adults emigrate to other countries in large numbers. Emigration holds the high rate of natural population growth to about 2 percent per annum in real terms. Immigration from other Central American countries has also contributed to net population growth.

About 38 percent of the male labor force work in agriculture. Official female employment in agriculture is less, at ten percent, because farm women (and the young, as well) are typically involved as unpaid family labor and are therefore often not counted. While there seem to be many opportunities for additional jobs in agriculture as cultivation expands, unemployed urban people are not generally attracted to farming. In fact, local labor shortages occur in rural areas at harvest-time, and many workers enter Belize from surrounding countries during this season. Agro-processing and mechanized agriculture may therefore offer the best chances for higher employment in the sector.

e. Agricultural Production

For the past several decades, sugar exports have provided a large part of the foreign exchange earnings, and the sugar industry has also employed a substantial part of the farmers and rural laborers. The current economic stress and risks in the sugar industry are forcing Belize to explore other ways of generating agricultural income and export earnings, especially citrus concentrates. In several areas of the country, substantial acreages are being cleared and planted to citrus without any assessment of the possible environmental effects of such clearings.

In addition to the commercial export sector, there is a sizable small-farm sector, the milpa farmers, who practice slash-and-burn cultivation methods and constitute nearly three-fourths of the country's agricultural producers. They grow such crops as rice, corn, beans, fruit and vegetables, and raise some livestock --principally pigs.

The GOB has inadvertently encouraged milpa farmers to expand into new areas of land and continue their way of life through its lands policies, and by building new roads to serve established "milpa" farming villages. Landholders with large undeveloped tracts often rent plots to "milperos" for a nominal fee, and leases on small areas of government land are easy to obtain. Squatting is also common. By continuing to build crop roads into new milpa areas, the government is in effect practicing its own form of "shifting cultivation" by prompting farmers to clear and plant new areas of forest through the construction of temporary roads. In failing to provide necessary maintenance, the GOB allows the roads to deteriorate to impassability. This prompts farmers to move on to new areas which are opened by still more new and temporary roads. The result is destructive to the remaining areas of virgin forest, and is a constant strain on government services and the ability of the MOW to provide minimum standard road service to the nation. The GOB must adopt and enforce wise land-use policies to avoid a continuation of such destructive practices.

Given the short period of time that Belize has been an independent country, and especially its brief experience with commercial agriculture, it has made commendable progress in recent years. While its interior transportation system is still quite rudimentary and covers only a small part of the country, major improvements have been made in roads and bridges in the past decade. Belize is also blessed with ample land, a favorable location near major export markets, and has benefactors that offer assistance and export markets on preferential terms. It is also able to grow a broad range of tropical and sub-tropical crops, and has a large reservoir of farming experience among its smaller farmers.

It is likely that Belize will be forced to continue to rely on agriculture to provide the base for its development over the next several decades. It is important for the country to boost its agricultural yields and to sharply reduce its costs of production in an attempt to become more competitive. With current exchange rates, yields, and production costs, Belize can compete in export markets with only a few of its product lines. The fact that Belize imports a relatively large amount of food provides some opportunities for local production to substitute for these imports without having to push additional agricultural products into highly competitive international markets.

f. Limitations and Opportunities

Despite the important advantages cited above, Belize faces major obstacles in evolving a more dynamic and productive agriculture. Farming in the tropics and in a country that has serious hurricanes is difficult. In part, Belize's agriculture is weak because of the substantial production problems faced by farmers. Soil, water, disease, and weed management are often very difficult. Marketing uncertainties and transportation difficulties compound farmers' problems. Also, because of its very small size, it is easy for substantial increases in agricultural output to swamp local markets. This means that it is difficult to realize economies-of-scale without depending on secure export markets. The lack of a larger manpower pool of people who are well trained in forestry, agribusiness, and the agricultural sciences limits the ability of government, as well as the private sector, to support agricultural development activities.

2. Existing Road Network

The Ministry of Works is responsible for the construction and maintenance of Belize's public road network, except for urban streets which are not continuations of national main or secondary roads. The network is subdivided by principal function into main, secondary, and feeder roads (see Table I-1). The present system, according to MOW figures, includes approximately 280 miles of paved roads, the majority of which are classified as primary routes and which connect the major urban center of Belize City with four district towns, the capital city of Belmopan, and the highway systems of neighboring Mexico and Guatemala. Major improvements to these roads in the last ten years have been funded by the UK. More than 40% of the rural Belizean farming population lives on, or close by these paved roads.

Table I-1 Public Road Network of Belize (1988)

District	Main (mi)	Secondary (mi)	Feeder (mi)	Total Road Length (mi)
Stann Creek	66.0	61.0	113.2	240.2
Belize	117.8	42.2	60.1	220.1
Cayo	77.5	43.0	176.1	296.6
Corozal	24.5	103.9	91.8	220.2
Orange Walk	34.3	168.8	65.4	268.5
Toledo	70.0	57.4	75.3	202.7
TOTALS	390.1	476.3	581.9	1,448.3

Source: July 1990 Consultant Report on Feasibility Study for the Stann Creek Valley Road

The MOW also lists more than 1,200 miles of gravel and marl roads in its current national public-road inventory, including the Southern Highway to the Toledo District, as well as access roads connecting villages to primary roads, and a number of farm roads. There is also a large but unmeasured mileage of publicly and privately built unimproved tracks, bulldozer passes, and logging roads, which are seasonally passable at best. Maintenance on unpaved roads varies considerably, with the most attention paid to the Southern Highway, the Manatee Highway, and rural access routes at least partially rehabilitated under previous USAID/GOB projects. Much effort is expended in maintaining the access roads in the sugar districts of the North because of the economic importance of the zone and because of the particular nature of the available surfacing material.

Road conditions vary seasonally, with many roads only intermittently usable during the rainy season, and passable only at slow speeds the rest of the year. Because of the nature of the readily available local material (large stones, cobble, or fine-grained marl), it is impractical in many areas to schedule routine grading of unpaved roads on either a time basis or on number of vehicle passes. The MOW reportedly tries to grade those surfaces which can be effectively bladed whenever inspection indicates roughness is unacceptably high. Most roads with riding surfaces of well graded gravel are now being maintained in fair to good condition, permitting reasonably comfortable operation at running speeds of 35 - 45 mph.

On many roads with very little traffic and poor material, the MOW performs mostly emergency maintenance when a road becomes nearly impassable, or a local political representative calls attention to accessibility problems. Even where the road is in fair condition, the lack of a permanent bridge on some road segments means that transport remains uncertain, and farmers cannot operate in the sure knowledge that crops can be brought to market in a timely manner, or inputs carried to farms.

Road segments to be included in this Project will be either those feeder roads which the MOW was unable to complete under the previous related project, or those that are in poor condition and meet the selection criteria for priority road rehabilitation.

3. Ministry of Works

The MOW currently employs nearly 700 permanent managerial, professional, and field personnel, plus casual labor during peak maintenance and construction seasons. Major administrative offices are in Belmopan, as is the major repair workshop for equipment. Each district has a MOW office and equipment pool which varies in quantity and quality from district to district. Minor equipment maintenance is done at the district level, while major repairs such as engine overhauls must be sent to Belmopan. While the MOW has to some degree decentralized and strengthened its road maintenance management, its Belmopan headquarters and

local political representatives still have a major influence on work schedules and activities at the district level.

As in many countries, the MOW has historically placed greater emphasis on new road construction than on maintenance of existing roads. Recently, considerable periodic resealing and rehabilitation of main paved roads has been done by private contract, as has construction of bridges on the rural-access-road system. Maintenance still is not as effective as it should be due to incomplete utilization of the Maintenance Management System (MMS); inadequate inventory data needed for proper advance planning; insufficient equipment of the type required; inadequate funding, especially for periodic maintenance and for timely replacement of equipment on a rolling basis; the lack of a permanent training program for operators and supervisors; and frequent diversion of maintenance equipment to work on roads and streets outside of the MOW rural network. While scheduling and reporting of routine road maintenance activities still needs improvement, as does the evaluation of accomplishments and costs for planning purposes, it must be noted that in areas such as the Corozal/Orange Walk cane region, the available marl surfacing is not susceptible to routine blading, being either too hard or breaking down into powder. When considerable volumes of heavy traffic exist, the provision of a good riding surface which will last for at least 10 years without the need for reconstruction will probably require one of the following procedures: (1) stabilize the native material with cement and crushed stone to form a concrete pavement; (2) stabilize with cement and overlay with several inches of asphaltic concrete; or (3) use cement stabilization with an asphaltic curing seal blotted with sand (for lighter traffic). Under present practices, many marl-surfaced roads are essentially reconstructed every 2 - 3 years and are in good condition only a relatively short time.

4. Relationship to GOB, A.I.D. and Other Donors

The two priority development areas and principal areas of projected economic growth of the GOB remain agriculture and tourism. The overall A.I.D. strategy in Belize recognizes inadequate infrastructure, shortage of managerial and technical skills, and a narrow export product base as key constraints to economic growth.

The development needs of the country, especially basic infrastructure, are dependent on donor financing. Most donor assistance is concentrated in heavy infrastructure development programs such as the national highway network, electric power, and water and sewerage projects. AID has concentrated its activity in the area of rural roads and bridges rehabilitation, construction and maintenance; agriculture; private enterprise promotion; tourism development; health; and education. The Project will continue AID participation in the development of rural infrastructure for the promotion of economic development while helping to promote environmental protection by stabilizing agricultural and other settlements within the project areas.

5. Previous Related Projects/Other Donor Activities

The bridge sets to be used under this Project to construct permanent bridges as priority stream crossings were procured by A.I.D. under prior project 505-0007. Because the GOB did not allocate sufficient funds to the project, only 12 bridges were constructed out of the 54 sites selected originally.

Road rehabilitation was a major component of the previous project, together with the provision of heavy equipment and vehicles for rehabilitation and maintenance by MOW, and related training. Initial progress was slow but gradually improved and, by the end of the project, more than 300 miles of rural roads had been rehabilitated. Overall results were disappointing, in part because initial target mileage to be rehabilitated was unrealistically high, considering the fairly long rainy season, the low level of managerial skills in the MOW at the time, and the diversion of project equipment to other works.

Another negative factor not appreciated at initiation of the previous project was the difficulty of constructing a satisfactory unpaved riding surface using the soft limestone (marl) found throughout much of the northern districts. The material is not uniform, and when moistened and compacted is too hard to permit routine grading, yet shrinkage cracking and subsequent erosion of softened material around individual blocks leaves the surface very rough. In many localized areas, potholes are formed which are difficult and expensive to fill properly. The end result is that, two to three years after extensive rehabilitation, the surface is likely to be as rough as before, although higher running speeds may be possible at the same level of discomfort. Additional study is needed of how to effectively use this native material to achieve a reasonably smooth, relatively long-lasting riding surface. The project will not utilize marl to rehabilitate any road unless it is determined that the life expectancy of such roads will be equivalent to those roads in which gravel is used. The US Engineer will help to make this determination.

In spite of the difficulties and the fact that many equipment units need replacing (graders are 7 years old, as are many tippers), the MOW now has the capability of annually rehabilitating some 15 - 20 miles of typical rural access roads. However, given the difficulties the MOW has experienced in keeping its equipment at a high level of availability, there are obvious advantages in relying on the capacity available in the private sector. Until sufficient numbers of qualified small contractors exists to assure reasonable bids and progress on road rehabilitation, a minimum capacity should be maintained in MOW to perform periodic rehabilitation. The project will not finance the maintenance of this capacity, but will permit reimbursement of limited construction and rehabilitation done by MOW.

Since 1989, Belize has received significant additional support from various bilateral donors and multilateral institutions. A major development has been the upsurge of new countries which have committed capital and/or technical support for various development activities in Belize -- the result of GOB's efforts to diversify or broaden its donor sources.

Seven projects directly related to the rural roads network are now underway in the country. The main subsectors are highway improvement and rural electrification. The total investment value of these projects is US\$24.2 million, provided by traditional donors--Caribbean Development Bank, European Economic Community, World Bank, and United Kingdom.

The table below provides data on the seven projects of selected donors (excluding the U.S.). The estimated donor contributions to the projects are in U.S. thousand dollars, and refer only to expected disbursements for the period 1990 - 1994, although the project may have started much earlier.

Table I-2

SELECTED ACTIVITIES OF DONORS IN BELIZE

Donors/Projects	Loan(L)/ Grant(G)	Estimated Donor Cont. (1990-1994)	Status
<u>TRADITIONAL DONORS</u>		<u>(US\$ 000)</u>	
CARIBBEAN DEVELOPMENT BANK			
1. Belize Power Project	L	2,000	On-going
EUROPEAN COMMUNITY			
1. Hummingbird Highway Improvement	L/G	6,240	On-going
2. Valley of Peace II	G	555	New
IBRD (WORLD BANK)			
1. Road Rehabilitation	L	3,600	On-going
2. Belize Power Project	L/G	4,860	On-going
UNITED KINGDOM			
1. Southern Highway Bridges	L	2,000	On-going
2. Road Maintenance II	L	1,625	On-going
3. Stann Creek Valley Road	L	3,300	New
4. Belize Power Project (Commonwealth Development Corporation)	L	20	On-going
TOTAL		24,200	

B. Project Rationale

This Project is part of a continuing effort by USAID to assist in improving the quality of basic infrastructure in Belize, with the aim of contributing to achievement of sustainable economic growth. Inasmuch as agriculture and tourism continue to be the sectors to which the GOB has assigned top priority in its development plans, the rehabilitation and adequate maintenance of the country's rural access road network are of crucial importance. Principal beneficiaries will be the farmers who will be provided with all-weather access to markets, agricultural inputs, and social services.

It has already been demonstrated that where the GOB builds major highways and adequate all-weather feeder roads, farm population and cash crop production rise markedly. Land values also increase, and settlement patterns are more stable, with a reduction in "milpa" farming. Where roads remain inadequate, especially if they are passable only in the dry season, the agricultural population remains widely dispersed and lives mostly at the subsistence level. Implementation of this Project will promote attainment of the Government's land-use objective of more intensive development of lands already settled, rather than opening up new marginal lands to traditional slash-and-burn agriculture, thus increasing significantly the agricultural production of Belize while promoting better use of its land resources.

The Project also will enhance the capabilities of MOW personnel to design and supervise road and bridge construction by contract, and will assist in further developing the capacity of the local construction industry. The focus of the Project will be on expeditious completion of the physical infrastructure improvement begun under Project 505-0007.

II. PROJECT DESCRIPTION

A. Project Objectives

The goal of the project is to increase economic production, particularly in agriculture and tourism, by providing all-weather access in key rural areas. Its purpose is to construct bridges and rehabilitate rural roads with emphasis on private sector participation.

The principal objective of the Project is to complete the installation of the remaining bridge sets procured by USAID under Project 505-0007, which the MOW was unable to install because of inadequate financial resources. GOB funding allocated in the last fiscal year has allowed the MOW to build, or plan to build, ten bridges outside of this project. (See Table II-1)

To ensure that completed bridges will provide the calculated benefits to road users and settlers, the Project also includes the rehabilitation of some 120 miles of inadequate feeder roads and stipulates that the MOW will take effective action to improve the use and effectiveness of the MOW maintenance management system (MMS). Where possible, bridges are to be installed on rehabilitated roads segments. This will facilitate the realization of the full economic and social benefits of the Project. Project activities will be undertaken in a manner that will reduce adverse effects on the environment from the installation of new bridges or the construction of new roads.

Specific objectives may be summarized as follows:

- Construct permanent bridges (at least 24, more depending on availability of funds), using the remaining bridge sets;
- Rehabilitate about 120 miles of additional rural access roads to all-weather standards;
- Promote increased use of private contractors for road rehabilitation and for periodic road maintenance;
- Continue to construct most bridges by private contract, guiding small contractors in improving their capabilities;
- Encourage MOW to increase the quality and timeliness of road maintenance by more effective use of its MMS.

B. Project Elements

The Project will consist of components whose collective purpose is the provision of assured all-weather access to agricultural lands, both developed and with important development potential according to current GOB land-use plans, and to inland tourist areas. Road segments to be rehabilitated and bridges to be constructed under the project will be selected by the Road Priority Committee in accordance with the selection process and criteria described in Annex 6.

The components are as follows:

Construction of Permanent Bridges: This Project element will provide for the construction of permanent bridges on priority rural road sections, using surplus bridge sets procured under a previous project and already in country. Where possible, bridges will be located either on roads previously rehabilitated, or on roads being rehabilitated under the Project. Tentative sites are indicated in Table II-2. Before implementation, a detailed schedule of bridge sites and sets must be prepared by MOW and agreed to by USAID.

Rehabilitation of Selected Road Sections: About 120 miles of priority rural-access roads will be rehabilitated under the Project. The majority of the rehabilitation works will be done by local private contractors, providing acceptable bids and possessing adequate equipment and experience. Some sections may be done by the existing crews if reasonable bids are not received. This will be done only as a last resort. Before implementation, a detailed listing of roads to be rehabilitated must be prepared by the Road Priority Committee (RPC) and agreed to by USAID.

Procurement of Miscellaneous Goods: Project funds will be used to procure additional computers and software for MOW, to ensure sufficient capacity for planning and design, and for management information systems, with one computer dedicated solely to the roads MMS. In addition, a small mobile drilling rig will be procured for use by the MOW materials laboratory in determining foundation conditions at Project bridge sites.

Table II-1
STATUS OF BRIDGES DESIGNED, UNDER CONSTR. OR COMPLETED

Bridges Under Construction (UC) and Designed (D)
as of June 30, 1991

<u>Site</u>	<u>Status</u>	<u>No. of Bridge Sets</u>
Iguana Creek Bank	UC	2
O. Walk- San Estevan	UC	3
Mangrove & Quamina Creeks	UC	2
Western Hwy.-More Tomorrow	UC	1
A. Pineridge-San Felipe *	D	3
Moho River (Santa Ana) *	D	2
Young Bank (Valley/Peace) *	D	2
Soldier Creek *	D	4
Crooked Tree Causeway *	D	1
Pueblo Viejo *	D	1
Blue Creek **	D	2
Guinea Grass **	D	1
San Lazaro **	D	1
San Ramon **	D	1
Yo Creek-San Antonio **	D	1
Santa Cruz **	D	2

* = Bridges to be constructed by MOW in FY 1991/92 with own funds.

** = Bridges to be constructed in first year of the Project.

TABLE II-2 Bridges to be Constructed Under the Project

<u>Site</u>	<u>District</u>	<u>Clear width (ft)</u>	<u>Estimated total length (ft)</u>
<u>Year 1:</u>			
Guinea Grass	Orange Walk	17	28
San Lazaro - Trinidad	Orange Walk	17	18
San Roman (border)	Orange Walk	17	190
Yo Creek - San Antonio	Orange Walk	17	18
Santa Cruz	Toledo	17	71
Blue Creek	Toledo	11	140
<u>Year 2:</u>			
Progreso Road - Little Belize	Corozal	11	71
O.W. - San Estevan (Ferry)	Orange Walk	17	206
Flowers Bank	Belize	11	31
Grace Bank - Davis Bank Rd.	Belize	11	31
Bullet Tree Falls - Calla Creek Road	Cayo	11	86
<u>Year 3:</u>			
Cristo Rey - Macaw Bank	Cayo	11	71
Wagner Creek	Stann Creek	17	31
Georgetown	Stann Creek	17	28
Bomba Causeway	Belize	11	35
Crique Trosa	Toledo	11	71
<u>Year 4:</u>			
Runaway Branch	Toledo	11	28
Jacinto Creek	Toledo	11	141
San Marcos	Toledo	11	28
Crique Chano	Toledo	11	35
Big Falls Bypass Rd. (Columbia)	Toledo	11	141
<u>Year 5:</u>			
Crique Queso	Toledo	11	40
Indian Creek	Toledo	11	22
Hicatee Creek No. 2	Toledo	11	22

Notes:

Total Number of Selected Sites = 24

Estimated Number of Bridge Sets Required = 42

Number of Sets Used or Scheduled to be Used Prior to Project = 55

If at end of Year 4, the remaining sets exceed number required for the Year 5 program shown here, additional bridges will be designed and constructed in Year 5 as material and funds permit.

III. COST ESTIMATE AND FINANCIAL PLAN

A. Cost Estimates

The estimated total cost of the Project is US\$8,970,000, of which the USAID grant would cover 72%, or US\$6.500 million in foreign exchange and local currency costs. GOB/MOW will provide \$2,470,000 in local currency to the project.

The estimates for construction of bridges and road rehabilitation were made in contemplation of the use of the Fixed Amount Reimbursement (FAR) method of payment to GOB by A.I.D. for the work to be done by Host Country contract. USAID will finance 67 percent of the contract costs for bridge construction and road rehabilitation, or \$4.35 million. The estimated total cost of contract work is US\$6.49 million, excluding inflation and contingency.

Bridge cost estimates were based on recent MOW and contract prices, and the number and size of bridges which could be built with the available bridge sets supplied under USAID Project No. 505-0007. The roadworks estimates were based on current MOW costs of rehabilitating rural roads plus 25% additional for the amortization cost of vehicles and equipment. The width of surfacing will be 12 or 18 feet, depending on whether single or double lane is done. The FAR values and conditions which are recommended for their reimbursement are explained in Table III-1. Cost estimates will be refined when detailed engineering plans and specifications are prepared by MOW prior to annual implementation.

The Project will procure approximately ten (10) personal computers of the 386 series, required software and accessory packages, a digitizer, and related technical services (training and installation) for the MMS. The estimated cost of this is \$100,000. In addition to the computers, a rotary drilling rig for soil survey analysis will be provided to the MOW from project funds. The estimated cost of this procurement is \$150,000.

The Project will be administered by a USAID FSN/PSC Project Manager (60 person months) who will be supported by a USAID FSN/PSC Engineer (60 person months). Additional support for approval and certification will be supplied by a USDH or USPSC Engineer (10 person months). The estimated cost of each FSN is \$45,000 per year and \$20,000 per month for the USPSC. If a USDH Engineer is utilized then payment will not be from project resources. Total administration cost is estimated at \$650,000.

Technical Assistance will be necessary to carry out the mandatory environmental impact assessment needed before A.I.D. approval of each bridge or road segment to be constructed/rehabilitated under the project. The estimated cost of this service is \$200,000.

At project initiation, an evaluation of the MOW capability for handling HC contracts will be carried out. The estimated cost of this exercise is \$20,000. The project will provide funds for two non-Federal audits to be carried out if determined by RIG. \$100,000 is reserved for this purpose. A mid-term and an end of project evaluations are planned. The estimated costs of which are \$100,000.

Table III - 1

CURRENT UNIT PRICES FOR PROJECT ROADS AND BRIDGES

BRIDGES:

Type of Bridge Sets Used:	<u>Single-lane Bridges</u> (11' clear rdwy. width)	<u>Two-lane Bridges</u> (17' clear rdwy. width)
Steel Beam	US\$1,100 per lineal ft.	US\$1,700 per lineal ft.
Deck Truss	US\$1,500 per lineal ft.	US\$2,300 per lineal ft.
Through Truss	US\$2,250 per lineal ft.	US\$3,500 per lineal ft.

Notes: - Length to be measured out to out of bridge deck, along roadway centerline; clear roadway width to be measured between curbs at intersection with deck slab, or between guardrail faces if no curbs are used.

Design drawings are to be approved by USAID prior to advertising of bridge contracts.

RURAL ROADS:

<u>Single-lane Roads</u> (Avg. width of surfacing 12')	<u>Two-lane Roads</u> (Avg. width of surfacing 18')
US\$17,500 per roadway mile	US\$26,500 per roadway mile

Notes: - Surfacing shall be of selected gravel or other suitable material, meeting specified quality and size requirements, with average compacted thickness not less than 5 inches.

Surfacing width is to be measured in horizontal projection between shoulder or fore-slope banks, at right angle to roadway centerline. Mileage is to be measured along roadway centerline in its horizontal projection.

B. Financial Plan

The anticipated manner of implementation and of USAID financing of project elements may be summarized as follows.

Table III - 2
Methods of Implementation and Financing
(in US\$000)

<u>Budget Element</u>	<u>Method of Implementation</u>	<u>Method of Financing</u>	<u>Amount</u>
Bridge Const.	HC contract	FAR	2,230
Road Rehab.	HC contract	FAR	2,110
Commodities	HC contract	Direct LCOM	250
Proj. Mgmt.	USPSC/FSNPSC	Direct payment	650
TA/E.I.A.	AID direct contract	Direct payment	200
Evaln./Audit	AID direct contract	Direct payment	220
Contingency/Inflation			840
TOTAL			\$6,500

Table III-3 shows the distribution of total cost by project element and funding source. The total GOB contribution is 27 percent. The GOB share of construction contract cost is 33 percent.

Table III - 3

INPUTS AND FINANCIAL PLAN

Budget Summary:

<u>Budget Element</u>	<u>A.I.D.</u>			<u>GOB</u>			<u>TOTAL</u>
	<u>FX</u>	<u>LC</u>	<u>TOTAL</u>	<u>FX</u>	<u>LC</u>	<u>TOTAL</u>	
Bridge Const.	0	2,230	2,230		1,110	1,110	3,340
Road Rehab.	0	2,110	2,110		1,040	1,040	3,150
Commodities	250	0	250	0	0	0	250
Proj. Mgmt.	200	450	650	0	0	0	650
T.A/E.I.A.	100	100	200	0	0	0	200
Evaln./Audit	220	0	220	0	0	0	220
Contingency	87	465	552	0	215	215	767
Inflation	43	245	288	0	105	105	393
TOTAL	900	5,600	6,500	0	2,470	2,470	8,970

Table III-4 shows the estimated schedule of project funds expenditure by project elements. The total annual project disbursements average 21 percent per year in years 1-3, and then decreases to 19 percent in years 4 and 5 (Table III - 5).

Table III - 4

Projection of Expenditures By Fiscal Years
(US\$000)

<u>Budget Element</u>	<u>AID</u>						<u>GOB</u>					
	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>	<u>96</u>	<u>TOTAL</u>	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>	<u>96</u>	<u>TOTAL</u>
Bridge Const.	469	469	469	469	354	2,230	231	231	231	231	186	1,110
Road Rehab.	422	422	422	422	422	2,110	208	208	208	208	208	1,040
Commodities	210	40	0	0	0	250	0	0	0	0	0	0
Proj. Mgmt.	130	130	130	130	130	650	0	0	0	0	0	0
T.A/E.I.A.	40	40	40	40	40	200	0	0	0	0	0	0
Evaln./Audit	20	0	100	0	100	220	0	0	0	0	0	0
Contingency	152	100	100	100	100	552	55	40	40	40	40	215
Inflation	0	70	74	70	74	288	0	25	25	25	30	105
TOTAL	1443	1271	1335	1231	1220	6,500	494	504	504	504	464	2,470

Table III - 5
Project Funds Disbursed Per Fiscal Year

	<u>FY92</u>	<u>FY93</u>	<u>FY94</u>	<u>FY95</u>	<u>FY96</u>	<u>TOTAL</u>
Amount (\$000)	1,937	1,775	1,839	1,735	1,684	8,970
Percent (%)	21	20	21	19	19	100

IV. IMPLEMENTATION, MONITORING, AND EVALUATION PLANS

A. Implementation Plan

1. Construction

The major project elements--construction of bridges and rehabilitation of rural road sections--will be financed using the Fixed Amount Reimbursement method. The Ministry of Works will prepare detailed engineering plans and cost estimates for each construction unit (bridge or road segment) to be submitted for USAID review and approval before beginning any construction or awarding any construction contracts. It is expected that these submissions will be made in annual batches, representing the work to be undertaken for the following year. Environmental impact assessments required for USAID approval will be performed using technical assistance to be procured under the project.

USAID's locally contracted Engineer will review the engineering designs and cost estimated under the supervision of a USDH Engineer on temporary duty in Belize or, if a USDH Engineer is unavailable, a U.S. Engineer hired under a PSC. If the designs are found to be satisfactory and the cost estimates reasonable, USAID will approve construction and commit to reimbursing the fixed amount based on 67 percent of the estimated cost.

The MOW will be responsible for tendering and awarding the construction contracts, and for supervising the contractors' work. During construction, USAID's local Engineer will periodically visit construction sites to monitor the work in progress. Upon notification by the MOW that construction is complete, the USAID local Engineer, again under supervision of the USDH or USPSC Engineer, will physically inspect the work to insure that it has been completed in accordance with the approved design. If the work is found to be satisfactory, it will be certified by the USDH or USPSC Engineer, and the fixed amount will be reimbursed to the GOB. If deficiencies are found, the MOW will be advised of the deficiencies. No reimbursement will be made until all work is satisfactorily completed and any deficiencies corrected.

Since under the FAR procedure USAID is paying local currency for a unit of completed work, USAID will have minimal involvement in the contracting process or with the contractors. However, since part of the purpose of the project is to help increase the participation of private sector contractors in MOW sponsored road rehabilitation and maintenance, USAID will expect all work to be financed under the grant to be tendered competitively to the private sector for contract. USAID will agree to reimbursement for work done by MOW forces only if no responsive bids are received, or if the cost quotations are clearly excessive for a given unit of work.

2. Commodity Procurement

The project includes a small amount of commodity procurement-- computers to complete the automation of the MOW's Maintenance Management System, and a drilling rig needed to determine foundation conditions at bridge sites. This procurement will be done by the MOW through competitive invitations for bid.

3. Environmental Impact Assessments

USAID will contract directly for short-term technical assistance to undertake environmental impact assessments of each bridge and road segment proposed for financing under the project. All bridges to be identified and road segments to be rehabilitated are to be prioritized prior to the initial review of designs and cost estimates. The project provides for two months of short-term technical assistance each year to perform the environmental impact assessments of the construction planned for the following year. This will be timed to be completed prior to the engineers' review of the engineering designs and cost estimates.

4. Implementation Schedule

The following time schedule outlines the major steps in implementation of the Project:

Authorization	September 1991
Obligation	September 1991
Recruit Resident Project Supervisor	December 1991
Complete final design & cost estimates for first-year roads and bridges (MOW)	December 1991
Initial visit by A.I.D. Sup. Engineer	January 1992
Prepare and issue IFB for misc. goods	February 1992
Prepare and issue IFB for first bridges	February 1992
Prepare & issue IFB, first road rehab.	March 1992
Award contracts for misc. goods	June 1992
Award first-year contracts for bridges	June 1992
Delivery of misc. goods	July 1992
Award first-year road rehab. contracts	July 1992
Complete plans and estimates for second-year tranche of Project	September 1992
Tech. review by A.I.D. Sup. Engineer	October 1992
Issue IFB for second-year contracts	October 1992
Award second-year road & bridge contracts	December 1992
Repeat No. 13 - 16 for third year (1993)	December 1993
First general evaluation and audit	June 1994
Repeat No. 13 - 16 for fourth year (1994)	December 1994
Repeat No. 13 - 16 for fifth year (1995)	December 1995
Second general evaluation and audit	June 1996
PACD	September 1996

B. Monitoring Plan

Direct supervision of the physical works to be carried out under the Project will be the responsibility of the MOW, which will assign suitably qualified personnel from its permanent staff, or employ qualified firms or individuals from the private sector. The primary responsibility for monitoring the activities of the MOW personnel assigned to the Project will rest with the USAID Project Manager and Resident Project Supervisor, who will work with the Head of the Rural Roads Section, and with the Head of the Bridge Department of MOW, to develop and implement suitable inspection forms and procedures for adequate field control of contract, and any force-account, Project works.

There will be substantial reporting requirements by the USAID Project Manager and Engineer, and by the heads of the MOW Bridge Department and the Rural Roads Section to be established in the MOW, who will be directly responsible for successful implementation of the Project. Monthly reporting requirements of the MOW to USAID will include brief narrative descriptions of work accomplished and scheduled, plus graphic indications of physical and financial progress compared with planned output. Monthly reports will be consolidated quarterly by the USAID Project Manager, who will add his evaluation of Project status, potential problems and delays (and their suggested resolution) and an account of his own activities. The quarterly reports also shall include an evaluation by the Project Manager of the degree to which the MOW is meeting its obligations as to adequate maintenance of rural roads and bridges.

It is anticipated that the RPS will spend the majority of his time reviewing the engineering design process and visiting Project sites to observe work being done. He will assist the MOW inspection staff in properly performing their duties, as well as by imparting to his direct counterparts an increased knowledge of generally accepted managerial practices and of modern techniques in road and bridge design and construction. He will be reinforced in his assigned tasks by occasional project visits by the A.I.D. Supervisory Engineer.

C. Evaluation Plan

Given the planned continual monitoring by Project supervisory personnel, the Mission considers that only two evaluations will be required over the life of the Project. These evaluations are to be funded from project resources.

The first and major evaluation will occur at about the middle of the project life, i.e., on or before June of 1994. It will systematically examine the implementation and performance of the project against planned goals and purpose. It will make recommendations to USAID and GOB on the state of project activities and provide guidance on those activities to be continued, and those to be discontinued or modified if so

determined. To facilitate proper evaluation, the Project Manager should ensure that the Road Priority Committee (RPC), or such other GOB entity as may be designated, compile and maintain adequate baseline data, as discussed briefly below:

- an inventory of roads including length, surface type, width, average daily traffic, and primary function;
- an agricultural potential survey conducted by the Extension Service of the Ministry of Agriculture for each road, and a ranking of roads according to their perceived potential;
- data on the road priority data form, including length, communities served, population, households served, transport costs, stores along the route, types of employment, types of land use, etc.;
- complementary field notes by the RPC included with the data form and miscellaneous backup data; and
- road cost estimates for each road segment.

Although the score sheets used by the RPC remain in USAID/Belize files, the data collected as indicated in the 1985 evaluation for the conduct of the scoring were no longer readily available. There was no evidence that impact evaluations keyed to the original base line data had been implemented.

The RPC has been vested with the responsibility of collecting similar data to complete the prioritization of the roads to be rehabilitated under the Project. This compilation would provide a substantial portion of the base line data required for subsequent project evaluation. The following step should be included in preparing the baseline summary:

- the conduct of a sample survey of rural households in the project area, including specific questions keyed to the role of women;
- data available from the land use studies which have been conducted by the National Research Institute on a District basis; and
- a review of agricultural data collected in conjunction with the preparation of the feasibility study for the Market Infrastructure Linkage (Roads and Facilities) Project being supported by the Caribbean Development Bank.

Important elements of the first evaluation should be:

- an evaluation of progress achieved, compared to what had been scheduled, in bridge installation and road rehabilitation;

- an audit of the quality of the physical works completed, based on field inspection and a review of Project records;
- the sufficiency of GOB budgetary allocations for its counterpart funding, in-kind contributions, and road and bridge maintenance programs;
- the functional effectiveness of the MOW organizational structure and adequacy of staff for Project supervision, as well as for its other responsibilities;
- an evaluation of the overall quality of road and bridge maintenance being performed by the MOW, giving due consideration to special problems such as the difficulty of using marl as surfacing in the northern districts; and
- the performance of private contractors in road rehabilitation to date and the need for any specific project assistance to them.

The final evaluation will take place approximately six months prior to PACD.

Important elements of the second evaluation should be:

- an evaluation of progress achieved, compared to what had been scheduled, in bridge installation and road rehabilitation;
- an audit of the quality of the physical works completed, based on field inspection and a review of Project records;
- the functional effectiveness of the MOW organizational structure and adequacy of staff for Project supervision, as well as for its other responsibilities;
- an evaluation of the overall quality of road and bridge maintenance being performed by the MOW; and
- the performance of the private sector in bridge and road construction and rehabilitation compared to GOB/MOW performance under this and the previous project.

D. Audit

Financial and compliance audits for MOW will be conducted by the GOB Auditor General in accordance with GOB practice. The USAID Controller will arrange for other required financial reviews, either from its own resources or from Belizean Chartered Accounting Firms. Additionally, non-federal audits may be arranged through AID's Inspector General Office. Funds for these purposes have been provided in the budget.

V. SUMMARIES OF PROJECT ANALYSIS

A. Technical Analysis

1. Bridge Construction

The MOW has demonstrated the ability to construct bridges to a satisfactory standard during the past year, with five bridges currently under construction and five more slated to be constructed during the coming year. Most are being built by private contractors under MOW supervision. Considering the present capability of the private sector in bridge construction, at least 75 percent of the bridges could be contracted out to private contractors.

MOW district bridge crews are experienced and can build 2 to 3 small bridges per year if needed. Personnel from some of the bridge crews could also be assigned inspection duties on bridges being contracted.

2. Road Rehabilitation

Rehabilitation of rural roads by the MOW crews equipped and trained under the previous RRB Project is considered to be of acceptable quality, except where oversize material has not been screened out or where soft limestone marl is the only select material available within a reasonable haul distance. Equipment diversion and poor planning, combined with unfavorable weather conditions, have limited the ability of MOW to achieve consistently high levels of output under the RRB Project.

Given the current difficulties in achieving satisfactory levels of availability and utilization of equipment, most road rehabilitation work will be let to private contractors. It is expected that some sections, particularly those in remote areas, would be assigned to the MOW rehabilitation crews. This would also help the project to obtain data on cost and other comparisons between private contractors and force-account work done by the MOW.

In recognition of the importance of conserving Belize's natural resources, maintaining its biological diversity and preserving its unique cultural heritage, the Project will not rehabilitate any road segment or install any access bridge where the environmental integrity of the protected area may be compromised.

The Project will not rehabilitate any road segment passing through any protected area designated under the GOB system of protected areas ^{1/} or identified as a protected archaeological site.

^{1/}A comprehensive system of protected areas will be developed under the Natural Resources Management and Protection Project (A.I.D. Project No. 505-0043) and will be available to guide prospective road rehabilitation activities. Until then, the Critical Habitat Survey completed in December by the Belize Center for Environmental Studies is available to orient prospective road rehabilitation efforts in conjunction with the established reserves, parks and other protected areas.

If, on the advice of the Commissioner of Archaeology, in consultation with the Forestry Department, Conservation Division and the MOW Chief Engineer, and with the advice of communities and local nongovernmental organizations knowledgeable about the area, access to or through a protected area is deemed necessary, USAID will consider such sites for funding eligibility when:

- a. A.I.D. has received a commitment in writing from the GOB stating that no leases, permits, concessions or other access will be granted where the potential impact compromises the integrity of the area made accessible by the road or where the environmental impact assessment does not support its prospective use; and
- b. sources of road construction material have been approved by the Department of the Environment and the Commissioner of Archaeology.

3. Technical Feasibility

Based upon the information available to the Project Development Team, including extensive interviews with key MOW officials, the team certifies that: a) adequate preliminary engineering and financial planning needed to successfully implement the proposed assistance has been carried out, or will be performed prior to the issuance of IFB for bridge and road subprojects; and b) a reasonably firm estimate of the cost to the United States for this assistance has been made. Section 611(a)(1) of the FAA has been met (see Annex 5). Detailed plans for specific bridges and road segments, including an assessment of possible adverse environmental effects, will be reviewed in yearly tranches by the RPS and the A.I.D. Supervisory Engineer, prior to issuance of the corresponding IFB.

4. Contracting Procedures

General local competitive bidding (LCB) and contracting procedures will be in accordance with applicable GOB and A.I.D. laws and regulations. The MOW will be required to submit to USAID satisfactory evidence that potential bidders for Project works have been prequalified based on an evaluation of each applicant's proven financial and technical capacity, as well as on applicant's available equipment and personnel. A formal evaluation and assessment of the the contracting capabilities and procedures of the MOW will be conducted prior to award of any contracts under this project. Assistance will be provided to ensure that the contracting procedures conform to USAID regulations governing fixed amount reimbursement, especially as they relate to construction contracts.

Road rehabilitation and bridge construction contracts will be issued by MOW with approval from USAID. The GOB/MOW will be responsible for payments to the contractors. Upon satisfactory completion of the agreed works and certification by the USAID

Engineer (RPS or USDH), USAID will reimburse to the GOB the agreed amount, equivalent to sixty-seven percent of the agreed contract price. No reimbursement will be made for incompletd contracts, or for work not certified by the USAID Engineer.

B. Financial Analysis

1. Expenditure on the Transport Sector

The Government of Belize has estimated that for FY 1991/92 its total expenditure budget will be Bz\$307 million. The government will contribute about Bz\$175 million to the recurrent expenditure and \$58 million to capital expenditures (Capital II), while Capital III expenditures will utilize foreign grants totaling Bz\$25 million and loans of Bz\$49 million. Capital II expenditures are capital expenditures on projects financed exclusively from GOB's own resources whilst Capital III are capital projects financed only from foreign sources and can be in the form of loan and/or grant. About Bz\$37.5 million of this total expenditure budget will be used for Roads and Waterways.

Expenditure on roads maintenance was estimated for FY 1990/91 at Bz\$3.2 million out of the recurrent budget. The CAP II estimates additionally include Bz\$1.28 million for upgrading rural and feeder roads and bridges, mostly periodic or deferred maintenance activities. Rural roads maintenance expenditures, therefore, are running about Bz\$4,500/mile. Under CAP III Bz\$3.0 million is earmarked for the construction of rural roads and bridges. The total expenditure budgeted for FY 1990/91 on the rural network totals was therefore Bz\$7.5 million.

The MOW expenditures on roads maintenance over the last seven years have been inadequate. These expenditures have been consistently below the required levels estimated by the MMS unit and also below those agreed upon with the World Bank on the Second Roads Project signed in 1988. The explanation for the shortfall between the MOW maintenance allocations and those agreed with World Bank and estimated by MMS has been that a number of activities which appear under the capital projects headings of the estimates of expenditure are really road maintenance activities. However, this could not be confirmed and field observations did not confirm the higher level of activity on maintenance.

The roads project proposed herewith for USAID assistance will provide over 5 years an incremental expenditure on rural roads and bridges, excluding the technical assistance component, of about Bz\$3 million per year. The GOB funded contribution will be about Bz\$0.9 million yearly, or about 20 percent of the total earmarked in FY 90/91 for rural roads. It is not foreseen that GOB will have problems in meeting this contribution.

2. Revenue from Transport Sector

Total recurrent revenues for FY 1991/92 are estimated at Bz\$220 million of which 17% can be attributed to the Transport Sector. The road transport sector generated about Bz\$35 million in revenue for the GOB in 1990, out of total recurrent revenues of Bz\$205 million. Road taxes increased about 8% over the previous year. The revenues are three and one half times more than expenditures from the GOB's own resources on road maintenance and construction.

International trade taxes levied on road transport equipment, spares, and fuels accounted for about Bz\$32.9 million while fees paid for drivers licenses, annual vehicle licenses and initial vehicle registration yielded another Bz\$2.3 million.

The GOB is emphatically proud that its 1991/92 budget does not include any new or increased taxes and that some reductions are included. The case for any significant increases in road user taxes within this context is unlikely to be supported. The average tax burden per licensed vehicle is about Bz\$2,000 per annum.

Some restructuring and adjustment of annual vehicle licensing fees and international trade taxes may, however, be appropriate. The existing annual vehicle licensing fees, set in January 1986 for goods vehicles or buses, range between Bz\$125 - 250 depending on tare weight. One possible adjustment would be to further extend the graduated fee scale based on tare weight beyond the present top rate. The present top rate is for buses of more than 12-passenger capacity, and for goods vehicles exceeding 4,000 lbs. tare weight. This could be justified since the road wear caused by heavy vehicles increases substantially as tare and capacity increases.

Another possibility would be to reduce the total combined rates of duty on commercial vehicle imports. This is presently a combined rate of 79%. This would encourage the import of better quality, mostly second-hand, vehicles. Given that a buyer has a fixed amount to spend on his purchase, a lower import tax would allow purchase of a newer vehicle which would normally have lower operating costs, especially repairs, and a longer remaining useful life.

The economic arguments for both these possibilities are strong, even though they would have opposing effects on Government finances in terms of revenue generation.

C. Economic Analysis

The immediate impact of the Project will be to ensure all-weather access on roads which are at times flooded, and therefore impassable, and to reduce surface roughness of unpaved roads. To maintain a good riding surface will require a more expensive level

of maintenance than before rehabilitation, but the operating costs of vehicles, and personal travel time, will be reduced.

Most rural road projects are justified on the basis of an increase in farm income resulting from higher farm-gate prices and increased production that follows road improvement, be it a major upgrading from an oxcart path or no path at all to the elimination of bottlenecks and general upgrading of non-all-weather roads.

The analytical techniques for estimating the agricultural response to improved accessibility require that input variables be documented and measured and that the change attributable to accessibility be estimated. While these agricultural benefits are important for this project and it would be desirable if they could be estimated, the socio-economic impact studies of typical rural roads improvements in Belize are not available and therefore precludes such an analysis.

Thus the economic analysis focused on the cost of new bridges and road rehabilitation and on the cost savings to road users and time savings of personal travel. To some extent these savings should improve marketing opportunities, especially for perishables, with lower transport costs to the producer. Bus fares on good roads in Belize are about half of those for routes on bad roads for equivalent distances. Reducing travel time has value in terms of frequency with which persons can access markets, farm inputs and services.

In selecting values to be used in the economic analysis, minimum or conservative values were used, namely values which most probably underestimate project benefits. For example, the hourly value for personal time of Bz\$2.00 approximates the agricultural labor wage, whereas most persons traveling in light vehicles and many using buses will certainly have a higher value of time. Project costs will vary considerably from one project site to another. In estimating these costs, an effort has been made to allow for the more difficult site conditions. The number of miles of road reconstruction funded is likely to be higher than the 120 assumed in the economic evaluation.

Most importantly, the potential benefits in terms of accessibility of the farm household to services and markets are only partially measured by personal time savings. Fully valued, this would be a viable project, even if the IRR were somewhat lower. These cost reductions alone more than justify the project's expenditures. Applying the usual "with" and "without" project cash flow analysis over a thirteen years period produced an internal-rate-of-return (IRR) of 24%, assuming that traffic volume growth will be only 3% per year for both cases. When savings to additional traffic generated by the improvements are valued, as explained in Annex 10, Attachment 1, the IRR rises to 45%. This additional traffic represents traffic "generated" by the road and bridge improvements and is estimated to be 4%. Therefore traffic volume under this condition is expected to grow at 7% per year.

However, in the above calculation of the IRR, the cost of technical assistance was not included as an investment cost, although it is likely that the same quality of results would not be achieved without it. If they were included, the IRR would fall to 22% in the without "generated traffic" case, but the project would still be economically viable.

D. Social Soundness Analysis

The population of Belize, estimated at approximately 190,000 in 1990 has a highly diverse ethnic composition. The largest groups are the largely urban English-speaking Creoles, and the mostly rural Spanish-speaking Mestizos--many of whom are of Mayan ancestry--who in 1980 represented respectively 39.7% and 33.1% of the population. Small minorities include East Indians, Chinese, Mayas, Ketchis, Garifunas, Lebanese, and whites (see Table V-1). This mix of peoples does not break down readily into groups by social class, level of income, or economic role; mixed communities are common. The only communities where only one ethnic group is found are the Mennonite settlements and the Indian villages in the far south.

The distribution of ethnic groups varies, both between the urban and rural population, and from district to district. Creoles represent about 50 percent of the urban population, but only about 25 percent of the rural population; they represent about 75 percent of the population in Belize District, but only 11 percent of the population in Orange Walk District.

Thus the Project beneficiaries will vary within each district. In the northern Corozal and Orange Walk districts, most of the rural population are Mayan-descended Mestizos who once practiced milpa farming at a subsistence level, but now are heavily involved in the production of sugar cane. Communities are served by a greater density of highways and feeder roads, of generally higher quality than elsewhere in the country. Orange Walk also contains two large Mennonite communities which practice intensive mixed farming.

The Belize District is mainly populated by Creoles who practice small-scale subsistence farming and produce fruits and vegetables for the Belize city market. Most settlements are on poor land along the highway, or on rich soils along the Belize and Sibun rivers, reached by short feeder roads from the Western Highway. There is some cattle ranching on larger holdings.

In the Cayo District, cattle ranching and mixed farming predominate, with most settlement concentrated along the fertile strip of land in the Belize River Valley. Recent migrants from El Salvador have settled in this region.

The Stann Creek District has a very mixed population of Creoles, with minorities of Mestizos, Mayas, and Caribs, the latter concentrated in coastal fishing villages. Except for the major citrus area in the Stann Creek Valley and a banana project in the South, most farmers practice milpa subsistence farming.

Table V-1

BELIZE: DISTRIBUTION OF POPULATION BY DISTRICT AND ETHNIC GROUP
1980 Census

<u>District</u>	<u>Creole</u>	<u>East Indian</u>	<u>Chinese</u>	<u>Maya</u>	<u>Ketchi</u>	<u>Garifuna</u>	<u>White</u>	<u>Mestizo</u>	<u>Other</u>
Belize	75.1	1.5	0.3	0.7	0.1	3.2	1.1	13.1	4.8
Corozal	16.9	2.9	0.1	13.8	0.3	2.3	1.7	58.4	3.6
Orange W	11.3	0.3	0.0	6.8	0.2	2.3	13.5	64.5	1.1
Cayo	31.0	1.1	0.0	3.6	0.4	1.9	8.9	49.0	3.8
Stann Ck	32.9	2.0	0.1	5.2	0.2	45.6	0.5	10.5	2.9
Toledo	11.9	8.6	0.0	25.4	31.5	12.7	1.0	5.9	3.0
TOTAL FOR COUNTRY	39.7	2.1	0.1	6.8	2.7	7.6	4.2	33.1	3.6
TOTAL URBAN	54.0	1.5	0.3	0.8	0.1	11.3	0.8	26.2	5.7
TOTAL RURAL	25.5	2.5	0.0	12.4	5.3	3.9	7.4	40.1	2.4

Source: Abstract of Statistics, 1990.

The far southern Toledo District is the least developed area of the country. It has a population of Mopan and Ketchi Maya in the inland areas, and East Indians and Caribs along the coast. Subsistence milpa farmers concentrated around the village of San Antonio also produce the majority of the country's rice, hogs, and beans.

The population of Belize is about evenly split between rural and urban areas. Over the last twenty years, however, the rural population has been growing at a faster rate than the urban population. In 1970 Belize City represented about 32 percent of the national population, whereas in quick-count figures for 1990 it has fallen to about 24 percent of the total population (see Table V-2). During the same period, urban areas as a whole have fallen from about 53 percent of the population to about 47 percent. In part this reflects a willingness of some Belizeans to move to the countryside, but it also is the result of migrant and refugee settlement in rural areas, the emigration of the urban population to the United States and other countries, and undercounting in the census of urban populations living immediately outside the city limits of certain urban areas.

Table V-2

<u>BELIZE: POPULATION BY AREAS 1970, 1980, 1990</u>								
AREA	1970	% of Total	1980	% of Total	% Change	1990 Prv Count	% of Total	% Change
Belize								
City	39,050	32.6	39,771	27.4	1.85	43,621	23.7	9.7
Other								
Major								
Towns	23,920	19.9	32,946	22.5	37.7	43,658	3.7	32.5
Total								
Urban	62,970	52.5	72,717	50.0	15.7	87,279	47.3	20.0
Total								
Rural	56,964	47.5	72,636	50.0	27.5	97,061	52.7	33.6
Grand								
Total	119,934	100	145,353	100	21.2	184,343	100	26.8

Source: Abstract of Statistics, 1990.

The census figures indicate that there is an increase in both the rural farm population and in the number of rural villages. Between 1970 and 1980, and between 1980 and 1990, the number of villages in Belize increased by 30 percent and 42 percent respectively (see Table V-3). The rate of increase in the number of villages varied widely from one district to another. Between 1970 and 1980, however, the mean average size of villages increased in only half of the districts and declined in the others (see Table V-4). In Corozal, Orange Walk, and Belize districts, few new villages were established and rural population growth was accommodated by increasing the size of villages (see Table V-4). This may have been a direct consequence of the better roads in these three districts. In the other districts, population had grown but the average village size actually decreased. The poor roads in these districts did not attract farmers, who instead dispersed in search of new lands. Between 1980 and 1990 the mean size of villages in Belize increased only from about 320 to 324 persons--although the increase at the district level was more significant--and the differential in growth in the mean size of villages between the northern and southern districts lessened. This may have been the result of rehabilitation of roads in these areas, but it is difficult to generalize and attribute the change in the growth pattern specifically to the road rehabilitation undertaken during the previous project.

Table V-3

BELIZE: DISTRIBUTION OF VILLAGES, 1970, 1980 and 1990

DISTRICT	NO. OF VILLAGES 1970	NO. OF VILLAGES 1980	GROWTH	NO. OF VILLAGES 1990	GROWTH
COROZAL	30	31	+1	37	+6
ORANGE					
WALK	23	27	+4	35	+8
BELIZE	28	36	+8	36	0
CAYO	26	40	+14	76	+36
STANN					
CREEK	13	32	+19	41	+9
TOLEDO	27	44	+17	74	+30
TOTAL	147	210	+63 (30%)	299	+89 (42%)

Table V-4

BELIZE: POPULATION LIVING IN VILLAGES AND MEAN SIZE OF VILLAGES,
1970, 1980 and 1990

DISTRICT	VILLAGE POPULATION 1970	VILLAGE POPULATION 1980	VILLAGE POPULATION 1990	MEAN SIZE 1970	MEAN SIZE 1980	MEAN SIZE 1990
Corozal	10,238	15,775	20,949	341.3	508.9+	566.2+
Orange						
Walk	9,949	14,260	19,052	432.6	528.2+	544.3+
Belize	7,449	10,492	12,510	266.0	291.4+	347.5+
Cayo	8,065	11,092	18,574	310.2	277.3-	244.4-
Stann						
Creek	3,273	7,180	11,188	251.8	224.4-	272.9+
Toledo	5,377	8,381	14,690	199.2	190.5-	198.5+
Total	44,351	67,180	96,971	301.7	319.9+	324.3+

The social impact of the Project carries many of the benefits discussed in the social soundness analysis prepared for the previous project. A check-list of the kinds of factors which have been considered in previous analyses of project impact is provided in Table V-5.

Table V-5

SAMPLE CHECK-LIST FOR SOCIO-ECONOMIC IMPACT

Greater Access to Markets
Opportunity for Temporary/Permanent Employment
Development of Road-side Businesses
Access to Social Services
Access to Health Services
Exposure to Outside Influences
Access to Passenger Services
Improved or Increased Pedestrian Traffic
Increased Number or Seriousness of Injury from Road
Accidents
Impact Including Intrusion on and Improvement of
Housing/Structures
=====

In Belize, farmers have tended to concentrate along the best roads even if the soils there were poor, because the farmers have recognized that greater access to cheap and regular transport brings multiple benefits. Most important of these are the ability to get crops to market on a regular basis, the ability to procure crop inputs when needed, the access to medical care, and the regular transportation to towns for shopping. Government personnel in agricultural extension, land survey, health, and education have been reluctant to visit areas with poor roads--especially if access requires travel by foot--and shun assignment in rural areas with poor roads. Faced with expensive and unreliable transportation, farmers in less accessible areas in Belize have been reluctant to invest time and effort in cash crop production.

Discussion with several of the district MOW Officers-in-Charge indicate that there is a wide variation in the observable impact of the road rehabilitation performed under the previous project. Some officers felt that there had been an increase in the number of roadside businesses or in the number of settlements. Others indicated that the impact was made through increased access, reduced costs, and reduced travel times. In the absence of a follow-up evaluation of the baseline data originally collected, it is impossible to fully document the extent of such impact.

An early anthropological study cited in the project paper for the previous project contrasted villages in the Toledo District on a major highway with a village on a poor road and one with no road at all. The study reported several major changes prompted by improved road access:

- an increase in cash cropping and disposal income;
- growth of rural marketing and trucking by local merchants;
- agricultural intensification (shorter fallow cycles);
- a wide variety of food and cash crops being grown;

- more wage labor in slack season;
- more intensive competition for land;
- more frequent visits to town;
- increased awareness and participation in national politics;
- greater interest in agricultural innovation; and
- more frequent visits by extension officers and other GOB agents.

The collection of baseline data for project evaluation should include a sample of rural households in project areas to later document project impact.

The social impact of the project is likely to vary from area to area. In northern districts where villages are larger and tend to be better served by government--and where cash crop production is already well established--economic benefits from cheaper transportation as a result of the constructed bridges or rehabilitated roads may be more important than the social benefits. Elsewhere the benefits may be greater from a social perspective, from short-term economic benefits, or from long-term land-use benefits.

The lessons learned from "best practice" in development planning indicate that the economic and social benefits from the improvement of rural roads do not just happen. Extension services, credit, and community development programs must also be provided. The GOB and foreign assistance organizations are presently pursuing a number of such projects. The bridge construction and road rehabilitation included under the Project will enhance the impact of these projects. Without a careful matching with such programs, there will be a threshold beyond which impact will not progress. Criteria for selection of the road segments and bridge sites has included some input from the Ministry of Social Services. Such consultation between the MOW and other GOB agencies should become more regularized.

E. Administrative Analysis

Management and administration of the Project will be the responsibility of the MOW, with the Head of the proposed Rural Roads Section being directly in charge of daily operations. He will be guided and assisted by the USAID Resident Project Supervisor, who will be a qualified professional engineer hired locally.

Mission administration of the Project will be exercised through a Project Manager to be employed by the Mission and financed under the Project. This manager must be fully qualified to supervise the work of the RPS and to assist in technical liaison with the MOW. The RPS's responsibilities will extend to monitoring all aspects of project operations, working closely with the Project Manager, the A.I.D. Supervisory Engineer, and the designated MOW counterparts. The Project Manager will be responsible for general Project administration, including review of specifications for

Project goods, procurement, satisfaction of conditions, enforcement of covenants, reporting, financial control, and evaluation.

Project financing will be provided to the MOW in the form of an A.I.D. grant to the GOB. MOW will be required to manage and administer the grant in accordance with the normal A.I.D. requirements conveyed in a Project Agreement and subsequent Implementation Letters. In the Mission's opinion, the MOW has, or can contract, the necessary skilled personnel to satisfactorily prepare plans and estimates, let contracts, and properly inspect the works as planned - with the programmed Project supervision. Judging by past performance and accounting improvements now under study, MOW can effect timely payments to contractors, and maintain accurate subproject accounts.

F. Environmental Analysis

Improvements of rural access roads have direct and indirect environmental effects. Direct effects are caused by construction/rehabilitation of the road section--and associated bridges, drains, or other structures--and include erosion of hillsides where roads are built, siltation of rivers from this erosion, continuous dust pollution in towns along the road or to crop areas, flooding and erosion near outlets of drainage structures, and loss of prime agricultural lands if the existing road alignments or bridge sites are changed. Indirect effects are those occurring in the areas influenced by the road once the rehabilitation and construction has taken place. These include aggravation of deforestation and soil erosion, changes in agricultural production techniques and land use, modification of settlement patterns, and opening of land areas to new activities and use. A sample check-list for environmental impact drawn from projects undertaken in Belize is provided in Table V-6.

The historical record, based on worldwide donor-assisted rural access road construction/rehabilitation, indicates that indirect effects create more serious environmental problems than do direct effects. Basic causes of such indirect effects are due to more extensive and intense cultivation and--in extreme cases--to more logging for selected tree species. Where agricultural centers are served by improved roads, open land along the roads becomes scarce, farmers move up hillsides, more land is cleared without regard for soil capability or suitability for certain types of crops or cropping practices, and even the demand for firewood often increases.

In general, these effects have a mix of positive and negative impact. On the positive side, more arable--not necessarily better--land may be brought into production; hence, country development goals of food import substitution and greater farmer self-reliance may be achieved. On the negative side, certain environmental costs are borne in the long term by the deterioration of the agricultural resources base, particularly

Table V-6
A Sample Check-List for Environment Impact

HYDROLOGICAL

Temporary Interruption of Water Flow
Permanent Diversion of Water Course
Sedimentation or Silting of Water Course
Changes in Groundwater Levels

GEOTECHNICAL

Stability of Ground
Opening of New Borrow Pits
Disposal of Surplus Material
Clearance of Forest
Disruption of Grassland
Loss of Agricultural Land
Air Pollution
Resettlement/Over-cultivation

FAUNA AND FLORA

Disruption of Adjacent Areas
Increased Access or Traffic Through Areas

HISTORICAL AND ARCHAEOLOGICAL SITES

land, soil, and perhaps even water. In Belize, with its tradition of milpa agricultural production (slash and burn, long fallow), indirect effects must be carefully monitored; this is especially true in areas supporting Mayan and Mestizo refugee populations.

The environmental impact evaluation conducted during the design of the previous project indicated a negative determination. Since the project involved the rehabilitation of existing roads with limited realignment and limited construction for the new bridges, little direct impact was expected. Engineering design criteria were applied to minimize flooding, silting, and erosion hazards along the existing alignments and sites. Additional environmental issues were reviewed by the RPC.

Visual inspections and interviews with GOB officials by members of the Project Development Team indicated that the direct environmental impact of work executed under the previous project had been minor. The major exception was at the site of the bridge over the Sibun River on the New Belize Road (Manatee Road). Shortly after the completion of the bridge, there was a major flood which washed out the mid-span and required the rebuilding of the bridge. The flood also washed away the newly laid topsoil intended to hold the soil against erosion. This soil has not been replaced, resulting in serious erosion of an extended area around the bridge site. The rather high embankment on each side of the road leading to the bridge is also eroding, reducing the effective roadway width.

The potential for environmental damage is greater the larger the size of the bridge being constructed. Of the twenty-four bridges planned for the Project, five are over 100 feet in length (see Table V-7). Most of the bridges have a clear roadway width of eleven feet, but eight are to have a width of seventeen feet (see Table II-2 for additional details). Although the bridges have been drawn from a list already cleared for environmental impact, it is suggested that the design of the remaining bridges be reviewed for environmental impact, especially those to be constructed under contract to the private sector.

Table V-7
Bridges to Be Constructed Under the Project
by Year and Length

Total Length	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Under 30 Feet	3	0	1	2	2	9
30-50	0	2	2	1	1	6
50-100	1	2	2	0	0	5
over 100	2	1	0	2	0	5

TOTAL	6	5	5	5	3	24

Note: Clear Roadway Width of 11 feet for 17 bridges and 17 feet for 8 bridges.

=====

Source: Ministry of Works

Although by definition no activities under the previous project were to involve protected areas--including wildlife, forestry, or archaeological preserves--compliance of this condition was to be monitored throughout the life of the project. Realignment through a swamp required review, and there were initially some concerns over threats to archaeological sites. The Archaeology Department of the Ministry of Tourism and Environment states that there has been a long standing problem with the MOW not consulting them on the significance of sites, especially in terms of the establishment of borrow areas. The establishment of the RPC as a permanent consulting mechanism should be considered as a means of increasing communication between the MOW and other ministries in regard to environmental, social, and economic issues.

Any negative indirect impact of the previous project is difficult to document without the use of baseline data, so the evaluation activities for this Project should include the collection by GOB of pertinent data. Especially visible at this time is the clearing of about 3,000 acres of land for citrus development on the other side of the above-referenced bridge on the Sibun River. Although this development might not have taken place without the construction of the bridge, this investment in citrus was recommended as a development target by the Ministry of Natural

Resources. An assessment of possible detrimental effects from such large-scale new developments, as a result of Project implementation, should be carried out for each subproject.

Assistance to tourism is one of the new targets included under the Project. Some of the roads to be rehabilitated link to archaeologically significant sites. The improved access to these sites represents a potentially negative impact, since many of these sites--including both Mayan compounds and burial caves--are not guarded, and therefore will be more readily exposed to looting. Sites which have not been excavated, and/or which cannot be guarded, should be at least posted as closed to the public.

G. Role of Women

The social soundness analysis included in the project paper for the previous project did not include an assessment of the project's impact on women. The only role seen for women in the design of the project was at the support service level, and no data disaggregated by gender were generated during the life of the project. A review of gender considerations in the previous project concluded that the project was male focused "in regard to project management, implementation, and orientation". Although the focus of the present project on bridge construction and road rehabilitation continues to restrict the role to be played by women in the project, the indirect and direct impact of the project on women is addressed in this section.

According to the most recent survey of the labor force, conducted in 1984, women comprise a disproportionate percentage of the unemployed in the labor force of Belize (see Table V-8). At the time of the survey there were almost three times as many unemployed women as men on a national basis (24.2% compared to 9.0%); in rural areas the differential was more pronounced, reaching almost nine times (26.9% compared to 3.0%). The level of unemployment for women varied from district to district, being the highest in Stann Creek and Toledo districts. Information was not readily available for underemployment or limits on employment mobility for women, but both were reportedly high.

Discussions with the Ministry of Social Services and in-country specialists working with women in development in Belize indicate that there is a wide-spread potential for an indirect impact on women arising from the Project. Women tend to be involved in the production of small livestock, cash crops, and agricultural marketing. Improved access to rural areas improves both their potential for income-earning as well as time-savings from shortened travel times and increased frequency of transport services. In some cases women may be stimulated to produce handicrafts for sale.

The extent to which women would indirectly profit from the Project, combined with the extent to which they maintain control over their profits, might also be an important determinant of the

social impact of the project. Studies have indicated that a greater proportion of the income earned by women is spent on food, education, and general improvements to the overall quality of living in the household.

Table V-8

Unemployment as a Percentage of the Total Work Force by Areas and Sex, 1984

Geographic Area	Male	Female
National	9.1	24.1
Urban	10.2	22.8
Rural	3.0	26.9
Corozal District	3.1	23.9
Urban	2.4	11.1
Rural	3.5	37.2
Orange Walk District	6.6	23.0
Urban	10.2	22.8
Rural	3.0	26.9
Belize Dist.	13.0	21.0
Urban	13.0	22.1
Rural	12.9	13.0
Cayo District	5.4	20.4
Urban	7.5	15.4
Rural	3.9	10.3
Stann Creek District	13.6	38.8
Urban	5.0	28.8
Rural	19.5	50.0
Toledo Dist.	12.4	32.1
Urban	-	30.4
Rural	33.3	18.2

Source: Abstract of Statistics, 1990.

In the short-run, there is also an opportunity for women to vend food to members of the work crew, but workers employed on the MOW crews have generally been recruited from the district and bring their own meals with them. Where bridge construction and road rehabilitation results in improved access to archaeological sites, women might profit from the vending of food to tourists, or might find employment in hotels or restaurants which were subsequently developed. The opportunity for women to directly enter into small business operations on their own, and to expand their operations, will be restricted by their limited business skills and minimal access to credit and banking institutions.

The potential for direct involvement by women in the project is restricted by various factors. The traditionally accepted roles in labor assigned to women vary from one ethnic group or region to another in Belize. In general, traditional values concerning women's roles have become more fluid, but this is mainly an urban phenomena. Although some women have entered the construction industry--for example as painters--they have generally not formed part of the manual labor force used for either road rehabilitation or bridge construction.

Discussions with MOW engineers suggested that the MOW would be open to the direct participation of women as drivers for survey teams and record keepers. Most women in rural areas, however, have had limited training in these two areas. If they are to be incorporated into the project, it may be necessary to provide special training for them. Women in rural areas, moreover, are constrained from entering full-time positions by continuing family responsibilities; special arrangements may be required in order to enable their participation in the afternoons on a half-day shift.

The direct employment potential for women under the Project may be increased by the use of private contractors to perform bridge construction and road rehabilitation under contract to the MOW. The operation of such private firms involves a broad range of managerial, administrative, and clerical work which women could perform. Since most contractors are headquartered in small towns or urban areas, most rural women would have limited access to such positions.

The MOW should prepare a policy statement on the employment of women under the project. This statement should include a plan for announcing openings for women through the communication channels most frequently used by women in rural areas. The impact of the Project on women, and their role in the project, should be monitored in project reports and on the basis of the household interviews proposed for the collection of baseline data.

SUBMIT THE PROJECT FOR FY 91 PERFORMANCE FUNDING. THE MISSION ALSO PROPOSES TO CHANGE THE TITLE TO FISCAL POLICY PLANNING AND MANAGEMENT.

THE PID, WHICH WILL INCLUDE TAX REFORMS AND FISCAL POLICY ELEMENTS OF HEALTH CARE FINANCING, WILL BE REVIEWED AND APPROVED BY A.I.D./W. THE PID SHOULD ADDRESS THE COMPLEXITIES INHERENT IN THE TAX AND FISCAL PLANNING AREA.

6. FY 1991 NEW PROJECT DESCRIPTIONS.

A. 505-0042 - RURAL ACCESS BRIDGES (LOP DOLS. 4 MILLION).

DECISION: IT WAS AGREED THAT USAID/BELIZE WOULD CONSTRUCT (USING THE FAR METHOD) 25 OF THE REMAINING BRIDGES UNDER THIS BRIDGES PROJECT OVER THE NEXT FIVE YEARS. IN ADDITION TO THE 25, THE GOB WILL FUND 14 WITH HOST COUNTRY OWNED LOCAL CURRENCY (ESF), AND 3 WILL BE FINANCED THROUGH SECTION 416 (SUGAR QUOTA) LOCAL CURRENCY GENERATIONS. IT WAS AGREED THAT, ALTHOUGH IT IS IMPRACTICAL TO AWAIT THE COMPLETION OF PLANNED LAND USE PLANNING STUDIES PRIOR TO BEGINNING CONSTRUCTION ON THE BRIDGES, THE MISSION WILL REVIEW AND INCLUDE IN THE PROJECT PAPER (PP) THE LOCATION AND ENVIRONMENTAL ISSUES AS EACH BRIDGE IS BUILT. PP APPROVAL IS DELEGATED TO

THE A.I.D./REPRESENTATIVE. NO PID IS REQUIRED SINCE THIS IS A FOLLOW-ON ACTIVITY.

B. 505-0043 - NATURAL RESOURCE MANAGEMENT AND PROTECTION (LOP DOLS. 0.5 MILLION). USAID/BELIZE AGREED TO EXAMINE WAYS OF NARROWING THE PROJECT'S FOCUS, NOTING THAT IT IS A COMPLICATED DESIGN, AND SUGGESTED THAT THE SUSTAINABLE AGRICULTURE COMPONENT COULD BE A SEPARATE PROJECT. THE EMPHASIS OF THE PROJECT IS ON NATURAL RESOURCES MANAGEMENT, NOT SUSTAINABLE AGRICULTURE.

DECISION: THE PID IS TO BE REVIEWED AND APPROVED BY A.I.D./W. IT SHOULD ADDRESS THE ISSUES OF WHETHER THIS IS ONE OR TWO PROJECTS AND, IF ONE, HOW MANY COMPONENTS THAT PROJECT SHOULD LOGICALLY INCLUDE.

C. 505-0044 - TOURISM MANAGEMENT (LOP DOLS. 1.8 MILLION). THE PROJECT'S STATED OBJECTIVE IS TO IMPROVE THE CAPACITY OF THE GOB'S NEWLY CREATED MINISTRY OF TOURISM AND ENVIRONMENT TO IMPLEMENT A

BT
#11089

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**PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK**

Life of Project:
From FY 1991 to FY 1996
Total U.S. Funding \$8,970
Date Prepared: August 1991

Project Title & Number: Rural Access Bridges Project No. 505-0042

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes:	Measures of Goal Achievement:		Assumptions for achieving goal targets:
To increase economic production, particularly in agriculture and tourism, by providing all-weather access in key rural areas	Increase in agricultural output Increase in foreign exchange earnings from tourism	Sampling of Households Central Statistical Office Data on GDP and Tourism	Agriculture and tourism development continue to be among the top priorities of the GOB
Project Purpose:	Conditions that will indicate purpose has been achieved: End of project status.		Assumptions for achieving purpose:
Construct bridges and rehabilitate rural roads with emphasis on private sector	Bridges and roads rehabilitated	MMS Cost Analysis Site Inspection Quarterly progress reports and other project records	Competent inspection personnel will be assigned Adherence to work program

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	Magnitude of Outputs:		Assumptions for achieving outputs:
Construction of bridges	At least 24 bridges constructed	Completion reports	Majority of bridges by contract
Rehabilitation of rural roads	About 120 miles of roads rehabilitated over 5 years	Completion reports	MOH willing to maximize use of private contractors for road rehabilitation
Increased use of private sector contracts for road rehabilitation	At least 60% of road rehabilitation is done by private contractors	Completion reports	Private contracting capacity can be mobilized
Improved RR Network Maintenance	Road roughness reduced	Inspection or measurement	MOH committed to adequate RR maintenance (funding and quality)

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS			MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	Implementation Target (Type and Quantity)				
Inputs:					Assumptions for achieving goal targets:
Bridge Const.	<u>A.I.D.</u> 2,230	<u>GOB</u> 1,110	<u>TOTAL</u> 3,340	USAID Controller records Audit Reports	The required inputs are provided in a timely manner
Road Rehab.	2,110	1,040	3,150		
Commodities	250	0	250		
Proj. Mgmt.	650	0	650		
T.A/E.I.A.	200	0	200		
Evaln./Audit	220	0	220		
Contingency	552	215	767		
Inflation	<u>288</u>	<u>105</u>	<u>393</u>		
TOTAL	6,500	2,470	8,970		

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**Rural Access Bridges Project
No. 505-0042**

ASSISTANCE CHECKLIST

Listed below are statutory criteria applicable to the assistance resources themselves, rather than to the eligibility of a country to receive assistance. This section is divided into three parts. Part A includes criteria applicable to both Development Assistance and Economic Support Fund resources. Part B includes criteria applicable only to Development Assistance resources. Part C includes criteria applicable only to Economic Support Funds.

CROSS REFERENCE: IS COUNTRY CHECKLIST UP TO DATE?

Yes

A. CRITERIA APPLICABLE TO BOTH DEVELOPMENT ASSISTANCE AND ECONOMIC SUPPORT FUNDS

1. **Host Country Development Efforts (FAA Sec. 601(a):** Information and conclusions on whether assistance 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.

The project goal is to augment economic growth in agriculture production, expansion of tourism and decreased transport costs. These will in turn lead to the expansion of international trade and foster private initiative and competition.

2. **U.S. Private Trade and Investment (FAA Sec. 601(b):** Information and conclusions on how assistance 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 procurement of goods and services under this project will involve the participation of the U.S. private sector firms.

3. Congressional Notification

a. **General requirement (FY 1991 Appropriations Act Secs. 523 and 591; FAA Sec. 634A):** If money is to be obligated for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified (unless the notification requirement has been waived because of substantial risk to human health or welfare)?

The project is included in the FY 1991 Congressional Presentations. A Technical Notification advising of program changes was sent to Congress on May 21, 1991 to increase initial obligation.

b. **Notice of new account obligation (FY 1991 Appropriations Act Sec. 514):** If funds are being obligated under an appropriation account to which they were not appropriated, has the President consulted with and provided a written justification to the House and Senate Appropriations Committees and has such obligation been subject to regular notification procedures?

NA

- c. Cash transfers and nonproject sector assistance (FY 1991 Appropriations Act Sec. 575(b)(3): If funds are to be made available in the form of cash transfer or nonproject sector assistance, has the Congressional notice included a detailed description of how the funds will be used, with a discussion of U.S. interests to be served and a description of any economic policy reforms to be promoted? NA
4. Engineering and Financial Plans (FAA Sec. 611(a): Prior to an 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? Yes
5. Legislative Action (FAA Sec. 611(a)(2): If legislative action is required within recipient country with respect to an obligation in excess of \$500,000, what is the basis for a reasonable expectation that such action will be completed in time to permit orderly accomplishment of the purpose of the assistance? NA. No legislation is required.
6. Water Resources (FAA Sec. 611(b); FY 1991 Appropriations Act 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.) NA
7. Cash Transfer and Sector Assistance (FY 1991 Appropriations Act Sec. 575(b): Will cash transfer or nonproject sector assistance be maintained in separate account and not commingled with other funds (unless such requirements are waived by Congressional notice for nonproject sector assistance)? NA
8. Capital Assistance (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 to maintain and utilize the project effectively? Yes
9. Multiple Country Objectives (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. See response to A.1 above

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10. U.S. Private trade (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).

See response to A.2 above.

11. Local Currencies

a. Recipient Contributions (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.

GOB will contribute 33% of construction contract costs and 27% of overall project costs in cash and kind.

b. U.S.-owned Currency (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

c. Separate Account (FY 1991 Appropriations Act Sec. 575). If assistance is furnished to a foreign government under arrangements which result in the generation of local currencies:

NA

(1) Has A.I.D. (a) required that local currencies be deposited in a separate account established by the recipient government, (b) entered into an agreement with that government providing the amount of local currencies to be generated and the terms and conditions under which the currencies so deposited may be utilized, and (c) established by agreement the responsibilities of A.I.D. and that government to monitor and account for deposits into and disbursements from the separate account?

NA

(2) Will such local currencies, or an equivalent amount of local currencies, be used only to carry out the purposes of the DA or ESF chapters of the FAA (depending on which chapter is the source of the assistance) or for the administrative requirements of the United States Government?

NA

(3) Has A.I.D. taken all appropriate steps to ensure that the equivalent of local currencies disbursed from the separate account are used for the agreed purposes?

NA

(4) If assistance is terminated to a country, will any unencumbered balances of funds remaining in a separate account be disposed of for purposes agreed to by the recipient government and the United States Government?

NA

12. Trade Restrictions

a. Surplus Commodities (FY 1991 Appropriations Act Sec. 521(a)): 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

NA

substantial injury to U.S. producers of the same, similar or competing commodity?

- b. Textiles (Lautenberg Amendment) (FY 1991 Appropriations Act Sec. 521(c)): 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? NA
13. Tropical Forests (FY 1991 Appropriations Act Sec. 533(c)(3)): Will funds be used for any program, project or activity which would (a) result in any significant loss of tropical forests, or (b) involve industrial timber extraction in primary tropical forest areas? NO
14. Sahel Accounting (FAA Sec. 121(d)): If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling recipient and expenditure of project funds (either dollars or local currency generated therefrom)? NO
15. PVO Assistance
- a. Auditing and registration (FY 1991 Appropriations Act Sec. 537): If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.? NA
- b. Funding sources (FY 1991 Appropriations Act, Title II, under heading "Private and Voluntary Organizations"): If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government? NA
16. Project Agreement Documentation (State Authorization Sec. 139 (as interpreted by conference report)): Has confirmation of the date of signing of the project agreement, including the amount involved, been cabled to State L/T and A.I.D. LEG within 60 days of the agreement's entry into force with respect to the United States, and has the full text of the agreement been pouched to those same offices? (See Handbook 3, Appendix 6G for agreements covered by this provision). NA

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17. Metric System (Omnibus Trade and Competitiveness act of 1988 Sec. 5164, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Does the assistance activity use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic states, and from the earliest documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight) through the implementation stage?
- NA. Impractical to impose metric system in local FAR contracting.
18. Women in Development (FY 1991 Appropriations Act, Title II, under heading "Women in Development"): Will assistance be designed so that the percentage of women participants will be demonstrably increased?
- The project does not target women as a specific beneficiary. Their participation in social and economic activities will be increased as a result of the project.
19. Regional and Multilateral Assistance (FAA Sec. 209): Is assistance more efficiently and effectively provided through regional or multilateral organizations? If so, why is assistance not so provided? Information and conclusions on whether assistance will encourage developing countries to cooperate in regional development programs.
- No, Assistance under this project is most effective on a bilateral basis.
20. Abortions (FY 1991 Appropriations Act, Title II, under heading "Population, DA," and Sec. 525):
- a. Will assistance be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilization?
- NO
- b. Will any funds be used to lobby for abortion?
- NO
21. Cooperatives (FAA Sec. 111): Will assistance help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life?
- NA
22. U.S.-Owned Foreign Currencies
- a. Use of currencies (FAA Secs. 612(b), 636(h); FY 1991 Appropriations Act Secs. 507, 509): Describe steps taken to assure that, to the maximum extent possible, foreign currencies owned by the U.S. are utilized in lieu of dollars to meet the cost of contractual and other services.
- NA

b. Release of currencies (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?

NA

23. Procurement

a. Small business (FAA Sec. 602(a): Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed?

Yes, the project procurement will comply with all A.I.D. regulations.

b. U.S. procurement (FAA Sec. 604(a)): Will all procurement be from the U.S. except as otherwise determined by the President or determined under delegation from him?

Yes

c. Marine insurance (FAA Sec. 604(d)): If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?

NA

d. Non-U.S. agricultural procurement (FAA Sec. 604(e)): If non-U.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)

NA

e. Construction or engineering services (FAA Sec. 604(g)): Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.)

No, procurement of construction and engineering services will be from U.S. and Belizean services.

f. Cargo preference shipping (FAA Sec. 603): Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent of the gross tonnage of commodities (computed separately from dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates?

NA

g. Technical assistance (FAA Sec. 621(a)): If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

Technical Assistance will be procured from the private sector. Facilities and resources from other Federal Agencies will be utilized when they are suitable.

- h. U.S. air carriers (International Air Transportation Fair Competitive Practices Act, 1974): If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available? Yes
- i. Termination for convenience of U.S. Government (FY 1991 Appropriations Act Sec. 504): If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States? Yes
- j. Consulting services (FY 1991 Appropriations Act Sec. 524): If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)? Yes
- k. Metric conversion (Omnibus Trade and Competitiveness Act of 1988, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Does the assistance program use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic states, and from the earliest documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage? NA, See No. 17 above.
- l. Competitive Selection Procedures (FAA Sec. 601(e)): Will the assistance utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? Yes
24. Construction
- a. Capital project (FAA Sec. 601(d)): If capital (e.g., construction) project, will U.S. engineering and professional services be used? Yes. to supervise reviews required under FAR procedures.
- b. Construction contract (FAA Sec. 611(c)): If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? Yes
- c. Large projects, Congressional approval (FAA Sec. 620(k)): If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not NA

exceed \$100 million (except for productive enterprises in Egypt that were described in the Congressional Presentation), or does assistance have the express approval of Congress?

25. U.S. Audit Rights (FAA Sec. 301(d)): If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? NA
26. Communist Assistance (FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? Yes
27. Narcotics
- a. Cash reimbursements (FAA Sec. 483): Will arrangements preclude use of financing to make reimbursements, in the form of cash payments, to persons whose illicitly drug crops are eradicated? Yes
- b. Assistance to narcotics traffickers (FAA Sec. 487): Will arrangements take "all reasonable steps" to preclude use of financing to or through individuals or entities which we know or have reason to believe have either: (1) been convicted of a violation of any law or regulation of the United States or a foreign country relating to narcotics (or other controlled substances); or (2) been an illicit trafficker in, or otherwise involved in the illicit trafficking of, any such controlled substance? Yes
28. Expropriation and Land Reform (FAA Sec. 620(g)): Will assistance preclude use of financing to compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President? NA
29. Police and Prisons (FAA Sec. 660): Will assistance preclude use of financing to provide training, advice, or any financial support for police, prisons or other law enforcement forces, except for narcotics programs? Yes
30. CIA Activities (FAA Sec. 662): Will assistance preclude use of financing for CIA activities? Yes
31. Motor Vehicles (FAA Sec. 636(i)): Will assistance preclude use of financing for purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? Yes
32. Military Personnel (FY 1991 Appropriations Act Sec. 503): Will assistance preclude use of financing to pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? NA

33. Payment of U.N. Assessments (FY 1991 Appropriations Act Sec. 505): Will assistance preclude use of financing to pay U.N. assessments, arrearages or dues? Yes
34. Multilateral Organization Lending (FY 1991 Appropriations Act Sec. 506): Will assistance preclude use of financing to carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)? Yes
35. Export of Nuclear Resources (FY 1991 Appropriations Act Sec. 510): Will assistance preclude use of financing to finance the export of nuclear equipment, fuel, or technology? Yes
36. Repression of Population (FY 1991 Appropriations Act Sec. 511): Will assistance preclude use of financing for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights? Yes
37. Publicity or Propaganda (FY 1991 Appropriations Act Sec. 516): Will assistance be used for publicity or propaganda purposes designed to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propaganda purposes not authorized by Congress? NO
38. Marine Insurance (FY 1991 Appropriations Act Sec. 563): Will any A.I.D. contract and solicitation, and subcontract entered into under such contract, include a clause requiring that U.S. marine insurance companies have a fair opportunity to bid for marine insurance when such insurance is necessary or appropriate? Yes
39. Exchange for Prohibited Act (FY 1991 Appropriations Act Sec. 569): Will any assistance be provided to any foreign government (including any instrumentality or agency thereof), foreign person, or United States person in exchange for that foreign government or person undertaking any action which is, if carried out by the United States Government, a United States official or employee, expressly prohibited by a provision of United States law? NO

B. CRITERIA APPLICABLE TO DEVELOPMENT ASSISTANCE ONLY

1. Agricultural Exports (Bumpers Amendment) FY 1991 Appropriations Act Sec. 521(b), as interpreted by conference report for original enactment). 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: (1) 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 (2) in support of research that is intended primarily to benefit U.S. producers?

NA

2. Tied Aid Credits (FY 1991 Appropriations Act, Title II, under heading "Economic Support Fund"): Will DA funds be used for tied aid credits?

NO

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

NO

4. Indigenous Needs and Resources (FAA Sec. 281(b)): Describe extent to which the activity 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 civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

NA

5. Economic Development (FAA Sec. 101(a)): Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

Yes. The project will assist the economic development of the country, especially in agriculture and tourism, by increasing all-weather access to key rural areas. Tourism revenues will increase agricultural production, expanded & transportation costs reduced.

6. Special Development Emphases (FAA Secs. 102(b), 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 provision of all-weather access to rural populations will enable them to access market in urban centers, procure farm and other supplies and develop new enterprises in areas such as tourism.

insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) 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) NA
- (c) NA
- (d) The promotion of women will be enhanced to the extent that they directly participate in the existing and future agriculture and tourism enterprises, either as employees or entrepreneurs.
- (e) NA

7. Recipient Country Contribution (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)?

The GOB will provide at least 33% of the construction costs for road rehabilitation and bridge construction. Overall, GOB will provide more than 25% of the total project costs in cash and in kind contributions.

8. Benefit to Poor Majority (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 project will employ through private and GOB contracts a large pool of manual construction and other workers. A monitoring and evaluation plan is included in the project.

9. Abortions (FAA Sec. 104(f); FY 1991 Appropriations Act, Title II, under heading "Population, DA," and Sec. 535):

a. 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

b. 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

c. Are any of the funds to be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilization?

NO

d. Will funds be made available only to voluntary family planning projects which offer, either directly or through referral to, or information about access to, a broad range of family planning methods and services?

NA

e. In awarding grants for natural family planning, will any applicant be discriminated against because of such applicant's religious or conscientious commitment to offer only natural family planning?

NA

f. 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

- g. Are any of the funds to be made available to any organization if the President certifies that the use of these funds by such organization would violate any of the above provisions related to abortions and involuntary sterilization? NO
10. Contract Awards (FAA Sec. 601 (e)): Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? Yes
11. Disadvantaged Enterprises (FY 1991 Appropriations Act, Sec. 567): What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, colleges and universities having a student body in which more than 40 percent of the students are Hispanic Americans, 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)? NA
12. Biological Diversity (FAA Sec. 119(g): 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? NA
13. Tropical Forests (FAA Sec. 118; FY 1991 Appropriations Act Sec. 533(c)-(e) & (g)):
- a. A.I.D. Regulation 16: Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16? Yes
- b. Conservation: Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (1) stress the importance of conserving and sustainably managing forest resources; (2) 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; (3) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (4) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (5) help conserve forests which have not yet been degraded by helping to increase production on lands already cleared or degraded; (6) conserve forested watersheds
- (1) Yes
(2) Yes
(3) NA
(4) Yes
(5) Yes
(6) NA
(7) NA
(8) NA
(9) NA
(10) NA
(11) NA
(12) Yes
(13) Yes

and rehabilitate those which have been deforested; (7) support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (8) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (9) 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; (10) seek to increase the awareness of U.S. Government agencies and other donors of the immediate and long-term value of tropical forests; (11) utilize the resources and abilities of all relevant U.S. government agencies; (12) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land; and (13) take full account of the environmental impacts of the proposed activities on biological diversity?

c. Forest Degradation: Will assistance be used for: (1) 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; (2) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas; (3) activities which would result in the conversion of forest lands to the rearing of livestock; (4) the construction, upgrading or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undergraded forest lands; (5) the colonization of forest lands; or (6) the construction of dams or other water control structures which flood relatively undergraded 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?

- (1) No
- (2) No
- (3) No
- (4) No
- (5) No
- (6) No

d. Sustainable forestry: If assistance relates to tropical forests, will project assist countries in developing a systematic analysis of the appropriate use of their total tropical forest resources, with the goal of developing a national program for sustainable forestry?

NA

e. Environmental impact statements: Will funds be made available in accordance with provisions of FAA Section 117(c) and applicable A.I.D. regulations requiring an environmental impact statement for activities significantly affecting the environment? Yes

14. Energy (FY 1991 Appropriations Act Sec. 533(c)): If assistance relates to energy, will such assistance focus on: (a) end-use energy efficiency, least-cost energy planning, and renewable energy resources, and (b) the key countries where assistance would have the greatest impact on reducing emissions from greenhouse gases? NA

15. Sub-Saharan Africa Assistance (FY 1991 Appropriations Act Sec. 562, adding a new FAA chapter 10 (FAA Sec. 496)): If assistance will come from the Sub-Saharan Africa DA account, is it: (a) to be used to help the poor majority in Sub-Saharan Africa through a process of long-term development and economic growth that is equitable, participatory, environmentally sustainable, and self-reliant; (b) to be used to promote sustained economic growth, encourage private sector development, promote individual initiatives, and help to reduce the role of central governments in areas more appropriate for the private sector; (c) being provided in accordance with the policies contained in FAA section 102; (d) being provided in close consultation with African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa; (e) being used to promote reform of sectoral economic policies, to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities, to bring about appropriate sectoral restructuring of the Sub-Saharan African economies, to support reform in public administration and finances and to establish a favorable environment for individual enterprise and self-sustaining development, and to take into account, in assisted policy reforms, the need to protect vulnerable groups; (f) being used to increase agricultural production in ways that protect and restore the natural resource base, especially food production, to maintain and improve basic transportation and communication networks, to maintain and restore the renewable natural resource base in ways that increase agricultural production, to improve health conditions with special emphasis on meeting the health needs of mothers and children, including the establishment of self-sustaining primary health care systems that give priority to preventive care, to provide increased access to voluntary family planning services, to improve basic literacy and mathematics especially to those outside the formal educational system and to improve primary education, and to develop income-generating opportunities for the unemployed and underemployed in urban and rural areas? NA

16. Debt-for-Nature Exchange (FAA Sec.463): If project will finance a debt-for-nature exchange, describe how the exchange will support protection of: (a) the world's oceans and atmosphere, (b) animal and plant species, and (c) parks and reserves; or describe how the exchange will promote: (d) natural resource management, (e) local conservation programs, (f) conservation training programs, (g) public commitment to conservation, (h) land and ecosystem management, and (i) regenerative approaches in farming, forestry, fishing, and watershed management.

NA

17. Deobligation/Reobligation (FY 1991 Appropriations Act, Sec. 515): If deob/reob authority is sought to be exercised in the provision of DA assistance, are the funds being obligated for the same general purpose, and for countries within the same region as originally obligated, and have the House and Senate Appropriations Committees been properly notified?

Yes. Congress will be notified as appropriate in advance of deob/reob actions.

18. Loans

a. Repayment capacity (FAA Sec. 122(b)): Information and conclusion on capacity of the country to repay the loan at a reasonable rate of interest.

NA

b. Long-range plans (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?

NA

c. Interest rate (FAA Sec. 122(b)): If development loan is repayable in dollars, is interest rate at least 2 percent per annum during a grace period which is not to exceed ten years, and at least 3 percent per annum thereafter?

NA

d. Exports to United States (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?

NA

19. Development Objectives (FAA Secs. 102(a), 111, 113, 281(a)): Extent to which activity will: (1) effectively involve the poor in development, by expanding access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (2) 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 government institutions; (3) support the self-help efforts of

The project will substantially improve all-weather access for Belizean farmers to markets, sources of agricultural inputs and basic human services, thereby stimulating expansion of the agricultural sector and enhancing the quality of life.

- (1) See B.6(a) above.
- (2) See A.21 above.
- (3) See B.6(c) above.

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developing countries; (4) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (5) utilize and encourage regional cooperation by developing countries?

(4) See B.6(d) above.
(5) See B.6(c) above.

20. Agriculture, Rural Development and Nutrition, and Agricultural Research (FAA Secs. 103 and 103A):

a. Rural poor and small farmers: If assistance is being made available for agriculture, rural development or nutrition, describe extent to which activity is specifically designed to increase productivity and income of rural poor; or if assistance is being made available for agricultural research, has account been taken of the needs of small farmers, and extensive use of field testing to adapt basic research to local conditions shall be made.

See 19 above.

b. Nutrition: Describe extent to which assistance is used in coordination with efforts carried out under FAA Section 104 (Population and Health) to help improve nutrition of the people of developing countries through encouragement of increased production of crops with greater nutritional value; improvement of planning, research, and education with respect to nutrition, particularly with reference to improvement and expand use of indigenously produced foodstuffs; and the undertaking of pilot or demonstration programs explicitly addressing the problem of malnutrition of poor and vulnerable people.

NA

c. Food security: Describe extent to which activity increases national food security by improving food policies and management and by strengthening national food reserves, with particular concern for the needs of the poor, through measures encouraging domestic production, building national food reserves, expanding available storage facilities, reducing post harvest food losses, and improving food distribution.

NA

21. Population and Health (FAA Secs. 104(b) and (c)): If assistance is being made available for population or health activities, describe extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems, and other modes of community outreach.

NA

22. Education and Human Resources Development (FAA Sec. 105): If assistance is being made available for education, public administration, or human resource development, describe (a) extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, and strengthens management capability of institutions enabling the poor to participate in

NA

development; (b) extent to which assistance provides advanced education and training of people of developing countries in such disciplines as are required for planning and implementation of public and private development activities.

23. Energy, Private Voluntary Organizations, and Selected Development Activities (FAA Sec. 106): If assistance is being made available for energy, private voluntary organizations, and selected development problems, describe extent to which activity is:

a. concerned with data collection and analysis, the training of skilled personnel, research on and development of suitable energy sources, and pilot projects to test new methods of energy production; and facilitative of research on and development and use of small-scale, decentralized, renewable energy sources for rural areas, emphasizing development of energy resources which are environmentally acceptable and require minimum capital investment;

NA

b. concerned with technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

NA

c. research into, and evaluation of, economic development processes and techniques;

NA

d. reconstruction after natural or man-made disaster and programs of disaster preparedness;

NA

e. for special development problems, and to enable proper utilization of infrastructure and related projects funded with earlier U.S. assistance;

One of the project objectives is to install the remaining bridge sets procured by USAID under Project No. 505-0007 at selected sites.

f. for urban development, especially small, labor-intensive enterprises, marketing systems for small producers, and financial or other institutions to help urban poor participate in economic and social development.

NA

24. Sahel Development (FAA Secs. 120-21). If assistance is being made available for the Sahelian region, describe: (a) extent to which there is international coordination in planning and implementation; participation and support by African countries and organizations in determining development priorities; and a long-term, multi-donor development plan which calls for equitable burden-sharing with other donors; (b) whether a determination has been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of projects funds (dollars or local currency generated therefrom).

NA

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Ministry of Economic Development

Fax: (501)08-23111
Tel: (501)08-22526/08-22527
Your Ref.:
Our Ref.: 2015/91(25)

P.O. Box 42
Unity Boulevard
Belmopan
Belize, Central America

September 11, 1991

Mrs. Barbara Sandoval
A.I.D. Representative
U.S.A.I.D. Mission to Belize
Gabourel Lane
Belize City, Belize

Dear Mrs. Sandoval:

Kindly regard this letter as a formal request for a U.S.A.I.D. grant in the amount of US\$1,000,000 to assist the Government of Belize in providing all-weather access in key rural areas through the construction of bridges and the rehabilitation of rural roads with emphasis on private sector participation.

The goal of the proposed project is to increase economic production, particularly in agriculture and tourism. The project's objective is to complete the installation of the remaining bridge sets procured under the prior Rural Access Roads and Bridges Project (USAID 505-0007).

We believe this infrastructure project will make a significant contribution to the economic development of Belize. I will be available for further discussions on the foregoing proposal at our mutual convenience.

Sincerely,

JOSEPH D. WAIGHT
Permanent Secretary
Ministry of Economic Development

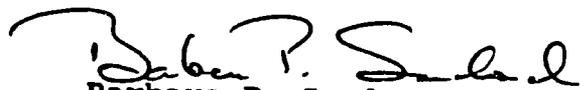
cc: Permanent Secretary, Ministry of Works
Financial Secretary

N.B. Amount is planned initial Agreement amount, not planned LOP funding.

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CERTIFICATION PURSUANT TO SECTION 611 (E) OF THE
FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, Barabara P. Sandoval, the Principal Officer of the Agency for International Development in Belize, having reviewed the Project Paper and having taken into account, among other factors, the maintenance and utilization of Projects in Belize previously financed or assisted by the United States, do hereby certify that in my judgment the Ministry of Works has both the financial capability and human resources capability to effectively maintain and utilize the proposed Rural Access Bridges Project.



Barbara P. Sandoval
A.I.D. Representative to Belize

The Process Used for the Selection of Rural Roads for Rehabilitation and Bridges for Construction Under the Project

The selection of the rural roads for rehabilitation under the previous project was based on the ranking of nominated roads on the basis of social, economic, and engineering criteria by the Road Priority Committee (RPC). Data were collected using the form included as Attachment 1 to this Annex. Priority segments were designated for each district on the basis of the scores they received, and grouped on the basis of their physical location. The final list of road segments selected for each district was based on the ranking by the RPC with the approval of the Minister of Works and the USAID Representative.

The selection of bridges for construction was based on the consultation of the RPC with the Office-in-Charge in each district. The criteria used was based on the identification of bridges which:

were in need of construction or replacement;

were located on a road which met the RPC nomination criteria; and

the road on which they were located had been ranked using the selection criteria.

A similar selection process was established for this Project. The membership of the RPC has been expanded to include representation from a broader range of ministries, including the Ministry of Social Services, the Ministry of Natural Resources, the Ministry of Agriculture and Fisheries, and the Ministry of Tourism and Environment. The data capture form prepared for use by the RPC is included as Attachment 2 of this Annex. An explanation of the selection process proposed for the RPC is attached in draft as Attachment 3 to this Annex. A guide to the proposed scoring system to be used for segment prioritization is included as Attachment 4 to this Annex.

The RPC met several times in early 1991 and began the collection of data for the Stann Creek District. Subsequent meetings, data collection, and tabulation and analysis are now under way. Completion of the road priority listings for all six districts is a Condition Precedent for the Project.

Selection of the bridges to be included in the Project draws on the original list prepared under the previous project. The engineering designs have been prepared for the first bridges on the list, but the inclusion of tourism as a target in the evaluation criteria will necessitate a review by the RPC of the remaining bridges. The proposed list of bridges for the Project is provided in Section II.D.

Data Needed for Road Priority Committee

Road Segment _____
 Length (mi.) _____ Community Served _____ Pop. _____
 Bridges? _____ Where? _____ Farm Households _____

Road Cost Estimate (tot. \$US) _____

Agriculture:

Crops	Acres	1983 Production (\$)	1983 Costs (\$)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Are there Existing or Planned development projects along the ROW?

yes / / no / If yes, describe _____

What is present travel time from community center to the following?
 Give Location and time to nearest 1/4 hour.

Hospital _____	Rural Clinic _____	Agric. Station _____
Extension Ofc. _____	Primary School _____	Secondary School _____
Market _____	Magistrate _____	Police Station _____

Is there regular truck transport to market? _____
 How many trucks in the village? _____ Private Cars? _____ Taxis? _____
 What are transport costs to district town? _____

Major land tenure arrangements _____

Estimated Mean holding (acres) _____
 Number of Small farms (# and %) _____
 Proportion of arable land in use (est. %) _____
 Fallow cycles _____
 % of land classified good _____ fair _____ poor _____ Unusable _____

Are there forest preserves, nature preserves or environmentally
 fragile areas nearby? _____ If so, describe _____

DATA CAPTURE FORM FOR SELECTION OF ROADS
FOR USAID RURAL ROADS AND BRIDGES PROJECT

1. **GENERAL:**

ROAD SECTION (NO.) _____ DISTRICT _____

EVALUATION NUMBER ASSIGNED: _____

VILLAGES SERVED (List): _____

POPULATION IN RIA (add population of
all Villages combined) _____

LENGTH OF ROAD SECTION _____ KMS (# of miles x 1.6)

ESTIMATED COST OF ROAD SECTION IMPROVEMENT \$ _____

2. **ECONOMIC ACTIVITY:** (indicate appropriate response)

I. **AGRICULTURAL:** Overall qualitative assessment of
agricultural potential of RIA:

A. Good _____

B. Fair _____

C. Poor _____

II. **TOURISM:** Overall tourism potential of RIA:

A. Good _____

B. Fair _____

C. Poor _____

ROAD CATEGORY: (indicate appropriate response)

- A. No Road - Cat.3 _____
- B. Poor Road - Cat.2 _____
- C. Fair Road - Cat.1 _____

**Total value of planned Economic Activity
for next 5 years:**

\$ _____

VALUE/LENGTH = (E.A./KM)

\$ _____

3. QUALITY OF LIFE:

POPULATION IN RIA/KM OF ROAD

\$ _____

**ACCESS TO SOCIAL SERVICES
AND TOURISM INFORMATION**

Indicate appropriate level; text in parenthesis below explains level:

LEVEL A:

(improvement from no access to any services to access to both primary and secondary services).

LEVEL B:

(improvement from no access to secondary services only)

LEVEL C:

(improvement from access to secondary services to access to primary services).

4. EQUITY

EXISTING INCOME DISTRIBUTION: (indicate appropriate response).

1. AGRICULTURE:

A. Acreage owned by small farmers in RIA *Since*

B. Acreage owned by large Farm in RIA *5-50*

C. % owned by small Farmers *over 50*

2. TOURISM: Check appropriate

A. Total Volume of Business controlled by small operator in RIA.

\$ _____

B. Total volume of Business controlled by large operators in RIA.

\$ _____

% of business controlled by small operators in RIA

\$ _____

3. TRANSPORT COST SAVINGS

A. Present Transport Cost/Km in area (without improvement)

\$ _____

B. Likely Transport Cost/Km in area (after improvement)

\$ _____

$\frac{\$ \text{ from A} - \$ \text{ from B}}{\$ \text{ from A}} \times 100$

\$ _____

IC CATEGORY AND WEIGHT	FACTOR	UNIT	QUANTITY	SCALE	WEIGHT	
IC ACTIVITY ***** (50)	Agricultural Potential Indicator	Qualitative assessment of ag. potential	Good Fair Poor	100 60 30	15	
	Tourism Potential Indicator	Assessment of Tourism Potential	Good Fair Poor	100 60 30	12	
	Degree of Access Improvement	Road condition before improvement	No road (Cat.3) Poor road (Cat.2) Fair road (Cat.1)	100 60 20	15	
Y OF LIFE ***** (25)	Complementary Services and planned development activities in the RIA*	Approximate % cost of planned complementary activities per road Kilometer	0-1500	0-100	8	
	Population Served	Population in the RIA per km of road	0-2000	0-100	10	
	Access to Social Services and Tourist Information	Improvement from no access to any services to access to both primary and secondary services (level A improvement)	Good Improvement	100	15	
			Fair Improvement	66		
			Poor Improvement	33		
			No Improvement	0		
	Existing Income Distribution	Farmland distribution	Improved from no access to any services to access to secondary services only (Level B improvement)			
			Improved from access to secondary services to access primary services			
			No Improvement	0		
			Small farmers own less than 20% of land	0	10	
Small farmers own between 20% and 60%			50			
Small farmers own more than 60%			100			
Distribution of Incremental Income	OR Distribution of Tourism Benefits	Small operators control less than 20% of Business	0	10		
		Small operators control between 20% and 60%	50			
		Small operators control more than 60%	100			
		More than 80% (highly competitive)	100	15		
		Between 60% and 80% (competitive)	50			
		Less than 40% (non-competitive)	0			
Road Influence Area						

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FINANCIAL AND ECONOMIC ANALYSIS

Financial Analysis

1. The Government Budget

For FY 1991/92, the prospects for Government having a surplus on current account are almost certain. Recurrent expenditure was estimated at Bz\$175 million, an increase of Bz\$20 million over the previous year, and recurrent revenues about Bz\$220 million, a rise of about Bz\$15 million. Economic services are allocated 41% of total recurrent and capital expenditures which includes Bz\$37.5 million for Roads and Waterways. The total expenditure budget of Bz\$307 million includes Bz\$92 million for development (capital expenditures). The government will contribute about \$58 million to capital expenditures (Capital II). Capital III expenditure will use foreign grants totaling Bz\$25 million and loans of Bz\$49 million. Development expenditures target the key productive sectors of agriculture and natural resources with significant expenditure on infrastructure and human resources.

Expenditure on roads maintenance was estimated for 1990/91 at Bz\$3.2 million out of the recurrent budget. The CAP II estimates additionally include Bz\$1.28 million for upgrading rural and feeder roads and bridges, mostly periodic or deferred maintenance activities. One could say, therefore, that rural roads maintenance expenditure are running about \$4,500/mile. Under CAP III, Bz\$3.0 million is earmarked for rural roads and bridges. The total expenditure budgeted on the rural network totals about Bz\$7.5 million.

The roads project proposed herewith for USAID assistance will over 5 years provide an incremental average annual expenditure on rural roads and bridges, excluding supervision costs, of about Bz\$3 million. This is in addition to the cost to USAID of landing the available bridge sets in-country (approx. US\$100,000). The GOB funded contribution will be about Bz\$0.9 million yearly, or about 20 percent of the total earmarked in FY 90/91 for rural roads.

The MOW's Maintenance Management System (MMS) is used to estimate the resources which are needed for road maintenance in any given year, based on the results of a physical inspection of the roads in each district and the past year's performance. This estimate of resources should form the basis of the Ministry of Works' request to the Ministry of Finance for the allocation of funds for road maintenance. Unfortunately, in every year since 1984, the Ministry of Works' request for funds has been for substantially less than the amount indicated as needed by the MMS. Although the Ministry of Finance allocation in some years has exceeded the amount requested by MOW, the overall result has been that the funds allocated to road maintenance in every year since 1984 have fallen substantially short of the amount estimated as being needed, as can be seen from Table A7 - 1.

Table A7 - 1 ANNUAL ROAD MAINTENANCE REQUESTS AND ALLOCATION
(Bz\$ million)

<u>Year</u>	<u>MMS Estimate</u>	<u>Request</u>	<u>Allocation</u>
1984	5.50	5.50	2.96
1985	5.67	3.51	3.32
1986	4.48	3.26	3.54
1987	6.35	4.20	3.32
1988	6.36	2.76	3.04
1989	4.51	3.29	3.64
1990	5.14	3.18	3.17

Source: Ministry of Works

One of the conditions of the World Bank loan for the Second Road Project, which was signed in 1988, was that more resources should be allocated to road maintenance for the next four financial years. The agreement for this loan specified the allocations for maintenance for each financial year from 1988 to 1991. In each of these years, the total funds allocated for maintenance are supposed to be in excess of B\$5 million.

The difference between the maintenance allocations shown in Table V-1 and those agreed with World Bank is reportedly accounted for by a number of activities which appear under the capital projects headings of the estimates of expenditure, but which are really road maintenance/rehabilitation activities; however, this could not be confirmed and field observations certainly did not confirm the higher level of activity on maintenance. In Financial Year 1990/91 there is a total allocation under the Capital II heading of B\$6.37 million for projects related to road maintenance and rehabilitation, but the precise destination of these funds could not be determined.

2. Revenue from Transport Users

The road transport sector generated about Bz\$35 million in revenue for Government in 1990 out of total Government revenues of Bz\$205 million. Road taxes increased about 8% over the previous year. The revenues are three-and-one-half times the expenditures from Government's own resources on road maintenance and construction.

Fees paid for drivers licenses, annual vehicle licenses, and initial vehicle registration yielded about Bz\$2.3 million.

There are three duties for which imported items may be liable, namely import duty, revenue replacement duty, and stamp duty. The rates at which import duties are charged vary between different categories of goods. Stamp duties are uniform at 12 percent. The RRD is charged against fuel and cars only.

For most cars, the combined total of these three duties currently amounts to 78.76% of the CIF value of the vehicle. In the case of trucks and buses, the total duty is somewhat lower at 57%, whilst for tractors and trailers, parts and tyres, the total is 42%.

In 1990 the CIF values of imports of different items were as shown in Table A: - 2. By applying the overall rates of duty for each, it was possible to derive an estimate of the total revenue from duties on transport equipment as shown. Some small items such as lubricants are omitted.

Government is emphatically proud that its 1991/92 budget does not include any new or increased taxes and that some reductions are included. The case for any significant increases in road user taxes within this context is unlikely to be supported. The average tax burden per licensed vehicle is about Bz\$2,000.

Some restructuring and upward adjustment of annual vehicle licenses, however, would be appropriate. The existing fees, set in January 1986, for goods vehicles or buses range between Bz\$125 - 250 depending on tare weight. The top rate is for buses of more than 12-passenger capacity, and for goods vehicles exceeding 4,000 lbs. tare weight. Since the road wear caused by heavy vehicles increases substantially as tare and capacity increase, there should be a graduated fee scale reflecting this. However, the total privately owned fleet of such vehicles is only about 5,000. Therefore, a revision which might overall double the registration taxes on heavy vehicles would produce about Bz\$1 million in additional revenues.

Conversely, one could argue that the rates on commercial vehicle imports should be reduced in order to encourage the import of better quality, mostly second-hand, vehicles. Given that a buyer has a fixed amount to spend on his purchase, a lower import tax would allow purchase of a newer vehicle which would normally have lower operating costs, especially repairs, and a longer remaining useful life. In the case of buses, a complete exemption would likely result in providing the public with better quality vehicles, and perhaps a pass-through of lower fares with a revenue loss of only Bz\$0.5 million.

If reductions on commercial vehicle import taxes were introduced, they would probably have to be offset by increased taxes on vehicle use, specifically diesel fuel taxes, in order to ensure that total tax revenue was not reduced.

At present, there is a 1.5 percent administrative fee levied on the value of re-exports, goods imported through Belize ports for transshipment, mostly to Mexico. This is not intended to be a tax on movements of foreign vehicles. It would be entirely appropriate for Belize to charge road-use permits to foreign vehicles operating on Belize roads, either on a per-trip or monthly rate basis. The volume of this traffic has been steadily increasing and is largely carried in heavy trucks, which cause relatively high roadway deterioration, and consequently higher maintenance costs.

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TABLE A7 -2
 VALUE OF IMPORTS AND DUTIES LEVIED ON
 ROAD TRANSPORT EQUIPMENT AND FUELS, 1990
 (BZ\$ THOUSAND)

	<u>Value of Imports</u>	<u>Av. Duty (%)</u>	<u>Import Duties</u>
Motor Cars	5,911	78.75	4,655
Public Ser. Veh.	890	57	507
Trucks and Vans	11,832	57	6,744
Road Tractors	429	42	(674) ^a
for Semitrailers			180
Parts for Motor	1,808	42	759
Vehicles			
Tyres	3,198	42	1,343
Motorcycles	454	47	213
Gasoline	13,575	108.5 (b)	14,729
Diesel	20,935	70.5 (c)	14,759
			(10,331) ^d
Total			32,884

- a) Assume 10 percent of imports exempt from duties
 b) Gasoline import duty is 54 cents/Imp. gal.; RRD is \$1.74/Imp. gal.; stamp tax 12% of cif value
 c) Diesel import duty is 32 cents/Imp. gal.; RRD is 61 cents/Imp. gal.; stamp tax 12% of cif value
 d) Assume 70 percent not for road transport

Source: Central Statistical Office

C. Economic Analysis

1. Summary of Results

Most rural road projects are justified on the basis of an increase in farm income resulting from higher farm-gate prices and increased production that follows road improvement, be it a major upgrading from an oxcart path or no path at all to the elimination of bottlenecks and general upgrading of non-all-weather roads. These agricultural benefits are important for this project as well.

However, the analytical techniques for estimating the agricultural response to improved accessibility require that input variables be documented and measured, and that the change attributable to accessibility be estimated. Socio-economic impact studies of typical rural roads improvements in Belize are not available. Moreover, this project is designed to improve roads and bridges throughout the country. Although small, Belize has many different agricultural and soils zones, and generalization for the whole program would not be valid.

The immediate impact of the project will be to ensure all-weather access on roads which are at times flooded, and therefore impassable, and to reduce

surface roughness of unpaved roads. Maintaining a good riding surface will require a more expensive level of maintenance than before rehabilitation, but the operating costs of vehicles, and personal travel time, will be reduced.

Thus the economic analysis is focused on the cost of new bridges and road rehabilitation, the cost savings to road users, and the time savings of personal travel. To some extent, these savings should improve marketing opportunities, especially for perishables, with lower transport costs to the producer. Bus fares on good roads in Belize are about half these for routes on bad roads for equivalent distances. Reducing travel time has value in terms of frequency with which persons can access markets, farm inputs and services.

In selecting values to be used in the economic analysis, minimum or conservative values were used, namely values which most probably underestimate project benefits. For example, the hourly value for personal time of B \$2.00 approximates the agricultural labor wage, whereas most persons traveling in light vehicles and many using buses will certainly have a higher value of time. Project costs will vary considerably from one project site to another. In estimating these costs, an effort has been made to allow for the more difficult site conditions. The number of miles of road reconstruction funded is likely to be higher than the 120 assumed in the economic evaluation.

Most importantly, the potential benefits in terms of accessibility of the farm household to services and markets are only partially measured by personal time savings. Fully valued, this would be a viable project, even if the IRR were somewhat lower. These cost reductions alone more than justify the project's expenditures. Applying the usual "with" and "without" project cash flow analysis over a thirteen year period produced an internal-rate-of-return (IRR) of 24%, assuming that traffic volume growth will be only 3% per year for both cases. When savings to additional traffic generated by the improvements are valued, as explained in Section B(5), the IRR rises to 45%.

The annual project costs used in the analysis are shown in Table A7 - 3.

2. Methodology Employed

Economic Prices, Opportunity Costs, and Project Life

For vehicle operating costs, prices net of all taxes have been utilized. Likewise, for bridge and construction works budgeted for contract, the financial cost estimates have been reduced by 15 percent to net out taxes. Although the shadow rate for unskilled labor in Belize may be less than the market wage, the difference appears to be small, and unskilled workers' wages are a small part of project expenditures in any case - less than seven percent during the first three years, assuming that half of local labor is unskilled. There are no studies of shadow wages in Belize. However, the fact that the urban unemployed do not take up farming on virtually free land indicates that their reservation wage is high.

For purposes of the analysis, it was assumed that the opportunity cost of capital is 12%, which appears to be a reasonable figure for Belize at this time.

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The project evaluation period is 13 years, 5 for completion of improvement works and 8 years thereafter. The economic life of rehabilitated gravel roads, well maintained, is assumed to be 8 - 10 years by which time traffic will in many cases have increased to the point where a higher type design is required. For bridges a forty- year life is assumed, so that a salvage value of about 75% is added back (a negative cost) in the last year of the analysis period.

The usual "with" and "without" project cash flow analysis is used to obtain the incremental benefit and cost figures needed for the internal rate of return.

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Table A7 - 3

ECONOMIC EVALUATION
(B\$000)

Year	Costs				Costs				Net Benefits		
	Without Project				With Project Improvements				w/o GT	w/GT	
	AADT	Maint.	VOC	Pass Time	AADT	Maint.	Project VOC	Pass Time			
1992	60	720	4,355	1,890	60	1,200	2,750	3,833	1,620	(2,438)	(2,438)
1993	62	720	4,485	1,947	64	1,200	3,300	3,444	1,400	(2,192)	(2,077)
1994	64	720	4,620	2,005	70	1,200	3,500	3,052	1,185	(1,592)	(101)
1995	66	720	4,760	2,065	96	1,200	3,600	2,683	965	(903)	1,001
1996	68	720	4,900	2,127	102	1,200	3,050	2,480	790	217	2,179
1997	70	720	5,050	2,191	109	1,200	0	2,560	847	3,354	5,604
1998	72	720	5,200	2,256	117	1,200	0	2,640	873	3,463	6,059
1999	74	720	5,355	2,324	126	1,200	0	2,720	899	3,580	6,580
2000	77	720	5,515	2,394	135	1,200	0	2,800	926	3,709	7,024
2001	80	720	5,680	2,466	144	1,200	0	2,885	954	3,850	7,508
2002	83	720	5,850	2,540	154	1,200	0	2,970	1,012	4,003	8,063
2003	86	720	6,030	2,616	164	1,200	0	3,060	1,042	4,172	8,631
2004	90	720	6,210	2,695	176	1,200	(5,000)	3,150	1,074	9,201	14,117
										IRR:	24.1 45.3

Note: GT is generated traffic, the difference between AADT in the with and without cases. Benefits w/o GT were calculated using left hand column AADT for both the with and without cases.

The "With" and "Without Project" Cases:

(1) Maintenance

The analysis assumes that if the project does not take place, MOW will continue to maintain the 120 miles of rural roads, which otherwise would have been improved under this project, following practices only slightly better than its past inefficient, sporadic activities. The annual cost of maintenance is not well documented but is known to vary from nil to a frequency of operation which produces relatively high costs attributable to several gradings yearly, and replacement of surfacing every two years. The average cost, based on records of the MOW Maintenance Management System, is about Bz\$6,000/mile with considerable range of variation, yet producing relatively low quality and temporary remedies. Our analysis assumes that maintenance costs for roads should actually increase to about Bz\$10,000/mile after rehabilitation, if the quality is to be maintained and the investment protected. For bridges, it is assumed that maintenance costs are not significantly different in the two cases (they would be in cases involving replacement of wooden bridges, but annual amounts are so small as not to be significant in the economic analysis).

(2) Investment Costs

The bridge and road design investments in the with case have been described in the Technical Section. These works have been assumed to be largely accomplished at a level rate of expenditure over the first 4 years of the project evaluation period. The costs of Project supervision have not been included as investment costs, although it is likely that the same quality of results would not be achieved without it. If they were included, the IRR would be 22 percent without generated traffic.

(3) Vehicle Operating Costs

The vehicle operating costs have been adopted from values calculated in the 1990 feasibility study by Roughton and Partners for the Stann Creek Valley Road. Therein, values are given for each vehicle type traveling at constant speeds on gravel roads with roughness equivalents of 2,600mm and 7,000mm. These have been converted to values of 4,500mm and 12,000mm, representing good and poor surface-condition estimates, respectively, for this project analysis. On gravel roads in poor condition, there are sections and times of year when slow-downs from average steady-speed conditions, and even crawl speeds, are necessary. An additional 20% cost was added to reflect these conditions. Two categories of vehicles were considered: light vehicles, a weighted average of cars and pickups; and heavy vehicles, a composite of trucks and buses. For "generated" traffic, which is the difference between forecast traffic in the with and without cases, all of the VOC unit-cost reduction has been counted because it is unreasonable to assume these savings would occur if the total investments required to achieve all-weather running conditions were not made. The calculations are further described in Annex 7.

(4) Value of Time

The average running speed on the roads was assumed to be 20 miles per hour before the road improvements, and 40 miles per hour thereafter. Therefore, a

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vehicle operating over 120 miles of road would require 6 hours in the without-improvement case, and 3 hours in the with case. Additionally, the time saved by the investment in new all-weather bridging and removal of flood risk on roads was assumed to be an additional 2.0 hours for 120 miles of roads and bridges. This is the equivalent of assuming impassable conditions equivalent to about one month per year over the study roads.

The value of time assumed was B\$2.00/hr. per person which is about the agricultural wages, and compares to the B\$1.50 per capita GNP. Persons traveling in cars will certainly have time value higher than this, but for those in buses this value is probably a good approximation. No surveys profiling occupation or trip purpose of passengers are available, as an alternative estimating measurement.

It was assumed that 70% of vehicles were light, with two persons per vehicle, and that 10% were buses, each transporting an average of 40 passengers. Therefore, for a base average AADT of 60 vehicles, there would be 42 light vehicles with 84 passengers and 6 buses with a total of 240 passengers.

(5) Traffic

The evaluation requires an estimation of existing traffic and traffic growth rates. The distribution of traffic levels on rural roads, according to the 1990 MOW inventory, is shown on Table A7 - 4. From this data, one would conclude that more than half of these roads have an AADT of less than 20. Table V-5 lists the actual ADT counts at different times of years at count situations located on seven of the rural roads included in the USAID assisted program. These values range from 92 to 448, with highest values in Corozal and Orange Walk districts, which also have the highest number of licensed vehicles outside of Belize District.

The traffic counts on the roads in Orange Walk are among the 13 shown on the inventory as having AADT exceeding 150. However, the three roads in the other districts are coded on the inventory at levels less than 20, clearly an error. One would expect, moreover, that the criteria for selection of program roads and bridges would prioritize roads with higher existing traffic and growth potential.

Therefore, it has been assumed that the average existing volume on program roads is neither as low as the median reflected in the inventory, nor as high as the limited sample for which actual counts are now available. The mid-point of the third highest range of AADT (21-90), 60, has been chosen as probably the most representative for the nationwide program. The average of the selective sample of rural roads counts is at least twice as large. For present volumes exceeding 150, however, a higher design and investment in road paving should be considered.

The predicted traffic growth rate for the with-project case is 7% per year. As shown in Figure V-1, gasoline imports for 1986 - 1990 rose at 7.5% per year, and diesel at 9.8%. Based on the growth of 10.1% per year in the period for electricity generation, which consumes about 70% of diesel, one can assume that diesel consumption for motor vehicle use is 1-2% lower than the average growth in diesel import quantities.

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Other parameters, such as imports of motor vehicles which have grown 19 - 20% per year, 1984 - 1990, shown in Figure V-2, and growth in vehicle licenses issued at 10% yearly, shown in Table V-6, would suggest growth rates which are probably not sustainable and which would overestimate future growth in traffic volumes, at least for rural areas. The annual change in GNP 1985 - 1989 at constant prices has averaged 6.5 percent annually. An assumed 7% traffic growth rate implies an elasticity relative to GNP of 1.1 which was the parameter used by the Roughton study previously cited.

It is most likely that the more heavily trafficked roads in Corozal and Orange Walk will have lower rates of traffic growth than those with smaller volume, where the potential for new economic activities is generally greater and growing from a smaller base.

In the with case, an additional one-time increase of 30% of normal traffic (21 vehicles) has been assumed by 1995 as a response to the availability of all-season access at substantially lower vehicle operating and time costs. This traffic, as well as the difference in volume arising from the growth rates with and without, represents traffic "generated" by the road and bridge improvements. Assuming that normal traffic growth in the without-project case approximates real GNP growth of 3% yearly, the growth rate differential is taken to be 4%.

Table A7 - 4

SELECTIVE TRAFFIC COUNTS ON RURAL ROADS
 INCLUDED IN ORIGINAL REHABILITATION PROGRAM
 (Based on 7 day counts)

CENSUS	DISTRICT	DATE	LIGHT	A D T	TOTAL
12	Orange Walk	8/89	189	58	247
		2/90	192	206	398
		1/91	173	217	390
13	Orange Walk	8/89	242	128	370
		2/90	293	155	448
		1/91	273	136	409
14	Orange Walk	8/89	180	52	232
		2/90	198	104	302
		1/91	125	94	219
15	Orange Walk	8/89	41	97	138
		2/90	47	45	92
		1/91	51	69	120
16	Belize	8/89	96	41	137
		2/90	102	50	152
		1/91	72	36	108
31A	Toledo	8/89	119	40	159
		2/90	88	23	111
		1/91	64	28	92
35	Orange Walk	8/89	78	45	123
		2/90	100	104	204
		1/91	94	77	171
23	Cayo	1/91	68	37	105

Source: MOW

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Table A7 - 5

TRAFFIC ON RURAL ROADS
 No. of roads in each traffic range (1)

DISTRICT	AADT	1-20	21-90	91-150	>150
Belize		39	0	0	0
Cayo		69	0	0	0
Corozal		0	65	5	11
Orange Walk		22	41	2	13
Stann Creek		54	1	0	0
Toledo		24	4	0	0
TOTAL		208	111	7	24
Percentage distribution		59	32	2	7

(1) As of June 1990 based on roads inventory.

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TABLE A7 - 6

NUMBER OF LICENSED VEHICLES IN BELIZE, 1986 TO 1990

District	Belize	Belmopan	Cayo	Corozal	Toledo	O/Walk	Stann Creek	Total
Year								
1986	-	-	-	-	-	-	-	11,562
1987	-	-	-	-	-	-	-	12,752
1988	6,334	1,000	1,519	1,826	441	2,190	780	14,014
1989	5,936	1,081	1,697	2,134	855	2,245	905	14,853
1990	NA	NA	NA	NA	NA	NA	NA	17,063

Source: Licensing and Transport Board

Note: Of these vehicles approximately 75% are cars, pickups or vans, 20% are trucks, four% are motorcycles and 1% are buses. There are 11 public bus companies operating about 400 buses.

Most vehicles that are imported for use by private individuals or organizations are bought second hand in the USA or in Mexico. Such vehicles are typically five or more years old when purchased and the average age combined with limited maintenance results in the condition of many vehicles being poor.

-G.V.

ECONOMIC EVALUATION CALCULATIONS

This annex supports Table A7 - 3 in Annex 7 Section C., wherein all of the values for costs with and without the project are listed over the analysis period 1992 - 2004.

1. Project Costs

The project costs are those shown in Section III: Cost Estimates and Financial Plan.

For purposes of the economic evaluation, project costs of US \$9.2 million (B\$ 18.4 million) were reduced as follows:

Project:	\$ 9.20million		
Less	1.10	Taxes on contract work (assuming 90% of roads and bridges by contract, with 15% being taxes)	

Net	8.10	(B \$16.2)	

Salvage value for bridges is shown in Year 2004 at 75% of construction cost, net of taxes, and inclusive of inflation and contingency allowance.

2. Vehicle Operating Costs

The vehicle operating costs derived by Roughton and Partners for the Stann Creek Road Feasibility study are shown in Tables 1/3 of Annex 7. These values are for a 5.44-mile road section, and so have been converted to B\$ costs per mile as follows:

	A 7000 mm	B 2,600 mm	C Difference	D Ratio A/B
	-----	-----	-----	-----
LV	0.38	0.20	0.18	1.9
HV	0.77	0.52	0.25	1.48

Light vehicles are a composite of cars and pickups and heavy a composite of bus and rigid truck.

The assumption made for the rural roads program is that roughness under the do-nothing case is about 12,000 mm and 4,500 mm for the improved case. Proportionally, the reduction in roughness is the same as for the 7,000 mm and 2,600 mm hypothesis on which the tabular values are based, the improved cases being about 37% of the roughness value of the do-nothing. It was therefore correct to assume that ratio of operating costs for the two cases would be the

same. However, to account for the likely slow-down and speed up, and potholed conditions of a 12,000 mm road, an extra 20 percent had to be added to the VOC unimproved case.

The tabled values do not include fixed operating costs, primarily depreciation. It was estimated that running costs would have to be increased by 70% for LV and 60% for HV to include fixed costs. Consequently average VOCs were as follows:

	LV	HV
12,000 mm	$0.72 \times 1.7 = 1.22$	$1.44 \times 1.6 = 1.82$
4,500 mm	$0.38 \times 1.7 = 0.65$	$0.77 \times 1.6 = 1.23$
Difference	0.57	0.59

For an assumed mix of 2/3 LV and 1/3 HV, the VOCs/mile are:

12,000 mm	$1.22 \times 2 + 1.82 = 1.42 \times 1.2 = \1.70	

	3	
4,500 mm	$0.65 \times 2 + 1.23 =$	\$0.84

	3	
		Difference \$0.86

The actual calculation of vehicle operating costs over one year is accomplished as follows:

$$\text{VOC/yr.} = \text{VOC/mile} \times \# \text{ of miles} \times \text{AADT} \times 365 \text{ days}$$

3. Time Costs

The travel time for constant speed running over a 120 mile road length at 20 MPH is 6 hours, and at 40 MPH, 3 hours. Therefore the potential time savings is 3 hours. Additionally, 2 hours are added to travel time in the without case to reflect delays due to flooding of roads and bridges.

The average value of passenger time is assumed to be \$B 2.00/hour.

The number of travelers per day at AADT 60, is 2 for each light vehicle ($0.7 \times \text{AADT}$) and 40 for each bus ($0.1 \times \text{AADT}$). The total number of passengers is therefore $(84 + 240) = 324$.

The calculation of passenger time is therefore:

$$\text{VT/yr.} = \text{Hrs. traveled} \times \text{value/hr/person} \times 365 \text{ days.}$$

Contractors Considered by MOW as Qualified
for Bridge Construction--June 30, 1991

1. HLC Engineering
2. Cunningham and Associates
3. Merton Commercial and Construction Company
4. Indeco Enterprises
5. Wilhem Lopez
6. David Dyck .
7. Charles Garbutt and Associates
8. B & C Construction Company Ltd.
9. A.T. Banman
10. Cisco Construction Company
11. Contracting and Engineering Services Ltd.
12. Menno Loewen

Note: These have not been formally prequalified recently but the first six firms listed have successfully completed (or are working on) bridges for the MOW.

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AGENCY FOR INTERNATIONAL DEVELOPMENT
UNITED STATES A. I. D. MISSION TO BELIZE
EMBASSY OF THE UNITED STATES OF AMERICA
BELIZE CITY, BELIZE, CENTRAL AMERICA

ANNEX 9

September 9, 1991

ACTION MEMORANDUM FOR THE A.I.D. REPRESENTATIVE

THROUGH: Paul Bisek, PDO

FROM : George Like, ADO

SUBJECT: Rural Access Bridges Project - IEE and Deferral of Environmental Assessments

ACTION: As the Officer authorizing the subject project, your approval is required for deferral of Environmental Assessments of subprojects.

DISCUSSION: The Rural Access Bridges Project (505-0042) is a five year grant activity with a USAID contribution of US\$6.5 million. The purpose of this project is to construct rural access bridges using excess property bridge sets and to rehabilitate rural roads. It is planned that at least 24 bridges will be erected and about 120 miles of rural roads will be rehabilitated with emphasis placed on the private sector to conduct these works. A portion of project funds will also be utilized for a small amount of commodities, project management, evaluations and audits.

22 CFR.2(d)(2) in AID Handbook 3, Appendix 2D, states that "An Initial Environmental Examination normally will not be necessary for activities within the classes described in paragraph 216.2(d)(1), except when the originator of the project believes that the project will not have a significant effect on the environment." The classes of actions described in paragraph 216.2(d)(1) include "(viii) Penetration road building or road improvement projects". Mission technical officers concur that the Rural Access Bridges Project may have a significant effect on the environment. An Initial Environmental Examination, therefore, is not required for this project.

22 CRF 216.3(a)(7) further allows environmental review to be performed after project authorization with respect of subprojects or activities that are unidentified at the time of authorization. Although a tentative list of bridge sites is included in the Project Paper, the final list of sites remains

to be confirmed and the road segments to be rehabilitated have yet to be identified.

Consequently, as part of the project design, funds have been included to conduct Environmental Assessments for each construction or rehabilitation activity. In accordance with 22 CFR 216.3(a)(7), provision is made to prevent disbursement of funds prior to completion of the assessments, both by means of a condition precedent in the draft agreement and through the procedures for prior approval of each unit for Fixed Amount Reimbursement. The draft agreement also includes a covenant restricting project activity in or through ecologically sensitive areas.

A standard scope-of-work for the Environmental Assessments will be prepared consistent with 22 CFR 216.6 and submitted for the concurrence of the IAC Bureau Environmental Office prior to the initial assessments. Based on the completed Environmental Assessment, the decision whether to proceed with regard to each subproject will be the responsibility of the Project Officer, in consultation with the Mission's Natural Resources Officer and subject to your concurrence.

The Regional Legal Advisor has reviewed and given his clearance to the condition precedent in the draft agreement and the procedures for FAR approval outlined in the project paper.

RECOMMENDATION: That you approve the deferral of Environmental Assessments, subject to the conditions and procedures described above.

Approve/~~Disapprove~~ Barbara P. Sandoval
Barbara P. Sandoval
A.I.D. Representative

September 18, 1991
date

clearance: JAllen, NRO [Signature]

draft: ADO, GLike/PDO, PBisek. 9/11/91: W#1146p

LIST OF CONTACTS AND BIBLIOGRAPHY

CONTACTS

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Ministry of Economic Development

Joseph Waight, Permanent Secretary
Juan Coye, Head, Public Sector Investment Program

Ministry of Energy and Communications

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Sylvan Roberts, Chief Statistician, Central Statistics Office
Lynn McDonald, Statistician, Central Statistical Office

Ministry of Natural Resources

John McGill, Physical Planner

Ministry of Tourism and Environment

John Morris, Commissioner of Archaeology

Ministry of Social Services

Evan Dakers, Social Development Officer

Ministry of Works

Hon. Samuel Waight, Minister of Works
Gerald A. Henry, Permanent Secretary
Edgard Puga, Chief Engineer
Wilfredo Guerrero, Senior Executive and (Chief Roads Engineer)
Roderick Crawford, Bridge Engineer
Teodoro Aleman, Works Overseer
Eric Flowers, Officer in Charge, Corozal District
Edmund Perham, Officer in Charge, Orange Walk District
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Joseph McGann, Project Manager

Other

J. Woods, Owner, Cisco Construction Company, Belize City
C. Garbutt, Private Contractor, Belmopan

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