PD-AAF-842

276-0017

4241

UNCLASSIFIED

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

SYRIA:
Lattakia-Tartous Highway, Loan 276-K-018

UNCLASSIFIED

7003 821

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PP

2. DOCUMENT CODE: 3

3. COUNTRY/ENTITY: Syria

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 digits): 276-0017

6. BUREAU/OFFICE: A. SYMBOL: NE; B. CODE: 03

7. PROJECT TITLE (Maximum 40 characters): Lattakia-Tartous Highway

8. ESTIMATED FY OF PROJECT COMPLETION: FY 83

9. ESTIMATED DATE OF OBLIGATION: A. INITIAL FY 78; B. QUARTER 4; C. FINAL FY 78 (Enter 1, 2, 3, or 4)

10. ESTIMATED COSTS ($000 OR EQUIVALENT $1)

A. FUNDING SOURCE	FIRST FY B. FX	FIRST FY C. L/C	FIRST FY D. TOTAL	LIFE OF PROJECT E. FX	LIFE OF PROJECT F. L/C	LIFE OF PROJECT G. TOTAL
AID APPROPRIATED TOTAL	60,000		60,000	60,000		60,000
GRANT						
LOAN	60,000		60,000	60,000		60,000
OTHER U.S. 1.						
OTHER U.S. 2.						
HOST COUNTRY	18,200	53,800	72,000	18,200	53,800	72,000
OTHER DONOR(S)						
TOTALS	78,200	53,800	132,000	78,200	53,800	132,000

11. PROPOSED BUDGET APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. 1ST FY 78 F. GRANT	E. 1ST FY 78 G. LOAN	H. 2ND FY ___ I. GRANT	H. 2ND FY ___ J. LOAN	K. 3RD FY ___ L. GRANT	K. 3RD FY ___ M. LOAN
(1) SSA	701		821		60,000				
(2)									
(3)									
(4)									
TOTALS					60,000				

A. APPROPRIATION	N. 4TH FY ___ O. GRANT	N. 4TH FY ___ P. LOAN	O. 5TH FY ___ Q. GRANT	O. 5TH FY ___ R. LOAN	LIFE OF PROJECT S. GRANT	LIFE OF PROJECT T. LOAN
(1) SSA						60,000
(2)						
(3)						
(4)						
TOTALS						60,000

12. IN-DEPTH EVALUATION SCHEDULED: MO 10 YR 80

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 21? IF YES, ATTACH CHANGED PID FACESHEET. 1 = NO, 2 = YES

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE: Selig A. Taubenblatt

TITLE: Selig A. Taubenblatt, Director
Office of Project Development

DATE SIGNED: MO 01 DA 03 YR 79

15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MO DA YR

AID 1330-4 (3-78)

LATTAKIA-TARTOUS HIGHWAY

Contents

Page No.

I. Summary & Recommendations 1

II. Project Background 3

A. Economy 3

B. Debt Burden & Repayment Prospects 5

C. Transport Sector 5

D. Highway Mode 7

E. Other Donors 8

F. The Project 8

III. Project Analyses

A. Technical Analysis 10

B. Financial Considerations 16

C. Economic Analysis 18

D. Environmental Analysis 19

E. Beneficiary Analysis 22

IV. Implementation Planning

A. Roles of Agencies 25

1. SARG 25

2. AID 25

3. Contractors.....25

B. Source-Origin Considerations.....27

C. General Schedule of Loan Implementation.....28

D. Project Implementation Actions.....28

E. Evaluation Plan.....28

V. Conditions, Covenants and Negotiation Status

A. Conditions Precedent to Disbursement.....30

1. Initial.....30

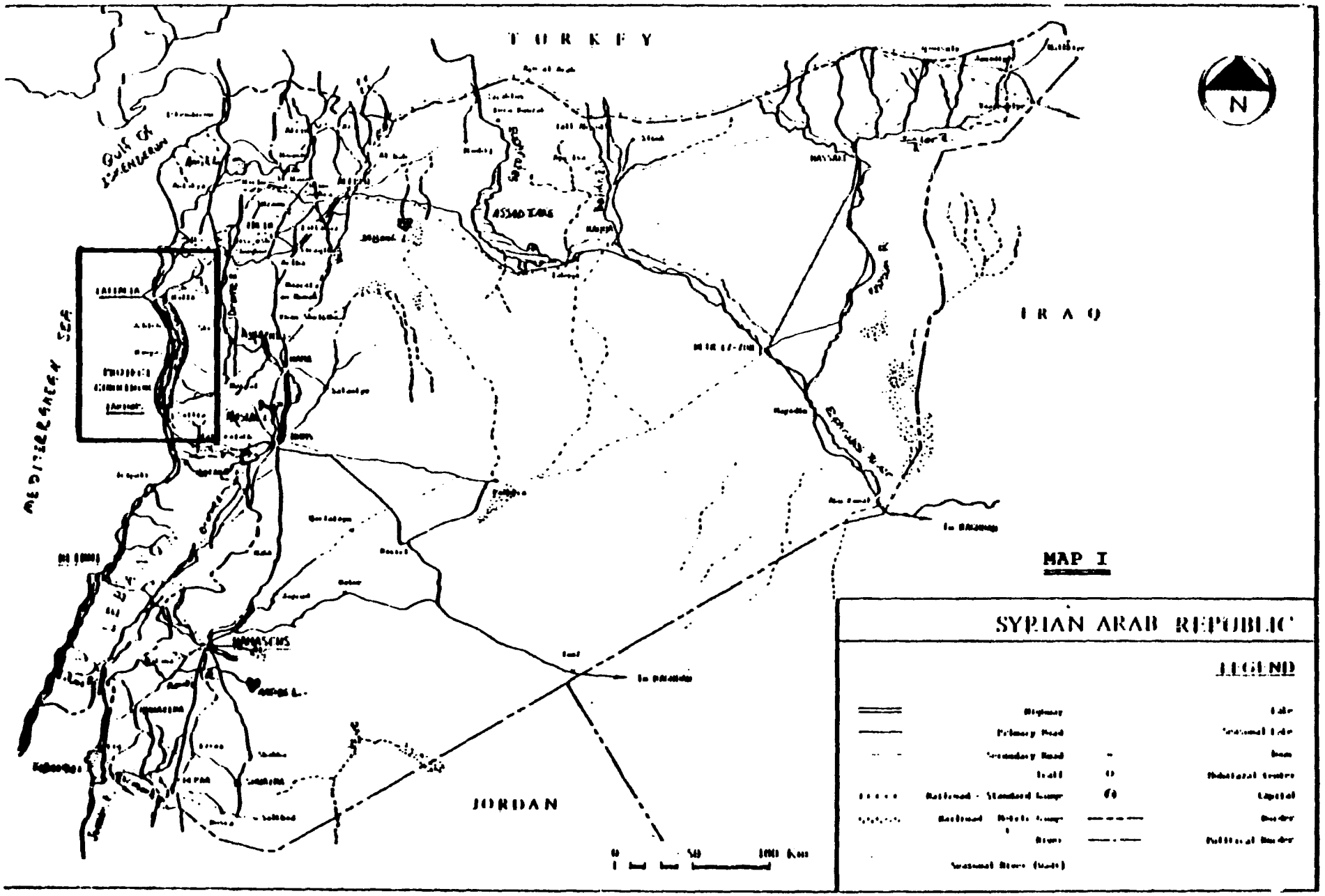
2. Subsequent.....30

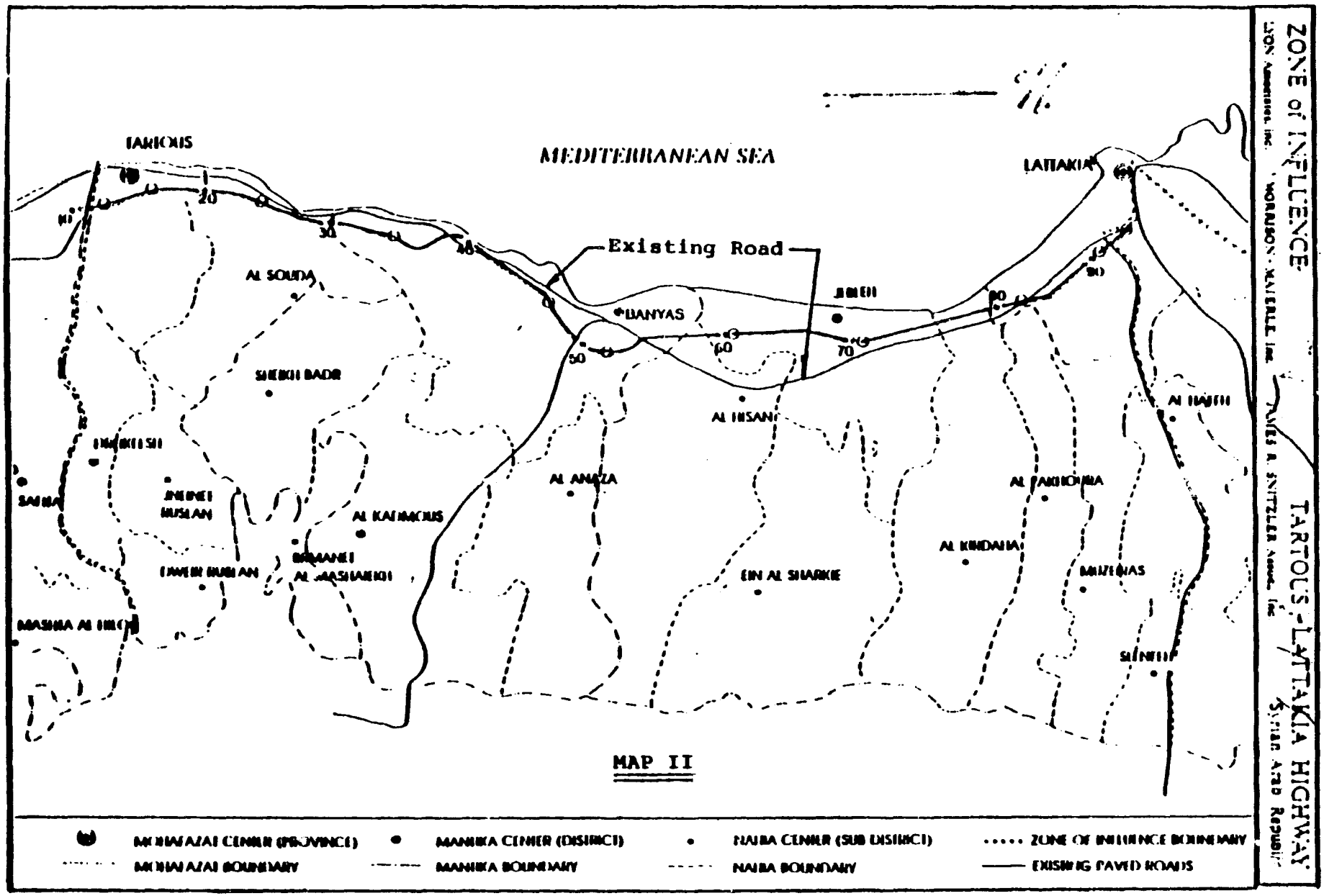
B. Special Covenants.....31

C. Negotiating Status.....31

ANNEXES

		No. of Pages
A.	Section 611(e) Certificate	1
B-1.	Traffic Projections	6
B-2.	Typical Road Cross-Sections	1
C.	Initial Environmental Examination	9
D.	Economic Analysis	15
E.	Ministry of Communications-Organization Chart	1
F.	Statutory Criteria Checklist	3
G.	Official Syrian Government Request for Assistance	1
H.	Draft Loan Authorization	3
J.	Logical Framework	2
K.	Vehicle Weight Control	2
L.	Construction Schedule	1


TURKEY
IRAQ
JORDAN
MEDITERRANEAN SEA
ASSAD DAM
MAP I
SYRIAN ARAB REPUBLIC
LEGEND
N


ZONE of INFLUENCE
TARTOUS - LATTAKIA HIGHWAY
MEDITERRANEAN SEA
TARTOUS
LATTAKIA
Existing Road
BANYAS
JABLEH
AL SOUDA
SHEIKH BADR
AL HISAN
AL ANAZA
AL KAFRAOUS
EIN AL SHARKE
AL KHDAIRA
AL HAFEH
SLINFEH
MAP II
MOHAFAZAT CENTER (PROVINCE)
MANTIKA CENTER (DISTRICT)
NAHIA CENTER (SUB DISTRICT)
ZONE OF INFLUENCE BOUNDARY
MOHAFAZAT BOUNDARY
MANTIKA BOUNDARY
NAHIA BOUNDARY
EXISTING PAVED ROADS

LATTAKIA-TARTOUS HIGHWAY

I. SUMMARY AND RECOMMENDATIONS

A. Borrower: The Government of the Syrian Arab Republic (SARG).

B. The Loan: Not to exceed $60.0 Million (Sixty Million U.S. Dollars) to assist in financing the foreign exchange costs of the project.

	— ($000) —		
	FX	LC	TOTAL
AID Loan	60,000	0	60,000 (45.5%)
SARG	18,200	53,800	72,000 (54.5%)
TOTAL	78,200 (59.2%)	53,800(40.8%)	132,000(100%)

C. Terms: Repayable in U.S. dollars over a period of forty (40) years, including a 10-year grace period for repayment of principal with interest on outstanding balance of principal at an annual rate of two percent (2%) during the grace period and of three percent (3%) thereafter.

D. Description of the Project: The SARG desires to extend the nation's network of 4-lane limited access highways to connect the major port cities of Lattakia and Tartous with Damascus by linking with other highways under construction. Major economic benefits in the zone of influence include improved transport services (user cost savings) for the highly productive agricultural areas on the coastal corridor, the expanding industrial sector, tourism, as well as for the large volume of transit trade between Lattakia/Tartous and Middle Eastern countries beyond Syria. The Project consists of the following:

1. Final engineering design of the 83-kilometer 4-lane divided highway, including interchanges, bridges and drainage structures, and construction supervision.

2. Construction of the project.

E. Summary Findings[1/]: An engineering and economic feasibility study of the proposed project was completed in draft form on 1 August 1978. This

1/Highway Feasibility Studies, Lattakia Region, Tartous to Lattakia; prepared for the Syrian Arab Republic and the U.S. Agency for International Development, Lyon Associates Inc. in association with Morrison-Maierle, Inc. and James R. Snitzler Associates Inc., August 1978.

feasibility study was part of the AID contracted feasibility studies of other major highways in the Lattakia area of Syria, being carried out by the joint venture of Lyon, Morrison-Maierle and James R. Snitzler Associates. The consultant has concluded that the project is technically and economically feasible. The internal rate of return was calculated at 21.3% over the assumed 20 year life of the project. Sensitivity tests indicate that economic feasibility of the project is not subject to reversal by reasonable variations in basic data used as inputs to the analysis. Detailed economic and technical analysis for the project is found in Part III of this paper. Final engineering design and tender document preparation will be accomplished by a U.S. engineering firm. This firm, or a similar U.S. firm, will supervise construction of the project. The completed highway will be maintained by the Road Maintenance Division of the Directorate of Roads and Bridges within the Ministry of Communications, SARG.

F. Statutory Checklist: The project meets all applicable statutory criteria and certifications (see Annexes A and F).

G. AID's Funding Source: Supporting Assistance.

H. Mission Views: The Embassy and AID Mission Director strongly support the Project.

I. Issues: None.

J. Recommendation: That a Loan in the amount of $60.0 Million be authorized on the terms and conditions set forth.

II. PROJECT BACKGROUND

A. Economy: The Syrian Arab Republic lies at the eastern end of the Mediterranean Sea, and is bounded by Turkey on the north, Iraq on the east, Jordan on the South, and Lebanon and the sea on the west. Syria covers an area of some 185,000 square kilometers, 31% of which are classified as cultivable, 47% as steppe and pasture land, with the remaining 22% including the mountains and deserts as well as the land occupied by roads, cities, industrial areas, etc. Geographically the area can be divided into four major zones: i) the coastal region extending from the sea east to the 2,000 meter high mountains which run north-south approximately 50 km inland, including the intervening hills and plateaus; ii) the interior plains region which is generally sub-humid in climate; iii) the semi-arid steppe lands which are usually utilized as grazing lands for livestock, and iv) the extensive desert regions which occupy much of the east, southeast and south of the country. The major economic sectors of the economy, as measured by the 1976 Gross Domestic Product are:

Mining and Manufacturing	20%
Trade	19%
Agriculture	19%
Transport & Communications	8%
Building & Construction	5%

Agriculture continues to rank as one of the largest sectors in the economy, accounting for the equivalent of $1.3 billion of the 1976 GDP, which in constant prices increased over the 1971-76 period at an average annual rate of 9.8%. A 1975 sample survey indicated that the relative share of employment in this important sector remained at just over 50% of the 1970 total population. Agricultural products, chiefly cotton, continue to be an important export earner for the nation, although the rise in crude oil exports in recent years diminished their share of exports. Total value of agricultural exports has fluctuated from year to year, but over the period 1970-76, it grew at an average annual rate of 11%. Meanwhile, imports of agricultural products have continued to increase to meet expanding domestic food requirements, growing at an average annual rate of 25%, more than twice the rate of growth of food exports. Syria's cultivated land area covers 5.5 million hectares (1976), which represents 31% of the country's total land area. In 1976, about 77% of the cultivable area (4.2 M Ha) was cropped, with the general trend being upward from the 50-50 cropped/fallow ratio prevailing in 1970-72. Irrigated land increased from about 14% of total cropped land in 1970 to 20% in 1972. Since then, it has decreased to approximately 13%

in 1976, due primarily to land being taken out of production by salinity problems brought about by inadequate drainage.

Major crops produced on the 3.7 million hectares of rainfed land are wheat, barley and pulses, the bulk of which are grown on the steppelands across the northern part of the country. Because of substantial variations in rainfall, the production volumes of these and other rainfed crops such as olives, figs, grapes and summer vegetables varies considerably. The western zone, particularly the coastal enclave, has the highest average annual rainfall, and a major part of these lands are used for fruit and vegetable production. Cotton is the major non-food crop, and is produced predominantly in the north and northeast.

In the industrial sector, activities are carried on by approximately 40,000 enterprises, 97% of which are privately owned. Most of the private sector firms are small however, and firms with 10 or more employees are predominantly in the public sector. Between 1974 and 1976, industrial sector output grew some 13%, mainly in manufacturing. By the end of that period, the industrial sector (including building and construction) contributed 24.7% of the Syrian GDP, up from 22.6% in 1970, with all of the growth occuring in the public sector. Growth of industrial production has been led by the extractive industries (mining and petroleum), followed by building and construction and electricity and water. The Fourth Five-Year Plan (1976-1980) calls for production of 52 million tons of crude oil by 1980, and commensurate expansion of refining capacity to reach 11 million tons per year. Phosphate rock is mined in the Kniefess area in the vicinity of Palmyra, where it is estimated there is a reserve of 100 million tons of rock deposits. 1976 production of semi-beneficiated rock was slightly over 500,000 tons. Expansion of the facilities is underway, and production should reach 2 million tons per annum by 1980. Much of the present rock is exported through Tartous, presently being hauled there by truck. Completion of the railway line connecting the mines with Tartous port will relieve the highway of this burden. Other mined products in Syria are natural asphalt, gypsum, and aggregate products for construction.

Foreign trade in Syria is conducted primarily by the public sector. Export trade in 1964 was directed primarily (64%) to other Arab states, and Socialist countries. By 1976 this had shifted, with the emphasis on trade (over 60%) with EEC, other European and free world countries. On the import side, Syria's purchases from Arab countries and Socialist Bloc countries declined from 48% in 1968 to 23% in 1976, while imports from EEC and other free world nations rose from 23% to 52%.

Syria's exports consist almost entirely of raw materials from the extractive industrial sector, and agricultural products. Syrian imports have shifted gradually towards more emphasis on capital goods, and because of the expiry of the petroleum accord with Iraq in late 1975, imports of petroleum are on the increase.

B. Debt Burden and Repayment Procedures: At the end of 1977, external public debt outstanding and disbursed was estimated to be around $1,776 million (31% of gross domestic product) of which 80% was held by governments (28% OPEC and 47% by centrally planned economies), and 4% by the World Bank group. The balance of 16% consists of debt to private creditors. In recent economic appraisals, the World Bank group estimated Syria's gross external capital requirements for the period 1978-80 to be $3.2 billion. If that be the case, Syria's debt service ratio will rise from the 1976 9.6% level to 16% by 1980, and 23% by 1985. Further extrapolation by the IBRD resulted in a 26% debt service ratio in 1990. Subject to continuation of current prudent debt service management by the SARG, this projected level of debt service should be sustainable by the Syrian economy.

C. Transportation Sector: The configuration of the Syrian transportation system has been dictated by differing climatic zones and topographic layout typified by the coastal enclave formed by the Mediterranean, the spine of mountains to the east and the narrow fertile plain of the central-west, the high steppe lands surrounding the Euphrates river to the north-east, and the desert areas of the south and southeast. The rapid economic growth experienced by Syria in the 1970's has led the SARG to undertake a major examination of its transportation of the projects required to meet the new demands on the system. In 1976 the Syrian transportation system consisted of approximately 15,700 km of roads serving 125,000 motor vehicles; 1,670 km of railways; two general cargo ports and one pipeline terminal; two international airports; and approximately 2,700 km of pipeline. Inland transportation is largely carried out in the highway mode, although railways are expected to expand significantly over the next five years.

1. Transportation Policy, Planning. Four SARG ministries are responsible for the transportation sector: (1) overall coordination and budget planning is the responsibility of the Ministry of State for Planning Affairs (State Planning Commission, SPC) which has its own transportation division; (2) the Ministry of Communications (MinCom), Directorate of Highways and Bridges; (3) the Ministry of Transportation is responsible for highway transport services and infrastructure and services in rail, ports and aviation modes; and (4) the Ministry of Petroleum has responsibility for pipelines. SARG planning is embodied in the Five-Year Plan which is

the basic instrument for its development policies and strategies. The 1976-80 Fourth Five-Year Plan, which was revised in 1977, allocates L.S. 3.7 billion, nearly a billion $ U.S. (at L.S. 3.90 = $1.00), to the transport sector. This figure is more than double the amount in the Third Five-Year Plan (1970-1975).

The SARG, with grant assistance from AID, is in the process of procuring the services of a U.S. consulting firm to perform an overall nationwide transportation study. This study will make a comprehensive inventory of the existing system, examine the present rules and regulations that govern the use of the various networks, make demand forecasts and prepare investment plans for the balance of the century. The study is programmed to be completed early in 1980.

2. Railway Mode: The Syrian railways are comprised of two gauges, the narrow-gauge Hedjaz Railway which serves Damascus, Beirut, and Amman, and the standard gauge Northern Railway which serves the Damascus, Aleppo, Lattakia, Raqqa half of the country. Each is managed separately from the other, under the Ministry of Transportation. Traffic has remained substantially static in terms of growth, and poor operating conditions, low efficiencies, and inadequate through-shipment capabilities have resulted in a generally poor financial condition for the railway sector. The principal commodities shipped are wheat, barley and cotton. The railways are carrying out an ambitious modernization program and expansion plan which has been under preparation since the late 1960's designed to provide the entire country a standardized and unified network linking the seaports with the main production centers of Syria, Jordan, Iraq and the gulf Arab states. About 40% of the plan is complete, with construction underway on the line from the phosphate mines near Palmyra to the port of Tartous, via Homs, and a line from Homs to Damascus.

3. Seaports: The principal ports of Syria are Tartous, for general cargo and POL, Lattakia for general cargo and passenger traffic, and Banyias for export of crude oil in transit from Iraq, or from Syria itself. Opened in 1965, the Port of Tartous assumed a significant role in handling the overflow caused by the closing of the Beirut Port in 1976, superimposed on the rapid increase in Syria's own international trade traffic after 1973. Together, the ports of Tartous and Lattakia handle bulk cargo (grain and phosphate rock), LASH ships, roll-on/roll-off, as well as container ships and conventionally-handled cargo. Over the period 1970-1976, average annual growth rates for passenger traffic was 15%, for cargo exports 10%, and for imports 12%. Cargo overall, including transit traffic, grew

at an annual rate of 12% during those seven years. The 1976-1980 Fourth Five-Year Plan calls for work to enlarge the port of Lattakia, boosting its capacity from 1.6 to 3.0 million tons per year by 1980. Similarly, Tartous will be enlarged to handle 4.5 million tons per year by 1980, emphasizing containerization, and roll-on/roll-off traffic. The pipeline terminal at Banyias Port is being enlarged to serve the Banyias petroleum refinery due to be commissioned in 1979.

4. Pipelines: Two domestic pipeline systems exist in Syria, a single line from the Karachock oil fields in northeast Syria via Homs to the Tartous Port pipeline terminal, which handled 9.3 million tons of crude in 1976, and three oil product pipelines connecting the Homs refinery with Aleppo, Damascus and Lattakia, each with an annual capacity of 350,000 tons. In addition, there are two major international pipelines that run through Syria. The line from Kirkuk, Iraq transit Syria on its way to the Lebanese terminal at Tripoli, and at Banyias in Syria. 1975 throughput in this line amounted to about 48 million tons to Tripoli, Lebanon, with some 2.4 million tons of Iraqi crude taken off at Homs for refining and domestic consumption. The Trans Arabian Pipeline Company line (TAPLINE) from Saudi Arabia to the terminal at Saida, Lebanon consists of a single line, 25 million ton annual capacity. In 1974, throughput amounted to some 11 million tons. By 1976, both of the international lines were shut down due to disputes over prices and transit fees and the civil war in Lebanon plus the Iraqi shift of its exports to alternate routes via Turkey and also the Gulf. The 1976-1980 Fourth Five-Year Plan includes a new domestic product pipeline, and expanded domestic crude oil transmission and storage facilities.

D. Highway Mode: Excluding city streets, Syria's highway network totals about 15,700 km, of which 75% or 11,700 km is asphalt surfaced. 4-lane highways with grade separation at interchanges and some control of access constitutes about 2% of the highway network at present, though this figure will soon increase as works underway are completed. Rapid expansion of the highway network began in late 1960's, with surfaced length doubling since 1965; the network doubled in length since 1960. The network which carries about 80% of all traffic, consists of 800 km of major arterial highways of 4-lanes, the 2-lane connecting highways linking the producing centers with the 4-lane arterials, and the 2-lane highways connecting with other regional countries. The secondary network consists of farm-to-market feeder roads, and highways connecting towns and villages to the provincial capitals.

The heaviest traffic flow occurs on the north-south route connecting Turkey with Aleppo, Hama, Homs, Damascus and Amman, Jordan. Feeding this heavy axis is the Lattakia-Aleppo-Der ez Zor-Baghdad route, and the Kassab-Lattakia-Tartous-Homs connection.

E. Other Donors: The World Bank Group's first major input to the Syrian transport sector was made in 1963, when the $8.3 million IDA credit was signed up to fund the First Highway Project. A second IDA credit for $13.8 million was arranged in 1972, and work under that project is now underway and expected to be completed in 1981. All this work experienced substantial cost overruns due to the extremely high escalation of prices in the period since 1973. These works were originally intended to upgrade existing 2-lane highways, but faster than expected demand growth dictated a change in design to 4-lane divided highways; the IDA projects became seriously underfunded due to this combination of price escalation and design-induced cost increases. This resulted in the SARG request for the 1976 AID-financed Damascus-Dera'a Highway construction project now getting underway which had been intended to be financed from the IDA credit.

The SARG, with assistance from the World Bank Group, the Arab Development Fund, and AID, is engaged in upgrading virtually every major route in the country: Damascus-Dera'a, Damascus-Beirut (Lebanon border), Homs-Akari (Tartous), Aleppo-Der ez Zor; studies are underway to establish the feasibility of upgrading others, Lattakia-Ariha, Lattakia-Kassab (Turkish border), and this proposed project, Lattakia-Tartous.

F. The Project: The proposed project will provide for the final engineering design and construction of a four-lane divided limited-access highway extending from a point in the vicinity of the port city of Tartous for a distance of approximately 83 kilometers north to the outskirts of Lattakia. Most of the project will be on a new alignment, with little of the existing two-lane roadway being utilized. The existing road (See Map II), built t much lower design standards than those contemplated for the project, is presently carrying the mass of international truck traffic from Turkey (via Kassab on the Turkish-Syrian border north of Lattakia) and the seaport traffic to and from the ports of Tartous and Lattakia. Clearly inadequate, the old road will be replaced by SARG as the main motor vehicle route as soon as practical.

Part of the Third Five-Year Plan of SARG was the study of the feasibility of upgrading the three highways radiating from the city of Lattakia: Lattakia-Kassab; Lattakia-Ariha; and Lattakia-Tartous, a total of some 250 km of highway. In early 1977 the SARG requested AID assistance in financing the study, design and construction of these highways. While AID felt that the feasibility study of the three highways was an appropriate effort for AID to assist, the possibility of AID financed design and construction services was restricted to the Lattakia-Tartous segment. In the fall of 1977, at the request of the SARG a grant financed AID contract

was signed with a U.S. consultant to study the feasibility of the Lattakia Highways, with priority given the Lattakia-Tartous segment for program development in time for FY 1978 obligation. The SARG, in anticipation of designing and constructing the highway beginning in 1979, has advertised for U.S. firms to express interest in the final engineering design of the project.

The new highway will provide adequate capacity to accomodate existing and future anticipated traffic to the year 2000, and will greatly improve the flow of goods to, from and through the zone of influence, reducing transit times, accidents, and user operating and maintenance costs, as well as highway maintenance costs.

G. Logical Framework: Logical framework can be found as Annex J to this project paper.

III. PROJECT ANALYSIS

A. Technical Analysis

1. Description: The project will finance design services, construction supervision and cost of construction of a eighty-three kilometer long, four-lane limited-access paved highway between the port cities of Tartous and Lattakia.

The existing two-lane north-south roadway is presently the only through route between Tartous and Lattakia. It is narrow and has either no shoulders at all or only narrow gravel shoulders. It carries heavy volumes of truck traffic as well as a diversity of other traffic, including pedestrians, animal drawn carts, bicycles, tractors, and an increasing number of passenger automobiles. The surface condition is from fair to poor and passing is hazardous. The facility in general is inadequate for the present traffic volumes because of poor alignment, limited sight distance and cross traffic. Bridges are narrow, often restricted to one-way traffic when used by large trucks. There are many minor roads connecting to the existing north-south roadway. These minor roads are primarily gravel surfaced or have bituminous stabilized surfaces that serve villages off the main roadway or tourist attractions. Only two of these minor roads provide access out of the corridor. They are east-west oriented with one originating north of Tartous and the other at Banyas. Both cross the Al Nasseiriyeh Mountains and provide separate corridors to Masyaf where they join and continue on toward Hama.

2. Design Standard

a. Criteria for Road: The traffic volumes projected in Annex B-1 indicate that within the period of analysis a four-lane facility with limited access will be required.

The expressway will have two basic typical cross-sections as shown in Annex B-2. The first and most common section will have very few restrictions on the median width. The median width may vary to accomodate wide planting strips or benching and separation of roadways serving opposite directions of travel. The second type envisioned is a much tighter section, with a narrow median. This section will be employed where right-of-way is restricted by physical or cultural features such as pipelines, railroads, historic sites, and urban development. The restricted width may also be employed to reduce construction costs in areas of deep cut or high embankment and at bridge approaches where the bridge structure includes a median.

A lane width of 3.5 meters has been selected for the preliminary design of the expressway. Three and one half meters has generally been used in the past for design of expressways in Syria. The high percentage of truck traffic influences the requirement for wide lanes. The extra cost of the wide lanes will be offset to some extent by a reduction in the cost of shoulder maintenance and a reduction in surface maintenance due to less raveling at the edges of pavements. A cross slope of 2 percent has been selected for the traffic lanes. This will provide positive drainage toward the shoulder and eliminate any "birdbath ponding" which might otherwise result from inadequate construction control.

Shoulder widths of three meters and one meter have been selected for the right-of-way side and median side of the expressway, respectively. The one meter median shoulder is intended primarily to help the vehicle operator correct any driving errors without losing control if he inadvertently steers off the traffic lane. The shoulder on the right-of-way side is wide enough to accomodate a disabled truck. Cross slopes of both shoulders are set at 4 percent to provide positive drainage away from the roadway.

Ditches will be required in wide medians, along both sides of the roadway and as interceptors on the tops of cuts. Interceptor ditches and steep roadside ditches will require paving.

Embankment slopes have been set at a maximum of 2:1 for ease of maintenance and to reduce erosion. Construction of the expressway will require excavation of materials that will include consolidated soils, unconsolidated soils, weathered rock and sound rock.

The median width will be 12.0 meters from edge of shoulder to edge of shoulder where there are no right-of-way restrictions. The 12 meter median width is advantageous for future expansion of the expressway. Medians for expressway with right-of-way restrictions are set at 3.0 meters from the edge of the shoulder to the edge of the shoulder. The narrow median may be surfaced and have guard rail or precast concrete median barriers to prevent vehicles from entering opposing traffic lanes.

Other features required for the expressway include:

i. Lighting at interchanges in urban areas;
ii. Turn out and rest areas at scenic points along the route;
iii. Fencing to preclude stray or herded animals or people from crossing the traffic lanes.

Minimum right-of-way required for the expressway will be 60 meters and 40 meters for the unrestricted and restricting sections, respectively.

BASIC DESIGN CRITERIA

Description	Expressway	Expressway Right-of-way Restricted
Design Speed (Km/H)		
Level Terrain	120	100
Rolling Terrain	100	80
Maximum Grade		
Level Terrain	3%	3%
Rolling Terrain	4%	5%
Land Width (Meters)	3.5	3.5
Slope	2%	2%
Shoulder Width (Meters)	3.5	3.5
Slope	4%	4%
Median Width (Meters)	12.0	3.0
Right-of-Way, Minimum (Meters)	60.0	40.0

b. Pavement Design: The feasibility study consultant evaluated existing pavement structures in Syria that have experienced traffic loadings similar to those expected on the proposed highway and concluded that if the pavement structure is to maintain an acceptable level of riding quality, and be capable of being later rehabilitated to extend its design life without major reconstruction of the underlying base, a flexible pavement of asphalt concrete should be used. One developed for AID for use in tropical environments, and which is suitable for use in temperate regions as well, was chosen for purposes of the feasibility study. The study considers two alternatives: pavement of 15cm thickness designed for present highway vehicle load practices, and a 10cm thick pavement which could be used if the SARG enforced vehicle weight controls. AID intends to continue recommending to the SARG that vehicle weight controls be enforced, and will seek a borrower covenant in the Loan Agreement. However, as a practical matter, the cost estimate used for this project includes the slightly more expensive thicker pavement, since it is more realistic to expect that the final design will not rely heavily on vehicle weight control enforcement by the SARG.

c. Geology: The alignment lies almost entirely within the coastal plain of marine deposits, and the low foothills of the Al Nusseiriyeh ridge to the east. The surface of the coastal plain is slightly dissected by streams and flood plains. The area of the route is generally favorable for highway construction and materials although some of the soils are expansive and most are fine-grained. The faulting associated with the Al Nusseiriyeh range to the east has no discernible effect on the alignment.

d. Material Sources: Materials for aggregates, base, subbase, embankment and backfill are available from stream deposits, surface gravels and quarry rocks. These are made up mostly of limestone and basalt.

e. Drainage: The contributing drainage area of the Lattakia-Tartous route corridor averages approximately 115 kilometers in length by about 30 kilometers in width, encompassing an area of approximately 3,500 square kilometers. The area slopes in a general east-to-west direction and varies in elevation from about 2,000 meters, to sea level. Approximately 94% of the catchment area is collected and discharged through major river courses which originate in the mountains and foothills. Approximately 26% of the overall contributing drainage area is within the coastal plain bordering the Mediterranean Sea which is devoted primarily to agricultural production. The Al Nusseiriyeh mountain range and its foothills constitutes the remainder of the contributing drainage area with development primarily limited to tree crops at the lower elevations and small areas of row crops confined to stream valleys and plateaus.

Annual precipitation averages from 900-1000 millimeters per year occurring mainly between the months of October and March. Rain is generally gentle, occurring in cycles of two to three days, interspersed with rain-free periods. Total annual rainfall increases with altitude. Although winter temperatures tend to be mild because of the moderating effect of the movement of air masses from the Mediterranean, occasional snow storms occur at the higher elevation; however, the magnitude of these storms is insufficient to develop and sustain a snow pack.

Flooding has been a problem at Al Hussayn River in Tartous where floodwaters have flowed over the existing Lattakia-Tartous highway bridge at Al Hussayn River and Al Kabir Al Shamaly River south of Lattakia. Floodwater from the Al Kabir Al Shamaly River has not topped the bridge roadway of the existing Lattakia and Tartous highway, but has passed over the roadway north of the bridge and has flooded the area upstream including roads and small factories.

f. Bridge and Drainage Structures: Three-span and four-span bridges have been selected for typical overpasses and underpasses. Sidewalks are provided at underpasses to accomodate the large amount of pedestrian traffic expected on the local roads and highways. Single and multi-called reinforced concrete box culverts will be used for watercourses where maximum flows and channel configurations permit.

Pipe conduit will be used at minor watercourses and streams consistent with estimated discharges.

Drainage of the expressway median will be accomplished by means of conduits or grated inlets discharging into side ditches or into crossroad drainage conduits.

g. Fencing and Access Control: The controlled access expressway operation, wherein drivers will move at high speeds with expectation of protection from roadside interference makes fencing a definite requiremant for this project. It is recommended by the consultant that the expressway be fenced continuously throughout its length, with multistrand barbed wire recommended for all sections except in the Banyas urban area where chainlink is desirable for controlling pedestrian traffic.

Pedestrian/livestock underpasses will be provided at existing trails and at reasonable intervals along the expressway route to discourage this traffic from crossing the expressway traveled lanes after breeching the fence. Frontage roads have been located to encourage vehicle operators to use the interchanges for points of entry. Placed stone side ditches with a trapizodial section and 1½:1 side slopes will also prevent most vehicles from illegally entering the expressway given an adequate depth of ditch.

h. Lighting, Marking and Signs: Lighting will have a direct effect on the safety of the proposed expressway and on the ease and comfort of operating vehicles. Lighting of rural sections of the expressway is desirable; however, highway research studies have proven that the costs usually exceed the benefits except on interchanges or long bridges. Lighting for this project is recommended only in the urban sections of Banyas and the terminal junction in Lattakia.

Lanes and edge striping must be provided the expressway, frontage roads and cross-roads. Reflectorized prismatic lane delineators separating adjacent traffic lanes are recommended for the entire expressway. Recent studies have indicated that these delineators greatly contribute to the ease and comfort of operating vehicles at night on highways without lighting.

Signing standards will be in accordance with those set by the European conference of Ministers of Transport in Geneva 1971 as modified by the Ministry of Communications Syria Arab Republic. It is recommended that all signing supports for this project be designed as "break-away" type.

3. Project Cost Estimate: The feasibility study cost estimate showed a total estimated cost of $112 million for the project, including 1½ percent contingencies, and escalation. On the basis of AID experience in Syria, as well as other engineering judgemental considerations, the sum for physical contingencies was increased to 15%. Right-of-way costs were not included in calculating contingencies, but all other costs, both foreign and local, were. In computing the estimated price increases due to inflation, the consultant used 7% per annum on foreign exchange costs, and 11% per annum on local currency costs. These compounded rates were applied to the 1978 base year prices for two years on construction and construction supervision services, and for one-half a year on engineering design services. A better estimate of escalation is obtained by computing it on the basis of inflation rates applied to estimated yearly disbursements of dollars and Syrian Pounds for the project implementation, which was the method used in preparation of the cost estimates for this paper. The annual inflation rates used by the consultant were too low, and they were increased to 8% per annum for foreign exchange costs.

The project proposes an AID loan to the SARG in the amount of $60 million which would mean a shortfall of U.S. $18.2 million which the SARG would have to fund in addition to the Syrian pound equivalent cost of $53.8 million.

4. Maintenance and Weight Control: The present road with its high incidence of overloads is being resurfaced periodically to prevent total deterioration. This periodic rehabilitation is required to keep the present highway in a condition where normal maintenance will suffice between periods. It has been determined by the consultant that design for overlay in the tenth year of use is the most economical design. This determination is based on the assumption that SARG will be successful in enforcement of weight controls enacted in 1974 (See Annex K). A rational policy for international weight controls, consistent with pavement design criteria and a workable enforcement system is being sought by the SARG. In August 1977 a meeting of delegates from Syria, Jordan and Iraq agreed to recommend that the Arab League adopt an international legal limit, and enforcement system.

Strict and immediate enforcement is difficult to carry out, and it is proposed to allow the SARG a period of time after signing the AID loan agreement to install the necessary system. The World Bank Group, in recent loan negotiations for the Third Highway Project ($58 M IBRD loan), obtained SARG agreement to take steps to ensure that dimensions and axle loads of vehicles using its highways are consistent with the structural and geometric design standards of its highways and that within two years to have a vehicle weight control enforcement system in place.

Maintenance of the primary network is carried out by the regional maintenance centers under the authority of the Department for Construction and Maintenance of Highways and Bridges of the MinCom (Organization Chart, Annex E). These centers, which are also equipped to carry out some construction works, such as service roads and bridges, are now in operation in 6 of the 13 provinces. They are adequately staffed with personnel trained in the pilot center on the outskirts of Damascus, which was set up with assistance provided under the IBRD's First Highway Project. Maintenance expenditures for the primary network increased from LS 9 million in 1971-73 to LS 45.3 million in 1976. Maintenance operations on the primary network are adequate and timely.

B. Financial Considerations

1. General: Since the project is not a revenue-generating activity it does not lend itself to a traditional analytical approach to financial considerations. Instead, anticipated project costs, budgeting and disbursement plans and their possible impact on costs, and other considerations which affect the financing of the project were examined. Construction and maintenance of the primary highway network is financed by SARG through the Ministry of Communications. The secondary network and feeder roads are built and maintained by authorities in the provinces with funds budgeted by the central government, Ministry of Regional Affairs. The Five-Year Plan is the general budgetary guide, approved by the High Economic Council in the Office of the Prime Minister. AID has not experienced difficulty with SARG budget support of any of its projects, nor is lack of local financing a feature common to large infrastructure projects in Syria, whether financed by the World Bank, or other major lenders. Revenues from users of the highway system generally come from gasoline taxes, registration fees, and import duties on vehicles and spare parts. Revenues have kept pace with growth in the vehicle fleet, increasing fivefold in 1971-75. Total SARG expenditure on roads increased at an average annual rate of 29% during the same period. Thus, as can be deduced,

revenues greatly exceed expenditures. Other donor activity in the highway sector is dominated by the World Bank Group (See Section II D), which is currently appraising its Third Highway Project for the SARG, and the Arab Fund.

2. Project Costs: The total estimated project costs are as shown below:

	U.S. $	Local Currency Expenditures (US$)	Total
Consultant Services			
Engineering Design	$ 3,125,671	$ 1,595,570	$ 4,721,241
Construction Supervision	1,812,148	1,364,367	3,176,515
Subtotal	$ 4,937,819	$ 2,959,937	$ 7,897,756
Construction Services			
Mobilization	9,000,000	——	9,000,000
Site Clearance	226,620	596,808	823,428
Earthwork	9,739,844	3,274,351	13,014,195
Subbase and Base	5,234,916	1,856,292	7,091,208
Asphalt Paving	5,045,448	5,583,127	10,628,575
Shoulders & Finishing	1,143,524	435,956	1,579,480
Drainage Structures	1,608,286	1,825,147	3,433,433
Bridges	16,511,512	9,558,702	26,070,214
Fencing, Guard Rails, Lighting & Signs	1,100,194	459,736	1,559,930
Staff Housing	197,502	1,386,531	1,584,033
Consultant Support Costs	115,920	358,580	474,500
Miscellaneous	100,839	71,261	172,100
Subtotal	$50,024,605	$25,406,491	$ 75,431,096
Contingencies (15%)	8,244,364	4,254,964	12,499,328
Escalation @ 8%/yr on FX, and 11%/yr on LC costs	15,080,000	11,130,641	26,210,641
Right-of-Way	——	10,000,000	10,000,000
TOTAL	$78,286,788	$53,752,000	$132,000,000

3. Disbursement Schedule: It is expected that loan funds will be disbursed over a four year period. Shown below is the estimated disbursement schedule for the project, with foreign exchange costs from the loan being disbursed beginning in 1979, for the engineering design services. The disbursement schedule is based on the consultant's proposed preliminary construction schedule for the project (Annex L), and includes the SARG foreign exchange requirements (1982-83) as well as right-of-way costs (1980-81). The SARG will agree to meet all costs in excess of the amount of the AID loan, both foreign exchange and local currency, in a timely manner.

Disbursements by Year ($000,000)

	CY	1979	1980	1981	1982	1983	Total
AID		2.6	10.6	29.8	17.0	0.0	60.0
SARG		1.4	7.8	24.3	32.7	5.8	72.0
TOTAL		4.0	18.4	54.1	49.7	5.8	132.0

4. FAA Section 611 Considerations: Concurrent review of the project's features as they apply to the provisions of 22 U.S.C. 2361 as expressed in Section 611 of the Foreign Assistance Act reveals that the project is in conformance with the statutory provisions of the Act (see Annex A, and F for Mission Director's certificate required by Sec 611(e), and Statutory Checklist).

C. Economic Analysis

The economic viability of the proposed four lane expressway connecting Tartous and Lattakia was established in the feasibility study. The consultant's detailed economic analysis resulted in an estimate of an internal economic rate of return of 21.3 percent (with existing truck load practices). Although no precise opportunity cost of capital for Syria is available, an internal economic rate of return of 10 percent for this type of project would be considered acceptable.[1/]

The consultant's analytical methodology for benefit measurement was based primarily on savings in user costs. That is, reduction in vehicle operating costs, vehicle occupants time savings, and accident reductions. It appears that reasonable estimates as to benefit estimation were adopted.

1/ On p. 37 (Par 4.26), the IBRD's, "Syria, Staff Appraisal Report of a Third Highway Project", (Report No. 1829a-SYR, March 16, 1978) tables the opportunity cost of capital in Syria as 10 percent.

The sensitivity analysis tests provided by the consultant were extensive. In no instance did the sensitivity test results provide an economic rate of return below 12 percent. (Increase in construction costs of 30 percent and decrease in user cost savings of 20% - Table D-11, Annex D).

Details as to the consultant's economic analysis are presented in Annex D. A copy of the feasibility study is available in the project files of NE/PD.

D. Environmental Analysis

The consultant, in establishing the feasibility of carrying out the project, was also required to perform an environmental assessment. The assessment was done, and forms part of the project files in the offices of NE/PD. The categories included cultural, archeological, asthetic and human interest, native flora and fauna, tourism and recreation, land use, man-made facilities and physical features.

It was concluded that cultural impact would be low, but in any case the project envisages the use of the existing road for frontage, which would reduce to a minimum the isolation of existing villages by giving each of them controlled access to the project. Vehicle and livestock passes will be included in the project to give further insurance against alteration of existing cultural patterns.

Archeological considerations are very important to the SARG, and special effort was made with the SARG Department of Antiquities to research published data, and to carry out field investigations along the selected alignment. Alignment was adjusted in many instances to avoid damage to potential or known archeological sites.

Virtually all of the project area has been repeatedly altared by man for agricultural, commercial or residential purposes, and as a result there are few areas that can be truly considered to be in a natural state. Much of the area is under cultivation, and the impact of the project on native plants and animals will be very low; no endangered species are present in the area.

The only significantly adverse change is in the area of land use. The consultant estimates that the right-of-way for the 83 km long project will amount to some 850 hectares of land, broken down into six general land use categories as shown:

Category	Area in Ha.	% of Total Area
Open	96	11.3
Olive Grove	258	30.4
Forest	5	0.6
Fruit Orchard	62	7.2
Farm	401	47.2
Residential-Commercial	28	3.3
TOTAL	850	100.0

The area of farm land needed is quite high, and the only alternative would be to take more of the fruit orchard land, sure to be an unpopular recommendation in the eyes of the SARG, which places a great deal of importance on fruit production, particularly citrus. During alignment selection, every effort was made to minimize the effect on agricultural land. This effort will continue throughout the project implementation period.

The overall conclusions reached by the consultant and accepted by the SARG were expressed as follows:

> "The proposed four lane limited access expressway with planned interchanges, bridge structures and other related items will have an overall low to moderate impact on the relationship between the Syrians and their natural environment. This total evaluation was determined by examining each category individually and assigning a general impact rating to each as follows:

Study Category	Impact Rating
Cultural	Low
Archeologic	Low
Aesthetics	Low
Native Animals & Plants	Low
Tourism & Recreation	Positive
Land Use	High
Man-made Facilities	Low
Physical Features	Moderate

The consultant recommendations are as shown below:

1. A "relocation assistance" program should be implemented during the right-of-way acquisition phase which would provide government assistance to businesses, farmers or individuals whose property is acquired for roadway construction;

2. In order to provide for the continuation of travel habits and cultural and community patterns, the existing two lane roadway should remain intact and be maintained for the use of local traffic;

3. A team of archeologists should be assigned to the project during the design and construction phases of the road contract. "Proof tranches" should be dug at all sites which are suspected to contain important archeological data and the team should be present during all construction excavation so that unknown sites will not be destroyed;

4. The design plans should contain provisions for rounding at the toe of fill slopes and at the top of cut slopes;

5. It is recommended that the roadway be fenced on both sides to prevent livestock from entering the travelled way.

6. Water wells which are disturbed by the new roadway should be replaced in kind to provide a continuous water supply to the use.

7. Vehicular and stock and pedestrian underpasses should be provided to maintain present movement across the proposed new facility."

E. Beneficiary Analysis

1. Description of Target Area

The corridor area lies in Syria's richest agricultural region. 84% of the rural population are involved in farming, and, although average size of holding is small, (2 hectares in Lattakia, and 4.2 in Tartous) farming appears to be profitable. At present, however, there are no data on production costs or household incomes to determine the profitability of agriculture in the area. The majority of the land is planted in vegetable crops (56.9%) which are farmed intensively; fruit trees are the next most important product (19.3%); then cereals (11%), livestock (7.8%) and industrial crops, mainly peanuts (5%).

The consultant's reports states that 83% of the total crops are marketed. Farmers in this area can thus be classified as small commercial producers. Most crops are marketed through agricultural cooperatives which are responsible for assembling produce, transporting it to markets and sales.

As is true in Syria in general, the population in this region is predominantly young; 49.3% are 14 years of age or younger. Although there are no data indicating the percentage of children enrolled in school in the area, enrollment rates grew at a rate of 9.6% yearly from 1970-76 and 40 new schools were built. Literacy rates were 51.9% in 1970.

The area has three state hospitals - in the cities of Lattakia, Tartous and Jableh. In addition there are 10 health centers and 2 more planned for Al Boudi and Al Fakhoural.

2. Potential Effects of the Proposed Highway on the Population

One of the goals of this proposed highway project is to facilitate provision of services to the rural and urban populations of the project's primary zone of influence.

Construction of an improved highway system in an area can have a marked influence on factors as diverse as income, health, education and employment. These effects can, however, be negative or positive depending on how well the design of the highway has taken into account the population it is serving.

One of the most notable effects of an improved highway on residents in its corridor can be an improvement in the quality of goods and services available to them.

The connection of a series of scattered rural villages to a large urban area by means of a highway facilitates the expansion of services such as hospitals, higher levels of education and other specialized skills that are traditionally centralized. Assuming that means of transportation exist, and that villagers have access to the highway, the rural population is brought within reach of these services more efficiently and in a manner which is cost effective for the central government.

In agricultural regions, a second positive benefit of improved highways can be higher revenues for at least some of the population who find travel time to markets substantially shortened and new markets potentially within reach.

This access to new markets can, in some cases, create demands for high value produce not produced previously in the area and therefore encourage further crop intensification and/or diversification. Penetrator roads are normally justified on this basis.

3. Survey of Actual Highway Impact on Population

Under present circumstances, the project feasibility study would include effort to examine in as precise a way as possible the local inhabitants to be directly and indirectly affected by the project, to predict the side effects both positive and negative, produced by the project, and to make design recommendations to minimize negative effects and maximize the positive effects. At the time the scope of work for the feasibility study contract was written, such emphasis was not placed on social analysis. As a consequence, the study is deficient in this area. Circumstances do not allow time for such a study to be done, nor do they allow recommendation of a no-project option.

The lack of a detailed social analysis will be partially remedied by strongly pursuing the recommendations of the feasibility consultant made in the environmental assessment, in order to minimize negative impact on land use, and cultural aspects in the design phase of project implementation.

4. Local Agriculture and Other Income Impacts

As mentioned earlier most of the rural population are small landholders who support their families through sale of crops from small plots of land farmed intensively. However, in order to construct the planned highway, some of this land will have to be purchased from the farmers. As noted in the environmental assessment, 84.4% of the land to be purchased for highway construction is now used for olive groves, fruit orchards or farming (721 hectares). Most farmers have only 2-4 hectares of land.

The consultant has recommended that a "relocation assistance" program be implemented for farmers who will lose their land. These farmers will be compensated either in cash or with other land or both. A condition of the project Loan Agreement will be that AID be satisfied by SARG plans for relocation and/or reimbursement of affected farmers prior to disbursement for construction. The final design work will identify the farmers and other persons who will lose land to the highway and determine percentages of individual holdings to be so affected.

Other potential agricultural effects to be specifically identified during the final design stage are whether the proposed highway will split any existing tracts of land, and problems this may cause (difficulty of access, decrease in operating efficiency); impact of highway drainage systems on bordering land; and temporary impediments to farming which might be caused during the construction phase (blocking of present road, diversion of water sources). Such possible negative impacts are to be minimized in the final design.

Special attention will be paid to location of entrance points so that the rural population is served adequately either by the new or the existing road. Possible isolation either of particular villages or of socio-economic groups will be examined. If the examination indicates that such adverse effects may occur, recommendations will be made on how these could be alleviated in the final design.

IV. IMPLEMENTATION PLANNING

A. Roles of Agencies

1. Syrian Arab Republic (SARG). The Ministry of Communications as presently organized (see chart, Annex E) dates from 1972, based on recommendations made by the IBRD under its First Highway Project. MinCom, through the Directorate of Highways and Bridges, has overall responsibility for design of new projects, and construction supervision, as well as highway maintenance, which has been delegated to Regional and District Offices. Some secondary roads are built by other SARG agencies, usually in connection with irrigation and drainage projects, and then transferred to the Directorate of Highways and Bridges for maintenance. The District Offices of the Directorate of Highways and Bridges also construct and maintain feeder and other rural roads.

The project will be implemented by the MinCom, using host government contracts for all goods and services. The SARG Project Manager will be the director, Directorate of Highways and Bridges, MinCom.

2. A.I.D. Role. The USAID Project Manager has counterpart relationship with the SARG Project Manager, as he does in the case of the Damascus-Dera'a Highway Construction Project, 276-K-012, begun in 1976. Loan Implementation Letters will be issued by the USAID, and loan monitoring will take place to ensure that conditions, covenants and warranties of the Loan are met within the appropriate terminal dates. Technical monitoring and coordination will allow the USAID to approve/disapprove critical actions of MinCom, e.g. CBD advertisements, shortlists, prequalification of contractors, technical selections, contract bid documents, tenders, etc. The USAID Office of Capital Development has the necessary technical and loan officer skills to accomplish this, with legal backing from the Regional Legal Advisor, stationed in Damascus. This same Office will serve as the principal point of contact with the U.S. consulting service firm(s) which will be contracted with to design the project and supervise construction.

3. Contractors. The project will be constructed by U.S. firms or U.S. joint ventures of firms. Two or more contracts may be required if dictated by the final design. Host country contracts will be employed, with the awards being made to firms prequalified and selected in accordance with normal AID procedures.

SARG laws setting forth the procedures for contracting technical/professional services do not include provisions for reimbursement type contracts. Thus cost-plus fixed-fee (CPFF) contracts are not

employed. Instead, it is common in Syria to employ fixed-price time-rate (FPTR) contracts for technical services, wherein the consultant is paid on the basis of an agreed person-month rate for each discipline; e.g. $8,900 per person-month for a civil engineer. The advantage SARG seeks in this approach is ease of contract administration. Payment voucher verification is largely one of time and attendance auditing, with none of the complexities of processing the voucher documents of a CPFF contract. Accordingly, the SARG ministries are equipped only to handle FPTR contracts. The main disadvantages of the FPTR contract are: (1) lengthy negotiations are required to reach agreement; (2) contractor fees (profit) are not fixed in total amount for the period of the contract, accumulating with each month of services provided even if the contracted level of effort is exceeded,and; (3) with no provision for covering unforseen expenses, the contractor is forced to protect himself by concealing contingent sums in the monthly time-rate figure (potential windfall profits). The USAID has from the beginning taken every opportunity to show the SARG the advantages of CPFF contracting, with little success to date.

The final engineering design of the project, and inspection of construction services will be carried out by U.S. consulting service firm(s) under an AID-approved host country contract with Min Com. Technical proposals from prequalified short-listed firms will be reviewed and after selection of the best proposal, costs will be examined and the FPTR contract negotiated, with USAID observation.

The construction contracting industry in Syria consists of state-owned construction companies, private domestic firms and foreign firms. At present they each have roughly equal shares of the total construction program, but the State-owned companies are gradually increasing their share at the expense of the private firms. The State-owned companies are semi-autonomous units with management independent of the ministry that spawned them. For example, ROADCO, the State-owned road construction company, is totally independent from the Ministry of Communications, which it supports. The State-owned companies, ROADCO included, are directly responsible to the Office of the Prime Minister through a Supreme Council chaired by the Prime Minister. A decree issued in February 1976 directs that projects in the public sector be automatically assigned to the State-owned companies unless they are unable to undertake the work, in which case it will be opened up to the private sector. This project however, as in the case of the AID-financed projects preceeding it, will be built by U.S. firms. ROADCO, if it can qualify, could compete for position as nominated subcontractor, subject to AID approval of subcontractors.

B. Source-Origin Considerations

The AID Loan will finance 76.6% of the project foreign exchange costs, with the SARG agreeing to finance the balance of some $18 million in foreign exchange, plus the local currency equivalent of $53.8 million to complete the project. The construction service contract will be of a unit price type, with the contractor being paid for his work on the basis of agreed amounts of U.S. $ and Syrian Pounds for each type of work carried out during the billing period; e.g. $1.50 and L.S. 52.00 for each cubic meter of embankment in place. The $1.50 represents the foreign exchange component of the work involved in placing one cubic meter of compacted embankment, and must cover such things as expatriate salaries and associated indirect costs, profit, U.S. equipment depreciation charges, etc. The L.S. 52.00 covers local labor costs, and locally procured POL products for equipment use, local contractor profit, etc. In the case of some types of work, such as reinforced concrete, which has a relatively high foreign exchange component (steel, cement, etc.), the question of source and origin arises. In recent years, Syria has imported about one-half of its portland cement needs, and about the same in the case of bituminous materials (asphalt). All of its steel is imported, as is virtually all of its construction timber and wood products.

The origin of these type materials cannot be determined now; the country of origin could be a code 941 country, a code 935 country, as well as a non-935 country. A substantial portion of Syria's overall requirements is imported from non-code 935 countries, though as previously stated, there has been a noticeable shift by Syria toward EEC and other non-bloc countries as trading partners. Much of the imported material for construction would have value added through processing in Syria, or would be "shelf items" which would mitigate the non-935 source consideration. In any case, construction consumables once used would not be easily, if at all identifiable. We propose to consider all items purchased by the contractor on the market, or provided in kind by the SARG, as being of Syrian source, and not attempt verification of their origin. In the case of a US prime contractor and local subcontractors, it is assumed, but would be subject to verification, that all U.S. dollar payments would go to the prime contractor, and none to the local subcontractor.

C. General Schedule of Loan Implementation

The following is a schedule for Loan Implementation Actions:

1. Authorization, Loan Agreement signed.....30 Sept 1978
2. Implementation Letter No. 1 issued.....25 Oct 1978
3. Loan Agreement ratified by SARG, specimen signatures.....30 Nov 1978
4. CPs initial disbursement (A&E contract for final engineering design).....25 July 1979
5. Initial disbursement.....1 Sept 1979
6. CPs to disbursement for construction.....15 Dec 1980
7. PACD.....31 Sept 1986
8. TDD.....30 Sept 1986

D. Project Implementation Actions

1. Advertise in CBD for A&E expressions of interest in final design work.....31 July 1978
2. EOI Submissions.....15 Oct 1978
3. Shortlist of prequalified firms completed...31 Oct 1978
4. Technical proposal due.....15 Dec 1978
5. Technical selection completed.....28 Feb 1979
6. A&E contract agreement executed.....30 Apr 1979
7. Request for AID L/Com.....15 May 1979
8. Letter of credit/com notice to proceed.....31 May 1979
9. Pre-Final Design Report due.....30 Nov 1979
10. Advertise in CBD for expressions of interest in construction service contract.....15 Dec 1979
11. Final design draft report due.....31 Mar 1980
12. Approval final design.....31 Mar 1980
13. Issue approved tender documents.....15 June 1980
14. Construction bid opening date.....15 Sept 1980
15. Construction contract award.....15 Dec 1980
16. L/Com request.....1 Jan 1981
17. Letter of Credit/Com, notice to proceed.....15 Jan 1981
18. Contractor mobilization complete.....15 July 1981
19. Construction complete.....31 Dec 1984
20. Maintenance period complete.....31 Dec 1985
21. Final payment to construction contractor....30 Sept 1986

E. Evaluation Plan

The Project will be monitored quarterly at the output level to determine the rate of progress in the design phase of the project, and monthly during the construction phase by the supervising engineering firm

reporting to MinCom and AID. Progress toward achievement of the Project Purpose also will be evaluated on an annual basis. During the design phase, particular attention will be paid to final alignment selection, to ensure that adverse impact on land use, and cultural considerations will be minimized to the extent possible. Determination of the number, and selection of locations for livestock/pedestrian underpasses as well as their effectiveness will be monitored closely, and the end of Project Report and evaluation will essentially end the AID evaluation efforts. Traffic counts, origin/destination surveys, and examination of cargo manifests will be among the activities regularly carried out by the SARG. The fact that this project will not be replicated in Syria, as well as the long span of time required to effect a meaningful long-term evaluation, argues against attempting evaluation activities beyond those described above.

V. CONDITIONS, COVENANTS AND NEGOTIATING STATUS

A. Conditions Precedent to Disbursement

1. Initial Disbursement. Prior to the first disbursement under the Loan, or to the issuance by AID of documentation pursuant to which disbursement will be made, the Borrower will, except as the Parties may otherwise agree in writing, furnish to AID in form and substance acceptable to AID:

a. An opinion of counsel acceptable to AID that this Agreement has been duly authorized and/or ratified by, and executed on behalf of, the Borrower, and that it constitutes a valid and legally binding obligation of the Borrower in accordance with all of its terms;

b. A statement of the name of the person holding or acting in the office of the Borrower and of any additional representatives, together with specimen signature of each person specified in such statement;

c. A signed and executed contract with a U.S. Engineering Firm for services relating to engineering design, preparation of construction plans and construction tender documents.

2. Disbursement for Construction Services. Prior to disbursement under the Loan, or to the issuance by AID of documentation pursuant to which disbursement will be made, for any purpose other than to finance the engineering services the Borrower will, except as the Parties may otherwise agree in writing, furnish to AID in form and substance acceptable to AID:

a. A signed and executed contract with a U.S. Engineering Firm for services relating to supervision of construction;

b. A signed and executed contract with a U.S. Construction Contractor(s) for construction services required for the Project;

c. Evidence that the necessary Right-of-Way for the highway project has been or will be acquired;

d. Evidence that roads of sufficient capacity are planned for connection with the northern and southern terminal points of the Project;

e. A plan for the relocation and/or reimbursement of the persons and families holding land acquired as right-of-way for the Project.

B. Covenants and Warranties

The following language will be included in the draft loan agreement:

"Vehicle Weight Control. The Borrower will take such steps as shall be reasonably required to insure that dimensions and axle loads of vehicles using the Project highway are consistent with the design standards of the Project and that within two years, or such other period as A.I.D. may agree in writing, from the signing of this Agreement, that the laws and regulations related to such dimensions and axle loads will be enforced."

C. Negotiating Status.

The USAID, with legal advisory assistance, has negotiated with MinCom and State Planning Commission the standard provisions annex, Project Description annex, and the general standard language of the Loan/Project Agreement (including source-origin, shipping and insurance, etc.). Conditions, Covenants and Warranties have purposely been omitted from pre-authorization talks, pending review of this Project Paper. Given the fact that members of the SARG dealing with this negotiation are experienced in AID loan financed project agreement negotiations and are currently engaged in implementation of a similar project earlier begun, the only area of difficulty forseeable in Loan negotiations lies in the proposed Condition Precedent to disbursement for construction services, involving the suitability of the SARG plans for relocating persons presently in the right-of-way of the project. The SARG has stated to the feasibility consultant and to USAID that it considers the consultant recommendations on relocation acceptable, and that the SARG procedures and practices presently in effect for handling the relocation problem are adequate.

EMBASSY OF THE
UNITED STATES OF AMERICA

AGENCY FOR INTERNATIONAL DEVELOPMENT

DAMASCUS, S.A.R.

LATTAKIA - TARTOUS

PROJECT NO. 276-0-017

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

I, Gordon B. Ramsey, Director of the Agency for International Development in Syria, having taken into account, among other things, the maintenance and utilization of projects in Syria previously financed or assisted by the United States, do hereby certify that in my judgement Syria has both the financial capability and the human resources capability to effectively maintain and utilize the Lattakia - Tartous Highway capital assistance project.

This judgement is based upon general considerations discussed in the capital assistance paper to which this certification is attached.

Gordon B. Ramsey
A.I.D. Director

TABLE
TRAFFIC PROJECTIONS
ASSUMING PRESENT LOADING PRACTICE CONTINUATION

EXISTING ROAD, NO IMPROVEMENTS
SANTAS BYPASS, NORTHBOUND

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	9.5	[illegible]	7.4
PICK-UP	10.3	7.1	5.6
BUS	9.1	10.7	9.6
TRUCK(SINGLE-UNIT)	10.3	7.1	5.6
TRUCK(COMB.)	10.3	7.1	5.6

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR-P.U.	BUS-S.U.T.	TRUCK	COMB.
1978	516.	288.	104.	274.	59.	1241.	63.	30.		5.
1979	565.	318.	113.	302.	65.	1363.	65.	30.		5.
1980	619.	351.	123.	333.	72.	1498.	65.	30.		5.
1981	678.	387.	134.	367.	79.	1645.	65.	30.		5.
1982	742.	427.	146.	405.	87.	1807.	65.	30.		5.
1983	812.	471.	159.	447.	96.	1985.	65.	31.		5.
1984	888.	504.	176.	479.	103.	2130.	65.	30.		5.
1985	971.	540.	195.	513.	110.	2329.	65.	30.		5.
1986	1061.	578.	215.	549.	118.	2522.	65.	30.		5.
1987	1160.	619.	235.	588.	126.	2732.	65.	30.		5.
1988	1268.	663.	265.	630.	135.	2961.	65.	30.		5.
1989	1386.	710.	293.	675.	145.	3209.	65.	30.		5.
1990	1515.	760.	324.	723.	155.	3477.	65.	30.		4.
1991	1656.	814.	359.	774.	166.	3769.	66.	30.		4.
1992	1810.	872.	397.	829.	178.	4086.	66.	30.		4.
1993	1978.	934.	439.	888.	191.	4430.	66.	30.		4.
1994	2164.	986.	481.	938.	202.	4731.	66.	30.		4.
1995	2281.	1041.	527.	991.	213.	5053.	66.	30.		4.
1996	2450.	1099.	578.	1046.	225.	5398.	66.	30.		4.
1997	2631.	1161.	633.	1105.	238.	5768.	66.	30.		4.
1998	2826.	1226.	694.	1167.	251.	6164.	66.	30.		4.
1999	3035.	1295.	761.	1232.	265.	6588.	66.	30.		4.
2000	3260.	1368.	834.	1301.	280.	7043.	66.	30.		4.
2001	3501.	1445.	914.	1374.	296.	7530.	66.	30.		4.
2002	3760.	1526.	1002.	1451.	313.	8052.	66.	30.		4.
2003	4038.	1611.	1098.	1532.	331.	8610.	66.	31.		4.

TABLE
TRAFFIC PROJECTIONS
ASSUMING PRESENT LOADING PRACTICE CONTINUATION

EXISTING ROAD, NO IMPROVEMENTS
SANTAS BYPASS, BOTH DIRECTIONS

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	9.5	9.1	7.4
PICK-UP	10.3	7.1	5.6
BUS	9.1	10.7	9.6
TRUCK(SINGLE-UNIT)	10.3	7.1	5.6
TRUCK(COMB.)	10.3	7.1	5.6

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR-P.U.	BUS-S.U.T.	TRUCK	COMB.
1978	1003.	550.	187.	562.	134.	2436.	64.	31.		6.
1979	1098.	607.	204.	620.	148.	2677.	64.	31.		6.
1980	1202.	670.	223.	684.	163.	2942.	64.	31.		6.
1981	1316.	739.	243.	754.	180.	3232.	64.	31.		6.
1982	1441.	815.	265.	832.	199.	3552.	64.	31.		6.
1983	1578.	899.	289.	918.	219.	3903.	63.	31.		6.
1984	1725.	963.	320.	983.	235.	4226.	64.	31.		6.
1985	1885.	1031.	354.	1053.	252.	4575.	64.	31.		6.
1986	2060.	1104.	392.	1128.	270.	4954.	64.	31.		5.
1987	2252.	1182.	434.	1208.	289.	5365.	64.	31.		5.
1988	2461.	1266.	482.	1294.	310.	5811.	64.	31.		5.
1989	2690.	1356.	531.	1386.	332.	6295.	64.	30.		5.
1990	2940.	1452.	588.	1484.	356.	6820.	64.	30.		5.
1991	3213.	1555.	651.	1589.	381.	7389.	63.	30.		5.
1992	3512.	1665.	721.	1702.	408.	8008.	63.	30.		5.
1993	3839.	1781.	798.	1823.	437.	8680.	63.	30.		5.
1994	4123.	1883.	875.	1923.	461.	9267.	63.	30.		5.
1995	4428.	1988.	959.	2023.	487.	9899.	63.	30.		5.
1996	4756.	2099.	1051.	2167.	514.	10587.	63.	30.		5.
1997	5108.	2217.	1152.	2267.	543.	11287.	63.	30.		5.
1998	5486.	2341.	1263.	2396.	572.	12037.	63.	30.		5.
1999	5892.	2472.	1384.	2528.	603.	12881.	63.	30.		5.
2000	6328.	2610.	1517.	2672.	639.	13766.	63.	30.		5.
2001	6796.	2756.	1663.	2820.	675.	14710.	63.	30.		5.
2002	7299.	2913.	1823.	2978.	713.	15723.	63.	31.		5.
2003	7839.	3073.	1998.	3143.	753.	16808.	63.	31.		4.

TABLE
TRAFFIC PROJECTIONS
ASSUMING PRESENT LOADING PRACTICE CONTINUATION

EXISTING ROAD, NO IMPROVEMENTS
SANYAS BYPASS, SOUTHBOUND

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	9.5	9.3	7.4
PICK-UP	10.3	7.1	5.5
BUS	9.1	10.7	9.6
TRUCK(SINGLE-UNIT)	10.3	7.1	5.6
TRUCK(COMB.)	10.3	7.1	5.6

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	487.	262.	83.	288.	75.	1195.	63.	31.	6.
1979	533.	289.	91.	318.	83.	1314.	63.	31.	6.
1980	584.	319.	99.	351.	92.	1445.	62.	31.	6.
1981	639.	352.	108.	387.	101.	1587.	62.	31.	6.
1982	700.	388.	118.	427.	111.	1744.	62.	31.	6.
1983	767.	428.	129.	471.	122.	1917.	62.	31.	6.
1984	838.	472.	143.	504.	131.	2074.	62.	31.	6.
1985	916.	491.	158.	540.	140.	2245.	63.	31.	6.
1986	1001.	526.	175.	578.	150.	2430.	63.	31.	6.
1987	1094.	563.	194.	619.	161.	2631.	63.	31.	6.
1988	1196.	603.	215.	663.	172.	2849.	63.	31.	6.
1989	1307.	646.	238.	710.	184.	3085.	63.	31.	6.
1990	1429.	692.	263.	760.	197.	3341.	63.	31.	6.
1991	1562.	741.	291.	814.	211.	3619.	64.	31.	6.
1992	1707.	794.	322.	872.	226.	3921.	64.	30.	6.
1993	1866.	850.	356.	934.	242.	4248.	64.	30.	6.
1994	2004.	898.	390.	986.	256.	4534.	64.	30.	6.
1995	2152.	948.	427.	1041.	270.	4838.	64.	30.	6.
1996	2311.	1001.	468.	1099.	285.	5164.	64.	30.	6.
1997	2482.	1057.	513.	1161.	301.	5514.	64.	30.	5.
1998	2666.	1116.	562.	1226.	318.	5888.	64.	30.	5.
1999	2863.	1178.	616.	1295.	336.	6288.	64.	30.	5.
2000	3075.	1244.	675.	1368.	355.	6717.	64.	30.	5.
2001	3303.	1314.	740.	1445.	375.	7177.	64.	30.	5.
2002	3547.	1388.	811.	1526.	396.	7668.	64.	30.	5.
2003	3809.	1466.	889.	1611.	418.	8193.	64.	31.	5.

TABLE
TRAFFIC PROJECTIONS
ASSUMING PRESENT LOADING PRACTICE CONTINUATION

EXISTING ROAD, NO IMPROVEMENTS
BANYAS-JEBLEH (NO.ROAD JCT.), NORTHBOUND

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	9.5	9.3	7.6
PICK-UP	10.3	7.1	5.6
BUS	9.1	10.7	9.6
TRUCK(SINGLE-UNIT)	10.3	7.1	5.6
TRUCK(COMB.)	10.3	7.1	5.6

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	573.	279.	74.	300.	60.	1286.	66.	29.	5.
1979	627.	308.	81.	331.	66.	1413.	66.	29.	5.
1980	687.	340.	88.	365.	73.	1553.	66.	29.	5.
1981	752.	375.	96.	403.	81.	1707.	66.	29.	5.
1982	823.	414.	105.	445.	89.	1876.	66.	29.	5.
1983	901.	457.	115.	491.	98.	2062.	66.	29.	5.
1984	985.	489.	127.	526.	109.	2232.	66.	29.	5.
1985	1077.	524.	141.	563.	112.	2417.	66.	29.	5.
1986	1177.	561.	156.	603.	120.	2617.	66.	29.	5.
1987	1286.	601.	173.	646.	129.	2835.	67.	29.	5.
1988	1406.	644.	192.	692.	138.	3072.	67.	29.	4.
1989	1537.	690.	213.	741.	148.	3329.	67.	29.	4.
1990	1680.	739.	236.	794.	159.	3608.	67.	29.	4.
1991	1836.	791.	261.	850.	170.	3908.	67.	28.	4.
1992	2007.	847.	289.	910.	182.	4235.	67.	28.	4.
1993	2194.	907.	320.	975.	195.	4591.	68.	28.	4.
1994	2396.	958.	354.	1030.	206.	4901.	68.	28.	4.
1995	2530.	1012.	385.	1088.	218.	5233.	68.	28.	4.
1996	2717.	1069.	422.	1149.	230.	5587.	68.	28.	4.
1997	2918.	1129.	463.	1213.	243.	5966.	68.	28.	4.
1998	3134.	1192.	507.	1281.	257.	6371.	68.	28.	4.
1999	3366.	1259.	556.	1353.	271.	6805.	68.	28.	4.
2000	3615.	1330.	609.	1429.	286.	7269.	68.	28.	4.
2001	3883.	1404.	667.	1509.	302.	7765.	68.	28.	4.
2002	4170.	1483.	731.	1594.	319.	8297.	68.	28.	4.
2003	4479.	1566.	801.	1683.	337.	8866.	68.	28.	4.

TABLE
TRAFFIC PROJECTIONS
ASSUMING PRESENT LOADING PRACTICE CONTINUATION

EXISTING ROAD, NO IMPROVEMENTS
BANYAS-JEBLEH (NO.ROAD JCT.), BOTH DIRECTIONS

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	9.5	9.3	7.6
PICK-UP	10.3	7.1	5.6
BUS	9.1	10.7	9.6
TRUCK(SINGLE-UNIT)	10.3	7.1	5.6
TRUCK(COMB.)	10.3	7.1	5.6

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	1108.	525.	127.	605.	130.	2495.	65.	29.	5.
1979	1213.	579.	139.	667.	143.	2741.	65.	29.	5.
1980	1328.	639.	152.	736.	158.	3013.	65.	29.	5.
1981	1454.	705.	166.	812.	174.	3311.	65.	30.	5.
1982	1592.	778.	181.	896.	192.	3639.	65.	30.	5.
1983	1743.	858.	197.	988.	212.	3998.	65.	30.	5.
1984	1905.	919.	218.	1058.	227.	4327.	65.	29.	5.
1985	2082.	984.	241.	1133.	243.	4683.	65.	29.	5.
1986	2276.	1054.	267.	1213.	260.	5070.	66.	29.	5.
1987	2488.	1129.	296.	1299.	278.	5490.	66.	29.	5.
1988	2719.	1209.	328.	1391.	298.	5945.	66.	29.	5.
1989	2972.	1295.	363.	1490.	319.	6439.	66.	29.	5.
1990	3248.	1387.	402.	1596.	342.	6975.	66.	29.	5.
1991	3550.	1485.	445.	1709.	366.	7555.	67.	29.	5.
1992	3880.	1590.	493.	1830.	392.	8185.	67.	28.	5.
1993	4241.	1703.	546.	1960.	420.	8870.	67.	28.	5.
1994	4555.	1798.	598.	2070.	444.	9465.	67.	28.	5.
1995	4892.	1899.	655.	2186.	469.	10101.	67.	28.	5.
1996	5254.	2005.	718.	2308.	495.	10780.	67.	28.	5.
1997	5643.	2117.	787.	2437.	523.	11507.	67.	28.	5.
1998	6061.	2234.	863.	2571.	552.	12285.	68.	28.	4.
1999	6510.	2361.	946.	2717.	583.	13117.	68.	28.	4.
2000	6992.	2493.	1037.	2869.	616.	14007.	68.	28.	4.
2001	7509.	2633.	1137.	3030.	650.	14959.	68.	28.	4.
2002	8065.	2780.	1246.	3203.	688.	15977.	68.	28.	4.
2003	8662.	2936.	1366.	3379.	724.	17067.	68.	28.	4.

TABLE
TRAFFIC PROJECTIONS
ASSUMING PRESENT LOADING PRACTICE CONTINUATION

EXISTING ROAD: NO IMPROVEMENTS
SANYAS-JEBLEH (NO.ROAD JCT.): SOUTHBOUND

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	9.3	9.3	7.4
PICK-UP	10.3	7.1	5.6
BUS	9.1	10.7	9.6
TRUCK(SINGLE-UNIT)	10.3	7.1	5.6
TRUCK(COMB.)	10.3	7.1	5.6

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR-P.U.	BUS-S.U.T.	TRUCK COMB.
1978	535.	246.	53.	305.	70.	1209.	65.	30.	6.
1979	586.	271.	58.	336.	77.	1328.	65.	30.	6.
1980	642.	299.	63.	371.	85.	1460.	64.	30.	6.
1981	703.	330.	69.	409.	94.	1605.	64.	30.	6.
1982	770.	364.	75.	451.	104.	1764.	64.	30.	6.
1983	843.	401.	82.	497.	115.	1938.	64.	30.	6.
1984	921.	429.	91.	532.	123.	2096.	64.	30.	6.
1985	1007.	459.	101.	570.	132.	2269.	65.	30.	6.
1986	1101.	492.	112.	610.	141.	2456.	65.	29.	6.
1987	1203.	527.	124.	653.	151.	2658.	65.	29.	6.
1988	1315.	564.	137.	699.	162.	2877.	65.	29.	6.
1989	1437.	604.	152.	749.	174.	3116.	66.	29.	6.
1990	1571.	647.	168.	802.	186.	3374.	66.	29.	6.
1991	1717.	693.	186.	859.	199.	3654.	66.	29.	5.
1992	1877.	742.	206.	920.	213.	3958.	66.	28.	5.
1993	2052.	795.	228.	985.	228.	4288.	66.	28.	5.
1994	2204.	840.	250.	1040.	241.	4575.	67.	28.	5.
1995	2367.	887.	274.	1098.	254.	4880.	67.	28.	5.
1996	2542.	937.	300.	1159.	268.	5206.	67.	28.	5.
1997	2730.	989.	329.	1224.	283.	5555.	67.	28.	5.
1998	2932.	1044.	361.	1293.	299.	5929.	67.	28.	5.
1999	3149.	1102.	396.	1365.	316.	6328.	67.	28.	5.
2000	3382.	1164.	434.	1441.	334.	6755.	67.	28.	5.
2001	3632.	1229.	476.	1522.	353.	7212.	67.	28.	5.
2002	3901.	1298.	522.	1607.	373.	7701.	68.	28.	5.
2003	4190.	1371.	572.	1697.	394.	8224.	68.	28.	5.

TABLE
TRAFFIC PROJECTIONS
ASSUMING PRESENT LOADING PRACTICE CONTINUATION

EXISTING ROAD, NO IMPROVEMENTS
JEBLEH (NO.ROAD JCT.)-LATTAKIA, NORTHBOUND

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	9.5	9.3	7.4
PICK-UP	10.3	7.1	5.6
BUS	9.1	10.7	9.6
TRUCK(SINGLE-UNIT)	10.3	7.1	5.6
TRUCK(COMB.)	10.3	7.1	5.6

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	751.	392.	102.	359.	68.	1752.	65.	31.	4.
1979	822.	432.	199.	396.	75.	1924.	65.	31.	4.
1980	900.	476.	217.	437.	83.	2113.	65.	31.	4.
1981	986.	525.	237.	482.	92.	2322.	65.	31.	4.
1982	1080.	579.	259.	532.	101.	2551.	65.	31.	4.
1983	1183.	639.	283.	587.	111.	2803.	65.	31.	4.
1984	1293.	684.	313.	629.	119.	3038.	65.	31.	4.
1985	1413.	733.	346.	674.	127.	3293.	65.	31.	4.
1986	1544.	785.	383.	722.	136.	3570.	65.	31.	4.
1987	1688.	841.	424.	773.	146.	3872.	65.	31.	4.
1988	1845.	901.	469.	828.	156.	4199.	65.	31.	4.
1989	2017.	965.	519.	887.	167.	4555.	65.	31.	4.
1990	2205.	1034.	575.	950.	179.	4943.	66.	31.	4.
1991	2410.	1107.	637.	1017.	192.	5363.	66.	31.	4.
1992	2634.	1186.	705.	1089.	206.	5820.	66.	31.	4.
1993	2879.	1270.	780.	1166.	221.	6316.	66.	31.	3.
1994	3092.	1341.	855.	1231.	233.	6752.	66.	31.	3.
1995	3321.	1416.	937.	1300.	246.	7220.	66.	31.	3.
1996	3567.	1495.	1027.	1373.	260.	7722.	66.	31.	3.
1997	3831.	1579.	1126.	1450.	275.	8261.	65.	31.	3.
1998	4114.	1667.	1234.	1531.	290.	8836.	65.	31.	3.
1999	4418.	1760.	1352.	1617.	306.	9453.	65.	31.	3.
2000	4745.	1859.	1482.	1708.	323.	10117.	65.	32.	3.
2001	5096.	1963.	1624.	1804.	341.	10828.	65.	32.	3.
2002	5473.	2073.	1780.	1905.	360.	11591.	65.	32.	3.
2003	5878.	2189.	1951.	2012.	380.	12410.	65.	32.	3.

TABLE
TRAFFIC PROJECTIONS
ASSUMING PRESENT LOADING PRACTICE CONTINUATION

EXISTING ROAD, NO IMPROVEMENTS
JEBLEH (NO.ROAD JCT.)-LATTAKIA, BOTH DIRECTIONS

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	9.5	9.3	7.4
PICK-UP	10.3	7.1	5.6
BUS	9.1	10.7	9.6
TRUCK(SINGLE-UNIT)	10.3	7.1	5.6
TRUCK(COMB.)	10.3	7.1	5.6

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	1477.	764.	342.	761.	144.	3488.	64.	32.	4.
1979	1617.	843.	373.	839.	159.	3831.	64.	32.	4.
1980	1771.	930.	407.	925.	175.	4208.	64.	32.	4.
1981	1939.	1026.	444.	1020.	193.	4622.	64.	32.	4.
1982	2123.	1132.	484.	1125.	213.	5077.	64.	32.	4.
1983	2325.	1249.	528.	1241.	235.	5578.	64.	32.	4.
1984	2541.	1338.	584.	1329.	252.	6044.	64.	32.	4.
1985	2777.	1433.	646.	1423.	270.	6549.	64.	32.	4.
1986	3035.	1535.	715.	1524.	289.	7098.	64.	32.	4.
1987	3317.	1644.	792.	1632.	310.	7695.	64.	32.	4.
1988	3625.	1761.	877.	1748.	332.	8343.	63.	31.	4.
1989	3962.	1886.	971.	1872.	356.	9047.	63.	31.	4.
1990	4330.	2020.	1075.	2005.	381.	9811.	63.	31.	4.
1991	4733.	2163.	1190.	2147.	408.	10641.	63.	31.	4.
1992	5173.	2317.	1317.	2299.	437.	11543.	63.	31.	4.
1993	5654.	2482.	1458.	2462.	468.	12524.	63.	31.	4.
1994	6072.	2621.	1598.	2600.	494.	13385.	63.	31.	4.
1995	6521.	2768.	1751.	2746.	522.	14308.	63.	31.	4.
1996	7004.	2923.	1919.	2900.	551.	15297.	63.	32.	4.
1997	7522.	3087.	2103.	3062.	582.	16356.	63.	32.	4.
1998	8079.	3260.	2305.	3233.	615.	17492.	63.	32.	4.
1999	8677.	3443.	2526.	3414.	649.	18709.	63.	32.	3.
2000	9319.	3636.	2768.	3605.	685.	20013.	63.	32.	3.
2001	10009.	3840.	3034.	3807.	723.	21413.	63.	32.	3.
2002	10753.	4055.	3325.	4020.	763.	22913.	63.	32.	3.
2003	11565.	4282.	3644.	4245.	806.	24522.	63.	32.	3.

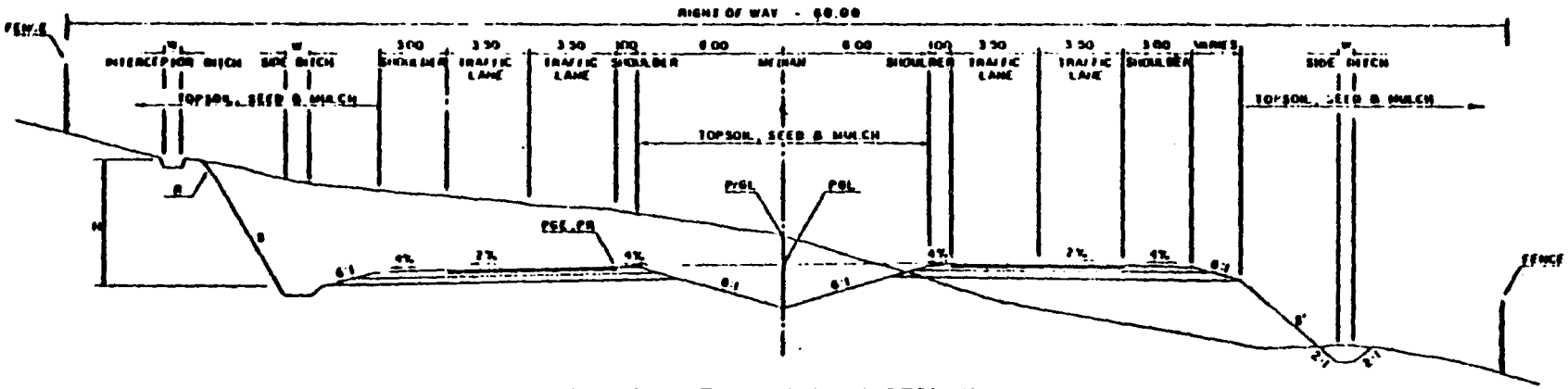
TABLE 4
TRAFFIC PROJECTIONS
ASSUMING PRESENT LOADING PRACTICE CONTINUATION

EXISTING ROAD, NO IMPROVEMENTS
JESLEM (NO.ROAD JCT.)-LATTAKIA, SOUTHBOUND

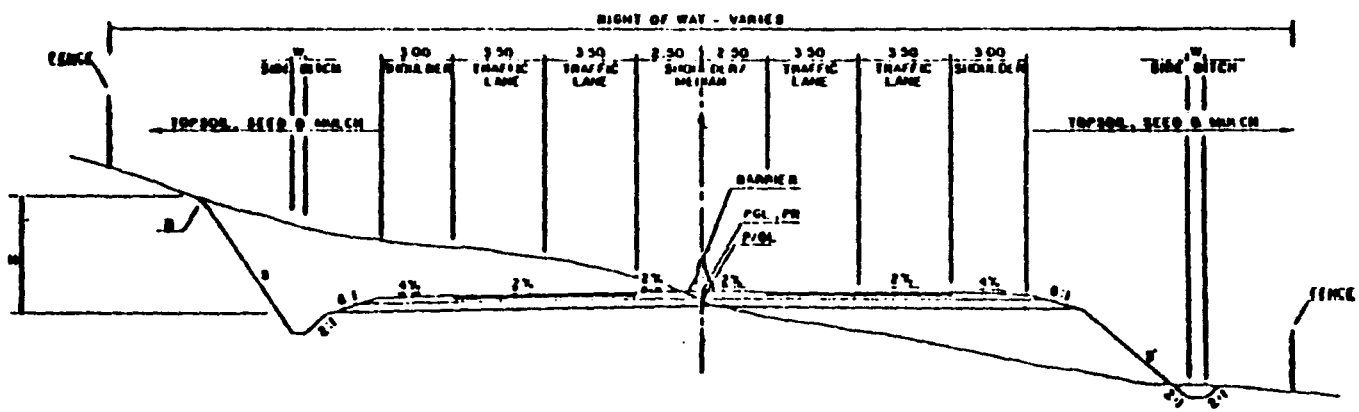
GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	9.5	9.3	7.4
PICK-UP	10.3	7.1	5.6
BUS	9.1	10.7	9.6
TRUCK(SINGLE-UNIT)	10.3	7.1	5.6
TRUCK(COMB.)	10.3	7.1	5.6

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	726.	372.	160.	402.	76.	1736.	63.	32.	4.
1979	795.	410.	175.	443.	84.	1907.	63.	32.	4.
1980	871.	452.	191.	489.	93.	2096.	63.	32.	4.
1981	954.	499.	208.	539.	103.	2303.	63.	32.	4.
1982	1045.	550.	227.	595.	114.	2531.	63.	32.	5.
1983	1144.	607.	248.	656.	126.	2781.	63.	33.	5.
1984	1250.	650.	275.	703.	135.	3013.	63.	32.	4.
1985	1366.	696.	304.	753.	145.	3264.	63.	32.	4.
1986	1493.	745.	337.	806.	155.	3536.	63.	32.	4.
1987	1632.	798.	373.	863.	166.	3832.	63.	32.	4.
1988	1784.	855.	413.	924.	178.	4154.	64.	32.	4.
1989	1950.	916.	457.	990.	191.	4504.	64.	32.	4.
1990	2131.	981.	506.	1060.	205.	4883.	64.	32.	4.
1991	2329.	1051.	560.	1135.	220.	5295.	64.	32.	4.
1992	2546.	1126.	620.	1216.	236.	5744.	64.	32.	4.
1993	2783.	1206.	686.	1302.	253.	6232.	64.	32.	4.
1994	2989.	1274.	752.	1375.	267.	6657.	64.	32.	4.
1995	3210.	1345.	824.	1452.	282.	7113.	64.	32.	4.
1996	3448.	1420.	903.	1533.	298.	7602.	64.	32.	4.
1997	3703.	1500.	990.	1619.	315.	8127.	64.	32.	4.
1998	3977.	1584.	1085.	1710.	333.	8689.	64.	32.	4.
1999	4271.	1673.	1189.	1806.	352.	9291.	64.	32.	4.
2000	4587.	1767.	1303.	1907.	372.	9936.	64.	32.	4.
2001	4926.	1866.	1428.	2014.	393.	10627.	64.	32.	4.
2002	5291.	1970.	1565.	2127.	415.	11368.	64.	32.	4.
2003	5683.	2080.	1719.	2246.	438.	12162.	64.	33.	4.



TYPICAL EXPRESSWAY SECTION
NOT TO SCALE



TYPICAL EXPRESSWAY SECTION - RIGHT OF WAY RESTRICTED
NOT TO SCALE

THRESHOLD DECISION BASED ON INITIAL ENVIRONMENTAL EXAMINATION

PROJECT LOCATION: Syria

PROJECT TITLE: Tartous-Lattakia Highway Construction

FUNDING (Fiscal Year and Amount): FY 1978; $60 million

IEE PREPARED BY: Terrence J. Brown, NE/CD/SJIL October 14, 1977

ENVIRONMENTAL ACTION RECOMMENDED: Environmental Assessment be included in PP

BUREAU FOR NEAR EAST DECISION:

APPROVED: [signature]

DISAPPROVED: _____

DATE: 11/1/77

Clearances:

GC/NE:JMILLER (Draft) Date: 10/21/77
SER/ENGR:JZEDALIS (Draft) Date: 10/27/77

INITIAL ENVIRONMENT EXAMINATION
NARRATIVE DISCUSSION

1. Project Location: SYRIA

2. Project Title: Tartous-Lattakia Highway Construction

3. Funding (Fiscal Year and Amount): FY '78: $60.0 Million

4. IEE Prepared By: Terrence J. Brown Date: October 14, 1977

5. Action Recommended: Environmental Assessment by included in PP

6. Discussion of Major Environmental Relationships of Project Relevant to Attached Impact Identification and Evaluation Form:

The proposed project provides for the construction of a 94 kilometer (km) highway along the western coast of Syria between the port cities of Lattakia and Tartous. The project is part of an overall highway improvement program being undertaken by the Government of the Syrian Arab Republic (SARG), which includes, in addition to the project road, the construction of a 50-km highway from Lattakia to Kassab and a 90-km highway from Lattakia to Ariha.

The highway to be constructed will replace an existing two-lane, poorly aligned, paved highway connecting Tartous and Lattakia. The SARG has determined that the present road is inadequate to carry current and anticipated traffic volumes.

A feasibility study is being carried out to provide the data necessary to determine the alignment of the new highway, traffic capacity by segments, and the phasing of construction. SARG is financing the feasibility study under an AID grant to the Syrian State Planning Commission.

It is anticipated that an AID Loan will be requested to finance the highway from Tartous to Lattakia. Specifically, the project would include final engineering, preparation of the plans, specifications, and bidding documents, construction of the highway and bridges, drainage structures, etc., and construction supervision services. The total estimated cost of the project is $120 million.

Discussion of Impacts

The following briefly discusses the impact areas and sub-areas in the attached Impact Identification and Evaluation Form:

A. Land Use

1. Changing the character of the land through:

a. Increasing the population: a substantial improvement in the existing road network may result in changes in settlement patterns. Whether these changes are environmentally significant should be examined.

b. Extracting natural resources: none.

c. Land clearing: the extent of land clearing will depend upon the selection of alignment. The lease environmentally deleterious approach to necessary land clearing (including alignment selection and post-construction actions such as replanting, filling borrow pits, etc.) should be examined.

d. Changing soil character: little.

2. Altering natural defenses: no information in this area is available at this time. However, this should be examined to determine if significant impact on the environment is likely.

3. Foreclosing important uses: same as A 2 above.

4. Jeopardizing man or his works: same as A 2 above.

B. Water Quality

1. Physical state of water: no information currently is available on this aspect of the environment. At a minimum, the steps necessary to avoid water pollution caused by dumping solid waste during the construction period and similar actions which could cause short-term changes in the physical state of near-by water should be identified.

2. Chemical and biological status: same as B 1 above.

3. Ecological balance: same as B 1 above.

C. Atmosphere

1. Air additives: little.

2. Air pollution: it is anticipated that the total volume of traffic will increase with the improvement of the existing road network. Air pollution environmental effects will be evaluated along those segments which will carry a projected traffic volume in excess of 20,000 vehicles per day.

3. Noise pollution: same as C 2.

D. Natural Resources

1. Division, altered use of water: none.

2. Irreversible, inefficient commitments: none.

E. Cultural

1. Altering physical symbols: the area along the Mediterranean seacoast of Syria has a number of sites of archeological interest. Sites which could be damaged by road construction should be identified and alternatives proposed.

2. Dilution of cultural traditions: none.

F. Socioeconomic

1. Changes in economic/employment patterns: herding is practiced in areas along the new road network. It should be determined whether the new road will disrupt traditional herding patterns and/or practices, particularly along those segments of the highway to be built to four-lane divided limited access standards. Other changes in economic-employment patterns resulting from the proposed project will be dealt with in detail by the feasibility study and therefore does not have to be included in a separate environmental study.

2. Changes in population: see A 1 a above.

3. Changes in cultural patterns: none.

G. Health

1. Changing a natural environment: although no negative environmental consequences of this type are expected, this conclusion should be verified.

2. Eliminating an element in an ecosystem: same as G 1 above.

H. General

1. International impacts: none.

2. Controversial impacts: none.

In summary, it is recommended that an Environmental Assessment (EA) be carried out for the Tartous-Lattakia Highway Project. The scope of work for the EA as contained in the Request for Technical Proposals is attached as Annex C.

IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub-areas 1/	Impact Identification and Evaluation 2/
A. LAND USE	
1. Changing the character of the land through:	
a. Increasing the population	Unknown
b. Extracting natural resources	None
c. Land clearing	Unknown
d. Changing soil character	Little
2. Altering natural defenses	Unknown
3. Foreclosing important uses	Unknown
4. Jeopardizing man or his works	Unknown
5. Other factors	
_____	_____
_____	_____
B. WATER QUALITY	
1. Physical state of water	Unknown
2. Chemical and biological states	Unknown
3. Ecological balance	Unknown
4. Other factors	
_____	_____
_____	_____

1/ See Explanatory Notes for this form.

2/ Use the following symbols: N - No environmental impact
L - Little environmental impact
M - Moderate environmental impact
H - High environmental impact
U - Unknown environmental impact

IMPACT IDENTIFICATION AND EVALUATION FORM

C. ATMOSPHERIC

1. Air additives ———— Little
2. Air pollution ———— Unknown
3. Noise pollution ———— Unknown
4. Other factors

———— ————

———— ————

D. NATURAL RESOURCES

1. Diversion, altered use of water ———— None
2. Irreversible, inefficient commitments ———— None
3. Other factors

———— ————

———— ————

E. CULTURAL

1. Altering physical symbols ———— Unknown
2. Dilution of cultural traditions ———— Unknown
3. Other factors

———— ————

———— ————

F. SOCIOECONOMIC

1. Changes in economic/employment patterns ———— High
2. Changes in population ———— Unknown
3. Changes in cultural patterns ———— None
4. Other factors

———— ————

———— ————

IMPACT IDENTIFICATION AND EVALUATION FORM

G. HEALTH

1. Changing a natural environment ———— Unknown

2. Eliminating an ecosystem element ———— Unknown

3. Other factors

———— ————

———— ————

H. GENERAL

1. International impacts ———— None

2. Controversial impacts ———— None

3. Larger program impacts ———— ————

4. Other factors

———— ————

———— ————

I. OTHER POSSIBLE IMPACTS (not listed above)

———— ————

———— ————

———— ————

Prepared By:_____ Date:_____

Project Location: Syria

Project Title: Tartous-Lattakia Highway Construction

See attached Discussion of Impacts.

SCOPE OF WORK FOR ENVIRONMENTAL ASSESSMENT

Environmental Assessment

1. An Environmental Assessment of each of the Project Roads shall be prepared in accordance with AID Regulation 16, Part 216, "Environmental Procedures," as published in the Federal Register, Volume 41, No. 127, dated June 30, 1976, and the AID "Environmental Assessment Guidelines" manual dated September 1974, both attached hereto.

a. The Consultant shall, through observation and using all available data, make an assessment of the potential environmental impacts of constructing the Project Roads. This work shall include:

(1) Assessing the effect of the alignment on other resources; e.g. forests, mineral deposits, water courses, etc.;

(2) Determining if any archeological sites, natural or historic landmarks, and/or areas of cultural importance will be affected by the alignment;

(3) Making a general identification of wildlife species prevalent in the project area. Determine to what extent these species will be forced to relocate and the effects this relocation will have on the surrounding areas. Also consider migration patterns of these animals. Note especially if any of the species are on the international or local endangered species lists; and

(4) Considering changes in drainage patterns and likely results.

b. Through observation, interviews and data review, determine possible socio-cultural effects of the new/improved roads. The Consultant shall:

(1) Determine if traditional herding practices will be affected by the roads;

(a) Whether or not existing trails will be eliminated, relocated or altered.

(b) Propose safety measures for hard road crossings if trails are to be over the roads.

(2) Determine the extent to which present population settlements will be affected as a result of construction of the roads;

(a) Complete a general assessment of the likely effects of population displacement/relocation on the present urban centers or community areas.

(b) Determine the potential for and consequences of strip and/or squatter settlements forming along the roads.

(3) Review the public health effects of construction and later use of the roads.

(a) Consider dust, noise, safety factors, etc. of road construction;

(b) Determine if new pathways for transmission of human, animal, and plant disease vectors are opened up with construction of the new roads;

(c) Determine the required safety provisions which should be planned in connunction with each of the roads. Items for consideration are modal separation of traffic, separated grade crossings, approaches to bridges, traffic control systems, etc.

c. Based on the impacts assessed in Items (a) and (b), recommendations are to be put forth as follows:

(1) Possible or potential alignment modifications which may be required to eliminate or lessen deleterious effects which the Project Roads may produce on the public health and/or natural environment; and

(2) Identification of alternatives to the proposed activities, including "no project" in terms of environmental and public health benefits, costs and risks.

2. The Initial Environmental Examination prepared by AID will be made available to the Consultant for preparation of the Environmental Assessment.

3. The Environmental reports are a distinct interdisciplinary analysis and shall be submitted as separate reports.

ECONOMIC ANALYSIS

A. Conclusion

The economic rate of return for the proposed four lane limited access highway between Tartous and Lattakia is 21.3 percent (Table D-10). This result is based on the assumption that current truck weight loading practices will continue.

Adequate sensitivity analyses were undertaken by the consultant with construction costs increased by 30%, present loading practices and vehicle user cost savings reduced by 20%, still results in a 12.4 percent economic rate of return (the least favorable sensitivity test presented in Table D-11).

B. General

The feasibility studies follow the traditional user cost savings approach to highway transport analysis. The general methodology appears appropriate to the project and the specific details internally consistent. As noted above, sensitivity analyses were undertaken to test the major critical variables e.g. construction costs and change in user cost savings (Table D-11).

A twenty -year horizon was adopted (1984-2003) for operation of the highway. Resurfacing costs in the tenth year of use were included in the cost stream as well as reasonable expenditures for maintenance costs. The primary zone of influence of the highway approximates 2,450 square kilometers, about 70 km in length and averaging 27 km in width. In 1977, the estimated population within that zone of influence was 551,580 persons.

The basic information and the economic analysis provided in the feasibility study by the consultant was comprehensive. It is impractical to provide more than a brief sketch of the highlights of that study in this Project Paper (PP). A copy of the consultant's feasibility study is available for reading in NE/PD for those interested in the analysis, statistical details and necessary judgments utilized to complete the economic aspects of the project analysis.

C. Economic Sector and Average Daily Traffic (ADT) Projections

As noted above, the estimation of user cost savings (with and without project) was appropriately adopted as the basis for project economic justification. This methodology prescribes that projects of commodities and people moved over the highway must initially be estimated. These quantities are then converted into average daily traffic flows (ADT) by type of vehicles. The final calculation is (a comparison of the technical characteristics of the proposed with the existing road) to estimate the likely user cost savings of vehicle operating costs attributed to the project road plus the time savings of selected vehicle occupants and other benefits. A listing and brief definition of these benefits are presented in Section D below.

1. Total projected freight tonnages representing all of the economic sectors of significance to the Tartous-Lattakia Highway Improvement Project are expected to about double over the 1976-1983 period, and then to nearly double again for the ten-year period 1984-1993. (Table D-1) In the final ten-years of the study period, the estimated tonnage increase is about 67 percent over 1993. For the twenty-year period, total tonnage rises from about 17 million tons to about 55 million tons. The largest contributors to the total freight tonnage are industry, and general cargo exports and imports.

The annual average growth rate for total freight tonnage is 6.1 percent over the twenty-year period, 1984-2003, while from 1976-2003 the annual average rate rises to 7.4 percent. (Table D-2) The relatively high rate of growth in the 1976-1983 period reflects considerations in the Third Five-Year Plan for very substantial investments in the zone of influence, in industry and port expansion, both of which make large contributions (on a tonnage basis) to the economic sector.

Conversion of the total projected freight tonnages to truck ADT's on the basis of average truck cargo weights obtained from the consultant's Origin and Destination Study shows the base of 1,450 in 1976 rising to 9,797 by 2003 (Table D-3).

TABLE D-1

SUMMARY OF BASE AND PROJECTED FREIGHT TONNAGES
BY ECONOMIC SECTOR, TARTOUS-LATTAKIA ZONE OF INFLUENCE
1976-2003

Economic Sector	(000 MT) 1976	1983	1993	2003
Agriculture (marketable surplus)	422.6	960.9	2,172.7	4,690.5
Industry	3,210.9 1/	9,086.2	19,874.6	33,382.8
General Cargo - Exports and Imports	4,056.5	6,015.4	9,801.8	14,637.5
Transit Traffic 2/	353.4	605.0	1,084.0	1,683.0
Zone Domestic Imports	274.3	375.9	602.2	929.0
TOTAL	8,043.4	17,043.4	33,535.2	55,322.8

1/ Includes production of the cement plant at Burj Islam, but excludes quarry production for Port of Lattakia breakwater.

2/ Excludes roll-on/roll-off vehicles via the Port of Tartous and empty vehicle movements via the Kessab customs port.

TABLE D-2

ANNUAL AVERAGE GROWTH RATES OF PROJECTED FREIGHT TONNAGES BY ECONOMIC SECTOR, TARTOUS-LATTAKIA ZONE OF INFLUENCE

1976-2003

Economic Sector	1976-1983	1984-1993	1994-2003	1984-2003	1976-2003
			(Percent)		
Agriculture (Marketable Surplus)	12.4	8.5	8.0	8.3	9.3
Industry	16.0	8.1	5.3	6.7	9.0
General Cargo-Exports and Imports	5.8	6.0	4.1	4.6	4.9
Transit Traffic 1/	8.0	6.0	4.5	5.3	6.0
Zone Domestic Imports	4.6	4.8	4.4	4.6	4.6
Weighted Average - All Sectors	11.3	7.0	5.1	6.1	7.4

1/ Excludes roll-on/roll-off vehicles via the Port of Tartous and empty vehicle movements via the Kassab customs port.

TABLE D-3

CALCULATIONS OF TRUCK ADT BY ECONOMIC SECTOR,
LATTAKIA-TARTOUS ROAD, 1976-2003

Economic Sector	1976	1983	1993	2003	Average Tons Per Truck 1/
Agriculture					
Fruits, Vegetables, and Other	192	451	1,041	2,264	5.60
Livestock	21	27	31	43	4.00
SUBTOTAL	213	478	1,072	2,307	
Industry					
Manufacturing (less cements)	214	390	883	1,657	13.80
Cement	15	192	368	368	15.50
Quarrying	221	487	1,052	1,714	25.50
Petroleum Products	141 2/	281	666	1,312	14.60
Lattakia Port Breakwater	---	81	81	81	25.50
SUBTOTAL	591	1,431	3,050	5,132	
General Cargo	527	781	1,273	1,901	21.10 3/
Exports & Imports	46	79	141	219	21.10
Truck Roll-on/Roll-off	9	13	21	34	---- 4/
Empty Vehicles (Trucks) through Kassab Customs Post	9	11	14	19	----
Zone Domestic Imports	59	81	130	200	12.75 5/
TOTAL	1,450	2,274	5,701	9,812	

1/ Based upon data obtained from Consultants' O&D Survey, May 1978.
2/ Consumption only.
3/ Average of cargo truck weights for containers, construction materials, industrial products, general merchandise, bulk goods, and lumber.
4/ Projected by number of vehicles.
5/ Average of industrial products and general merchandise cargo truck weights.

2. Passenger Traffic

Table D-4 provides a summary of the annual population and average normal passenger growth rates for a 1977-2003 time horizon.

TABLE D-4

PROJECTION OF ANNUAL AVERAGE PASSENGER GROWTH RATES

Period	Population Growth Rate (%)	Annual Average Normal Passenger Growth Rates (%)
1977-1983	3.3	10.9
1984-1993	3.2	9.5
1994-2003	3.1	8.0

Allocation of the projected total normal passenger traffic for the Tartous-Lattakia road among private cars, taxis and buses is shown in Table D-5. In the allocation of auto traffic between private cars and taxis, the consultant estimated a substantially lower proportion of taxis in future years. This is because most of the present taxi traffic on the Tartous-Lattakia road relates to long-distance trips between Damascus-Homs-Tartous and Lattakia. In the face of good bus transportation long distances are not economically viable for taxis. Although taxis are competitive with private autos on economic grounds, the convenience of driving a private car outweighs such economics in the minds of car owners throughout the world. It is anticipated that as the number of car owners increase in Syria their behavior pattern, in terms of driving their own car versus using a taxi for long-distance travel, will be very similar to that of car owners in other countries.

The ADT for cars (private autos and taxis) is projected at annual average growth rates ranging from 11.7 percent for the 1978-1983 period to a 9.8 percent for the 1994-2003 period. Bus transportation for the same periods show growth rates ranging from 11.7 percent down to 9.8 percent.

TABLE D-5

ALLOCATION OF NORMAL PASSENGER TRAFFIC BY VEHICLE TYPES, 1983, 1993, 2003

Vehicle Type	1978 (May) ADT	1978 (May) Percentage Allocation	1983 ADT 1/	1983 Percentage Allocation	1993 ADT	1993 Percentage Allocation	2003 ADT	2003 Percentage Allocation
Cars								
Private	710	53.0	1,253	54.5	3,269	58.0	7,100	65.6
Taxis	405	29.8	721	26.5	1,589	18.0	1,206	12.0
Subtotal	1,124	82.8	2,004	81.0	4,858	76.0	10,046	77.6
Annual Average Growth Rate May 1978-1983 = 11.2%; 1984-1993 = 9.3%; 1994-2003 = 7.5%								
Buses	233	17.2	416	19.0	1,139	24.0	2,901	22.4
Annual Average Growth Rate May 1978-1983 = 11.7%; 1984-1993 = 10.6%; 1994-2003 = 9.8%								
Total Cars and Buses	1,357	100.0	2,420	100.0	5,997	100.0	12,947	100.0

1/Based upon projected rate for 5.5 years.

Projected automobile and bus traffic for the Tartous-Lattakia road consists of normal passenger traffic; tourism related to the construction of new facilities in the zone over the 1980-2000 period; empty vehicle movements via the Kassab Customs Port; and international transit traffic via the roll-on/roll-off services at Tartous. The total ADT for cars and buses increases from about 1,400 in 1977-78 to about 14,000 by the year 2003.

TABLE D-6

SUMMARY OF PROJECTED ADT OF CARS AND BUSES
BY TRAFFIC SOURCE, 1977 - 2003

	1977-78	1983	1993	2003
Normal Passenger Traffic				
Cars	1,124	2,004	4,858	10,046
Buses	233	416	1,139	2,901
Tourism 1/				
Cars	-----	88	367	719
Buses	-----	16	67	124
Empty Vehicle Movements-Kassab Customs Post				
Cars	12	66	88	119
Buses 2/	1	1	1	1
Transit Traffic-Roll-on/Roll-off				
Cars	24	34	55	91
Buses	3	4	6	10
All Traffic				
Cars	1,160	2,192	5,368	10,975
Buses	237	437	1,213	3,036
TOTAL	1,397	2,629	6,681	14,011

1/ Adjusted from the four months period to the full year.
2/ Rounded up to 1 ADT.

3. Total Traffic Flow

The projected ADTs for cars, buses and trucks are summarized in Table D-7, with the annual average growth rates calculated for each of the projected period shown in Table D-8. Total ADT of cars, buses and trucks is slightly less than 24,000 by the year 2003, with the weighted annual average growth rates of all traffic ranging from a high of 9.9 percent in 1976-1983 to a low of 6.9 percent for 1994-2003.1/

TABLE D-7

PROJECTED AVERAGE DAILY TRAFFIC BY TYPE OF VEHICLE, LATTAKIA-TARTOUS HIGHWAY, 1976-2003

	1977-78	1983	1993	2003
Cars	1,160	2,192	5,368	10,975
Buses	237	437	1,213	3,036
Trucks	1,454	7,894	5,701	9,812
TOTAL	2,851	5,503	12,282	23,823

TABLE D-8
ANNUAL AVERAGE GROWTH RATES OF PROJECTED TRAFFIC, LATTAKIA-TARTOUS HIGHWAY, 1976-2003
(%)

	1976-1983	1984-1993	1994-2003
Cars	9.5	9.8	7.4
Buses	9.1	10.7	9.6
Trucks	10.3	7.1	5.6
Weighted Average	9.9	8.3	6.9

1/ In this study, a diversion analysis found that 92-93 percent of passenger cars would use the new route while 93-94 percent of the trucks and buses would use the new route (P. C-10 of Feasibility Study.)

D. Highway User Costs

1. General

The proposed project's economic impact upon present and future traffic operating in the highway corridor was measured primarily in terms of its effects on motor vehicle running costs and other related vehicle operating costs. User costs "with" the project are therefore to be compared to user costs "without" the project. The determination of such costs excludes taxes, duties and levies to preclude transfer costs that are not economic resource expenditures.

The analysis gives consideration to both mileage related and time related costs. Mileage related costs include such items as fuel, tires, oil, maintenance and depreciation. The time related costs cover such items as travel time, accidents, interest on investment, time depreciation and management expenses.

It is here noted that fuel costs prevailing in early 1978, at the time the Consultant prepared the running costs tables, have since come into a state of flux, experiencing both increases and in some cases roll-back of the increases. The consultant has continued to utilize the original running cost tables. Any bias which is introduced by an understatement of fuel costs will necessarily be conservative with respect to the economic feasibility of the proposed project.

2. Motor Vehicle Running Costs.

The basic costs for ten representative vehicle types were developed to indicate operating costs of motor vehicles in the current traffic stream. These basic costs were calculated using Syrian costs for fuel, tires, engine oil, vehicle maintenance and vehicle depreciation. The ten vehicle types were then consolidated by weighted averages to five representative vehicle types which are: car, pickup truck, bus, single unit truck and truck-combination.

The depreciation cost of each vehicle is based upon its cost new, less the price of a set of tires. This cost includes only that portion of total depreciation assigned to highway use (distance traveled), as distinguished from that portion attributed to passage of time (and considered a motor vehicle related cost). The division between time and distance is a variable, dependent upon speed, average annual travel and vehicle type. Vehicle highway use depreciation (related to distance driven) was established using

vehicle speed on the assumption that the higher the speed driven, the greater the annual kilometers of travel and total lifetime kilometers. The Syria tables were calculated using the procedures developed by De Weille[1/], which consider such factors as: annual kilometers of travel, lifetime kilometers of travel, speed and average service life. The procedures yield rate of depreciation for distance (1,000 kilometers) driven at a range of speeds.

Sets of tables were prepared to provide total running costs in Syrian Pounds per 1,000 vehicle-kilometers of travel. The tables were inclusive of costs for fuel, tires, engine oil, vehicle maintenance, and vehicle depreciation; and apply to high type pavement in good condition.

3. Value of Travel Time

Travel time reduction is one of the objectives of highway improvements. However, the question of placing a time value upon masses of people, including leisure travelers, low wage earners and some not gainfully employed poses a major problem. For purposes of the study, the consultant has assumed that 25% of passengers are employed and are traveling on time that does or could earn a wage. For commercial vehicles, only the driver's time has been considered to be of value; while on public passenger vehicles, there would be driver, helper (where applicable) and the passengers.

Table D-9

Hourly Time Values

Vehicle Class	Per Hour Time Value ($U.S.)	(L.S.)
Passenger Car	2.69	10.50
Pickup Truck	0.85	3.33
Bus	6.15	23.97
Truck	0.80	7.69

4. Accidents

Following usual practice the Consultant utilized insurance rate data for preparation of the accident analysis. The Consultant has established the cost of insurance for various vehicle types and, based upon past experiences, assumes that 60 percent of the premiums are used in repaying accident claims while the remaining 40 percent is used by the insurer for administration and profit.

1/Quantification of Road User Savings by Jan De Weille, World Bank Staff Occasional Papers, Number Two, 1966.

5. Interest on Investment

One of the costs included by the consultant in the economic analysis is a charge against the capital investment of the vehicle. This charge is commonly called "interest on the capital investment", even though no interest is actually paid.

It is assumed that the investment in the vehicles on the highway will average 50 percent of their cost new and that the interest charge per kilometer driven will be the total annual interest charge divided by the annual distance driven. The calculations of the charge against investment were made for an interest rate of 15 percent per year.

6. Time Depreciation

The running cost items discussed above include that portion of total vehicle depreciation assigned to vehicle use (distance driven). The remaining portion of the total depreciation, time depreciation, is not included in the running cost tables but considered a motor vehicle cost.

7. Management Expense on Commercial Vehicles

The operating costs of all vehicles include a factor for management expense. The management factor is 5 percent for passenger cars and 10 percent to pickups, buses and trucks. The factor is additive to the total of all other cost items calculated for each speed.

E. Estimated Construction Costs

The construction cost estimate for the highway used in the economic analysis was $105,800,000 in 1978 prices. The costs included contingency allowances but not price escalation.

F. Rate of Return Calculation

Table D-10 outlines the economic rate of return calculation for the proposed highway project. It assumes that the present load limits on truck weights will continue. The result is a 21.3 percent economic rate of return.

Table D-10

ECONOMIC RATE OF RETURN CALCULATION, 1981-2003
(000 U.S. Dollars)

Year	Construction Costs	Road Maintenance Costs Before	After	Savings 1/	Economic Benefits	Other Economic Benefits 2/	Total Savings (Col 5+6+7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1979	3,800	—	—	—	—	—	—
1980	15,600	—	—	—	—	—	—
1981	45,700	—	—	—	—	—	—
1982	36,800	—	—	—	—	—	—
1983	3,900	—	—	—	—	—	—
1984	———	372	857	-485	14,826	1,303	15,644
1985	———	398	917	-519	19,521	"	20,305
1986	———	426	981	-555	19,565	"	20,313
1987	———	456	1,050	-594	21,736	"	22,445
1988	———	488	1,123	-635	24,965	"	25,633
1989	———	522	1,202	-680	32,079	"	32,702
1990	———	558	1,286	-728	31,979	"	32,554
1991	———	597	1,376	-779	35,594	"	36,118
1992	———	639	1,472	-883	41,557	"	42,027
1993	10,185 3/	684	1,575	-891	57,758	"	58,170
1994	———	718	1,654	-936	52,006	"	52,373
1995	———	754	1,737	-983	54,720	"	55,040
1996	———	792	1,823	-1,031	56,041	"	56,313
1997	———	831	1,915	-1,084	86,014	"	86,233
1998	———	873	2,010	-1,137	89,445	"	89,611
1999	———	916	2,111	-1,195	97,216	"	97.324
2000	———	962	2,216	-1,254	111,370	"	111,419
2001	———	1,010	2,327	-1,317	140,187	"	140,173
2002	———	1,061	2,444	-1,383	125,811	"	125,731
2003	———	1,114	2,566	-1,452	142,147	1,303	141,998
	RATE OF RETURN						21.3%

1/Since two roads rather than one(the new highway plus the existing road) will be maintained, maintenance costs will increase not decrease.

2/Other economic benefits are net savings on resurfacing costs for the existing road because of the construction of the proposed highway

3/Resurfacing costs for new road

G. Sensitivity Analysis

Table 11 provides a sensitivity analysis related to two major critical variables: Percent change in user cost savings and construction costs. User cost savings were varied from +20 percent to -20 percent. Construction costs from -20 percent to +30 percent.

The worst case presented in Table D-11 is for the +30 percent in construction costs and the reduction of 20 percent in user cost savings. The internal rate of return for this worst case is 12.4 percent, above the 10 percent rate of return previously noted as representing the minimum accpetable rate of return. Given this sensitivity test result, the economic worthwhileness of this proposed project appears reasonably certain.

TABLE D-11

SENSITIVITY ANALYSIS OF ECONOMIC RATE OF

RETURN ON PROPOSED LATTAKIA-TARTOUS HIGHWAY

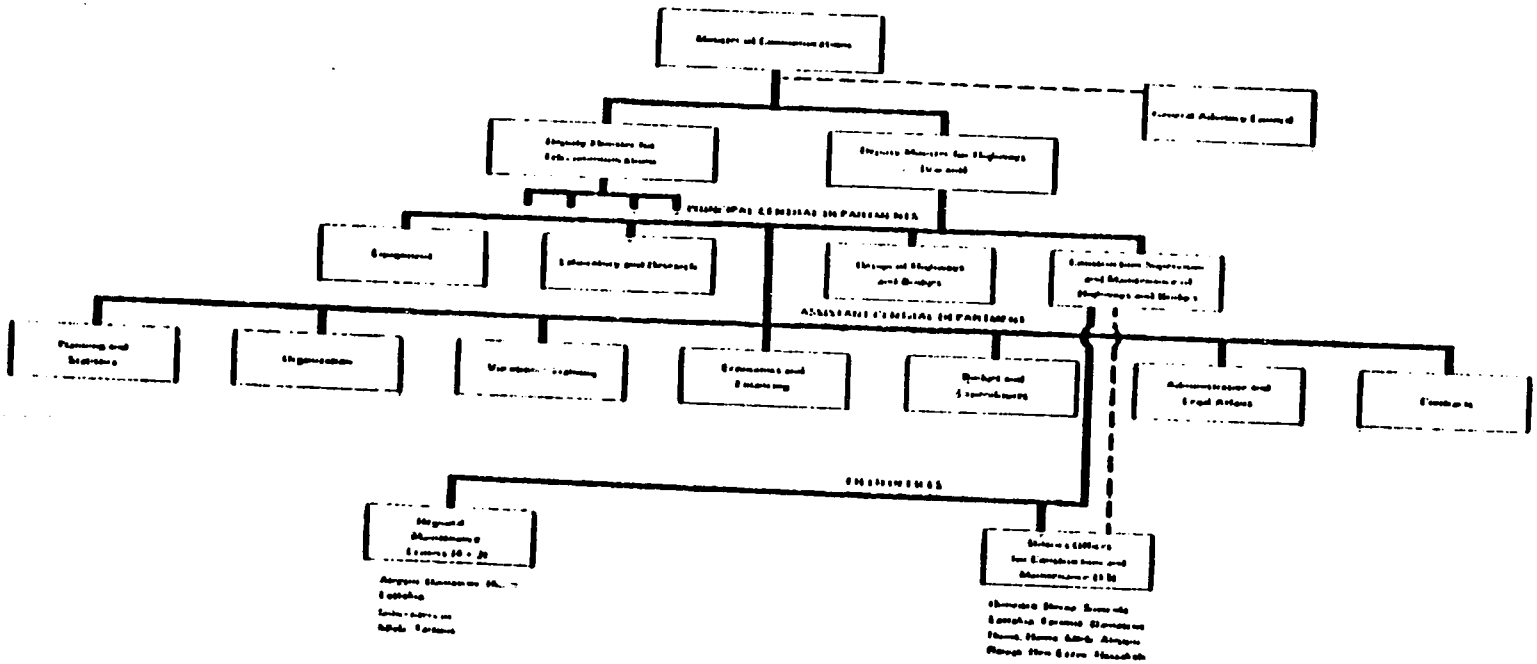
Existing Loads, Including Right-of-Way

		-20	-10	0	+10	+20	+30
Percent Change in User Cost Savings	-20	21.3	19.9	18.5	17.3	16.4	12.4
	-10	26.9	20.3	19.9	18.7	17.7	13.7
	0	24.4	22.7	21.3	20.0	18.9	14.9
	+10	25.9	24.1	22.6	21.3	20.1	16.1
	+20	27.3	25.4	23.8	22.4	21.2	17.2
Construction Costs (U.S. Millions) 1/		$85.7	$95.2	$105.8	$116.4	$128.0	$140.8

1/ Excluding resurfacing costs in year 10 which were included in the internal rate of return calculation.

SYRIAN ARAB REPUBLIC

ORGANIZATION OF THE MINISTRY OF COMMUNICATIONS



ANNEX E

SYRIA - Lattakia-Tartous Highway
276-0017
6C(2) - PROJECT CHECKLIST

Listed below are, first, statutory criteria applicable generally to projects with FAA funds, and then project criteria applicable to individual fund sources: Development Assistance (with a sub-category for criteria applicable only to loans); and Security Supporting Assistance funds.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? IDENTIFY. HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT? Country checklist prepared for technical services & feasibility studies III is up to date. Standard item checklist has been reviewed.

A. GENERAL CRITERIA FOR PROJECT.

1. App. Unnumbered; FAA Sec. 653(b)

(a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $1 million over that figure plus 10%)?	(a) Project is in FY 78 Congressional Presentation. (b) Yes.
2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	(a) Yes. (b) Yes.
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?	No further legislative action is Necessary.
4. FAA Sec. 611(b) App. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per Memorandum of the President dated Sept. 5, 1973 (replaces Memorandum of May 15, 1962; see Fed. Register, Vol 38, No. 174, Part III, Sept. 10, 1973)?	N/A
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?	Yes, see Annex A of Project Paper.

A.

6. FAA Sec. 209, 619. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multilateral organizations or plans to the maximum extent appropriate?

Project is not so susceptible. Project will not directly encourage regional development programs.

Syria is not a newly independent country.

7. FAA Sec. 601(a): (and Sec. 201(f) for development loans). Information and conclusions whether project 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.

Project will improve technical effeciency of agriculture/industry and commerce through improved transport services.

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

U.S. private sector will be utilized in providing the engineering of and construction services, and certain commodities for the project.

9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

The project agreement will so provide.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency and, if so, what arrangements have been made for its release?

The project will not be financing local currency costs.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(c); Sec. 111; Sec. 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions?

1.1.a. through h and 2a through f are not applicable since the project is SSA funded.

e. FAA Sec. 202(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?

f. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an 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?

3. Project Criteria Solely for Security Supporting Assistance

FAA Sec. 531. How will this assistance support promote economic or political stability?

This assistance will support the economic stability of Syria by strengthening & expanding the transportation network to connect the major port cities of Lattakia & Tartous with Damascus, thereby benefitting commerce.

4. Additional Criteria for Alliance for Progress

[Note: Alliance for Progress projects should add the following two items to a project checklist.]

N/A

a. FAA Sec. 251(b)(1), -(3). Does assistance take into account principles of the Act of Bogota and the Charter of Punta del Esta; and to what extent will the activity contribute to the economic or political integration of Latin America?

b. FAA Sec. 251(b)(8); 251(h). For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries by their own citizens? Is loan consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "CEPCIES," the Permanent Executive Committee of the OAS) in its annual review of national development activities?

ANNEX G

UNCLASSIFIED

Department of State

INCOMING TELEGRAM

1865

PAGE 01 DAMASC 05005 281007Z

ACTION AID-31

INFO OCT-01 EB-08 L-03 NEA-10 /053 W

----------124508 281012Z /20

R 280950Z AUG 78

FM AMEMBASSY DAMASCUS

TO SECSTATE WASHDC 9410

UNCLAS DAMASCUS 05005

AIDAC

FOR NE/PD

E.O. 11652: N/A

SUBJ: SARG REQUEST FOR LOAN FOR LATTAKIA-TARTOUS HIGHWAY

REF: STATE 211157

FOLLOWING IS TRANSLATION OF TEXT OF LETTER RECEIVED FROM SYRIAN ARAB REPUBLIC PRESIDENCY OF THE COUNCIL OF MINISTERS STATE PLANNING COMMISSION DIRECTORATE OF PLANNING FOR ECONOMIC SCIENTIFIC AND TECHNICAL RELATIONS, DATED AUGUST 5, 1978.

QUOTE LETTER NO. 4807/5920 F2. SUBJECT: TAKING APPROPRIATE ACTIONS FOR SIGNING THE LOAN AGREEMENT FOR THE EXECUTION OF LATTAKIA-TARTOUS HIGHWAY PROJECT. TO USAID DIRECTOR. DEAR SIR: WITH REFERENCE TO THE AID PROGRAM COMMITTED TO SYRIA FOR THE CURRENT FISCAL YEAR 1978, ENDING ON SEPT. 30, 1978, WE INFORM YOU THAT WE ARE READY TO NEGOTIAT
E
THE SIGNATURE OF A LOAN FOR SYRIA US $ 60 MILLION FOR THE EXECUTION OF THE LATTAKIA-TARTOUS HIGHWAY. PLEASE TAKE NOTICE AND SEND US A COPY OF THE ABOVE MENTIONED DRAFT LOAN AGREEMENT, SO THAT WE CAN STUDY, NEGOTIATE AND SIGN IT BEFORE THE ENDING DATE OF THE FISCAL YEAR. THANKING YOU FOR YOUR COOPERATION. DAMASCUS AUGUST 3, 1978. MINISTER OF STATE FOR PLANNING AFFAIRS, GEORGE HORANIYEH. END QUOTE.
SEELYE

UNCLASSIFIED

PROJECT AUTHORIZATION
AND REQUEST FOR ALLOTMENT OF FUNDS

PART II

Name of Country: Syria

Name of Project: Lattakia-Tartous Highway

Number of Project: 276-K-017

Pursuant to Part II, Chapter 4, Section 532 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Loan to Syria (the "Cooperating Country") of not to exceed Sixty Million United States Dollars ($60,000,000) the ("Authorized Amount") to help in financing certain foreign exchange costs of goods and services required for the project as described in the following paragraph.

The project consists of engineering final design and construction of a four-lane divided limited access highway between Lattakia and Tartous.

The entire amount of the A.I.D. financing herein authorized for the project will be obligated when the Project Agreement is executed.

I hereby authorize negotiation and execution of the Project Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority subject to the following essential terms and covenants and major conditions; togehter with such other terms and conditions as A.I.D. may deem appropriate:

a. Interest Rate and Terms of Repayment

The Cooperating Country shall repay the Loan to A.I.D. in United States Dollars within forty (40) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The

Cooperating Country shall pay to A.I.D. in United States Dollars interest from the date of first disbursement of the Loan at the rate of (a) two percent (2%) per annum during the first ten (10) years, and (b) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

b. Source and Origin of Goods and Services

Goods and services financed by A.I.D. under the project shall have their source and origin in the United States, except as A.I.D. may otherwise agree in writing.

c. Initial Conditions Precedent

Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, the Cooperating Country shall, except as A.I.D. may otherwise agree in writing, furnish in form and substance satisfactory to A.I.D.:

1. An executed contract for engineering design, preparation of construction plans and tender documents.

d. Additional Conditions

Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement to finance construction services, the Cooperating Country shall, except as A.I.D. may otherwise agree in writing, furnish in form and substance satisfactory to A.I.D.:

1. An executed contract for construction supervision services.

2. Evidence that necessary right-of-way has been acquired by Ministry of Communications.

3. Evidence that roads of sufficient capacity have been planned for connection with the northern and and southern terminal points of the project highway.
4. Evidence that persons holding agricultural land acquired as right-of-way will be suitably relocated.

e. Covenants

The Cooperating Country shall covenant to take such steps as shall be reasonable to insure that demensions and axle loads of vehicles using the project highway are consistent with the design standards of the project and that within two years from the signing of the Project Agreement the laws and regulations related to such dimensions and axle loads will be enforced.

Administrator

Date

LOGICAL FRAMEWORK

1. Project Goal

The goal of the Project is to enhance intraregional, interregional, and international trade in Syria, and to facilitate provision of services to the rural and urban population of the Project zone of influence.

Assumptions to achieving the goal are:

A. The ports of Tartous, Lattakia and Banyas maintain their critical role in trade activities serving Syria and the contiguous region.

B. Continued growth of Syrian production to support the commercial use of highways for transport of trade goods.

C. Continuad growth of demand for consumer and manufacturer goods in Syria and the surrounding region.

2. Project Purpose

A. To facilitate the flow of goods and services to and from rural and urban centers in the Project area; reduce vehicular operating and maintenance costs and transportation charges to owners; support enhanced seaport capabilities being concurrently developed at Tartous and Lattakia; facilitate movement of transit trade to and from south central Syria, Jordan, and points south by linking the seaports with the national 4-lane highway network under construction in syria; generate increased agricultural/industrial production by improving highway user cost savings.

B. Assumptions for achieving the Project purpose are:

(1) Continued growth of emphasis on use of wheeled highway motor vehicles for movement of people and cargo within Syria;

(2) Continued availability of motor vehicles, spare parts, POL products and maintenance skills for their operation and maintenance;

(3) Adequate, sustained capability of the SARG to maintain the national highway system;

(4) SARG enforcement of laws controlling maximum allowable truck wheel loads;

(5) Continued relatively stable political situation is maintained in Syria and neighboring countries.

C. Means of verifying purpose of achievement:

(1) Motor vehicle registrations and traffic counts;
(2) Customs records of port traffic;
(3) Highway weigh station records;
(4) Truck freight rate schedules and tariff records;
(5) Evaluation of economic data base before and after, concerning the degree of economic development in the zone of influence.

3. Project Output

A. Construction of a 83 kilometer, 4-lane divided highway between the Syrian port cities of Tartous, and Lattakia, via Banyas.

B. Assumptions for achieving the output are:

(1) Timely availability of SARG financial resources to meet all local currency requirements and any foreign exchange requirements in excess of those provided for under the loan.

(2) Availability of qualified U.S. contractors for provision of engineering and construction services.

(3) Availability of qualified Syrian firms to provide local support of construction services.

(4) Aquisition of necessary right-of-way for the Project.

(5) Continued political stability in the area.

C. Verification of accomplishment of the output would be done by inspection of the work by AID staff, and review of periodic reports submitted by the U.S. supervising engineer, and the SARG Ministry of Communications.

4. Project Inputs

A. AID loan foreign exchange ($60,000,000)
B. SARG financing in form of local currency and some foreign exchange ($18,200,000 and L.S. 209,820,000)
C. Engineering and other technical services
D. Construction services.

VEHICLE WEIGHT CONTROL

In the feasibility study, the consultant was given the task of conducting a loading survey in order to relate traffic volume to tonnage in transit. The survey indicated that there was a high incidence of loading over the legal limit.

Vehicle load requirements are governed by Traffic Law No. 19, effective 30/3/74. The relative part of the law dealing with vehicle weights specifies the following maximum loads for various vehicles and vehicle combinations:

a. Two-axle trucks will have a maximum loading of 19 metric tons;

b. Trucks with more than two axles will have a maximum loading of 26 metric tons;

c. Combination vehicles of truck and trailer or tractor and semi-trailer which have two-axle pulling vehicle will have maximum loads of 30 metric tons;

d. Combination vehicles of truck and trailer or tractor and semi-trailer which have a pulling vehicle of more than two axles will have maximum loads of 35 metric tons.

The above noted maximum weight restrictions are modified by individual axle restrictions as follows:

a. The heaviest loaded single axle cannot be greater than 13 metric tons;

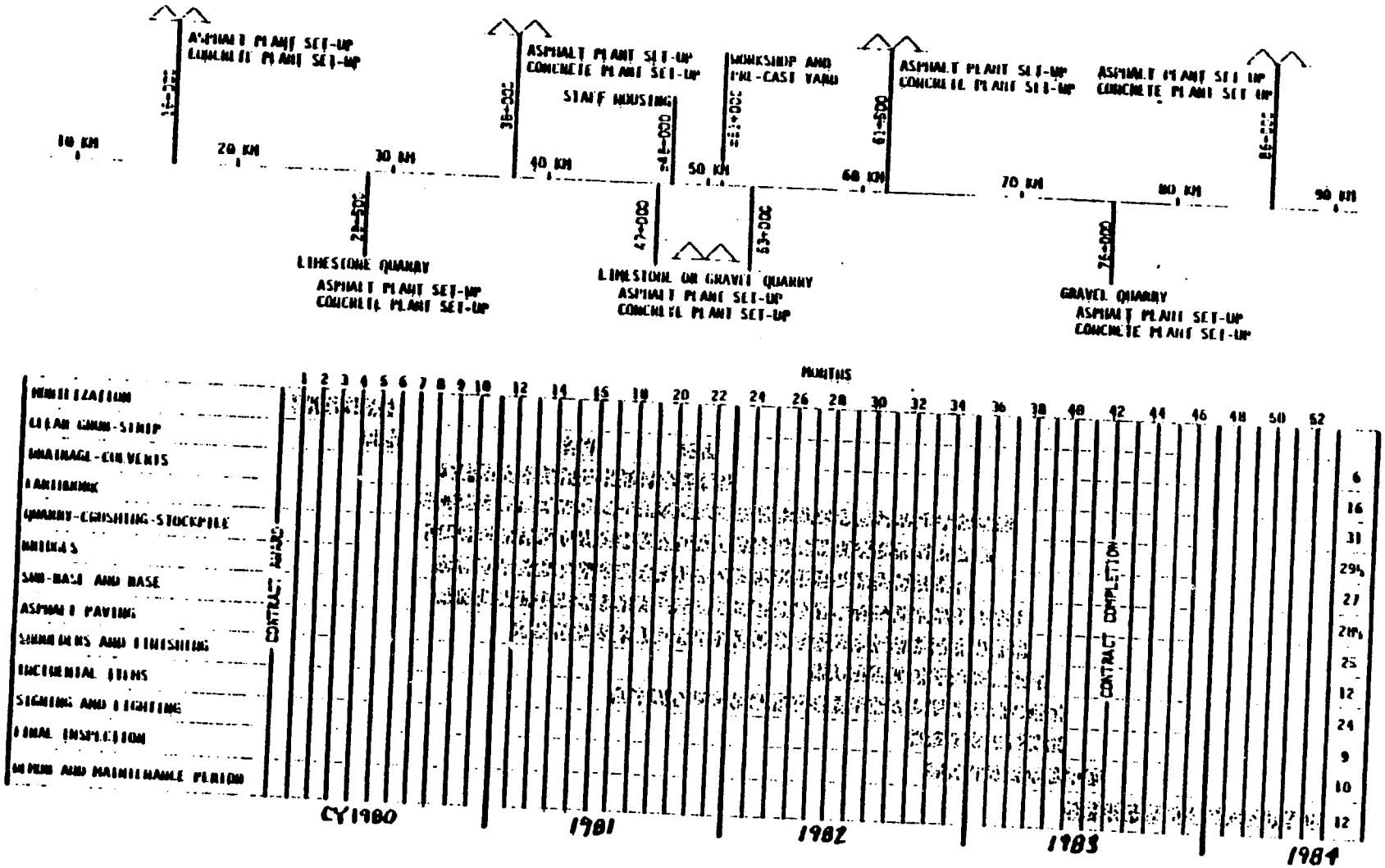
b. A vehicle or combination of vehicles having more than two axles shall have a maximum load per axle computed as follows: If the distance between axles is 90cm or less, the maximum axle load will be 7,350 kg. (therefore, tandem axles with a separation of 90 cm or less have an allowable loading of 14,700 kg). If the distance between axles is greater than 90 cm, the maximum axle load can be increased at a rate of 350 kg for every 5 cm additional distance between the axles beyond the 90 cm, however, the maximum for any single axle will not exceed 13 metric tons, as noted above.

SYRIAN LEGAL LOADINGS vs PRESENT LOADING PRACTICES
(In Metric Tons)

Vehicle Type	U.S. Practical Maximum	Syria Legal	Syria Loaded Weights	Syria Average Payload	Surveyed Average Gross Weights
2 axle truck	12.0	19.0	15.7	8.2	15.1 to 24.8
3 axle truck	19.5	26.0	21.0	9.5	34.9
2 axle tractor plus 2 axle semi-trailer	26.8	30.0	22.6	9.4	54.3
3 axle tractor plus 2 axle semi-trailer	33.4	35.0	31.6	17.3	50.2

In order to enforce the load limits the consultant has proposed that rather than using fixed weighing stations, operating on known timetables which truckers can and will avoid, there be roving policy patrols which will stop and weigh trucks on an unscheduled basis. The SARG has accepted this recommendation, and accordingly the project has included the purchase of two portable weighing scale sets. Loads over the legal limit would of course still occur despite the enforcement of loading at the legal limit; however, they would be restored to a fraction of the present incidence and be of much smaller magnitude. The situation of existing trucks being forced to carry smaller loads than they now carry, particularly in view of modification of a sizeable portion of the fleet to handle the large loads currently being carried, would certainly create short range financial problems for their owners. This could and should be partially implemented during the project construction period to soften its impact. The decision by the SARG to adhere strictly to the legal load limits is based on financial considerations and affects all roads in Syria.

If the consultant were to design the road to present loading practices it would mean that the project would require an additional $4.8 million (including contingency and inflation) in initial capital costs and an increase of $630,000 (present worth) in 10 year pavement overlay costs. There will also be additional savings in maintenance of the entire road network within the zone of influence of this project if the legal limit is enforced.



ANNEX L

PROPOSED CONSTRUCTION SCHEDULE