



DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

UNITED STATES COORDINATOR
ALLIANCE FOR PROGRESS

AID Loan No. 511-L-021-A
(Ref.: AID-DLC/P-237/2)
Project Activity No.
511-23-310-442

LOAN AUTHORIZATION (AMENDED)

Provided From: Alliance for Progress Funds
BOLIVIA: Highways 1 and 4

Pursuant to the authority vested in the Deputy U. S. Coordinator, Agency for International Development ("A.I.D."), by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby amend the text of the Loan Authorization of AID Loan No. 511-L-021, dated May 28, 1964, to read as follows:

"Pursuant to the authority vested in the Administrator, Agency for International Development ("A.I.D.") by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan to the Government of the Republic of Bolivia ("GOB") of not to exceed forty two million seven hundred thousand dollars (\$42,700,000) to assist in financing the dollar and local currency costs (including final design and supervisory engineering) of constructing two related highways in Bolivia, one approximately 206 kms., from Cochabamba to the Isiboro River near Puerto Patino, (paved approximately 183 kilometers from Cochabamba to Villa Tunari), and the second, all gravel, of approximately 93 kms., from Villa Tunari to Puerto Villarroel, as well as the dollar costs of the purchase of construction equipment, spare parts, related materials and camps. The loan shall be subject to the following terms and conditions:

1. Interest and Terms of Repayment

- (a) Borrower shall repay the loan to A.I.D. in United States dollars within forty (40) years from the first disbursement of the loan including a grace period of not to exceed ten (10) years.
- (b) Borrower shall pay to A.I.D. on the disbursed balance of the first thirty three million two hundred thousand dollars (\$33,200,000) disbursed under the loan interest of three-quarters of one ($3/4$ of 1) percent per annum during the grace period and two (2) percent per annum thereafter.
- (c) Borrower shall pay to A.I.D. in U.S. dollars on the disbursed balance of the loan in excess of thirty three million two hundred thousand dollars (\$33,200,000) interest of one (1) percent per annum during the grace period and two and one-half ($2\frac{1}{2}$) percent per annum thereafter.

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2. Other Terms and Conditions

- (a) Equipment, materials and services financed hereunder (except shipping and marine insurance which shall be procured from the United States) shall have their source and origin in Bolivia or in the United States.
- (b) United States dollars utilized under the loan to finance local currency costs shall be made available through Special Letter of Credit procedures and shall be used only for procurement in the United States.
- (c) The supervising engineering and contracting firms shall be approved by A.I.D.
- (d) Based on a study by U.S. experts of Bolivia's rural development program and agencies, and prior to the first disbursement under this loan, except for engineering services, the Government of Bolivia will furnish a schedule plan satisfactory to A.I.D. for:
 - (i) Strengthening programs and staffs, and integrating or better coordinating agencies responsible for GOB rural development and colonization programs; and
 - (ii) Colonization and rural development in the areas that surround and are adjacent to projects 1 and 4.
- (e) The Government of Bolivia will accept the services of U.S. experts to advise and assist in completing the integration of road maintenance organizations and programs within the national roads service and in the development of an adequate nationwide maintenance program.
- (f) The Government of Bolivia will accept the services of U.S. experts to advise and assist in developing any necessary new revenue sources and in consolidating the various present revenue-producing sources for highway maintenance.
- (g) Prior to disbursement of any funds under this loan, except for engineering services, the Government of Bolivia will furnish A.I.D. with a plan, including a specific schedule, satisfactory to A.I.D., for carrying out the following:
 - (i) Completing the program to integrate highway maintenance organizations and programs within the National Roads Service.

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- (ii) Developing an expanded maintenance program and allocating budget resources adequate for Bolivia's growing road system.
- (iii) Establishing load limits and an enforcement system for projects 1 and 4.
- (h) The amount of U. S. dollars to be used to finance the U.S. dollar costs of purchasing construction equipment, spare parts, related material and camps shall not exceed two million two hundred thousand dollars (\$2,200,000).
- (i) Such other terms and conditions as A.I.D. may deem appropriate."



Deputy U. S. Coordinator

FEB 9 1967

Date

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DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

AID-DLC/P-237/2
January 31, 1967

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Bolivia - Highways 1 and 4

Attached for your review are the recommendations for an amended loan authorization increasing by an amount not to exceed \$9,500,000 a loan in an amount of \$33,200,000 made to the Government of the Republic of Bolivia to assist in financing the dollar and local currency costs (including final design and supervisory engineering) of constructing two related highways in Bolivia as well as the dollar costs of the purchase of construction equipment, spare parts, related materials and camps.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee at a meeting on Friday, February 3, 1967.

Rachel C. Rogers
Assistant Secretary
Development Loan Committee

Attachments:

Summary and Recommendations
Project Analysis
Annexes 1-5

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BOLIVIA - LOAN 511-L-021 - HIGHWAY PROJECTS 1 and 4 (LOAN INCREASE)

TABLE OF CONTENTS

	<u>Page</u>
I - SUMMARY AND RECOMMENDATIONS.....	i
II - BACKGROUND.....	1
III - ECONOMIC APPRAISAL.....	4
IV - ENGINEERING ANALYSIS.....	13
V - FINANCIAL ANALYSIS.....	20
VI - ISSUES.....	23
VII - IMPLEMENTATION.....	25

- ANNEX 1 - Statutory Check List
- ANNEX 2 - Economic Analysis - Sept. 1966
- ANNEX 3 - Waiver for Negotiation - Oct. 10, 1966
- ANNEX 4 - Map
- ANNEX 5 - Loan Authorization (Draft)

BOLIVIA - Loan 511-L-021 - HIGHWAY PROJECTS 1 and 4 (Loan Increase)

I. SUMMARY AND RECOMMENDATIONS

1. BORROWER: Republic of Bolivia.
2. AMOUNT OF INCREASE IN LOAN 511-L-021: Up to \$9,500,000 making total loan up to \$42,700,000.
3. BACKGROUND: Loan Agreement 511-L-021 was signed by AID and the GOB in September 1964. The loan was made to finance construction and engineering costs of Bolivia Highways 1 and 4 in the amount of \$33.2 million.

Competitive bidding for construction services was originally planned for this project. On the bid opening date, July 20, 1966, only one bid was received by the GOB from a consortium comprising J. A. Jones Construction Co., Emkay, Wright Contracting Co., Bartos y Cia. Owing to legal dispositions in the Republic of Bolivia, a single bid cannot be opened; accordingly the bid was returned unopened. The amount of this bid was later disclosed as being \$49.7 million. This was \$18.5 million above the consulting engineer's estimate upon which the original A.I.D. loan was based. (For discussion of reasons for difference between the estimate and bid see Engineering Analysis.)

On October 11, 1966, the Deputy Coordinator, Alliance for Progress, authorized the negotiation of a contract by the GOB with the Jones consortium for construction of Projects 1 and 4. Authorization of negotiation rather than rebidding was justified on the basis that one year would be lost in rebidding; that further delay could cause serious political problems in Bolivia; that rebidding would not likely attract any more contractors than the first bidding did; that time delays would cause increase in contract prices; and that the Jones group was the only contractor interested in the job. (For details see Annex 3.)

Negotiations were completed January 10, 1967. The construction contract price was \$42.5 million and GOB purchase of contractor's equipment, spare parts, construction materials and camps (at the contractor's option) was up to \$2.5 million. (For discussion of the purchase arrangements see Issues, Section VI.)

4. TOTAL COST OF PROJECT: Up to \$50,450,000 distributed as follows:

	<u>Foreign Exchange</u> (dollars)	<u>Local Currency*</u> (dollar equivalents)	<u>Total</u> (dollars)
(1) Construction (final negotiated price)	27,471,960	15,028,040	42,500,000
(2) Engineering	1,700,000	1,750,000	3,450,000
(3) Equipment and Camp Sites (Procurement by GOB from contractor at residual value)	2,200,000	300,000	2,500,000
(4) Contingencies	<u>1,000,000</u>	<u>1,000,000</u>	<u>2,000,000</u>
TOTALS	32,371,960	18,078,040	50,450,000
<u>Source of Funds</u>	<u>Foreign Exchange</u> (dollars)	<u>Local Currency</u> (dollar equivalents)	<u>Total</u> (dollars)
(1) GOB Contribution	--	5,950,000	5,950,000
(2) PL 480	--	1,800,000	1,800,000
(3) AID Loan 511-L-021	22,871,960	10,328,040	33,200,000
(4) Supplemental AID Loan	<u>9,500,000</u>	<u>--</u>	<u>9,500,000</u>
	32,371,960	18,078,040	50,450,000

* rate of exchange \$1 = 12.147

5. DESCRIPTION: This loan will assist in financing the construction of two all-weather highways with a combined length of approximately 299 kilometers. Project 1 is about 93 kilometers long beginning at the colonization center of Villa Tunari in the flat, densely forested Chapare area and extending eastward through relatively flat terrain to Puerto Villarroel.

Project 4 is about 206 kilometers long and extends from Cochabamba northeast across the flank of the Cordillera Real to Villa Tunari and thence northwestward along the Piedmont belt to the Isiboro River near Puerto Patino (see Map, Annex 4).

Also included in A.I.D. loan financing are the dollar costs of the GOB purchase of contractor's equipment, spare parts, construction materials and camps at the end of the job. (See Issues, Section VI for discussion.)

6. EXIMBANK: Eximbank has indicated they are not interested in this project.
7. VIEWS OF COUNTRY TEAM: Recommends and supports the project based on its economic justification and its contribution to Bolivian social development and political unification.
8. PROCUREMENT: All procurement under this increase will be for U. S. goods and services.
9. STATUTORY CRITERIA: All Statutory Criteria related to this loan have been satisfactorily met (see Annex 1 for details).
10. OTHER FINANCING: No other sources of financing is presently available for this project on reasonable terms. IBRD and IDB have both indicated that they are not interested in financing this project.
11. ISSUE: A.I.D. financing of the dollar costs of the GOB purchase of equipment, spare parts, construction materials and camps from the contractor at the termination of the job. (See Section VI, Issues.)

12. RECOMMENDATION: Authorization of an increase in A.I.D. Loan 511-L-021 not to exceed \$9,500,000 to the Republic of Bolivia to assist in financing the dollar costs of construction and engineering of Highways 1 and 4 and procurement by the Government of Bolivia of equipment, spare parts, construction materials and camps from the contractor at residual value, the loan to be made on the following terms and conditions:

- (a) The Borrower shall repay the Loan to A.I.D. in U.S. dollars within forty (40) years from the first disbursement under the Loan, including a grace period or not to exceed ten (10) years. Borrower shall pay to A.I.D. in U.S. dollars interest on the disbursed portion of the Loan of one percent (1%) per annum during the grace period and two and one-half percent (2½%) per annum thereafter.
- (b) All conditions of Loan 511-L-021 shall apply to this increase in the Loan except procurement shall only be for U.S. goods and services.
- (c) Such other conditions as A.I.D. may deem advisable.

Project Committee

Chairman: Frank Kimball, LA/CD
Engineers: Benjamin Watkins, LA/CD/ENG and Charles Shirley,
USAID/Bolivia
Counsel: Frank DeRosa, LA/GC
Desk: Austin Heyman, LA/BC

Drafted: FKimball/BWatkins/CSherley

II. BACKGROUND

1. Loan Agreement 511-L-021 was signed with the Government of Bolivia in September 1964 to finance engineering services and construction of Bolivia Highways 1 and 4 in the amount of \$33.2 million.
2. The financing was granted pursuant to feasibility studies completed by Tippetts-Abbett-McCarthy-Stratton in December 1963, for Project 1, and in January 1964 for Project 4. In June 1965 the GOB contracted with TAMS to provide engineering services of final design and supervision of construction for the project. During the prosecution of the design work in January 1966, the Advance Notice to Bidders and call for prequalification were issued. Six construction companies or consortia were pre-qualified and the Invitation for Bids, including contract documents and bidding plans, was issued on May 19, 1966.
3. At the request of several of the potential bidders, a pre-bidding conference was held on July 12, 1966, in the Bolivian Embassy in Washington. At this time, at the request of the bidders, several changes were made in the specifications for the purpose of reducing the contingencies that would be included in the bids. Only two bidders were represented at the conference; two other bidders had indicated they would not attend and would not present a bid while the remaining two bidders had not stated their position. By July 20, 1966, the date set for opening the bids, only one bid had been received by the GOB from a consortium comprising J.A. Jones Construction Co., Emkay, Wright Contracting Company and Bartos y Cia. Owing to legal dispositions in the Republic of Bolivia, a single bid cannot be opened; accordingly the bid was returned unopened.
4. The GOB acted immediately to authorize, by presidential decree on July 22, 1966 direct negotiations limited to the Jones consortium. On the same day, at a meeting with the Minister of National Economy, the Jones representatives informally presented the bid which had been returned to them. Its amount was \$49.7 million.
5. The consultants undertook a study to determine the basic reasons for the difference between the preliminary cost estimate prepared in mid-1963 and the informal Jones bid. They determined that three factors had caused an approximate increase of 45 percent in costs. These were an average annual increase of construction costs in Bolivia of 5.6%; over estimation of efficiency of utilization of personnel and equipment; and lack of interested contractors. (See Engineering Analysis for details.)

6. Five possible scope of work alternatives were examined in September, 1966, attempting to reduce the cost of the project. Each alternative was analyzed to determine its cost and related benefits expressing the result in terms of the internal rate of return. Costs were estimated by TAMS, the consultant to the Bolivian government in conjunction with IA/CD engineering staff.

The alternative selected as having the most favorable internal rate of return was to maintain the original design geometrics and the roadway surface characteristics affecting the operational cost of vehicles while adopting 16 design changes for the purpose of reducing the construction cost and some of the contractor's contingencies. The estimated total economic cost of this alternative was shown:

Estimated Construction Cost	\$40,600,000	
Estimated Cost of Engineering Services	3,450,000	
Contingencies	<u>2,000,000</u>	\$46,050,000
Sub-total		
Less Portion of Contingency Allowance Not Considered to be Included in Economic Costs ^{1/}		<u>1,500,000</u>
Estimated Total Cost of Projects		<u>\$44,550,000</u>

The internal rate of return on this alternative was estimated in September, 1966, to be $12\frac{1}{2}$ percent. If the benefits from the new linkage to Santa Cruz are included (Project 9) the internal rate of return rises to about 14.5 percent. (See Economic Analysis for details)

^{1/} - \$1,500,000 assumed to cover possible escalation payments arising because of general inflation, and therefore excluded from economic costs. This exclusion was later reduced to \$1,000,000, but this change would not be significant to the results of the comparative study of alternatives.

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On October 11, 1966, the Deputy Coordinator, Alliance for Progress, authorized the negotiation of a contract by the GOB with the Jones consortium for construction of Projects 1 and 4 based on the above alternative. Authorization of negotiation rather than rebidding was justified on the basis that one year would be lost in rebidding; that further delay could cause serious political problems in Bolivia; that rebidding would not likely attract any more contractors than the first bidding did; that time delays would cause increase in contract prices; and that the Jones group was the only contractor interested in the job. (For details see Annex 3.)

During November, December, and January, the GOB and the Jones group negotiated the contract. On January 10, 1967, they reached final agreement on a \$42.5 million contract. The agreement stipulated that the contractor would be given notice to proceed not later than February 9, 1967. The importance of this deadline is that the contract time of 2000 days had been reduced to 1750 days during negotiations and this tighter time schedule can only be met if construction can start this dry season which begins in April. Upon notification that the additional A.I.D. loan has been made, the GOB will give the contractor notice to proceed.

A final economic appraisal of the project was made in January 1967, taking into account the negotiated contract price and the modified construction term. The internal rate of return was estimated to be 13.5 percent, increasing to 15.5 percent if the benefits from the future alternative linkage to Santa Cruz are included. (See Economic Appraisal for details.)

III. ECONOMIC APPRAISAL

To aid in the evaluation of the request of the Government of Bolivia for additional A.I.D. financing to carry out the construction of Highway Projects 1 and 4, the consultants, Tippetts-Abbett-McCarthy-Stratton, were asked to make additional economic appraisals of the projects to supplement and bring up-to-date the feasibility studies made in 1963. The detailed report of the consultants, dated September 1966, is presented in Annex 2 ; the key premises and principal conclusions are summarized in the following paragraphs.

The study included an examination of the objectives of the projects and a review of the validity of the premises on which the economic studies of the feasibility reports were based. One of the principal purposes of the study was to appraise the economic feasibility of deleting various components of the projects as originally conceived, for the purpose of reducing the total funds required.

After determining that none of the proposed deletions were feasible, contract negotiations were carried out essentially on the basis of the original projects and a tentative agreement was reached with a group of U. S. and Bolivian companies for the construction of the projects. A final economic appraisal was thereupon completed in January 1967, taking into account the negotiated contract costs and schedule for completing the work. To facilitate the analysis, procedures similar to the 1963 feasibility report analyses were used, rather than to apply the concepts of transportation economics now in general use, which include the evaluation of economic development benefits at shadow prices rather than market prices. Since full road-user benefits associated with replacement of the existing poor road by a new paved road from Cochabamba to Villa Tunari were imputed to the project from existing and future traffic, the use of the present low market prices received by farm producers, in the evaluation of development benefits, is necessary to avoid double counting of the reduction in vehicle operating costs. Care was taken also in the analysis to include colonization costs and farm operating costs, representing additional and unavoidable inputs without which the development benefits could not be realized.

Objectives of the Projects

The principal objectives of the projects as conceived in the feasibility reports were:

To reduce the currently excessive vehicle operating costs by replacing the existing unsurfaced road from Cochabamba to Villa Tunari by a shorter paved highway on a better alignment;

To open the virgin lands in the piedmont belt for settlement by colonists from the highlands, by means of penetration roads from Villa Tunari to the Isiboro River and to Puerto Villarroel; and

To provide a linkage of the highway system with the system of navigable rivers in the Beni, by means of a highway connection to Puerto Villarroel.

These objectives retain their validity at present, and in view of continued progress in the construction of Projects 3 and 7 from the Ichilo River to Guabira, and of current plans to construct Project 9, a linkage between Projects 1 and 3, a fourth objective assumes increased importance:

To serve as important segments in a new trunk route from Cochabamba to the producing area north of Santa Cruz, with the important advantages of greatly reduced distance and superior alignment, resulting in substantial road-user benefits.

Validity of Premises of Previous Economic Studies

The economic studies summarized in the 1963 feasibility reports on these projects were based upon construction cost estimates prepared in mid-1963. Since that time a world-wide trend of rapidly increasing construction costs has been noted; the negotiated price for construction of Projects 1 and 4 is substantially higher than the 1963 estimates.

To appraise the economic feasibility of the project in terms of conditions existing in 1966, the traffic between Cochabamba and Villa Tunari should be projected from 1963 to 1966 at the rate of 7 percent per year. The timing of subsequent traffic increases from development in new colonization areas should be adjusted slightly to conform with the new schedule for such development. The vehicle operating costs incurred by present and projected traffic should be stated in terms of 1966 dollars by inflating them at about 5 percent per year since 1963.

In the Project 1 area the colonization program is proceeding on a schedule agreeing closely with the 1963 projections of the ultimate settlement of 2,500 families, on which the feasibility studies were based. On Project 4, no change is now foreseen in the previous assumption that about 600 families would settle spontaneously between about Km 90 and Km 150. In the area between Villa Tunari and Isiboro River, where the settlement of 1900 families was assumed in the feasibility studies, the Government has made a number of extensive concessions of land to private enterprises and non-profit associations. It is now estimated that about 1530 families will be settled in various colonization projects along this segment of the highway and that additional benefits will be obtained from the approximately 8800 hectares that will be devoted to agro-industrial uses by various private groups. The benefits from colonization as computed in the feasibility reports should be stated in terms of 1966 dollars by inflating the 1963 figures at 4 percent per year, which is about the annual rate of price increases in domestic food products

in the Cochabamba area. As the highway is now expected to be completed later than previously assumed, the timing of the development benefits must be adjusted accordingly.

Possible Modifications of the Projects--Alternatives

Starting with the projects as proposed by the Government of Bolivia (designated herein as Alternative I), each possible modification of the projects was analyzed to determine its cost and related benefits, expressing the result in terms of the internal rate of return.

Alternative I

This alternative comprises the construction of the entire project, Cochabamba-Villa Tunari (paved) and Isiboro River-Villa Tunari-Puerto Villarroel (gravel surface). In the comparison of alternatives made in September 1966, the costs of Alternative I were estimated as follows:

Estimated Construction Cost	\$40,600,000	
Estimated Cost of Engineering Services	3,450,000	
Contingencies	<u>2,000,000</u>	
Sub-total		\$46,050,000
Less Portion of Contingency Allowance not Considered to be Included in Economic Costs ^{1/}		<u>1,500,000</u>
Estimated Total Cost of Projects		<u>\$44,550,000</u>

The present worth of the total cost of the projects, which was scheduled to be disbursed over the period from 1966 through 1972, was determined by discounting such disbursements at various annual rates.

^{1/} - \$1,500,000 assumed to cover possible escalation payments arising because of general inflation, and therefore excluded from economic costs, this exclusion was later reduced to \$1,000,000, but this would not be significant to the results of the comparative study of alternatives.

The economic net benefits were evaluated in terms of the revised basic premises previously discussed, and expressed in terms of 1966 dollars. Road-user benefits were calculated first on the assumption that Project 9, a proposed linkage between Projects 1 and 3, would not be completed. A second calculation was made to determine the additional benefits allocable to Projects 1 and 4, that would accrue if such a new linkage were constructed, thus facilitating the diversion of traffic between Cochabamba and the producing areas north of Santa Cruz, from the present Cochabamba-Santa Cruz highway to the shorter route with superior characteristics that would be completed via Projects 7, 3, 9, 1, and 4.

By discounting the predicted future economic benefits to determine their present worth in 1966, and equating their present worth to the present worth of the costs of the projects, the internal rate of return on the investment was found in the September 1966 study to be 12.5 percent, increasing to 14.5 percent if the additional benefits allocable to Projects 1 and 4 from the diversion of Cochabamba-Santa Cruz traffic, are included.

Alternative II

This alternative comprises the deletion of the bituminous paving between Cochabamba and Villa Tunari, and a decrease in the base course thickness from 15 to 7.5 centimeters, at an estimated reduction in construction costs of \$2,400,000.

The feasibility of such a deletion was examined by calculating the additional benefits that would be achieved by reincorporating the paving as part of the projects, and computing the internal rate of return on the \$2,400,000 investment required to recover these benefits. The computed internal rate of return was slightly more than 25 percent, and would be even higher if the benefits to traffic diverted from Cochabamba-Santa Cruz highway were included.

Alternative III

Under this alternative the paving between Cochabamba and Villa Tunari would be deleted as in Alternative II, and the width of the roadway platform would be reduced from 8.0 to 4.5 meters to provide a single-lane roadway.

In examining this alternative, it was found that the practical capacity of a single-lane roadway in such mountainous terrain, according to authoritative technical opinion expressed in recognized technical publications, is less than the present traffic on the existing road from Cochabamba to Villa Tunari. Therefore, such a single-lane road would not serve the future traffic from developing areas, and consequently this alternative was considered to be technically non-feasible.

Alternative IV

This alternative would involve the elimination of the Villa Tunari-Isiboro River branch from Project 4, engendering a reduction

of \$2,900,000 in the construction cost of the project. Examination of the development benefits associated with this segment of Project 4 shows that the internal rate of return on this \$2,900,000 investment is about 18.5 percent.

Alternative V

This alternative would comprise the deletion of the terminal 24 kilometers of Project 1 from the Ivivigarsama River to Puerto Villarroel, reducing the construction cost of the projects by \$1,150,000. Colonization in the area of Project 1 would not be affected by such a deletion, and the benefits associated with this 24 kilometer segment are those that would accrue from the linkage of the Bolivian highway network with the system of navigable rivers of the Beni. The internal rate of return on the \$1,150,000 investment was calculated to be well in excess of 25 percent.

The results of the comparison of alternatives, from the September 1966 study, are summarized in Table 1.

TABLE 1

Internal Rates of Return on Proposed Projects
and on Selected Component Parts Analyzed as Alternatives

<u>Alternative</u>	<u>Cost Millions of \$'s.</u>	<u>Internal Rates of Return</u>	
		<u>Without New Linkage to Santa Cruz</u>	<u>With New Linkage to Santa Cruz</u>
I	44.55	12.5	14.5
II	2.4	25+	25+
III	One-way Road not Technically Feasible.		
IV	2.9	18.5	
V	1.15	25+	

Thus, the comparative study made in September 1966 showed conclusively that the projects as represented by Alternative I should not be modified by deleting from them any of the various components analyzed as Alternatives II through V.

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Final Economic Appraisal

The negotiation completed January 10, 1967, of a contract for construction of the projects at a total cost of \$42,500,000 in a period of 1750 days necessitates the recalculation of the economic return, under these new conditions. The total economic cost of the projects is summarized in Table 2 and the approximate timing of expenditures in Table 3.

TABLE 2

Economic Cost of Projects

Construction Cost	\$42,500,000
Estimated Cost of Engineering Services	3,450,000
Contingencies, \$2,000,000, of which \$1,000,000 covers possible escalation payments, while remainder, for possible extra work, is an economic cost of <u>1/</u>	1,000,000
Estimated Total Economic Cost	<u>\$46,950,000</u>

TABLE 3

Schedule of Expenditures

<u>Year</u>	<u>Amount, Dollars</u>
1966	\$ 1,000,000
1967	9,000,000
1968	11,000,000
1969	9,000,000
1970	9,000,000
1971	7,950,000
Total	<u>\$46,950,000</u>

The economic benefits calculated in the study made in September 1966 have been favorably affected by the reduction of the construction period to 1750 days. Construction of the entire projects will be completed before the end of 1971, and since acceptance of the completed work in 20-kilometer segments is now specified, it is expected that the roads from Villa Tunari to the Isiboro River and to Puerto Villarroel will have progressed sufficiently by the end of 1970 to provide service to the extent necessary for realization of development benefits.

1/ - \$1,500,000 assumed to cover possible escalation payments arising because of general inflation, and therefore excluded from economic costs, this exclusion was later reduced to \$1,000,000, but this change would not be significant to the results of the comparative study of alternatives.

Since colonization in the Project 1 area is proceeding about as forecast in the feasibility report, the schedule of the associated benefits estimated in such report has not been changed. The benefits from linkage to navigation, however, will be postponed two years from the schedule shown therein.

It is now estimated that the development benefits arising from colonization on Project 4 will be equal to the corresponding benefits calculated in the September 1966 study (see Annex 2), but because the construction will be completed in 1971, the benefits will be realized one year earlier than previously estimated.

To develop forecasts of road-user benefits it was necessary to revise the traffic projections. Traffic generated by colonization along Project 1 will develop on schedule, but that generated by port activities will be deferred two years from the growth as forecast in the feasibility report. It is assumed that the volume of traffic on the existing road from Cochabamba to Villa Tunari increased from 1963 to 1966 at the long-term annual rate of 7 percent, and revised projections of normal and generated traffic growth have been adjusted to account for the assumed 1966 volume. It is assumed that the development traffic from the area west of Villa Tunari forecast in the feasibility report will be experienced two years later than shown in such report; this assumption is probably conservative, since the combined development by colonizers and by various enterprises is expected to give rise to a greater volume of traffic than previously forecast for colonization alone. The revised traffic estimates are given in Table 4, which also shows the greater volume of traffic that would develop on Project 4 if the new linkage to Santa Cruz via Project 9 were completed. The estimates of the diverted traffic were developed as shown in the September 1966 economic analysis (Annex 2), except that for the present appraisal it is assumed that Project 9 will be completed concurrently with Projects 1 and 4, in 1971.

TABLE 4Projected Average Daily Traffic

	<u>1966</u>	<u>1974</u>	<u>1979</u>	<u>1984</u>	<u>1989</u>
<u>Without New Linkage to Santa Cruz</u>					
<u>Via Project 9</u>					
Cochabamba - Sacaba	430	1030	1425	1940	2760
Sacaba-Villa Tunari	85	420	590	800	1130
<u>With New Linkage to Santa Cruz</u>					
<u>via Project 9</u>					
Cochabamba-Sacaba	-	1410	2055	2885	4090
Sacaba-Villa Tunari	-	800	1220	1745	2460

In calculating the road-user benefits for Project 4 that would accrue each year with traffic volume as shown in Table 4, the estimates of vehicle operating costs given in the feasibility report were utilized after correction to 1966 dollars by inflating the 1963 figures at the rate of 5 percent per year. Once the new highway connection to Santa Cruz via Project 9 were completed, considerable savings would accrue in the form of reduced operating costs of vehicles diverted to the shorter route. Although Projects 1 and 4 represent far more than one-half the cost of construction of the entire lowland route between Cochabamba and Santa Cruz, they constitute only 52 percent of the length, and have been credited with only one-half the benefits of the diverted traffic.

The total estimated benefits from Projects 1 and 4 are given for selected years in Table 5.

TABLE 5ESTIMATED TOTAL ANNUAL TANGIBLE BENEFITS

(Thousands of 1966 Dollars)

	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
<u>Development and Port Benefits</u>				
Project 1	3,040	4,260	5,810	7,310
Project 4	840	1,710	2,250	3,365
<u>Road-User Benefits</u>				
Without new linkage to Santa Cruz	4,430	6,170	8,450	11,850
Additional with new linkage to Santa Cruz	1,470	2,890	4,540	6,300
<u>Totals</u>				
Without new linkage to Santa Cruz	8,310	12,140	16,510	22,525
With new linkage to Santa Cruz	9,780	15,030	21,050	28,825

In evaluating the economic return on the investments in the projects, it was necessary to consider not only the expenditures for construction shown in Table 2, but also the annual maintenance costs of the new highways and colonization costs, as described in the feasibility reports. Based on annual benefits through 1991 without the new linkage to Santa Cruz, and costs for the same period, the internal rate of return is about 13.5 percent. Including benefits from the new linkage to Santa Cruz, the internal rate of return is about 15.5 percent.

IV. ENGINEERING ANALYSIS

1. General Description of Project

The 86 kilometers of highway proposed for Project 1 would start at its junction with Project 4 immediately north of Villa Tunari and would trend in an easterly direction across the Chapare River and about 59 kilometers beyond; after crossing the Ivivigarsama River the route would turn northward and continue some 27 kilometers to Puerto Villarroel. The land over the entire length of the route is flat and heavily forested. Elevations vary between 240 and 300 meters.

Project 4 is proposed to be 206 kilometers long between the city of Cochabamba and the central part of the Chapare Province. Not far from Cochabamba (elevation 2,570 meters) the proposed highway would pass through or near the population centers of Sacaba and Aguirre. In this segment the alignment closely follows the existing route, utilizing portions of the existing roadbed where practical. The highest point of the proposed highway is reached at an elevation of 3,600 meters, some 36 kilometers from the beginning of the project. From this point the road generally descends along the Corani Valley, passing near Aguirre at about km 45 and Colomi at km 50. At approximately km 64 the valley ends abruptly at the scarp of the northeastern flank of the Cordillera Real. From km 64 northward the proposed route continually descends, crossing another small drainage divide into the valley of the Espiritu Santo River and follows the river downstream to Villa Tunari (elevation 300 meters), the commercial center of the Chapare region.

The proposed alignment between Aguirre and Villa Tunari, about 120 kilometers long, and on an almost continuously descending grade, would replace an existing road that is about 18 kilometers longer, rises from Aguirre almost 1,000 meters to an elevation of 4,335 meters, and is limited to one-way traffic through barren and precipitous terrain. At Villa Tunari Project 4 would connect with Project 1. Project 4 continues as a penetration road 43 kilometers northwest from Villa Tunari to the Isiboro River. The road would traverse the piedmont belt, never more than a few kilometers from the adjacent mountains.

To integrate the proposed projects with the existing highway network, an additional connection approximately 18 kilometers long is proposed between Aguirre and the Cochabamba-Santa Cruz highway near Tiraque, since some traffic can be expected between the Chapare and points east of Aguirre. A fair-weather road between Aguirre and Tiraque is now under construction by the Local Roads Headquarters of the Department of Cochabamba; it is proposed under Project 4 to improve the road to a condition suitable for all-weather use.

Project 1 will be a 3-meter road, shoulder to shoulder width, with bridge widths varying from 6.5 to 9 meters, depending on the length of the bridge. It will have a crushed gravel surfacing full width, shoulder to shoulder. Bridges, generally, will be prestressed concrete superstructures on open-end concrete abutments founded on cast-in-place concrete piles, and concrete piers on spread footings.

Grouted rip-rap will be provided at all abutments. Major bridges vary in length from 90 to 226 meters with span lengths varying from 30 to 70 meters.

Project 4 from Cochabamba to Villa Tunari will have roadway widths varying from 8 to 10 meters shoulder to shoulder. From Villa Tunari to the Isiboro River (Puerto Patino) the road will be only 6 meters wide, shoulder to shoulder. The Cochabamba-Villa Tunari section will have a triple bituminous surface treatment 7 meters wide from Cochabamba to km 19, and 6 meters wide from there to Villa Tunari. The Villa Tunari-Isiboro River section will have a full width (6 meters) pit-run gravel surfacing. Bridge widths vary from 6.5 to 9 meters on the flat and rolling terrain and from 6.5 to 7 meters in the mountainous terrain, the variations depending on the length of the bridges. The same type of bridges will be constructed as indicated above on Project 1, except that three types of piers will be constructed: twin circular columns, solid walls and hollow piers.

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C. Technical Feasibility

The final design has been completed and the construction contract has been negotiated, thus permitting fairly accurate estimates of the work and costs involved.

As explained under the section on background the construction contract was initially advertised under the competitive bidding procedure, and this was followed by an A.I.D. decision to permit the Government of Bolivia to enter into negotiations with the Jones consortium; the only bidder who was interested enough in the contract to submit a tender.

In January 1964 at the time the feasibility study was completed the project cost was estimated at \$37,200,000. That estimate was based on the construction cost indexes as of July 1963. At that time the unit prices of highway construction had been relatively stable for a number of years and there was no anticipation that this estimated cost would be unsuitable for the project. Any inflationary costs that had been taking place were offset by better equipment utilization and efficiency.

Beginning in early 1964 the inflationary elements of highway construction costs began to increase more rapidly than savings being accomplished through better equipment utilization and increased efficiency. At first this difference was barely perceptible; however, by July 1966 the difference was increasing rapidly. Analysis of the construction cost as listed in the Construction Review magazine published by the U.S. Department of Commerce for July 1966 indicated that the construction cost index had increased 15.7 percent in the past 3 years. Further data published in the September issue of Roads and Streets indicated that the bid prices of highway projects had increased 4.3 percent in the second quarter of 1966, following a 2.3 percent increase during the first quarter of 1966. Construction costs in Bolivia likewise have been increasing 5 to 6 percent per

year. Projecting these construction cost increases forward for another 3 years, to the mid point of construction, indicates an increase of approximately 32 percent. Analysis of the utilization of personnel and equipment for projects 3 and 7 under the Hardeman contract indicates that the preliminary estimate on projects 1 and 4 may have been low by approximately 8 percent in this respect. Also, analysis of lack of enthusiasm of U.S. contractors for construction work in Bolivia indicates that the factor assigned to the contractor's overhead, contingencies, and profit should be increased an estimated 5 percent. Totalling these three factors indicates that the project cost estimate should be increased by approximately 45 percent over the preliminary cost estimate made in 1963. The construction cost computed by this method would be \$42,690,000.

In September 1966 Tibbetts - Abbott - McCarthy - Stratton prepared a new construction cost estimate based on a detailed analysis of the current costs of manpower, equipment and materials, plus an estimated allowance for future inflation that varied from 0 to 10 percent per annum for the different components. The amount of this estimate was \$40,600,000.

At the time of the scheduled bid opening on July 20, 1966, the Jones consortium's tender, as explained under the section on "Background," was returned to them unopened. Later it was unofficially presented to the GOB for their information and use. The amount of this tender was \$49,700,000. After the scheduled bid opening the final construction plans were completed which reduced some of the quantities previously estimated on the bidding plans. Applying the Jones consortium unit prices submitted with their tender in July to the quantities listed on the final construction plans plus a few minor changes subsequently made in the specifications indicates that the construction cost would be \$46,200,000 and on receiving this amount the contractor would retain possession of the construction equipment, spare parts, materials and camps.

The construction contract price negotiated by the Government of Bolivia with the Jones consortium was \$42,500,000. This price compares favorably with TAMS' new cost estimate of September 1966 and with the projection of the feasibility study cost estimate listed above. Moreover, it represents

a reduction below the amount of the adjusted Jones competitive bid, reflected in contract unit prices that average about 9 percent lower than former Jones bid.

In obtaining agreement with the Jones consortium the Government of Bolivia agreed to the following listed contract changes:

(a) Modification of the mobilization clause to permit payment of all mobilization costs, including freight and insurance, up to a maximum amount of \$10,000,000. Also a change in the mobilization repayment to permit restitution of these costs to be delayed until after 50 percent of the actual project has been completed.

(b) Modification of the payment for materials clause to permit payment for aggregates and masonry stone delivered to the site.

(c) Deletion of the requirement for the endorsement of the performance and payment bonds by a resident agent of the bonding company in Bolivia.

(d) Guarantee by the Government of Bolivia on the quantity and price of cement and diesel fuel that will be made available to the contractor.

(e) Provision for arbitrations as a means of resolving disputed questions of fact.

In view of the above listed data and information, the engineering plans, method of contracting and cost estimates are considered to be reasonable for the scope of the project and thus meet the requirements of Section 611 of the Foreign Assistance Act. A cost benefit analysis of this project, using the negotiated construction costs plus reasonable estimates of funds required for engineering services and contingencies, is included under the section on Economic Analysis and in the annex. A table showing a comparison of the various estimated costs, the tender submitted in July 1966 and the final negotiated construction cost is given in Table 6.

3. Engineering Plan for Implementation of Project

The engineering plan for implementation of the project remains the same as listed in the basic capital assistance paper with the exception of the following:

(a) Construction contract was awarded on the basis of negotiation instead of competitive bidding;

(b) The construction period was changed. The 1460-day term shown in the capital assistance paper was increased, at the request of bidders and prior to receipt of tenders, to 2000 days; during subsequent contract negotiations the term was reduced to 1750 days.

(c) The grading and gravel surfacing of the Aguirre spur was determined to be more of a maintenance and minor betterment project than new construction, and accordingly was assigned by the Government of Bolivia to the National Road Service for accomplishment. Originally it had been planned that this work would be accomplished under the construction contract.

Table 6

Comparison of Estimated Bid and Negotiated Costs

Roads 1 and 4

(Millions of Dollars)

	Feasibility Study Est. Jan. 1964 (1)	Jones Consortium Bid Price July 1966 (2)	Construction Plans (3)			
			Jones Bid Price July 1966 (Adjusted) (2)	TAMS New Est. Sept. 1966	Adjusted Feasibility Study Est. (4)	Negotiated Contract Jan. 1967
Construction Contract	27.19	49.70	46.20	40.60	42.69	42.50
Engineering Services	1.94	3.45 (5)	3.45	3.45	3.45	3.45
Contingencies	4.07	2.00 (5)	2.00	2.00	2.00	2.00
Estimated Res. Value of Equipment and Camps	2.50	--	--	2.50	2.50	2.50
Total	35.70	55.15	51.65	48.55	50.64	50.45

(1) Cost estimate based on construction cost indices as of July 1963.

(2) Bid price includes complete amortization of camps, equipment and spare parts. (Note: all other estimates and the negotiated contract amortize only those portions of the normal useful life that are expended during the course of the project. They assume a residual value of up to \$2,500,000.)

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- 18 -

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- (3) Final construction plans and specifications. Actual work quantities are less than amounts estimated at time bid plans were issued. Specifications were also changed slightly in some instances to reflect project improvements.
- (4) Feasibility study estimate adjusted for (1) 15.7 percent inflation from July 1963 to June 30, 1966, (2) an estimated 16.3 increase in inflation from June 30, 1966 to mid point construction, (3) 8 percent factor for utilization of personnel and equipment and (4) 5 percent factor to lack of enthusiasm of contractors for construction work in Bolivia.
- (5) Current estimate of cost of engineering services and contingencies added for comparative purposes.

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-19-

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Revised

February 27, 1967

V. FINANCIAL ANALYSIS

Total Cost of Project: Up to \$51,206,687 distributed as follows:

	<u>Foreign Exchange</u> (dollars)	<u>Local Currency</u> (dollar equivalents)	<u>Total</u> (dollars)
(1) Construction (final negotiated price)	27,471,960	15,028,040	42,500,000
(2) Engineering	1,700,000	1,750,000	3,450,000
(3) Equipment and Camp Sites (Procurement by GOB from contractor at residual value)	2,200,000	300,000	2,500,000
(4) Contingencies	<u>1,000,000</u>	<u>1,756,687</u>	<u>2,756,687</u>
TOTALS	32,371,960	18,834,727	51,206,687

<u>Source of Funds</u>	<u>Foreign Exchange</u> (dollars)	<u>Local Currency</u> (dollar equivalents)	<u>Total</u> (dollars)
(1) GOB Contribution	--	5,950,000	5,950,000
(2) PL 480	--	2,556,687	2,556,687
(3) AID Loan 511-L-021	22,871,960	10,328,040	33,200,000
(4) Supplemental AID Loan	<u>9,500,000</u>	--	<u>9,500,000</u>
	32,371,960	18,834,727	51,206,687

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The original financial plan for this project required only \$200,000 contribution by the GOB and was essentially 100% financing by A.I.D. Loan 511-L-021 (\$33,200,000). The revised plan calls for a GOB contribution of \$5,950,000. Up to \$2,500,000 of the GOB contribution may be financed by generations from future PL-480 sales agreements if these become available during the construction period of this project. If they do not, the GOB will be committed to the full \$5,950,000 from its own budgetary resources until such time as PL-480 generations may become available.

The original A.I.D. loan projected that \$23,626,687 would be disbursed for dollar costs and \$9,573,313 for local currency costs. After completion of negotiations for construction services the division between dollar and local currencies has been further refined due mainly to a change in allocation of contingency funds.

Under this revised project, equipment, spare parts, construction materials and camp sites may be procured from the contractor by the GOB, at the contractor's option. The value of these items will be established by an appraisal of a recognized U.S. appraisal company mutually agreeable to the contractor and the GOB. The estimated value used in the financial plan of \$2,500,000 represents the estimated residual value of these items at the completion of the job. It is estimated by the consultant that approximately 75% of the original value of these items will be amortized during the course of construction.

This purchase will be consummated upon completion of work after the appraisal takes place. When the construction is 50% completed the GOB will establish a letter of credit in favor of the contractor for \$2,200,000 but no payments will be made from this letter of credit until the job is completed if the contractor does not exercise his option. A.I.D. loan funds will be used for this letter of credit.

During the first year of construction approximately \$10,000,000 will be disbursed to the contractor for mobilization expenses. When disbursements for mobilization, progress payments and retentions equal

one-half of contract price, restitution of the amount disbursed for mobilization will be made by monthly deductions from progress payments. The rate of restitution will be such that it shall equal the rate of disbursements for the balance of contract disbursements. When restitution of mobilization begins it is estimated that work will be 26% completed.

The contingency item of \$2,756,687 has been set up as approximately five percent of the contract amount. This is substantially less than contingency items customarily set up for A.I.D.-financed construction contracts. Since the engineering work has been extensively reviewed by four independent groups concerned with the construction and the contract amount has already been negotiated, the work is being undertaken with fewer uncertainties than is generally the case. Thus unexpected costs should be relatively small. For this reason we are using five percent contingency.

PL-480 funds on hand in the amount of \$2,556,687 equivalent will be allocated to local currency costs of these projects. There are no further PL-480 funds currently available in Bolivia at this time as all such funds are fully programmed.

Based on the above, the financial plan for the project is reasonable and meets the requirements of FAA 611 concerning adequate financial planning.

SECTION VI - ISSUES

The issue is whether or not A.I.D. should finance the dollar costs of the GOB agreement to purchase part of the contractor's equipment, spare parts, construction materials and camps after final acceptance of the job.

One of the main concessions gained by the GOB during negotiation with the contractor was the agreement by the latter to sell at his option up to \$2,500,000 of his equipment, spare parts, construction materials and camps to the GOB after final acceptance of the job and after an evaluation by a mutually chosen U.S. appraisal firm.

The position of the contractor was that he would accept a construction contract for projects 1 and 4 at a price of \$45,000,000 and retain in his possession the above-mentioned items or he would accept a construction contract for \$42,500,000 and a purchase contract, contingent on his option to sell or not, for the appraised value of the above items of an amount of up to \$2,500,000.

The contractor estimated that at the end of the job he would be in possession of equipment, spare parts, construction materials and camps which would still have a useful life but which would have little value unless he had other work in Bolivia to which he could transfer the items or unless he could find a buyer.

From the GOB's point of view it was more economical to have a construction contract for \$42.5 million and a purchase contract for \$2.5 million than to have a construction contract for \$45 million with no equipment, spare parts, construction materials or camps transferred to their possession at the end of the job. If the contractor should exercise his option and decide not to sell the items to the GOB then the GOB would be constructing projects 1 and 4 for \$42.5 million instead of \$45 million.

The GOB and the contractor thus agreed that the purchase deal for \$2.5 million and the construction contract for \$42.5 million

were necessarily part of the same package. The estimated costs for the purchase deal were:

(a) Camps--appraised value up to	\$ 400,000
(b) Construction materials--appraised value up to	100,000
(c) Equipment and spare parts--appraised value up to \$2,500,000 less actual amounts paid for camps and construction materials	<u>2,000,000</u> <u>\$2,500,000</u>

It is estimated that one-half of camp costs will be local currency expenditures of \$200,000 and that \$100,000 of local currency will be required for purchase of construction materials, spare parts and equipment. Thus \$2.2 million will be required in dollars and \$300,000 in local currency.

Concerning who should and can finance the purchase agreement part of the final negotiated deal, there are some obvious problems.

If the GOB were to undertake the entire financing, the disbursement of \$2.2 million in foreign exchange would likely represent a significant drawdown in their reserves even five years from now. The matter would be further complicated by the fact that such an arrangement would require GOB financing of dollar costs while A.I.D. would be financing an equal amount of local currency costs by the SLC procedure. The basis of this assumption is that the GOB cannot reasonably be expected to increase its contribution to the project over the amount now contemplated and that the problem is the allocation by source of funds of the dollar and local currency costs.

If A.I.D. finances the dollar portion of the purchase agreement the main question is what will the items be used for. Unfortunately there is no answer at present which is other than cosmetic.

The Project Committee proposes that this issue be resolved by A.I.D. financing the dollar portion of the purchase agreement for an amount of up to \$2.2 million contingent upon mutual agreement between A.I.D. and the GOB at the end of the job as to the utilization of the items so purchased. This condition will be made part of the amendatory loan agreement.

VI. IMPLEMENTATION

Implementation of Projects 1 and 4 should be relatively simple since construction contract terms and price are now final and the contract will be signed as soon as the additional A.I.D. loan is authorized. The engineering contract has been negotiated and signed.

After the A.I.D. loan increase is authorized the GOB will give the contractor notice to proceed. This must be before February 9, 1967 for the negotiated contract prices to remain firm.

After the GOB signs the amendatory loan agreement and submits a legal opinion concerning its validity the A.I.D. loans can be disbursed. It is estimated that the amendatory agreement will be executed by March 1, 1967. Construction will start in April, 1967.

Mission engineers, capital development officers and auditors will monitor the progress of the projects by periodic site inspections, review of monthly reports and review of monthly progress payments. No problems are anticipated in the implementation of these projects.

January 31, 1967

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AID-DLC/P-237/2
ANNEX I , Page 1 of 15

CHECK LIST OF STATUTORY CRITERIA (ALLIANCE FOR PROGRESS)

(FAA - Foreign Assistance Act of 1961, as amended
by the Foreign Assistance Act of 1966.)

(App. -Foreign Assistance and Related Agencies Appropri-
ations Act, 1967.)

1. FAA Section 102. Precautions that have been or are being taken to assure that loan proceeds are not diverted to short-term emergency purposes (such as budgetary, balance of payments, or military purposes) or any other purpose not essential to the country's long-range economic development.

USAID personnel will approve all requests for opening letters of commitment and will assure that funds are disbursed only for goods and services needed for the project.

2. FAA Section 102. Information on measures taken to utilize United States Government excess personal property in lieu of the procurement of new items.

Appropriate measures will be taken to comply with this requirement.

3. FAA Section 102. Information whether the country permits, or fails to take adequate measures to prevent, the damage or destruction by mob action of United States property.

Bolivia has taken adequate measures to protect United States property in Bolivia.

4. FAA Section 201(d). Information and conclusion on legality (under laws of country and U. S.) and reasonableness of lending and relending terms of the loan.

The proposed loan is consistent with the laws of Bolivia and the United States and the terms are considered reasonable by both the Borrower and A.I.D.

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5. FAA Section 251(a). Manner in which loan will promote country's economic development and contribute to the welfare of its people.

The loan will promote economic development in Bolivia and will contribute to the welfare of its people. (See Sections III and IV of this Loan Paper and Sections B and E of original Loan Paper DLC/P-237.)

6. FAA Section 251(b)(1). Extent to which country is adhering to the principles of the Act of Bogota and Charter of Punta del Este and is showing a responsiveness to the vital economic, political, and social concerns of its people, and extent to which country has demonstrated a clear determination to take effective self-help measures.

Account has been taken of the extent to which Bolivia is adhering to the principles of the Act of Bogota and the Charter of Punta del Este and is showing a responsiveness to the vital economic, political and social concerns of its people, and of the extent to which Bolivia has demonstrated a clear determination to take effective self-help measures.

7. FAA Section 251(b)(2). Information and conclusion on activity's economic and technical soundness.

The activity to be financed is economically and technically sound. (See Sections III, IV and V of this Loan Paper.)

8. FAA Section 251(b)(3). Information and conclusion on activity's relationship to and consistency with other development activities, and its contribution to realizable long-range objectives.

The activity is consistent with and is related to the other development activities being undertaken or planned and will contribute to realizable long-range objectives. (See Section III in this Loan Paper and B-V in the original Loan Paper DLC/P-237.)

9. FAA Section 251(b)(4). Information and conclusion on possible effects on U. S. economy, with special reference to areas of substantial labor surplus.

The loan will have no foreseeable adverse effects on the U. S. economy. (See Section I in this Loan Paper and Section F in the original Loan Paper DLC/P-237.)

10. FAA Section 251(b)(5). Information and conclusion on the degree to which the country is making progress toward respect for the rule of law, freedom of expression and of the press, and recognition of the importance of individual freedom, initiative, and private enterprise.

The present President and Legislature were elected in free elections and the country is making continued progress toward respect for the rule of law, freedom of expression and of the press, and recognition of the importance of individual freedom, initiative, and private enterprise.

11. FAA Section 251(b)(6). Information and conclusion on the degree to which the country is taking steps to improve its climate for private investment.

New Investment Code was promulgated in late 1965 as an effort to promote greater private investment, both domestic and foreign. Also the adoption of a Mining Code is significant for Bolivia's economic development.

12. FAA Section 251(b)(7). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.

The project will result in increased agricultural productivity, reduced transportation cost, expanded markets, and thereby will contribute to the achievement of self-sustaining growth. (See Section E of original Loan Paper DLC/P-237.)

13. FAA Section 251(b)(8). Information and conclusion on the extent to which the activity will contribute to the economic and political integration of Latin America.

The expanded road network resulting from this project will contribute to the economic and political integration of Latin America.

14. FAA Section 251(b). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.

Financing from other free world sources (including private sources within the United States) on reasonable terms for the project is not available. (Sections I and V of this Loan Paper and Section F-1 of the original Loan Paper.)

15. FAA Section 251(b). Information and conclusion on capacity of the country to repay the loan.

The loan will be repaid in dollars over 40 years and the dollar debt service is expected to be within Bolivia's capacity.

16. FAA Section 251(b). Information and conclusion on country's efforts to repatriate capital invested in other countries by its own citizens.

Account has been taken of the extent to which Bolivia is making reasonable efforts to encourage repatriation of capital invested in other countries by its own citizens.

17. FAA Section 251(b). Information and conclusion on reasonable prospects of repayment.

It appears reasonably certain that the Borrower will have the capacity to repay the loan.

18. FAA Section 251(e). Information and conclusion on availability of an application together with sufficient information and assurances to indicate reasonably that funds will be used in an economically and technically sound manner.

An application has been received for this loan which gives sufficient information and assurances to indicate reasonably that the funds will be used in an economically and technically sound manner.

19. FAA Section 251(g). Information and conclusion on use of loan to assist in promoting the cooperative movement in Latin America.

In view of the nature of the project, it is not appropriate to utilize the loan to assist in promoting the cooperative movement in Latin America.

20. FAA Section 251(h). Information and conclusion on whether the activity is consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress in its review of national development activities.

The activity is consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress in its review of national development activities.

21. FAA Section 252(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources.

Not applicable. All loan funds are being made available to public sector except consulting engineering fees. All loan funds, other than those for consulting engineering services, are for the financing of imports from the U. S. private sector.

22. FAA Section 281. Extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the developing countries, through the encouragement of democratic private and local governmental institutions.

The greatly enhanced transportation facilities resulting from this project are expected to play a major role in a more generalized development of the Bolivian people and thus is expected also to promote democratic private and local governmental institutions.

23. FAA Section 601(a). Information and conclusions whether loan 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 loan will encourage efforts of the country to increase the flow in international trade through improved highways, thus permitting produce to reach major urban centers for distribution to international markets; and will foster private initiative and competition by opening domestic markets to a greater number of producers and manufacturers, and will also encourage the use of cooperatives. However, credit unions and savings and loan associations are not expected to be affected.

24. FAA Section 601(b). Information and conclusion on how the loan will encourage U. S. private trade and investment abroad and how it will encourage private U. S. participation in foreign assistance programs (including use of private trade channels and the services of U. S. private enterprise).

United States engineering and contracting services will be utilized on the project. Private trade channels will be used wherever practicable (See Section 252(a) above.)

25. FAA Section 601(d). Conclusion and supporting information on compliance with the Congressional policy that engineering and professional services of U. S. firms and their affiliates are to be used in connection with capital projects to the maximum extent consistent with the national interest.

Engineering and professional services of U. S. firms and their affiliates will be used.

26. FAA Section 602. Information and conclusions whether loan will permit American small business to participate equitably in the furnishing of goods and services financed by it.

Small business will be permitted to participate equitably in the furnishing of goods and services financed by this loan.

27. FAA Section 604(a); App. Section 108. Compliance with restriction of commodity procurement to U. S. except as otherwise determined by the President and subject to statutory reporting requirements.

Equipment, material, and services financed for the project under the loan shall be procured from the United States, or Bolivia through appropriate procedures.

28. FAA Section 604(b). Compliance with bulk commodity procurement restriction to prices no higher than the market price prevailing in the U. S. at time of purchase.

Not applicable. Any commodities financed by the loan and purchased in bulk will be purchased at prices no higher than prevailing U. S. market prices.

29. FAA Section 604(d). Compliance with requirement that marine insurance be purchased on commodities if the host country discriminates, and that such insurance be placed in the U. S.

Loan funds shall be available from marine insurance on commodities shipped when such insurance is placed on a competitive basis as specified in this section of the Act. In the event that Bolivia discriminates against any U. S. marine insurance company, commodities purchased with loan funds shall be insured against marine risk with a U. S. company.

30. FAA Section 604(e). Compliance with requirement that funds not be used for procurement of any agricultural commodity or product thereof outside the United States when the domestic price of such commodity is less than parity.

Not Applicable.

31. FAA Section 611(a) (1). Information and conclusion on availability of engineering, financial, and other plans necessary to carry out the assistance and of a reasonably firm estimate of the cost of the assistance to the United States.

Necessary substantive technical and financial planning for the project has been completed, and a reasonably firm estimate of the cost of the project to the United States has been obtained.

32. FAA Section 611(a) (2). Necessary legislative action required within recipient country and basis for reasonable anticipation such action will be completed in time to permit orderly accomplishment of purposes of loan.

No further legislative action in Bolivia is required for implementation of the project.

33. FAA Section 611(b); App. Section 101 If water or water-related land resource construction project or program, information and conclusion on a benefit-cost computation.

The project does not involve water or related land resource construction. (See Section II Background of this Loan Paper.)

34. FAA Section 611(c) Compliance with requirement that contracts for construction be let on competitive basis to maximum extent practicable.

The requirement that contracts for construction be let on competitive basis will be complied with to the maximum extent practicable.

35. FAA Section 612(b) and 636(h). Appropriate steps that have been taken to assure that, to 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 to meet the cost of contractual and other services.

The revised financial plan requires a Government of Bolivia contribution of local currency equivalent to \$5.95 million. Foreign currencies owned by the U.S. will be used to the maximum extent possible.

36. FAA Section 619. Compliance with requirement that assistance to newly independent countries be furnished through multi-lateral organizations or plans to maximum extent appropriate.

Not applicable. Bolivia is not a newly independent country.

37. FAA Section 620(a); App. Section 107(a) and (b). Compliance with prohibitions against assistance to Cuba and any country (a) which furnishes assistance to Cuba or failed to take appropriate steps by February 14, 1964, to prevent ships or aircraft under its registry from carrying equipment, materials, or supplies from or to Cuba; or (b) which sells, furnishes, or permits any ships under its registry from carrying items of primary strategic significance, or items of economic assistance.

No assistance will be furnished under this loan to the present Government of Cuba, nor does Bolivia furnish assistance to the present Government of Cuba. Bolivia has taken appropriate steps to prevent ships or aircraft under its registry from engaging in any Cuba trade.

38. FAA Section 620(b). If assistance to the government of a country, existence of determination it is not controlled by the international Communist movement.

The Secretary of State has determined that Bolivia is not controlled by the International Communist Movement.

39. FAA Section 620(c). If assistance to the government of a country, existence of indebtedness to a U. S. citizen for goods or services furnished or ordered where such citizen has exhausted available legal remedies or where the debt is not denied or contested by such government or the indebtedness arises under an unconditional guaranty of payment given by such government.

known to be
Bolivia is not/indebted to any U. S. citizen for goods or services furnished or ordered, where such a citizen has exhausted available remedies or where the debt is not denied or contested by or the indebtedness arises under an unconditional guaranty of payment given by Bolivia.

40. FAA Section 620(d). If assistance for any productive enterprise which will compete with U. S. enterprise, existence of agreement by the recipient country to prevent export to the U. S. of more than 20% of the enterprise's annual production during the life of the loan.

Loan funds will not finance construction or operation of any productive enterprise which will compete with United States enterprise.

41. FAA Section 620(e)(1). If assistance to the government of a country, extent to which it (including government agencies or subdivisions) has after January 1, 1962, taken steps to repudiate or nullify contracts or taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U. S. citizens or entities beneficially owned by them without taking appropriate steps to discharge its obligations.

Neither the Government of Bolivia nor any governmental agency or subdivision thereof has, on or after January 1, 1962, nationalized, expropriated, or seized ownership or control of property of any U. S. citizen or firm, taken steps to repudiate or nullify contracts with such citizens or firms, or imposed or enforced discriminatory taxation or other exactions or restrictive conditions, or taken other actions having the effect of nationalizing, expropriating or otherwise seizing ownership or control of property owned by U. S. citizens or firms, as specified in this section of the Act, without taking appropriate steps to discharge its obligations, as specified in this section of the Act.

42. FAA Section 620(f); App. Section 109. Compliance with prohibitions against assistance to any Communist country.

Assistance provided by the loan will not be furnished to any Communist country.

43. FAA Section 620(g). Compliance with prohibition against use of assistance to compensate owners for expropriated or nationalized property.

Assistance provided by this loan will not be used to compensate for expropriated or nationalized property.

44. FAA Section 620(h). Compliance with regulations and procedures adopted to insure against use of assistance in a manner which, contrary to the best interests of the U. S., promotes or assists the foreign aid projects or activities of the Communist-bloc countries.

Assistance provided by this loan will not be used in a manner which promotes or assists foreign aid projects or activities of the Communist-bloc countries.

45. FAA Section 620(i). Existence of determination that the country is engaging in or preparing for aggressive military efforts.

The President has not determined that Bolivia is engaging in or preparing for aggressive military efforts directed against the United States, or any country to which sales are made under PL-480, nor is any basis for such determination known to A.I.D.

46. FAA Section 620(i). Information on representation of the country at any international conference when the representation includes the planning of activities involving insurrection or subversion against the U. S. or countries receiving U. S. assistance.

There is no evidence of the Government of Bolivia's representation at any international conference that included the planning of activities involving insurrection or subversion against the U. S. or countries receiving U. S. assistance.

47. FAA Section 620(k). If construction of productive enterprise where aggregate value of assistance to be furnished by U. S. will exceed \$100 million, identification of statutory authority.

The project does not include the construction of productive enterprise where aggregate value of assistance to be furnished by the U. S. will exceed \$100 million.

48. FAA Section 620(l). Consideration which has been given to denying assistance to the government of a country which after December 31, 1966, has failed to institute the investment guaranty program for the specific risks of inconvertibility and expropriation or confiscation.

Bolivia has instituted an investment guaranty program.

49. FAA Section 620(n); App. Section 107(b); App. Section 116. Compliance with prohibitions against assistance to countries which traffic or permit trafficking with North Viet-Nam.

No assistance will be furnished under this loan to the present Government of North Viet-Nam, nor does Bolivia furnish assistance to the present Government of North Viet-Nam. Bolivia has taken appropriate steps to prevent ships or aircraft under its registry from engaging in any North Viet-Nam trade.

50. FAA Section 620(o). If country has seized, or imposed any penalty or sanction against, any U. S. fishing vessel on account of its fishing activities in international waters, information on the consideration which has been given to excluding the country from assistance.

Not Applicable.

51. FAA Section 620(q). Existence of default under any Foreign Assistance Act loan to the country.

The Government of Bolivia is not in default under any Foreign Assistance Act loan to that country.

52. FAA Section 621. Information and conclusion on how the loan in providing technical assistance will utilize to the fullest extent practicable goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal agencies will be utilized, information and conclusion on whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.

To the extent that this loan involves technical assistance, goods and professional and other services from private enterprise will be utilized.

53. App. Section 102. Compliance with requirement that payments in excess of \$25,000 for architectural and engineering services on any one project be reported to Congress.

Obligations of funds in excess of \$25,000 for engineering fees to any firms or group of firms financed under the loan will be reported to the Committees on Appropriations of the Senate/ House.

54. App. Section 104. Compliance with bar against funds to pay pensions, etc., for military personnel.

Funds obligated by the loan, will not be used to pay pensions, annuities, etc., as prohibited in this section.

55. App. Section 106. If country attempts to create distinctions because of their race or religion among Americans in granting personal or commercial access or other rights otherwise available to U. S. citizens generally, application which will be made in negotiations of contrary principles as expressed by Congress.

Bolivia does not discriminate because of their race or religion among Americans in granting personal or commercial access or other rights otherwise available to U. S. citizens generally.

56. App. Section 111. Compliance with existing requirements for security clearance of personnel.

U. S. personnel to serve under contracts for services financed by the loan shall have security clearance, to the extent required by A.I.D. regulations under this section.

57. App. Section 112. Compliance with requirement for approval of contractors and contract terms for capital projects.

Firms which provide engineering and procurement services financed by the loan for the project, and the terms of their contracts, shall be approved by A.I.D.

58. App. Section 114. Compliance with bar against use of funds to pay assessments, etc., of U. N. member.

Loan funds will not be used to make any payment to the U. N.

59. App. Section 115. Compliance with regulations on employment of U. S. and local personnel for funds obligated after April 30, 1964 (Regulation 7).

Will be complied with.

60. App. Section 401. Compliance with bar against use of funds for publicity or propaganda purposes within U. S. not heretofore authorized by Congress.

Loan funds will not be used for publicity or propaganda purposes within the United States.

January 31, 1967

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ANNEX 2 , Page 1 of 12

BOLIVIA HIGHWAY PROJECTS 1 and 4

ECONOMIC APPRAISAL OF POSSIBLE MODIFICATIONS OF THE PROJECTS

To aid in the evaluation of the request of the Government of Bolivia for additional AID financing to carry out the construction of Highways 1 and 4, TAMS was asked to make cost estimates and further economic appraisals of the projects, to supplement and bring up to date the feasibility studies made in 1963. Included in the study is an examination of the cost and economic feasibility of construction of the entire projects as proposed by the Government of Bolivia, taking into account any changes in the plans or timing of the regional economic development that would be affected by the projects. The present study also includes the appraisal of several modifications of the projects that were suggested to reduce costs.

REGIONAL ECONOMIC DEVELOPMENT IN AREA OF INFLUENCE

The principal objectives of the projects as conceived in the feasibility reports were:

1. To reduce the currently excessive vehicle operating costs by replacing the existing unsurfaced road from Cochabamba to Villa Tunari by a shorter paved highway on a better alignment,
2. To open the virgin lands in the piedmont belt for settlement by colonists from the highlands, by means of penetration roads from Villa Tunari to the Isiboro River and to Puerto Villarroel, and,
3. To provide a linkage of the highway system with the system of navigable rivers in the Beni, by means of a highway connection to Puerto Villarroel.

These objectives retain their validity at present, and in view of continued progress in the construction of Projects 3 and 7 from the Ichilo River to Guabira, and of current plans to construct Project 9, a linkage between Projects 1 and 3, a fourth objective assures increased importance:

To serve as important segments in a new trunk route from Cochabamba to the producing area north of Santa Cruz, with the important advantages of greatly reduced distance and superior alignment, resulting in substantial road-user benefits.

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Information was obtained from the Government of Bolivia in the period from September 12 through 16, 1966, regarding recent progress achieved on the development programs in the area of influence. Certain information was also received from USAID relative to present traffic on the Cochabamba-Santa Cruz highway. The following comments summarize our estimation of the extent to which the respective basic premises taken in the 1963 feasibility reports, regarding costs, benefits, and the programming of economic development in the Chaparo region, are being fulfilled.

Construction Costs

The cost estimates must be increased substantially to keep pace with a marked world-wide trend of rapidly increasing costs of construction work. The cost of construction of the projects, which, under the terms of the loan agreement must be undertaken by United States or U.S./Bolivian contractors, is also affected adversely by the large volume of construction work under contract in the U.S., and possibly in far eastern combat zones, which has resulted in a limited interest in working in Bolivia on the part of U.S. contractors.

Traffic and Road-User Costs

Since consumer costs in Bolivia in the past three years have risen at an annual rate of about 5 percent, the vehicle operating costs quoted in the feasibility reports prepared in 1963 should be stated in terms of 1966 dollars by inflating them at this assured rate over the intervening three-year period. The traffic between Cochabamba and Villa Tunari should be projected from 1963 to 1966 at the rate of 7 percent annually shown in the feasibility reports to represent the normal rate of traffic increase in Bolivia, although this rate is probably conservatively low in view of reports of a current increasing rate of growth of traffic nation-wide. The timing of traffic increases resulting from development in the new colonization areas served by the highway should be changed to conform with slight adjustments in the scheduling of the colonization program in the Villa Tunari-Isiboro River segment of Project 4 (see below). Part of the saving in road-user costs that would be associated with the diversion of traffic from Cochabamba-Santa Cruz highway to the new route should be allocated as a return on the investment in Projects 1 and 4.

Colonization

In the Project 1 area, the colonization program is proceeding on a schedule agreeing closely with the 1963 projections of the ultimate

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ANNEX 2 , Page 3 of 12

settlement of 2,500 families, on which the feasibility studies were based. In anticipation of the early completion of Projects 1 and 4 based upon press reports and statements of high officials of the Bolivian Government, about 500 families will have settled by the end of 1966 along trails and secondary roads constructed to connect with the proposed highway from Villa Tunari to Puerto Villarroel. About 1,500 additional families will be settled in this area with Government assistance financed by the Inter-American Development Bank, and it is expected that spontaneous settlers will number at least the 500 remaining to complete the assumed 2,500 families.

In the area between Villa Tunari and the Isiboro River, where the settlement of 1,900 families was assumed in the feasibility studies, the colonization plans have been changed. Instead of granting plots of land to individual families, the Government has made a number of extensive concessions of land to private enterprises and non-profit associations. It is estimated that about 1,530 families will be settled in various colonization projects, and additional benefits will be obtained from the approximately 8,800 hectares that will be devoted to agro-industrial uses by various private groups. No change is now foreseen in the previous assumption that about 600 families would settle spontaneously between about Km 90 and Km 150, upon completion of the projects. The magnitude of the benefits from such development is now projected to be somewhat greater than the amounts estimated in the feasibility reports, but the realization of such benefits is estimated to be deferred by about three years relative to the schedule previously assumed.

The magnitude of the benefits from colonization should also be stated in terms of 1966 dollars, by inflating the 1963 figures at an annual rate of 4 percent compounded over a 3-year period, to keep pace with the approximately 4 percent annual increase in food prices that has occurred in the past three years. Inasmuch as the highway is now expected to be completed about three years later than previously assumed, the timing of the benefits likewise will be displaced by three years.

SCOPE OF PROJECTS 1 and 4 AS PROPOSED BY THE GOVERNMENT OF BOLIVIA

The Government of Bolivia has considered various possible modifications in the projects, for the purposes of reducing their costs. Since the Government considered that the realization of the full economic benefits projected for the projects is a requisite to achieving the desired regional development, it was decided that no changes in the projects that would affect the economic benefits would be acceptable. The projects as proposed by the Government accordingly comprise the complete

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work described in the Contract Plans dated July 1966, as further modified by the changes listed in the attachment to the TAMS letter to the Minister of National Economy, dated September 5, 1966. These changes leave the projects intact, and consist of minor modifications of the design.

POSSIBLE MODIFICATION OF THE PROJECTS--ALTERNATIVES

Starting with the projects as proposed by the Government of Bolivia (designated herein as Alternative I), each alternative was analyzed to determine its cost and related benefits, expressing the result in terms of the interest rate of return.

Alternative I

This alternative comprises the construction of the entire projects, Cochabamba-Villa Tunari (paved) and Isiboro River-Villa Tunari-Puerto Villarroal (gravel surface), in accordance with the Contract Plans dated July 1966 and incorporating the modifications listed in the TAMS letter to the Minister of National Economy dated September 5, 1966. The estimated construction cost of \$41.6 million developed in an attachment to the referenced letter takes into account the higher construction costs resulting from the continuing price inflation in the United States and from the lack of broad interest among various contractors to carry out the work, which has resulted in the receipt of only one tender. The estimated total cost of the projects is shown in Table 1, and the projected timing of the expenditures is shown in Table 2.

Table 1

ESTIMATED COST OF ALTERNATIVE I

Estimated Construction Cost	\$41,600,000	
Less Estimated Equipment Salvage Value	<u>1,000,000</u>	
Estimated Net Construction Cost		<u>\$40,600,000</u>
Estimated Cost of Engineering Services		<u>3,450,000</u>
		<u>\$44,050,000</u>
Contingencies		<u>2,000,000</u>
		<u>\$46,050,000</u>
Less Reduction of Contingency Allowance, as suggested by Government of Bolivia		<u>1,500,000</u>
Estimated Total Cost of Projects		<u>\$44,550,000</u>

Table 2

SCHEDULE OF EXPENDITURES FOR ALTERNATIVE I

<u>Year</u>	<u>Amount, Dollars</u>
1966	1,050,000
1967	10,500,000
1968	7,500,000
1969	7,500,000
1970	7,500,000
1971	7,500,000
1972	3,000,000

The economic benefits evaluated for the projects are comprised of development and road-user benefits. Because completion of the project is expected to be delayed until the beginning of 1972, the estimates as adjusted for this study have been made for later years than shown in the original feasibility reports. All values are expressed in 1966 dollars.

Since colonization in the Project 1 area is proceeding on schedule, the schedule of the original estimates of the associated benefits has not been changed. The benefits from linkage to navigation, however, will be postponed three years from the schedule shown in the report because of the delay in constructing the highway.

For Project 4, the development benefits arising from colonization have been reduced in proportion to the reduction in number of expected settlers, from 2,500 to 2,130 families, and have been delayed for three years. The feasibility report envisaged that each colonizing farmer would utilize only one-third of his total property by the tenth year of development, and 42 percent by the twentieth year, and this projection is considered to be valid at the present time. The various organizations that are planning commercial farming west of Villa Tunari have projected very high incomes as a result of the planned intensive use of the land. Nevertheless, we believe that such an optimistic projection may be overstated, and for the purposes of this study it is assumed that the commercial farming of the 8,800 hectares allocated will produce incomes at twice the rate per hectare expected from the total areas assigned to the colonizers.

For the up-dating of road-user benefits it was necessary to revise the traffic projects. It is believed that traffic generated by colonization in the Project 1 areas will develop on schedule, but that generated by the port connection was assumed to be deferred for three years. It was assumed that the volume of traffic on the existing road between Cochabamba and Villa Tunari has continued to increase from 1963 to 1966 at the long-term rate of 7 percent per year. Revised projections of normal and generated traffic growth were based on the adjusted current

volume. Although the type of agricultural development under way west of Villa Tunari will probably produce a greater volume of traffic to and from the area than originally contemplated, it was conservatively assumed that the development traffic shown in the report will be experienced three years later than shown. These revised traffic estimates are given in Table 3.

With the planned construction of Project 9, which, with Projects 1 and 4, will complete a lowland road between Cochabamba and Santa Cruz, much additional traffic will utilize the Projects 1 and 4 highways. It is assumed that Project 9 will be completed in 1972. The area through which Project 9 passes is similar to that of Project 3, so that the traffic generated therein should be on the same order as, and should grow in a pattern similar to, the traffic estimated in the feasibility report for Project 3. It is assumed that one-half of such traffic would move over Projects 1 and 4. In addition, it was conservatively estimated that half the development traffic projected for Projects 3 and 7 would utilize the highway of Projects 1 and 4 to move to and from Cochabamba and points west. Finally, of the traffic now moving between Cochabamba and the Santa Cruz area by way of the existing highway, it was assumed that 100 vehicles per day would be directed to the shorter lowland route, although USAID/Bolivia has estimated that the divertable ADT probably is at least 147. It was also assumed that the divertable traffic would increase at the annual rate of 7 percent. Total projected average daily traffic, including also that arising from the new linkage to Santa Cruz through Project 9, is given in Table 3.

Table 3

PROJECTED AVERAGE DAILY TRAFFIC

	<u>1966</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
<u>Without New Linkage to Santa Cruz via Project 9</u>					
Cochabamba-Sacaba	430	1,080	1,490	2,060	2,880
Sacaba-Villa Tunari	85	440	600	820	1,160
<u>With New Linkage to Santa Cruz via Project 9</u>					
Cochabamba-Sacaba	-	1,480	2,090	2,940	4,100
Sacaba-Villa Tunari	-	840	1,200	1,700	2,380

An analysis of the revised design characteristics of Project 4 showed that vehicle operating costs are affected very slightly by the changes, inasmuch as the higher costs resulting from the steeper grades are more than offset by the shorter length of the new alignment. Thus,

the original estimates of road-user benefits given in the Project 4 feasibility study were corrected to 1966 dollars and then adjusted on the basis of the revised traffic projections.

Once the new highway connection via the lowland route is completed, there would be considerable savings in the operating costs of vehicles diverted to the shorter route. Although Projects 1 and 4 represent far more than one-half the cost of construction of the entire lowland route between Cochabamba and Santa Cruz, they constitute only 52 percent of the length, and have been credited with only one-half the benefits from diverted traffic. The new route would reduce by 138 kilometers the distance between Cochabamba and Guabira, which is conservatively assumed to be the average origin or destination of traffic originating or terminating along Projects 3 and 7 and near Santa Cruz. Likewise, the new route would save 468 kilometers between Cochabamba and the center of Project 9.

Total estimated benefits from Projects 1 and 4 are given for selected years in Table 4, showing benefits both without and with the new highway linkage to Santa Cruz.

Table 4

ESTIMATED TOTAL ANNUAL TANGIBLE BENEFITS
(Thousands of 1966 Dollars)

	<u>1976</u>	<u>1981</u>	<u>1986</u>	<u>1991</u>
<u>Development and Port Benefits</u>				
Project 1	3,070	4,200	5,800	7,420
Project 4	950	1,930	2,540	3,790
<u>Road-User Benefits</u>				
Without new linkage to Santa Cruz	4,100	5,600	7,700	10,900
Additional with new linkage to Santa Cruz	1,630	3,020	4,720	6,520
<u>Totals</u>				
Without new linkage to Santa Cruz	8,120	11,730	16,040	22,110
With new linkage to Santa Cruz	9,750	14,750	20,760	28,630

In evaluating the feasibility of Alternative I it was necessary to consider not only the expenditure for construction as shown in Table 2, but also annual maintenance costs of the new highways and colonization

costs, as described in the feasibility reports. Based on annual benefits through 1991 without the new linkage to Santa Cruz, and costs for the same period, the internal rate of return is about 12.5 percent. If the benefits from the new linkage to Santa Cruz are included, the internal rate of return is about 14.5 percent.

Alternative II

This alternative comprises the deletion of the bituminous paving between Cochabamba and Villa Tunari, and a decrease in the base course thickness from 15 to 7.5 centimeters. The reduction in construction cost is estimated as \$2.4 million, and the scheduling of such savings would follow a pattern similar to the schedule of expenditures shown in Table 2.

The total annual costs associated with the re-incorporation of the paving as part of the project include the construction costs, programmed for the period from 1967 through 1972, and the difference in maintenance costs of the paved and gravel surfaces, which would start on completion of the work in 1972 and extend throughout the life of the highway. With the increasing traffic projected over the years the cost of maintenance of the gravel surface would exceed, and increase more rapidly than, that of the paved surface. Thus, for the economic appraisal of the feasibility of re-incorporating the paving as part of the project, the difference in maintenance costs is taken as a benefit, ranging from \$60,000 in 1975 to \$120,000 in 1990.

The principal benefit that would be lost by substituting a gravel surface for the proposed paved surface between Cochabamba and Villa Tunari comprises the corresponding difference in road-user costs for operation of vehicles. Operating costs on this segment of the highway for medium trucks, which are considered to represent the average for all vehicles using the road, were computed by suitably adjusting the running speeds tabulated in the feasibility report, and applying the actual longitudinal grades shown in the Contract Plans. The average costs of a one-way trip for the two principal segments of the road from Cochabamba to Villa Tunari are summarized in Table 5.

Table 5

AVERAGE VEHICLE OPERATING COST OF A ONE-WAY TRIP
BETWEEN COCHABAMBA AND VILLA TUNARI

<u>Segment</u>	<u>Paved Surface</u>	<u>Gravel Surface</u>
Cochabamba-Sacaba	\$ 1.17	\$ 1.66
Sacaba-Villa Tunari	13.95	20.05
Total	<u>\$15.12</u>	<u>21.71</u>

Based upon the difference in operating costs for the paved and gravel surfaces, and the projected traffic (Table 3), the construction of the paved surface would restore to the projects annual road-user benefits in the amounts shown in Table 6.

Table 6

ANNUAL ROAD USER BENEFITS ASSOCIATED WITH
PAVED SURFACE
(Thousands of Dollars)

<u>Year</u>	<u>Benefits</u>	
	<u>Without New Linkage to Santa Cruz</u>	<u>With New Linkage to Santa Cruz</u>
1975	1,170	2,180
1980	1,600	3,210
1985	2,210	4,640
1990	3,100	6,450

The internal rate of return on the investment of \$2.4 million in paving the segment from Cochabamba to Villa Tunari is calculated as slightly more than 25 percent, if the traffic diverted from the existing Cochabamba-Santa Cruz highway is excluded from the computations. If the diverted traffic were included the internal rate of return would be somewhat higher.

Alternative III

Under this alternative, it was suggested that between Cochabamba and Villa Tunari the paving be deleted as in Alternative II, and that the width of the roadway platform in the mountainous segments be decreased from 8.0 to 4.5 meters, to provide a single-lane roadway.

The practical limit of traffic for which such a road would be suitable would not exceed about 5 vehicles per hour¹, and the U.S. Bureau of Public Roads² recommends that roadway platform widths less than 20 feet be used only on local roads serving less than 25 vehicles per day. Inasmuch as average daily traffic on these segments is estimated (Table 3) to range from 440 to 840 in 1975 (three years after

¹ Bruce and Clarkeson, Highway Design and Construction, 1950

² USBPR, The Local Rural Road Problem, 1950

completion of the projects), with rapid increases projected for certain years, the construction of a single-lane road is not considered to be technically feasible.

Alternative IV

This alternative involves the elimination of the Villa Tunari-Isiboro River branch from Project 4, while Project 1 would remain intact. It is estimated that the cost of the project would be reduced by \$2.9 million, and the scheduling of this savings would follow a pattern similar to the schedule of expenditures under Alternative I, as shown in Table 2. An annual maintenance cost of \$41,000 would also be eliminated.

Deletion of this penetration road along the piedmont west of Villa Tunari would eliminate the development benefits previously described that derive from colonization and commercial farming. These benefits, in 1966 dollars, are shown in Table 7.

Table 7

ESTIMATED ANNUAL DEVELOPMENT BENEFITS FROM
VILLA TUNARI-ISIBORO RIVER BRANCH
(Thousands of Dollars)

<u>Year</u>	<u>Benefits</u>
1976	760
1981	1,540
1986	2,030
1991	3,040

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The re-incorporation of the Villa Tunari-Isiboro River branch as part of the projects would have an estimated internal rate of return of 12.5 percent.

Alternative V

Under this alternative, Project 1 would extend from Villa Tunari to a point just east of the Ivivigarsama River, and the proposed continuation of the road an additional 24 kilometers northward to Puerto Villarreal would be eliminated from the project. It is estimated the cost of the project would be reduced by \$1.15 million, and the scheduling of this saving would follow a pattern similar to the schedule of expenditures for Alternative I shown in Table 2. Annual maintenance costs would be reduced by \$22,600.

The deletion of the terminal 24-kilometer segment would not affect the benefits from colonization along Project 1, since the colonization now planned in this area would be served adequately by a road terminating east of the Ivivigarsama River. The loss of benefits would be limited to the amounts previously projected as accruing from linkage of the highway system with the system of navigable rivers of the Beni, by means of a highway connection to Puerto Villarroel. Compounding these amounts at 4 percent annually for 3 years, and deferring their scheduling by 3 years, gives the total annual benefits shown in Table 8.

Table 8

ESTIMATED TOTAL ANNUAL BENEFITS FROM LINKAGE TO PORT
(Thousands of Dollars)

<u>Year</u>	<u>Benefits</u>
1976	1,730
1981	2,370
1986	3,100
1991	4,050

The internal rate of return on the investment of \$1.15 million in furnishing a highway connection to Puerto Villarroel is calculated to be well in excess of 25 percent.

CONCLUSIONS

The internal rates of return on the investment in the entire projects, and on the investments required to re-incorporate in the projects the work that would be eliminated by each of the alternatives, are summarized in Table 9.

Table 9

INTERNAL RATES OF RETURN ON PROPOSED PROJECTS
AND ON SELECTED COMPONENT PARTS ANALYZED AS ALTERNATIVES

<u>Alternative</u>	<u>Cost</u> <u>Millions of Dollars</u>	<u>Internal Rates of Return</u>	
		<u>Without New Linkage</u> <u>to Santa Cruz</u>	<u>With New Linkage</u> <u>to Santa Cruz</u>
I	44.55	12.5	14.5
II	2.4	25+	25+
III	One-way Road Not Technically Feasible.		
IV	2.9	18.5	-
V	1.15	25+	-

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ANNEX 2 , Page 12 of 12

It is concluded that the projects as represented by Alternative I should not be modified by deleting from them any of the various components analyzed as Alternatives II through V, inasmuch as the investments involved in the work deleted under Alternatives II, IV and V have higher rates of return than the projects as a whole, and the use of a one-way road as proposed under Alternative III would not be technically feasible.

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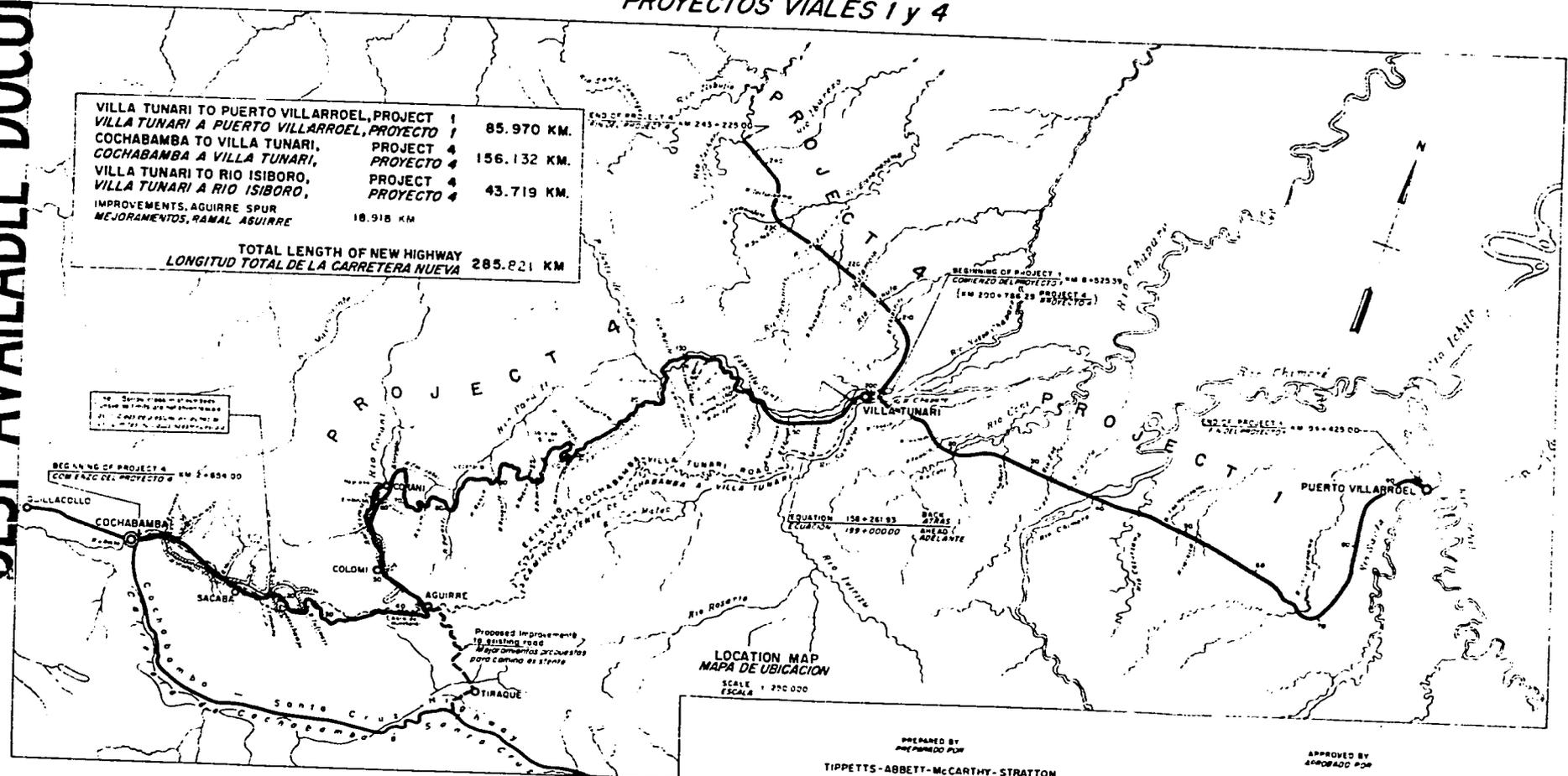
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 MINISTRY OF NATIONAL ECONOMY
 MINISTERIO DE ECONOMIA NACIONAL
 U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
 AGENCIA DE LOS EE.UU. PARA DESARROLLO INTERNACIONAL
 CONTRACT PLANS *
 PLANOS DE CONTRATO *
 FOR
 PARA
 HIGHWAY PROJECTS 1 and 4
 PROYECTOS VIALES 1 y 4

PROYECTO: CARRETERA
 No. 1
 405

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 AID-DLC/P-237/2

ANNEX 4, Page 1 of 1

VILLA TUNARI TO PUERTO VILLARROEL, PROJECT 1 VILLA TUNARI A PUERTO VILLARROEL, PROYECTO 1	85.970 KM.
COCHABAMBA TO VILLA TUNARI, PROJECT 4 COCHABAMBA A VILLA TUNARI, PROYECTO 4	156.132 KM.
VILLA TUNARI TO RIO ISIBORO, PROJECT 4 VILLA TUNARI A RIO ISIBORO, PROYECTO 4	43.719 KM.
IMPROVEMENTS, AGUIRRE SPUR MEJORAMIENTOS, RAMAL AGUIRRE	18.918 KM.
TOTAL LENGTH OF NEW HIGHWAY LONGITUD TOTAL DE LA CARRETERA NUEVA 285.821 KM	



LOCATION MAP
 MAPA DE UBICACION
 SCALE
 ESCALA 1:250,000

PREPARED BY
 TIPPETTS-ABBETT-Mc CARTHY-STRATTON
 ENGINEERS AND ARCHITECTS
 INGENIEROS Y ARQUITECTOS

APPROVED BY
 REPUBLIC OF BOLIVIA
 REPUBLICA DE BOLIVIA

* Prepared by Tippetts-Abbett-McCarthy-Stratton, Inc., dated May 1966, with revisions dated July 5, 1966.
 * Preparado por los señores de Tippetts-Abbett-McCarthy-Stratton, Inc., en mayo de 1966, con enmiendas fechadas el 5 de julio de 1966.

PROJECT MANAGER / GERENTE DE PROYECTO: *[Signature]*
 DATE / FECHA: 5 MAY 1966
 PROJECT DIRECTOR / DIRECTOR DEL PROYECTO: *[Signature]*
 DATE / FECHA: 5 MAY 1966
 MINISTER OF NATIONAL ECONOMY / MINISTERIO DE ECONOMIA NACIONAL: *[Signature]*
 DATE / FECHA: 5 MAY 1966

BEST AVAILABLE DOCUMENT

DRAFTED: 9/29/66

INITIALED: OCT 10 1966

ACTION MEMORANDUM FOR THE DEPUTY U.S. COORDINATOR, ALLIANCE FOR PROGRESS

FROM: Philip Glassner, Deputy Assistant Administrator
Office of Capital Development

SUBJECT: Bolivia Roads 1 and 4

Problem: Only one bid (\$49.7 million) on Roads 1 and 4 in Bolivia was submitted and this estimate is nearly 50 percent in excess of the amount (\$33 million) provided in the loan. Two issues are presented: (a) whether AID should approve rebidding or negotiation with the single bidder; (b) whether AID should provide additional financing for the project. This memo suggests a procedure for resolving both issues.

Discussion: The basic facts are as follows:

1. Loan Agreement 511-L-021 was signed with the Government of Bolivia in September 1964 to finance engineering services and construction of Bolivia Highways 1 and 4 in the amount of \$33.2 million.
2. The financing was granted pursuant to feasibility studies completed by Tippetts-Abbett-McCarthy-Stratton in December 1963, for Project 1, and in January 1964 for Project 4. In June 1965 the GOB contracted with TAMS to provide engineering services of final design and supervision of construction for the project. During the prosecution of the design work in January 1966, the Advance Notice to Bidders and call for prequalification were issued. Six construction companies or consortia were prequalified and the Invitation for Bids, including contract documents and bidding plans, was issued on May 19, 1966.
3. At the request of several of the potential bidders, a pre-bidding conference was held on July 12, 1966, in the Bolivian Embassy in Washington. At this time, at the request of the bidders, several changes were made in the specifications for the purpose of reducing the contingencies that would be included in the bids. Only two bidders were represented at the conference; two other bidders had indicated they would not attend and would not present a bid while the remaining two bidders had not stated their position. By July 20, 1966, the date set for opening the bids, only one bid had been received by the GOB from a consortium comprising J.A. Jones Construction Co., Emkay, Wright Contracting Company and Bartos y Cia. Owing to legal dispositions in the

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Republic of Bolivia, a single bid cannot be opened; accordingly the bid was returned unopened.

4. The GOB acted immediately to authorize, by presidential decree on July 22, 1966 direct negotiations limited to the Jones consortium. On the same day, at a meeting with the Minister of National Economy, the Jones representatives informally presented the bid which had been returned to them. Its amount was \$49.7 million.

5. Consultants undertook a study to determine the basic reasons for the difference between the preliminary cost estimate prepared in mid-1963 and the informal Jones bid. Analysis of the construction costs as listed in the Construction Review magazine published by the U.S. Department of Commerce for July 1966 indicated that the construction cost index had increased 15.7 percent in the past three years. Further analysis published in the September issue of Roads and Streets indicated that the bid prices of highway projects had increased 4.3 percent in the second quarter of 1966, on top of a 2.3 percent for the first quarter of 1966. Construction costs in Bolivia likewise have been increasing five to six percent per year. Projecting this construction cost index forward for another three years, to the mid point of construction, indicates an increase of approximately 32 percent. Analysis of the utilization of personnel and equipment for Projects 3 and 7 under the Hardeman contract indicates that the preliminary estimate may have been low by approximately eight percent in this respect. Moreover, it should be noted that on the last three construction projects in Bolivia -- Roads 3 and 7, customs warehouse and Roads 1 and 4 -- a total of only five bids were received. Accordingly, given the relative lack of U.S. contractors willing to bid for construction work in Bolivia, we have assigned an additional factor of five percent to the contractor's overhead, contingencies and profit. Totaling these three factors indicates that the construction cost has been increased by approximately 45 percent over the preliminary cost estimate made in 1963.

6. We have examined six possible scope of work alternatives in attempting to reduce the cost of the project. Each alternative was analyzed to determine its cost and related benefits expressing the result in terms of the internal rate of return. Costs were estimated by TAMS, the consultant to the Bolivian government in conjunction with our engineering staff. The two major alternatives are the following:

(a) Maintain the original design geometries and the roadway surface characteristics affecting the operational cost of vehicles while adopting 16 design changes for the purpose of reducing the construction cost and some of the contractor's contingencies. The estimated total cost of this alternative is shown below:

Estimated construction cost	\$ 41,600,000
Less estimated equipment salvage value	<u>1,000,000</u>
Estimated net construction cost	40,600,000
Estimated cost of engineering services	<u>3,450,000</u>
	44,050,000
Contingencies	<u>2,000,000</u>
Estimated total cost of projects	46,050,000

The internal rate of return on this alternative is estimated to be 12½ percent. If the benefits from the new linkage to Santa Cruz are included (Project 9) the internal rate of return rises to about 14.5 percent.

(b) The other alternative is the same as (a) above except that all bituminous paving from Cochabamba to Villa Tunari would be deleted. This would still leave an all-purpose unpaved road. The internal rate of return would be 11.2 percent. The cost saving would amount to \$2.4 million. On the other hand, the rate of return on the paving part of the project is 25 percent, largely attributable to savings in maintenance costs. On balance, we would recommend the first alternative; that is, including the paving in the project.

7. We estimate, based upon preliminary discussions with the Bolivian government and the USAID Mission, that a total financial plan could be arranged as follows:

Estimated project cost	\$ 46,050,000
Amount available under present loan	33,200,000
Additional funds required	12,850,000
GOB contribution	3,400,000
PL 480 funds	1,500,000
Additional dollar loan	8,050,000

8. This brings us to the question as to whether the project should be rebid based upon the above alternative or whether we should authorize negotiation and in the event we do so, whether negotiation in the first instance should be with the single bidder, Jones. We recommend that the Bolivians be authorized to negotiate with the Jones consortium rather than rebid the job on the following grounds:

a. To rebid the job will take eight to ten months, whereas negotiation with the Jones consortium could probably start within two weeks from the date we authorize the Bolivians to commence negotiations. Assuming that it will take two weeks to negotiate a price and another two weeks to obtain authorization within the Agency of the additional required funding, the contractor would still be in a position to mobilize and commence work at the beginning of the dry season in April 1967. On the other hand, if we take the position that rebidding is necessary, the likelihood is that construction could not begin until April 1968. Hence, one entire year would be lost.

b. The Embassy-USAID recommend negotiation on the grounds that the delay in construction has already become a highly volatile political issue in Bolivia. Further delay can only exacerbate this situation (see TAB A).

c. There is no reason to believe that rebidding will lead to more competition than occurred in the first instance. There is a general unavailability of contractors because of the demands of the war in Viet Nam. Moreover, the evidence is that Bolivia is not an attractive place for U.S. contractors. It is unlikely that this situation will change in the next six months.

d. Moreover, if anything, the situation is likely to change for the worse. As noted in paragraph 5 above, there is a continuing inflation in construction costs. Hence the cost of the project is likely to be even higher six to nine months from now.

e. The Jones consortium is the only group that can meet the above time requirements. The other consortium that came closest to submitting a bid, Harbert, was unable to obtain a bond. In an informal conversation with Mr. Heyman, Bolivia Desk, they indicated that they do not now think they will be able to meet the bidding requirements and further that they feel that negotiating with the Jones consortium is an acceptable procedure (see TAB B). We are on notice that the construction firm of Grove, Shepard, Wilson, Kruege will probably protest this procedure and claim

that they would be willing to submit a proposal. However, Grove, Shepard did not prequalify nor have they been to Bolivia. Thus it would probably take three to four months for them to submit a realistic bid.

f. The statutory requirement that we seek competition on construction contracts to the maximum extent practicable has been met. In keeping with AID's practice of using the Federal Procurement Regulations as a guideline in such situations, the question as to whether or not the Agency should insist on rebidding the contract or approve procurement by negotiation has been the subject of a detailed formal review by Capital Development (see TAB C). This review resulted in specific findings of fact and a recommendation that in light of the specific circumstances of this case AID should approve procurement by negotiation with the Jones consortium.

Recommendation: That you approve the following: (1) In the first instance the Bolivians negotiating with the single bidder, Jones. (2) Assuming the negotiation comes out to be in the approximate area of the estimate shown above, namely \$46 million, we would propose to seek authorization for a loan in the amount of approximately \$8.0 million in accordance with the financial plan also shown above.

OK
W. Frank

above program office to handle \$46 million

Concurrences:

KKohler/BWatkins, LA/CD	<u>CD</u>	Date	<u>6 Oct 66</u>
AHeyman, LA/BC	<u>AH</u>	Date	<u>10-7-66</u>
FDeRosa, LA/GC	<u>FD</u>	Date	<u>10-11-66</u>
CGoldman, LA/GC	<u>CG</u>	Date	<u>10-12-66</u>
KVernon, ENGR	<u>for H. J. - KV</u>	DATE	<u>7 Oct 66</u>

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Note: This procedure has been discussed and approved by DFPE.

JLevinson:sa:LA/CD

Approved *[Signature]*

Disapproved _____

Date OCT 11 1966

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ANNEX 5, Page 1 of 3

DRAFT LOAN AUTHORIZATION (AMENDED)

Provided from: Alliance for Progress Funds
BOLIVIA: Highways 1 and 4

Pursuant to the authority vested in the Deputy U. S. Coordinator, Agency for International Development ("A.I.D."), by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby amend the text of the Loan Authorization of A.I.D. Loan No. 511-L-021, dated May 28, 1964, to read as follows:

"Pursuant to the authority vested in the Deputy U.S. Coordinator, Agency for International Development ("A.I.D.") by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan to the Government of the Republic of Bolivia ("GOB") of not to exceed forty two million seven hundred thousand dollars (\$42,700,000) to assist in financing the dollar and local currency costs (including final design and supervisory engineering) of constructing two related highways in Bolivia, one approximately 206 kms., from Cochabamba to the Isiboro River near Puerto Patino, (paved approximately 183 kilometers from Cochabamba to Villa Tunari), and the second, all gravel, of approximately 93 kms., from Villa Tunari to Puerto Villarroel, as well as the dollar costs of the purchase of construction equipment, spare parts, related materials and camps. The loan shall be subject to the following terms and conditions:

*1. Interest and Terms of Repayment

- "(a) Borrower shall repay the loan to A.I.D. in United States dollars within forty (40) years from the first disbursement of the loan including a grace period of not to exceed ten (10) years.
- "(b) Borrower shall pay to A.I.D. on a disbursed balance on the first thirty three million two hundred thousand dollars (\$33,200,000) of the loan interest of three-quarters of one (3/4 of 1) percent per annum during the grace period and two (2) percent per annum thereafter.

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"(c) Borrower shall pay to A.I.D. in U.S. dollars on the disbursed balance of the loan in excess of thirty three million two hundred thousand dollars (\$33,200,000) interest of one (1) percent per annum during the grace period and two and one-half (2½) percent per annum thereafter.

"2. Other Terms and Conditions

- "(a) Equipment, materials and services financed hereunder (except for marine insurance) shall have their source and origin in Bolivia or in the United States.
- "(b) United States dollars utilized under the loan to finance local currency costs shall be made available through Special Letter of Credit procedures and, except for the purchase of marine insurance, shall be used only for procurement in the United States.
- "(c) The supervising engineering and contracting firms shall be approved by A.I.D.
- "(d) Based on a study by U.S. experts of Bolivia's rural development program and agencies, and prior to the first disbursement under this loan except for engineering services, the Government of Bolivia will furnish a schedule plan satisfactory to A.I.D. for:
- "(i) Strengthening programs and staffs, and integrating or better coordinating agencies responsible for GOB rural development and colonization programs; and
 - "(ii) Colonization and rural development in the areas that surround and are adjacent to projects 1 and 4.
- "(e) The Government of Bolivia will accept the services of U.S. experts to advise and assist in completing the integration of road maintenance organizations and programs within the national roads service and in the development of an adequate nation-wide maintenance program.

- "(f) The Government of Bolivia will accept the services of U.S. experts to advise and assist in developing any necessary new revenue sources and in consolidating the various present revenue producing sources for highway maintenance.
- "(g) Prior to disbursement of any funds under this loan, except for engineering services, the Government of Bolivia will furnish A.I.D. with a plan, including a specific schedule, satisfactory to A.I.D., for carrying out the following:
- "(i) Completing the program to integrate highway maintenance organizations and programs within the National Roads Service.
 - "(ii) Developing an expanded maintenance program and allocating budget resources adequate for Bolivia's growing road system.
 - "(iii) Establishing load limits and an enforcement system for projects 1 and 4.
- "(h) The amount of U.S. dollars to be used to finance the U.S. dollar costs of purchasing construction equipment, spare parts, related material and camps shall not exceed two million two hundred thousand dollars (\$2,200,000)."

Deputy U. S. Coordinator

Date

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ALLIANCE FOR PROGRESS
LOAN AGREEMENT

(BOLIVIA: Highways 1 and 4)

between the

REPUBLIC OF BOLIVIA

and the

UNITED STATES OF AMERICA

Dated: September 16, 1964

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ALLIANCE FOR PROGRESS
LOAN AGREEMENT

AGREEMENT, in furtherance of the Alliance for Progress, dated as of the 16th day of September, 1964, between the REPUBLIC OF BOLIVIA ("Borrower"), and the UNITED STATES OF AMERICA, acting through the AGENCY FOR INTERNATIONAL DEVELOPMENT ("A.I.D.").

ARTICLE I

The Loan: The Project

SECTION 1.1. The Loan. A.I.D. agrees to lend Borrower pursuant to the Foreign Assistance Act of 1961, as amended, up to thirty-three million two hundred thousand United States dollars (\$33,200,000) or its equivalent in pesos bolivianos for the dollar and peso boliviano costs of goods and services required for the project as defined in Section 1.2 hereof. The aggregate amount disbursed hereunder is hereinafter referred to as "Principal".

SECTION 1.2. The Project. This loan is made to assist Borrower in carrying out a project ("Project") for the construction (including final design and supervisory engineering) of two major related highways in Bolivia as follows:

- (a) An all-weather two lane highway, approximately 206 kilometers in length, beginning at Cochabamba and extending northeastward across the Cordillera Real to Villa Tunari, and thence northwestward to the Isiboro River near Puerto Patifio, approximately 183 kilometers of which, from Cochabamba to Villa Tunari, shall

to paved ("Highway 4"); and

- (b) An all-weather two lane gravel highway approximately 86 kilometers in length, beginning at Villa Tunari, and extending eastward to the Ichilo River at Puerto Villarroel. ("Highway 1"). The Project is more fully described in Annex I hereto.

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ARTICLE II

Interest: Terms of Payment

SECTION 2.1. Interest. Borrower shall pay semi-annually to A.I.D. in dollars, on the unrepaid Principal, and on unpaid interest due, interest which shall accrue from the date of respective disbursements hereunder, the first such payment to be due and payable no later than six (6) months after the first such disbursement, on a date to be specified by A.I.D. Interest shall accrue at a rate of three-quarters of one ($3/4$ of 1) percent per annum for ten (10) years after the first such disbursement, and two (2) percent per annum thereafter, in both cases computed on the basis of a 365-day year. Disbursements hereunder shall be denominated in dollars and shall be deemed to occur (a) in the case of dollar costs on the respective dates on which payments by A.I.D. are made to a banking institution pursuant to a commitment document referred to in Section 4.1 or (b) in the case of peso boliviano costs, on the respective dates on which Borrower or its designee receives pesos bolivianos pursuant to Section 4.2.

SECTION 2.2. Repayment. Borrower shall repay the Principal to A.I.D. in dollars over not to exceed forty (40) years, as follows: in sixty-one (61) equal semi-annual installments, the first installment to be due and payable nine and one-half ($9\ 1/2$) years after the first interest payment is due.

SECTION 2.3. Application and Place of Payments. All payments shall be applied first to the payment of any interest due, then to the repayment of the Principal. All payments shall be made to the Controller, United

States A.I.D. Messengers to Bolivia and shall be deemed to have been paid when received by A.I.D. at that address.

SECTION 2.4. Prepayment. Borrower shall have the right to prepay, without penalty, on any date on which interest is due, all or any part of the Principal. Any prepayment shall be applied first to the payment of any interest due, and then pro rata to the remaining installments of Principal.

SECTION 2.5. Renegotiation of Terms. In the light of the undertaking of the United States of America, Borrower and the other signatories of the Act of Bogota and the Charter of Punta del Este to forge an Alliance for Progress, Borrower agrees that it will negotiate with A.I.D. concerning the acceleration of payment of the Principal at any time or from time to time as A.I.D. may request; provided, however, that no such request under this Section shall be made prior to six (6) months before the date the first installment is payable under Section 2.2. Borrower and A.I.D. shall mutually determine whether such an acceleration shall take place on the basis of the following criteria:

- (i) the capacity of Borrower to service a more rapid liquidation of its obligations in the light of the internal and external financial position of Bolivia, taking into account debts owing to any agency of the United States of America, or to any international organization of which the United States of America is a member;
- (ii) the relative capital requirements of Borrower and of the other signatories of the Act of Bogota and the Charter of Punta del Este.

ARTICLE III

Conditions Precedent

SECTION 3.1. Conditions Precedent to Initial Financing. Prior to the first disbursement or issuance of a commitment document, Borrower shall furnish in form and substance satisfactory to A.I.D.:

- (a) An opinion or opinions of the Minister of Justice of Bolivia or of other counsel satisfactory to A.I.D., that this Agreement has been duly authorized or ratified by, and executed and delivered on behalf of, Borrower and constitutes a valid and legally binding obligation of Borrower in accordance with its terms;
- (b) Evidence of the authority of the person or persons who will act as representative or representatives of Borrower in connection with the operation of this Agreement pursuant to Section 8.2, together with the authenticated specimen signature in duplicate of each such person certified as to its authenticity by duly constituted Bolivian authority;
- (c) Written reports containing the amounts and recipients of any commissions, fees, or payments of any kind which have been made or agreed to be made to any person, firm or corporation (other than regular compensation to officials and full-time officers and employees of Borrower) for services in connection with preparing or presenting the application which has resulted in the authorization of the loan by A.I.D. or in connection with negotiations incident to obtaining the loan (indicating whether such payments have been or are to be made on a contingent fee basis);

- (d) Evidence of arrangements for engineering services for the Project, including final field surveys, borings, soil reconnaissance, preparation of final designs and plans, supervision of construction (including certification of quantities and payments), and assistance in preparing the maintenance plan described in Section 3.2 (d) hereof.

SECTION 3.2. Additional Conditions Precedent to Financing Other Than Engineering Services. Prior to the first disbursement or issuance of commitment documents, other than to finance engineering services, Borrower shall furnish A.I.D. in form and substance satisfactory to A.I.D.:

- (a) Evidence of arrangements for construction services for the Project;
- (b) Such additional plans, specifications and schedules as A.I.D. may request;
- (c) Evidence of arrangements for the acquisition of real property rights, including easements and rights of way, required for the timely completion of the Project in accordance with schedules submitted pursuant to subsection 3.2 (b);
- (d) A detailed plan, including specific time schedule, for
- (i) completing the integration of all Bolivian highway maintenance organizations and programs within the Bolivian National Roads Service;
- (ii) development of an expanded program for maintenance of highways, roads, and related structures in Bolivia (including, but not limited to the Project highways), including the orderly allocation of adequate budget resources for such purposes; and

(iii) establishing load limits and a system for enforcing such limits, for the Project highways.

(e) Detailed schedules and plans (based on a study by U.S. experts of Bolivia's agriculture and rural development) for:

(i) Strengthening programs and staffs, and integrating or better coordinating agencies responsible for GOB rural development and colonization programs; and

(ii) Colonization and rural development in the areas that surround and are adjacent to road projects 1, 3, 4 and 7.

SECTION 3.3. Terminal Date for Fulfillment of Conditions Precedent.

Except as A.I.D. may otherwise agree in writing, if the conditions specified by Section 3.1 have not been satisfied by October 30, 1964 and the conditions specified by Section 3.2 have not been satisfied by April 30, 1965 A.I.D. may, at any time thereafter, at its option terminate this Agreement by giving notice to Borrower. Upon such termination, Borrower shall repay any unrepaid Principal and shall pay the interest thereon, and all obligations of the parties hereto under this Agreement shall cease.

ARTICLE IV

Disbursement

SECTION 4.1. Disbursements for Project Dollar Costs. To obtain disbursements for dollar costs of the Project, Borrower or its designee may from time to time, and in accordance with dollar requirements for the Project, request A.I.D. to issue commitment documents to one or more United States banks designated by Borrower or its designee and satisfactory to A.I.D., committing A.I.D. to reimburse such bank or banks for payments made, through letters of credit or otherwise, to Borrower or any designee of Borrower pursuant to such documentation requirements as A.I.D. may prescribe. Banking charges incurred pursuant to this Section in connection with commitment documents shall be for the account of Borrower and may be financed hereunder.

SECTION 4.2. Disbursements for Peso Boliviano Costs. To obtain disbursements for peso boliviano costs of the Project, Borrower may from time to time, and in accordance with peso boliviano requirements and expenditures for the Project, request A.I.D. to make available an amount of pesos bolivianos for the Project. Each such request shall be supported by such documentation as A.I.D. may require. The provisions of the Special Letter of Credit Implementation Memorandum, dated November 19, 1963, between the Government of Bolivia, the Central Bank of Bolivia, and A.I.D. shall apply to Special Letters of Credit utilized to make pesos bolivianos available for the purposes of this loan. Peso boliviano disbursements hereunder shall be charged against the loan at the rate set forth in Section 6.6. hereof.

SECTION 4.3. Other Forms of Disbursement. Disbursements may also be made through such other means as Borrower and A.I.D. may agree to in writing.

SECTION 4.4. Terminal Date for Requests for Commitment Documents for Disbursements. Except as A.I.D. may otherwise agree in writing, no commitment documents shall be issued in response to requests received after December 31, 1968 and no disbursement shall be made against documentation submitted after June 30, 1969.

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ARTICLE V

Covenants Concerning Procurement

SECTION 5.1. Procurement. Equipment, materials and services (except marine insurance and ocean shipping) financed hereunder shall have their source and origin in either the United States of America or Bolivia. Ocean shipping financed hereunder shall be procured from a United States flag carrier; marine insurance may be procured in accordance with Section 5.4 (c). All other goods and services used in the Project but not financed hereunder shall have their source and origin in Bolivia, or in countries included in Code 899 of the A.I.D. Geographic Code Book as in effect at the time such goods and services are procured.

SECTION 5.2. Project Dollar Goods and Services. Except as provided in Section 5.4 (c), commitment documents issued pursuant to Section 4.1 shall be used exclusively to procure goods and services for the Project, including ocean shipping, in the United States of America ("Project Dollar Goods and Services"). Ocean shipping procured from a United States flag carrier shall be deemed to have been procured in the United States.

SECTION 5.3. Reasonable Price. No more than reasonable prices shall be paid for Project Dollar Goods and Services and such items (other than professional services) shall be procured on a fair and competitive basis. Reasonable prices (except for professional services) should normally approximate the lowest competitive price for the goods or services procured, quality, time and cost of delivery, terms of payment and other factors considered.

SECTION 5.4. Administration.

- (a) Project Dollar Goods shall be transported to Bolivia on carriers of Bolivia or countries included in Code 899 of the A.I.D. Geographic Code Book as in effect at the time of procurement.
- (b) At least fifty (50) percent of the gross tonnage of all Project Dollar Goods (computed separately for dry bulk carrier, dry cargo liners and tankers) which shall be transported on ocean vessels shall be transported on privately-owned United States flag commercial vessels. No Project Dollar Goods may be transported on any ocean vessels which A.I.D., in a notice to Borrower, has designated as ineligible to carry Project Dollar Goods.
- (c) Marine insurance of Project Dollar Goods may be financed under this Agreement provided such insurance is placed at the lowest available competitive rate in Bolivia or in a country included in Code 899 of the A.I.D. Geographic Code Book as in effect at the time of placement.

If in connection with the placement of marine insurance on shipments financed under United States legislation authorizing assistance to other nations, Borrower, by statute, decree, rule or regulation favors any marine insurance company of any country over any marine insurance company authorized to do business in any state of the United States of America, Project Dollar Goods financed under this Agreement shall during the

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continuance of such discrimination be insured against marine risk, and such insurance shall be placed in the United States of America with a company or companies authorized to do a marine insurance business in any state of the United States of America.

SECTION 5.5. Eligibility Date. Except as A.I.D. may otherwise agree in writing, no goods or services may be financed in whole or in part hereunder which are procured pursuant to orders or contracts firmly placed or entered into prior to the effective date of this Agreement.

SECTION 5.6. Small Business Notification. In order that United States small business shall have the opportunity to participate in furnishing Project Lollar Goods and Services for the Project, Borrower shall, at such time as A.I.D. may specify prior to ordering or contracting for any such goods or services estimated to cost more than the equivalent of five thousand dollars (\$ 5,000), cause to be received by A.I.D. such information concerning such goods or services as A.I.D. may require.

SECTION 5.7. Contracts. No costs may be financed in whole or in part hereunder which arise out of contracts (a) for engineering, consulting, procurement or other services unless A.I.D. has approved in writing the terms of such contracts and the firms which will provide such services; (b) for the performance of services outside the United States by United States citizens unless A.I.D. has approved in writing the employment of such persons; (c) unless such contracts conform to A.I.D. regulations with respect to eligible direct labor.

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ARTICLE VI

Additional Covenants and Warranties

SECTION 6.1. Conduct of the Project.

(a) Borrower shall cause the Project to be carried out with due diligence and efficiency in conformity with sound engineering, construction and accounting practices. Borrower shall cause its rights in relation to the Project to be exercised so as to protect the interests of Borrower and A.I.D., to meet the requirements and discharge the obligations of Borrower under this Agreement and to facilitate the success of the objectives of the Project. Borrower shall cause the Project to be carried out in conformity with any contracts, engineering, construction or procurement arrangements, or plans, specifications and schedules of any kind approved by A.I.D. and shall cause A.I.D. concurrence to be obtained prior to any material modification or cancellation thereof.

(b) Borrower shall obtain with its own resources real property rights, including easements and rights of way, required for completion of the Project in accordance with the schedules submitted pursuant to Section 3.2 (b).

(c) Borrower shall provide or cause to be provided any resources additional to this loan essential to the timely completion of the Project.

SECTION 6.2. Maintenance. Borrower shall maintain highways and structures of the Project in accordance with sound road maintenance standards, and shall adhere to the plans and schedules submitted pursuant to subsection 3.2 (d).

(b) In preparing and carrying out the plans and schedules required by Section 3.2 (d), Borrower shall consult with, and accept the assistance of experts to be made available by the United States of America.

(c) Borrower shall also consult with and accept the assistance of

agreed to be provided by the United States of America to assist Borrower in developing new sources of revenue and consolidating existing sources of revenue for financing highway and road maintenance activities.

SECTION 6.3. Rural Development and Colonization

(a) Borrower shall carry out a program established pursuant to Section 3.2 (a) consisting of:

(i) strengthen plans and projects in rural development and agriculture;

(ii) integrate, coordinate and strengthen the organization and staffs of agencies responsible for programs in agricultural and rural development, colonization and supporting activities with priority assigned to areas serviced by road projects 1, 3, 4 and 7.

(b) Borrower shall consult with and accept the assistance of U. S. experts in developing and implementing agricultural and rural development programs established pursuant to Section 3.2 (e).

SECTION 6.4. Utilization of Goods and Services. All goods and services financed under this agreement under commitment documents issued pursuant to Section 4.1 or with pesos bolivianos made available pursuant to Section 4.2 shall be used exclusively for the project. In the case of any such goods which are not fully expended through their use for the Project, the foregoing provision shall apply until the completion of the Project or until such time as they can no longer be usefully employed for the Project, provided that no such goods shall be exported from Bolivia without the prior approval of A.I.D.

SECTION 6.5. Non-Taxation.

(a) This agreement, and the amount agreed to be lent hereunder, shall be free from, and the Principal and interest shall be paid without deduction

... of ... taxes or fees imposed under the laws in effect within Bolivia.

(b) Either all goods and services financed hereunder for the Project, whether procured directly by Borrower or by any contractor with Borrower, shall be exempt from any taxes, charges or fees on ownership or use, and any other taxes, investment or deposit requirements and currency controls in Bolivia and the import, acquisition, use or disposition of any such goods or services shall be exempt from any tariffs, customs duties, import taxes, taxes on purchase or disposition, and any other taxes or similar charges or fees in Bolivia, or Borrower shall increase its contribution to the costs of the Project by the amount of any such taxes, charges, fees, tariffs, duties, deposit requirements and any other similar requirements in Bolivia, and none of these shall be financed hereunder.

SECTION 6.6. Rate of Exchange. The rate of exchange between dollars and pesos bolivianos in all transactions pursuant to this Agreement shall be at the rate providing the greatest number of pesos bolivianos per dollar which, at the time of any such transaction, is not unlawful in Bolivia.

SECTION 6.7. Utilization of Other Currencies. Borrower agrees that pesos bolivianos made available to the Borrower in connection with other United States assistance to Bolivia may be utilized for the Project, subject to mutual agreement on priorities for the utilization of such pesos bolivianos at such time as arrangements are made for the provision of such assistance or such pesos bolivianos become available for purposes of the economic development of Bolivia. In the event that such funds are utilized for the project, the amount of the loan shall be reduced by an equivalent amount of dollars computed at the exchange rate prescribed in

Section 6.4. Utilization of such funds shall not be considered a disbursement under this Agreement.

SECTION 6.8. Information. Appropriate arrangements satisfactory to A.I.D. shall be made by Borrower to publicize the loan as a program of American aid in furtherance of the Alliance for Progress. Borrower shall ensure that the clasped hands and Alliance for Progress symbols are conspicuously posted at Project construction sites.

SECTION 6.9. Notice of Material Developments. Borrower represents and warrants that it has disclosed to A.I.D. all circumstances which may materially affect the Project or the discharge of its obligations under this Agreement and covenants that it will inform A.I.D. of any conditions which interfere, or which it is reasonable to believe will interfere with any of the foregoing.

SECTION 6.10. Commission, Fees and Other Payments.

(a) Borrower covenants that no commissions, fees or payments of any kind in connection with preparing or presenting the application which has resulted in the authorization of the loan by A.I.D., or in connection with negotiations incident to obtaining the loan, have been or will be made or agreed to be made to any person, firm or corporation other than regular compensation to officials and full-time officers and employees of Borrower, or for bona fide professional, technical or other comparable services.

(b) Borrower covenants that all commissions, fees or payments determined by A.I.D. to be unreasonable shall be adjusted in a manner satisfactory to A.I.D. and that every recipient of any such commission, fee or payment shall be informed of this condition.

(c) Borrower shall promptly report to A.I.D. information of any commissions fees or payments mentioned and excluded from the prohibition in subsection 6.10(a) hereof, which have been made or agreed to be made after the period covered by

the report required in subsection 3.1 (c) (indicating whether such payments have been or are to be made on a contingent fee basis).

(d) Borrower covenants that no payments have been or will be received by Borrower or any official of Borrower in connection with the establishment of arrangements for engineering and construction services except such fees, taxes or similar payments duly established by law in Bolivia.

SECTION 6.1k. Maintenance of Records: Inspections, Reports.

(a) Borrower shall maintain or cause to be maintained, books and records in accordance with sound accounting principles and practices adequate to identify the disposition of funds disbursed pursuant to this Agreement for the Project and of goods and services financed by such funds; to show the nature and extent of solicitation of prospective suppliers and the basis of award of contracts or orders for the Project; and to indicate the progress of the Project. Such books and records shall be audited regularly at such intervals as A.I.D. may specify by auditors acceptable to A.I.D. and shall be maintained and audited for such period as A.I.D. may require. A.I.D. shall have the right at all reasonable times to examine in Bolivia such books and records and all other documents and other records relating to the Project and this Agreement. Borrower shall promptly furnish to A.I.D. such financial and other reports and information relating to the Project, the loan or transactions pursuant thereto as A.I.D. may reasonably request. Borrower shall cooperate with A.I.D. to facilitate inspection of the Project and any road maintenance organization established or improved pursuant to Section 6.2.

ARTICLE VII

Remedies of A.I.D.

SECTION 7.1. Events of Default: Acceleration. If any one or more of the following events ("Events of Default") shall occur:

(a) Borrower shall fail to pay in full when due any interest, installment of Principal or any other payment required under this or any other Agreement between Borrower or any Agency of Borrower and A.I.D.;

(b) Borrower shall fail to comply with any other provision contained herein;

(c) Any representation or warranty made by or on behalf of Borrower with respect to obtaining this loan or made or required to be made hereunder is incorrect in any material respect; then, A.I.D., at its option, may declare all or any part of the unrepaid Principal to be due and payable, and upon any such declaration, unless the default is cured within sixty (60) days thereafter, such Principal and any credit fee accrued thereon shall become due and payable as of the date of such declaration.

SECTION 7.2. Termination of Disbursement: Transfer of Goods to A.I.D.

In the event that at any time:

(a) An Event of Default has occurred;

(b) An event occurs which A.I.D. determines to be an extraordinary situation which makes it improbable that the purposes of this loan will be attained or that Borrower or Bank will be able to perform its obligations hereunder; or

(c) Any disbursement would be in violation of the law governing A.I.D.; or

(d) A default shall have occurred under any other agreement between Borrower or any of its agencies and the United States of America or any of its agencies; then, A.I.D., at its option, may (1) decline to issue

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further commitment documents, (ii) suspend or cancel outstanding commitment documents to the extent that they have not been utilized through the issuance of irrevocable letters of credit or through bank payments made other than under irrevocable letters of credit, giving notice to Borrower and Bank promptly thereafter, (iii) decline to make disbursements other than under commitment documents, and (iv) at A.I.D.'s expense, direct that title to goods financed for the Project under this Agreement shall be transferred to A.I.D., if the goods are from a source outside Bolivia, in a deliverable state and have not been offloaded in ports of entry serving Bolivia. To the extent that any costs connected with the purchase and transportation of these goods have been financed under this Agreement, these amounts shall be deducted from Principal.

SECTION 7.3. Refunds. If A.I.D. determines that any disbursement is not supported by valid documentation in accordance with the terms of this Agreement, or is not made or used in accordance with the terms of this Agreement, or was at the time of disbursement in violation of the law governing A.I.D., A.I.D. at its option may, notwithstanding the availability or exercise of any other remedy provided for under this Agreement, require Borrower to pay to A.I.D. within thirty (30) days after receipt of a request therefor, an amount not to exceed the amount of such disbursement, provided, that such request by A.I.D. shall be made no later than five (5) years after the date on which disbursement was made. Upon its receipt by A.I.D. such amount shall be applied first to the payment of any accrued interest and then prorata to the remaining installments of Principal.

SECTION 7.4. Waivers of Default. No delay in exercising or omission to exercise, any right, power, or remedy accruing to A.I.D. under

this Agreement shall be construed as a waiver of any such right, power or remedy.

SECTION 7.5. Expenses of Collection. All reasonable costs incurred by A.I.D. (other than salaries of its staff) after an Event of Default has occurred in connection with the collection of amounts due under this Agreement may be charged to Borrower and reimbursed as A.I.D. shall specify.

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Miscellaneous

SECTION 8.1. Effective Date. This Agreement shall enter into effect as of the day and year first above written.

SECTION 8.2. Use of Representatives.

(a) All actions required or permitted to be performed or taken under this Agreement by Borrower, or A.I.D., may be performed by their respective duly authorized representatives.

(b) The Minister of National Economy shall have authority to (Title) represent Borrower in accordance with the above subsection and shall have the authority to designate other representatives. All such representatives, unless A.I.D. is given notice otherwise, shall have authority to agree on behalf of Borrower to any modification or amplification of this Agreement which does not substantially increase Borrower's obligations hereunder. Until receipt by A.I.D. of written notice of revocation by Borrower of the authority of any of its representatives, A.I.D. may accept the signature of such representatives on any instrument as conclusive evidence that any action effected by such instrument is authorized.

SECTION 8.3. Communications. Any communication or document given, made or sent by Borrower or A.I.D. pursuant to this Agreement shall be in writing and shall be deemed to have been duly given, made or sent to the party to which it is addressed when it shall be delivered by hand or by mail, telegram, cable or radiogram to such party at the following addresses:

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TO BORROWER:

Mail Address:

Ministerio de Economía Nacional
Avenida Camacho, Esquina Bueno
La Paz, Bolivia.

Cable Address:

MINECONOMIA, La Paz, Bolivia

TO A.I.D. (Two copies)

Mail and Cable Address:

USAID Mission to Bolivia
United States Embassy
La Paz, Bolivia

Other addressees may be substituted for the above upon giving of notice as provided herein.

All communications and documents submitted to A.I.D. hereunder shall be in English and all technical and engineering specifications therein shall be in terms of United States standards, except as A.I.D. may otherwise agree in writing.

IN WITNESS WHEREOF, Borrower and the United States of America, each acting through its respective duly authorized representative, have caused this Agreement to be signed in their names and delivered as of the day and year first above written.

THE REPUBLIC OF BOLIVIA

BY: (Sgd.) Eduardo Arauco Paz
Eduardo Arauco Paz, Minister of
National Economy

THE UNITED STATES OF AMERICA

BY: (Sgd.) John C. Eddison
John C. Eddison, Acting Director
USAID Mission to Bolivia

DETAILED DESCRIPTION OF PROJECT

The loan agreement covers roads described as follows.

Project No. 1

Project 1 extends about 86 kilometers from the vicinity of the colonization center of Villa Tunari eastward to Puerto Villarroel on the Ichilo River. On the west it connects with Project 4, a proposed paved highway, linking the Chapare region with Cochabamba and the Santa Cruz highway. The land is relatively flat from Villa Tunari (elevation about 300 meters above sea level) eastward to Puerto Villarroel (elevation about 240 meters). Some 50 kilometers south of Puerto Villarroel, the Cordillera Real rises in a major mountain range reaching heights of over 5,000 meters and the road throughout more than half its length would be located at the foot of this range.

The highway proposed for Project 1 would start at its junction with Project 4 immediately north of Villa Tunari and would trend in an easterly direction across the Chapare River and about 59 kilometers beyond; after crossing the Ivivigarsama River the route would turn northward and continue some 27 kilometers to Puerto Villarroel. The land over the entire length of the route is flat and heavily forested, and presents excellent prospects for agricultural development and colonization. For about 20 kilometers eastward from the Villa Tunari area there is some agricultural development where colonization has already occurred. Along the rest of the route to Puerto Villarroel the road follows approximately the 50-meter-wide clearing through the jungle opened by CEF, where virtually no development has taken place. Existing development at Puerto Villarroel is limited to a small encampment of the Bolivian Army.

Project No. 4.

Project 4 is also located in the Department of Cochabamba. It consists of a proposed highway about 206 kilometers long between the city of Cochabamba and the central part of the Chapare Province. Cochabamba, the southern terminus, is the second largest city in the country and lies near the mid-point of the main arterial highway that extends about 1,000 kilometers from La Paz to Guabira. Cochabamba and other cities served by the arterial highway are principal marketing areas for agricultural products from the Chapare, and they are sources of supply for processed and manufactured goods for the Chapare. Thus a good highway connection is of vital importance to further agricultural development in the region.

From La Paz from Cochabamba (elevation 2,570 meters) the proposed highway would pass through or near the population centers of Sacaba and Aguirre. In this segment the alignment closely follows the existing route, utilizing portions of the existing roadbed where practical. The highest point of the proposed highway is reached at an elevation of 3,670 meters, some 36 kilometers from the beginning of the project. From this point the road generally descends along the Sorani Valley, passing near Aguirre at about km 45 and Coloma at km 50. At approximately km 64 the valley ends abruptly at the scarp of the northeastern flank of the Cordillera Real. From km 64 northward the proposed route continually descends, crossing a drainage divide and passing into the Purmasi Valley. From here, location studies proved that the most economical route crosses over another small drainage divide into the valley of the Espirita Santo River and follows the river downstream to Villa Tunari (elevation 300 meters), the commercial center of the Chapare region.

The proposed alignment between Aguirre and Villa Tunari, about 120 kilometers long, and on an almost continuously descending grade, would replace an existing road that is about 18 kilometers longer, rises from Aguirre almost 1,000 meters to an elevation of 4,225 meters, and is limited to one-way traffic through barren and precipitous terrain.

At Villa Tunari the proposed highway would connect with the proposed new highway of Project 1. It can be expected that virtually all products transported on the Project 1 highway also would traverse the proposed new Cochabamba-Villa Tunari highway.

Project 4 also includes the construction of a penetration road 43 kilometers northwest from Villa Tunari to the Isiboro Forest. The road would traverse the piedmont belt, never more than a few kilometers from the adjacent mountains, with the immediate purpose of penetrating and providing access to a large area of undeveloped, potentially productive land. While in the near future the penetration road would be expected to carry only local traffic, in later years it could form a link in a new arterial highway.

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