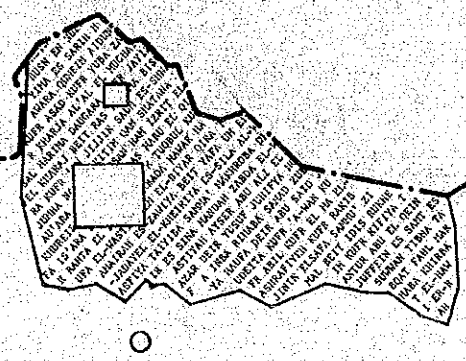
THE HASHEMITE KINGDOM OF
JORDAN

INTEGRATED REGIONAL DEVELOPMENT STUDY OF NORTHERN JORDAN FINAL REPORT



SUMMARY AND RECOMMENDATIONS

March, 1980
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

THE HASHEMITE KINGDOM OF
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PREFACE

In response to the request by the Government of the Hashemite Kingdom of Jordan, the Government of Japan has decided to conduct a survey on the Integrated Regional Development of Northern Jordan, comprising Phase I and Phse II, through the Japan International Cooperation Agency (JICA). The JICA in cooperation with the International Development Center of Japan (IDCJ), organized two Study Teams, each comprising fourteen (14) experts and headed by Mr. Jiro Kano, Managing Director of IDCJ.

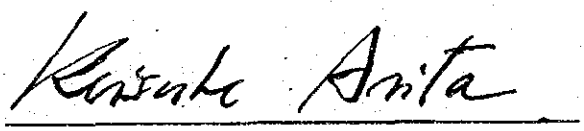
The Study Teams were intended to work out a development strategy and framework for the development of Northern Jordan in Phase I, and to make pre-feasibility studies on the Industrial Estate Project, the Ring Roads Project and on a tourism plan for s small part of the Nortehrn Jordan in Phase II.

The Study Team carried out in Jordan intensive field surveys from June to October in 1978 for Phase I and from August to October in 1979 for the Phase II. After the surveys, further studies were made, taking into account the comments made by the Government of Jordan and the present report has been formulated.

It is my sincere hope that this report will prove to be helpful for the development of the Northern Jordan.

I wish to take this opportunity to express my deep appreciation to the officials concerned of the Government of the Hashemite Kingdom of Jordan for their whole-hearted cooperation and supports extended to the Team in the execution of the Study

March 1980



Keisuke Arita
President
Japan International Cooperation Agency

LETTER OF TRANSMITTAL

March 15, 1980

His Excellency Keisuke Arita
President
The Japan International
Cooperation Agency
Shinjuku Mitsui Bldg.
Nishi-Shinjuku 2-1
Shinjuku-ku, Tokyo
Japan

Dear Mr. President:

I am pleased to submit to you the final report entitled "The Hashemite Kingdom of Jordan, Integrated Regional Development Study of Northern Jordan" which is the final result of the Integrated Regional Development Study of Northern Jordan. This report is composed of Summary and Recommendations and the subsequent three parts, of which Part I is an overall introduction, Part II is a result of Phase I Study which presents the development strategy and the sectoral development framework in the Study Area, and Part III is a result of Phase II Study. Part III is comprised of the studies of Industrial Estate of Irbid, Ring Roads of Irbid and Tourism Plan focussing on Ajlun-Dibbin-Jerash area.

This report has been prepared according to (1) the Minutes of Discussion signed on May 31, 1979, (2) the document entitled "Scope of Work for the Study of Integrated Regional Development of Northern Jordan" approved by the Government of the Hashemite Kingdom of Jordan and the Government of Japan on May 11 and 16, 1978, and (3) two contracts signed on June 12, 1978 and on July 19, 1979 by the Japan International Cooperation Agency and the International Development Center of Japan.

The Government of Japan, through the Japan International Cooperation Agency which is the Governmental Agency for Technical Assistance, commissioned the International Development Center of Japan (hereinafter referred to as IDCJ) to undertake these studies. IDCJ organized teams of experts headed by Jiro Kano and sent them to the Kingdom.

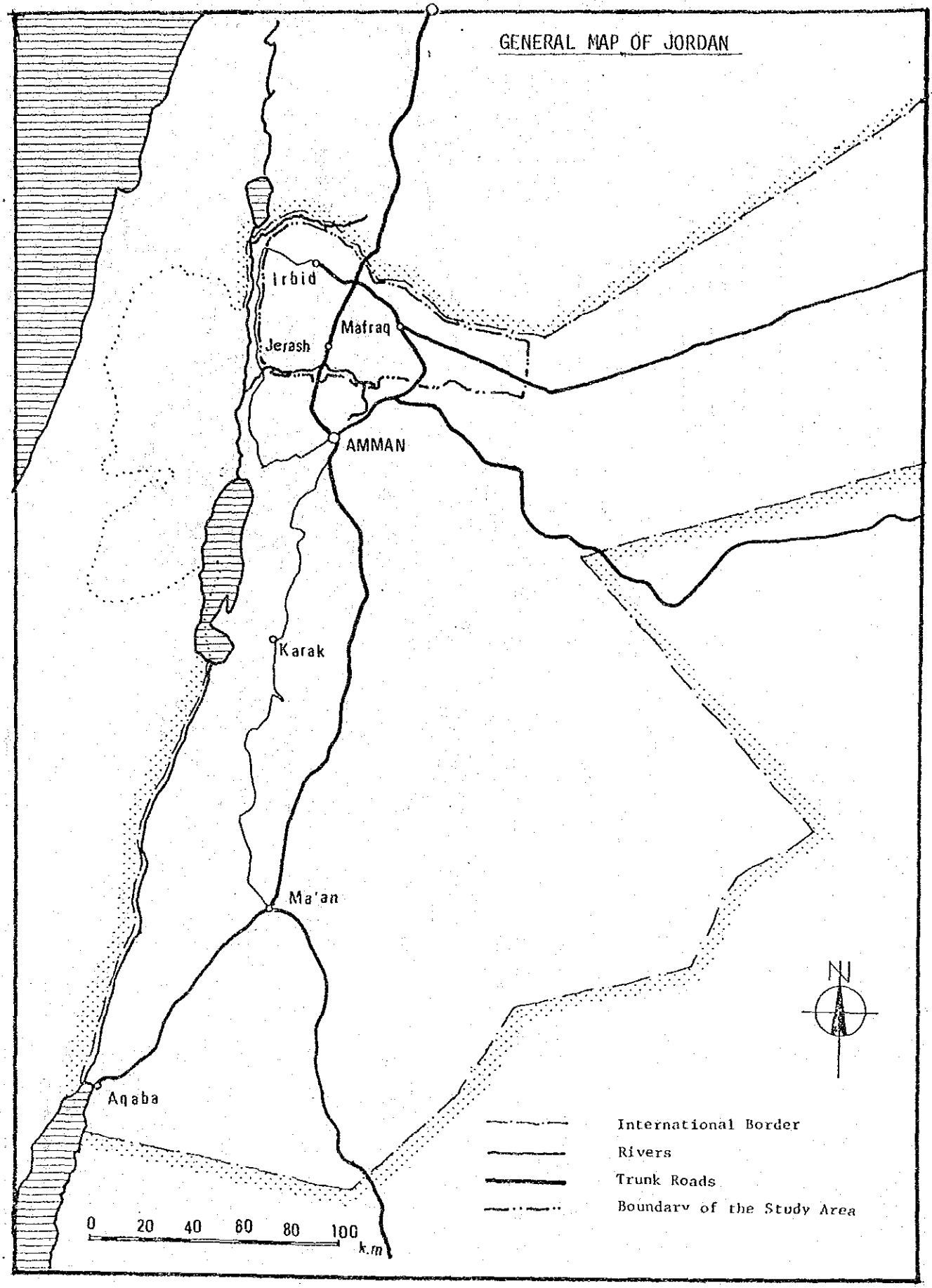
The height of the Study was the period of intensive field work in the Kingdom which extended from June 19, 1978 through the end of October 1978 in Phase I Study and from August 1, 1979 to October 14, 1979 in Phase II Study.

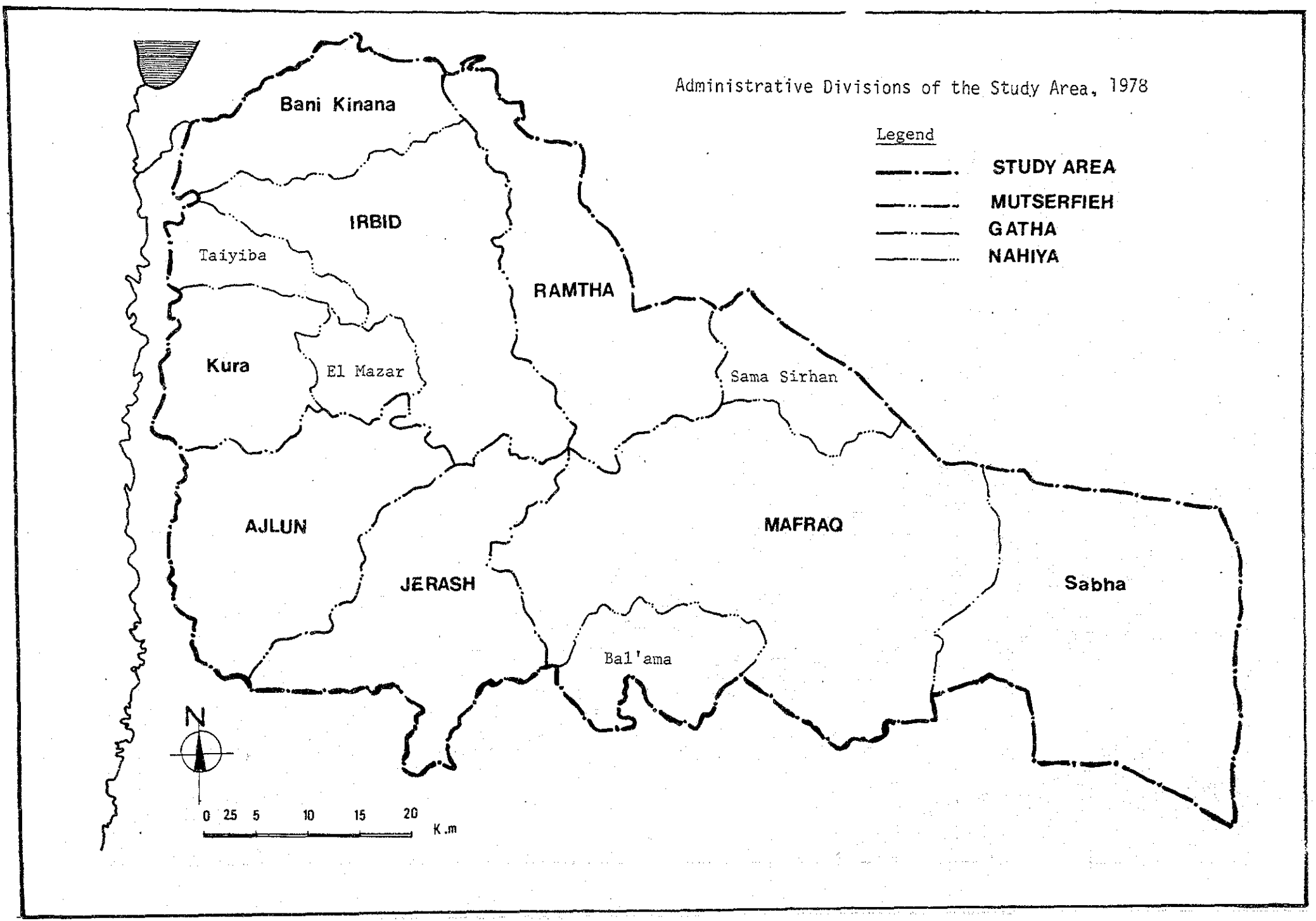
Throughout the stay in the Kingdom, our team was helped by staffs from concerned ministries and other related organizations. On behalf of the team, I would like to express our deep appreciation to them, particularly to those in the Ministry of Municipal and Rural Affairs, and Irbid Urban Regional Planning Group headed by Dr. Sufyan Tell.

We trust that our Study will give an impetus to the sound development of the region over the coming years.

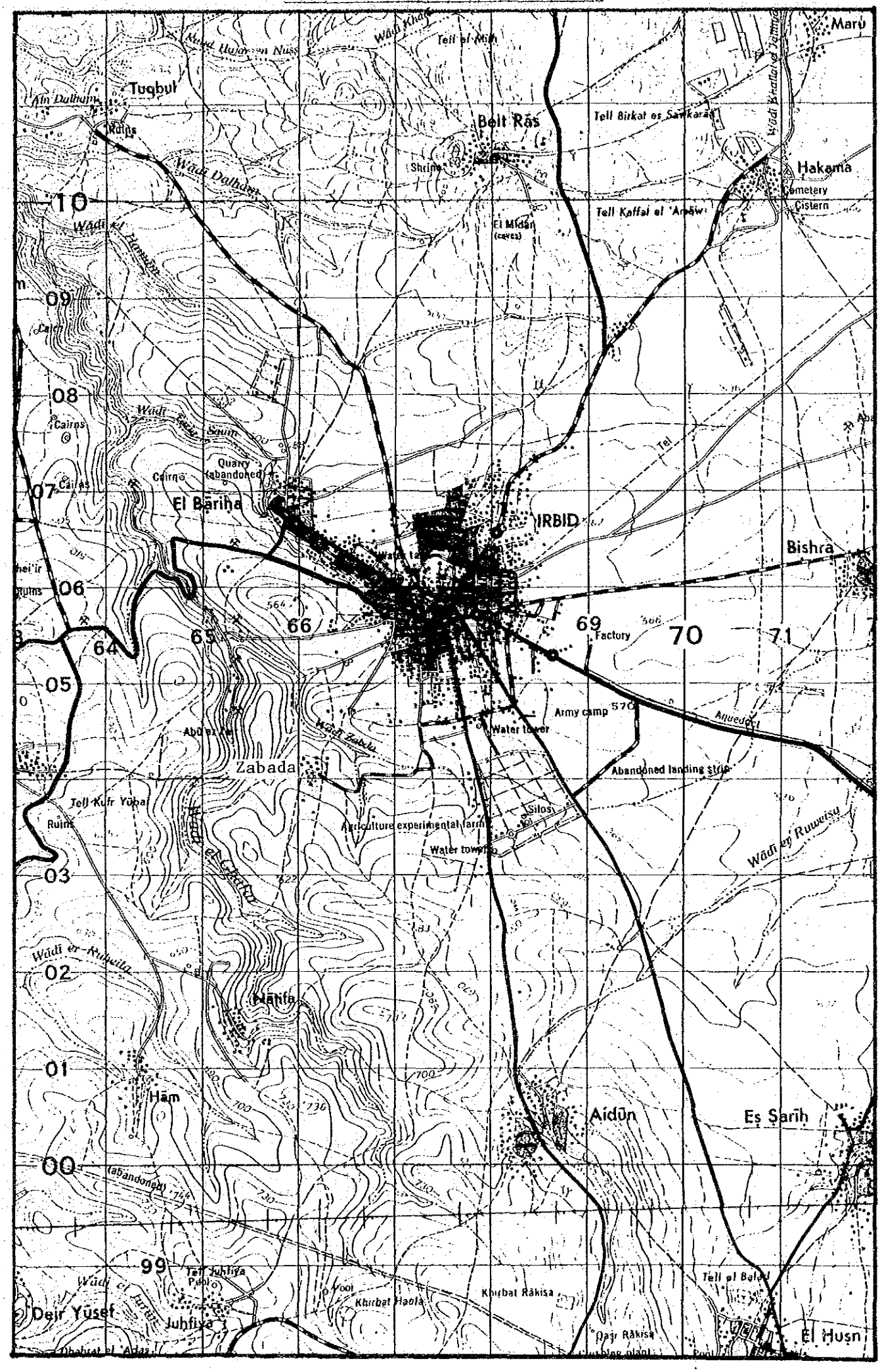
Yours faithfully,

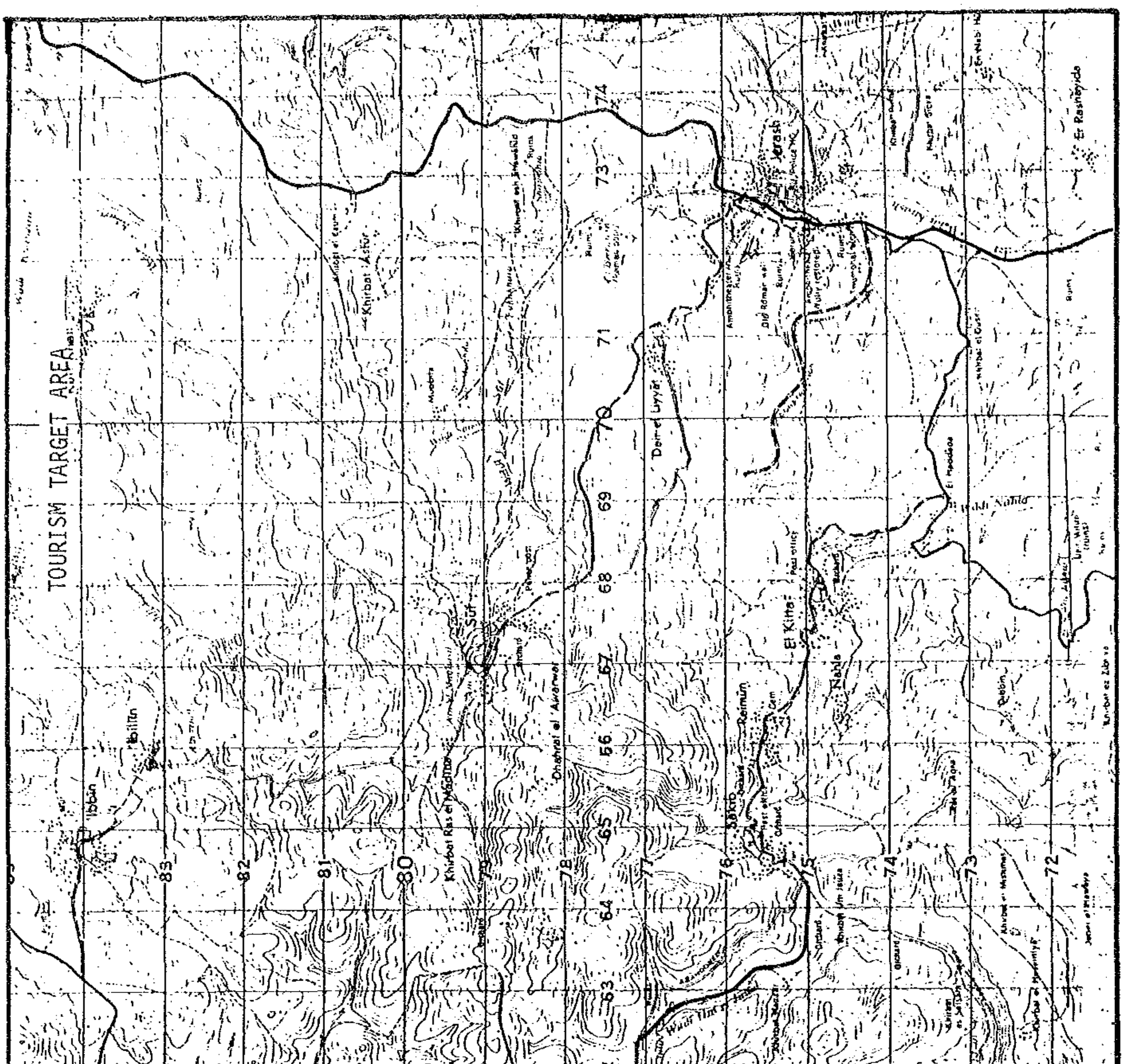
Saburo Kawai
President
International Development
Center of Japan


GENERAL MAP OF JORDAN
Irbid
Mafraq
Jerash
AMMAN
Karak
Ma'an
Aqaba
N
International Border
Rivers
Trunk Roads
Boundary of the Study Area
0 20 40 60 80 100
k.m


Administrative Divisions of the Study Area, 1978
Legend
STUDY AREA
MUTSERFIEH
GATHA
NAHIYA
Bani Kinana
IRBID
Taiyiba
RAMTHA
Kura
El Mazar
Sama Sirhan
AJLUN
JERASH
MAFRAQ
Sabha
Bal'ama
N
0 25 5 10 15 20
K.m

IRBID CITY AND ITS SURROUNDINGS





TOURISM TARGET AREA
Jerash
Ajlun
El Kitte
Sakib
Reimun
Sûf
Ibbin
Iblin
Ain Janna
Khirbat Ras el Madma

LIST OF ACRONYMS AND ABBREVIATIONS

Abbreviations	Full Spelling
A.C.	Agricultural Cooperatives
ACC	Amman Chamber of Commerce
A.C.C.	Agricultural Credit Corporation
ACI	Amman Chamber of Industry
ADT	The Average Daily Traffic
ADJ	Ajlun-Dibbin-Jerash
B.H.N.	Basic Human Needs
BMC	Building Materials Center
B.R.R	Boundary Ring Road
CBD	Central Business District
C.G.	Central Government
cu. m	cubic meter
D/D	Detail Design
DDD	Direct Distance Dialing
ERR	Economic Rate of Return
FAO	Food and Agriculture Organization
F.C.	Foreign Currency
FRR	Financial Rate of Return
F/S	Feasibility Study
FTX	Fetex Exchange
FYP	Five-Year Plan
F.Z.	Free Zone
GDP	Gross Domestic Product
GRDP	Gross Regional Domestic Product
H.B.	Housing Bank
H.C.	Housing Corporation
hr	hour
ICI	Irbid Chamber of Industry
IDB	Industrial Development Bank
IDECO	Irbid District Electric Company
I.E.	Industrial Estate

Abbreviations	Full Spelling
IEI	The Industrial Estate of Irbid
I.L.	Industrial Lot
IPI	The Industrial Park of Irbid
IRR	Internal Rate of Return
I.S.I.C.	International Standard of Industrial Classification
IRPG	Irbid Regional Planning Group[1/]
IURPG	Irbid Urban Regional Planning Group[2/]
JD	Jordan Dinar
JEA	Jordan Electric Authority
JEPCO	Jordan Electric Power Company
JICA	The Japan International Cooperation Agency
JIEC	Jordan Industrial Estate Corporation
JVA	Jordan Valley Authority
L.C.	Local Currency
L.G.	Local Government
l.m.	linear meter
l.s.	lump sum
MA	Ministry of Agriculture
MC	Ministry of Communication
MCM	Million Cubic Meter
ME	Ministry of Education
MF	Ministry of Finance
MH	Ministry of Health
MMRA[3/]	Ministry of Municipal and Rural Affairs
MIT	Ministry of Industry and Trade
ML	Ministry of Labor
MPW	Ministry of Public Works
MTA	Ministry of Tourism and Antiquities
MS	Ministry of Supply
NICs	Newly Industrialized Countries
No.	Number
NPC	National Planning Council
N.T.	New Town
NTFP	National Telecommunications Fundamental Plan
N.W.M.P.	National Water Master Plan

Abbreviations	Full Spelling
O-D	Origin-Destination
O/M	Operation and Maintenance
O.R.R.	Outer Ring Road
PABX	Private Automatic Branch Exchange
P.C.	Public Corporation
PCM	Pulse-Code Modulation
PTC	Poly-Technic Center
P.V.	Private Venture
RRI	The Ring Roads of Irbid
R.O.W.	Right of Way
RSS	Royal Scientific Society
R.C.	Reinforced Concrete
sq. m	square meter
S.S.	Standard Shed
SXS	Step by Step Exchange
TCC	Telecommunication Corporation
UN	The United Nations
UNRWA	United Nations Relief and Work Agency
VTC	Vocational Training Center
W.S.	Water Supply
WSC	Water Supply Corporation
YU	Yarmouk University

1/ 2/ While IRPG was a recommended organization by us, IURPG is a realized one based on our recommendation.

3/ On December 19, 1979, this ministry changed its name to the Ministry of Municipal, Rural and Environmental Affairs (i.e., MMREA). However, since almost all parts of this report had been worked out before November 1979 and the ministry had been called MMRA all the period of this Study, the Study Team maintained its original name, i.e., MMRA, even in this Final Report. Thus, whenever MMRA appears in this report, please read it as MMREA.

DEFINITION OF GEOGRAPHICAL AREA

Irbid City	The area within the city planning area of Irbid, which is almost equal to the Irbid Municipality but slightly smaller than it.
Irbid Municipality	The area defined by administrative boundary (Baradia in Arabic) of Irbid.
Greater Irbid	Includes Irbid Municipality, Hawara, Aidun, Bishra, Beit Ras, Hakama, Ramtha, Husn, Es Sarih, El Mughayir, Sal and Maru.
Irbid Expanded	Includes Irbid Municipality, Hawara, Aidun, Bishra, Beit Ras and Hakama.
Study Area	The region north of the Zarqa River, east of the Jordan Valley, south of the Syrian border and west of the 36°50' line of east longitude.
Target Area	The area covering the cities of Jerash and Ajlun, and their environs inclusive of Dibbin National Park, King Talal Dam, Wadi El Yabis and Ishtafina Tourist Park areas.

OVERALL TABLE OF CONTENTS: VOLUMES 1 TO 7

VOLUME 1

VOLUME 2

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LIST OF TABLES AND FIGURES: VOLUME 1

CHAPTER I

SUMMARY OF OVERALL INTRODUCTION

CHAPTER I

SUMMARY OF OVERALL INTRODUCTION

1.1 Background

1.001 The Hashemite Kingdom of Jordan (hereinafter referred to as the Government of Jordan) is presently carrying out its Five-Year Plan (1976-1980) for development and is preparing the next Five-Year Plan (1981-1985). In order to accomplish the dynamic economic development envisaged by the current Five-Year Plan, a comprehensive regional development program which will coordinate the sectoral plans was recognized to be vital. The Government of Jordan, highly desirous of developing the Northern Region in balance with the rest of the Kingdom, requested the Government of Japan for technical assistance in development planning of the Northern Jordan. In response to this request, the Japanese Government commissioned the International Development Center of Japan to undertake the Integrated Regional Study of Northern Jordan. This is the Final Report of this Integrated Regional Study of Northern Jordan.

1.002 The Phase I Study was undertaken from June 19, 1978 through the end of October, 1978. Subsequently, the Phase II Study started in May 1979 and, intensive field work in Jordan was performed from August 1 through October 10. The results of these studies were rounded off in each Draft Final Report.

1.003 As the final step of the Study, combining above mentioned (1) Phase I Draft Final Report, (2) Additions and Amendment to the Phase I Draft Final Report, (3) Phase II Draft Final Report and (4) revisions to the Phase II Draft Final Report, the Study Team has produced this Final Report of the entire Study.

1.2 Projects and Project Areas

1.004 The Phase I Study is the project to prepare a development strategy for the Northern Jordan region, to formulate development policies, and to identify development projects and programs.

1.005 The project area for the Phase I Study (hereinafter referred to as the Study Area) was slightly changed from the original Scope of Work to the following new definition in response to the request of MMRA. The modified Study Area is the entire region north of the Zarqa River, east of the Jordan Valley, south of the Syrian border and west of the 36° 50' line of east longitude.

1.006 The above-mentioned 1978 Scope of Work specified that in the Phase II Study there would be undertaken pre-feasibility studies of three development projects in the Study Area. As a result, it was agreed by both Governments to take up the following three projects for the Phase II Study.

(1) Industrial Estate of Irbid (IEI),
(2) Ring Roads of Irbid (RRI), and
(3) Irbid Tourism Project: Ajlun-Dibbin-Jerash Tourism Plan (ADJ)

IEI is located in the outskirts of Irbid City, and RRI runs almost along the Irbid City boundary. The Irbid Tourism Project covers the cities of Ajlun and Jerash, and their environs inclusive of Dibbin National Park, King Talal Dam,Wadi El Yabis and Ishtafina Tourist Park areas, which is called "Target Area" in this Report.

1.3 Objectives and Products of the Study

1.3.1 Objectives of the Phase I Study

1.007 The objectives of the Phase I Study are to provide a framework for and give a direction to the economic development of the Northern Jordan, to suggest the necessary investment activities by the Central Government and to provide inputs for use in preparing the next Five-Year Plan.

1.3.2 Objectives of the Phase II Study

1.008 The objectives of the Phase II Study are to give added momentum to the development activities in the Northern Jordan by identifying three highest priority projects and by providing more concrete and detailed study at pre-feasibility level of the three projects. IEI and RRI were intended to be studied at pre-feasibility level and the Irbid Tourism Porject was intended to be a plan-making effort.

1.3.3 Products of the Phase I Study

1.009 Major Products of the Phase I Study are:

(1) An overall development strategy for the Northern Jordan toward year 2000;

(2) Identification of high priority projects and programs; and

(3) A public investment program for the Northern Jordan covering the period of the rest of the current Five-Year Plan and the entire period of the next Five-Year Plan.

1.3.4 Products of the Phase II Study

1.010 The products of the pre-feasibility studies for the Ring Roads of Irbid project and the Industrial Estate of Irbid project are:

(1) Preliminary design of an appropriately selected project, based on comparison of alternatives;

(2) Cost estimate of the above designed project;

(3) Financial and economic evaluation; and

(4) Recommendation of arrangements for implementation.

1.011 The outputs of preparation of the tourism development plan are:

(1) An appropriately phased long-term tourism plan up to the year 2000;

(2) Detailed plans for development cores; and

(3) List of projects to be implemented, their cost estimates, and investment schedule.

1.4 Format of Final Report

1.012 This Final Report has 7 volumes. Volume 1 shows the summary of the result of the Phase I and II Studies. Volumes 2 to 4 cover Part I and Part II, Part I being the overall introduction to the entire Study and Part II being the final edition of the Phase I Report. Principal conclusions of the Phase I Study appear in Chapter III in Volume 4, and the appendices to Part II are attached to the end of Volume 4.

1.013 Volumes 5 to 7 cover Part III, which is the final edition of the Phase II Report. Conclusions of the Phase II Study appear at the end of each volume, and the appendices to Part III are attached to the end of Volume 7. The appendices to the whole Study are attached to Volume 7.

1.5 Assumed Premises in Parts II and III

1.014 In reading this Final Report, there are some premises that should be remembered. Most of the premises are related to the data used and the time at which the text of Part II and Part III in the Report was written. They are:

(1) As a principle, Part II was written assuming that it had been finished in October 1978, the time which had been the end of the Phase I field work and was the submission date of the Phase I Draft Final Report; and

(2) Part III was written assuming that it was finished in November 1979, which was the submission date of the Phase II Draft Final Report.

These have some consequences, as follows.

1.015 At first, new data made available after these dates were not taken into account in the respective Parts of the Final Report, since the Team was supposed to utilize all the data available during its working period but was not supposed to take into account the data made available after these dates.

1.016 Secondly, the base years of various projections became different for Part II and Part III, being 1977 in Part II and 1978 in Part III, although the target years were the same in Part II and Part III being 1985 and 2000.

1.017 Thirdly, although there were some changes in proper names after these two dates, these changes were not taken into account and old names used at the respective time were used in this Final Report.

1.018 Fourthly, the present tense used in Part II refers to a different time than that referred to by the present tense in Part III. That is, it means the present as of October 1978 in Part II, and November 1979 in Part III.

CHAPTER II

SUMMARY RESULT OF PHASE I STUDY

CHAPTER II

SUMMARY RESULT OF PHASE I STUDY

2.1 Overview

2.001 Summing up the result of the analyses on present situation, relative position of the Study Area, and the development potentialities of the Study Area, it is found that the Study Area has good potential for industrial, educational, touristic and agricultural development. Based on this, the potential role of the Study Area within the Country in the future is derived. This potential role of the Study Area as well as the role of the other regions can be summarized as follows:

Potential Role of the Study Area within the Country in the Future

	Major Role	Urban Area's Role	Rural Area's Role
Study Area	Secondary National Center	1. Education, Culture and Service 2. Industry, Distribution	1. Rain-fed Agriculture 2. Tourism 3. Forestry
Amman Gov't	Primary National Center	1. Administration, Banking and Finance, Commerce 2. Industry, Distribution 3. Education and Culture	n.a.
Balqa Gov't	Satelite Town	1. Residential	1. Rain-fed Agriculture
Ghor Area	Non-Urban	n.a.	1. Irrigated Agriculture
Karaq & Ma'an Gov't	Rural Centers	1. Rural Distribution Center 2. Tourism Center	1. Phosphate Mining 2. Tourism
Aqaba Area	Port City	1. Port 2. Heavy and Petro-Chemical Industry	1. Tourism

2.2 Development Strategies

2.002 The public investment resources available for the Study Area from the Central Government is estimated at JD.160 million from 1981 to 1985 and JD.1,200 million from 1986 to 2000. However, due to a high degree of uncertainty associated with future condition, the possible range of the available resources is considered to be within 50 percent of the above figures.

2.003 Tentatively, the development objectives are assumed to comprise two major objectives and four secondary objectives. They are:

Major objectives

(1) Economic development
(2) More equitable distribution of income and wealth

Secondary objectives

(3) Meeting basic human needs
(4) Popular participation in the development process
(5) Social stability, and
(6) Educational and cultural development.

2.004 From various alternative patterns of development, four potential patterns are chosen. Their major characteristics are shown below:

(1) Decentralized Pattern

2.005 A number of towns are encouraged to grow as distribution and processing centers. Emphasis is placed on agricultural, agro-processing activities and recreation and tourism. No simple center is encouraged to dominate others.

(2) Mono-Centric Pattern

2.006 The city of Irbid is encouraged to grow as a definite regional center, on the basis of industrial development of labor-intensive as well as knowledge-intensive types. The advantage of agglomeration economies obtainable at Irbid is sought to the maximal extent. Much of people related to Yarmouk University are assumed to reside in or around the city of Irbid.

(3) Duo-Centric Pattern

2.007 In addition to the city of Irbid, the area around Yarmouk University will be developed as a growth center based on knowledge-intensive industries and distribution as well as college education and research. This new growth center is aimed at an important intellectual center in the Arab World.

(4) Tri-Centric Pattern

2.008 In addition to the two centers mentioned above, the area near Mafraq is designated as an industrial growth center and is well linked with the proposed Free Trade Zone on the Syrian border. The alignment of the proposed highway is well suited for Amman-Damascus traffic.

2.009 These four alternatives are evaluated with the above six objectives and found that in the long run, the Duo-Centric Pattern is most desirable.

2.3 Recommended Development Strategy and Prospects

2.010 In view of the expressed view of government officials, another item has been added as a major objective: more equitable sub-regional development within the region. By evaluating with the expanded set of the objectives, the Decentralized Pattern is ranked highest in the short run, although it is dominated by the Duo-Centric Pattern in the long run.

2.011 On the basis of the above finding, a combined pattern has been developed from these two, taking the advantages of each. This pattern gives attention to the development of subcenters but retains the novel and desirable features of the new growth center at the area around Yarmouk University.

2.012 According to the recommended strategy, the Study Area is divided into the following 10 development areas:

(1) Irbid Area
(2) Yarmouk Area
(3) Jerash Area
(4) Ajlun Area
(5) Ramtha Area
(6) Mafraq Area
(7) Industrial Free Zone Area
(8) Maqarin Area
(9) Um Qeis Area, and
(10) Kura and Taiya Area.

For each area, specific projects are proposed for implementation by 1985 and after 1985.

2.013 For the purpose of planning and coordinating for the development of the Study Area, the organization of the porposed planning organization, tentatively called the Irbid Regional Planning Group (IRPG), has been examined.

2.014 It will have the following functions:

(1) Framework building
(2) Plan making
(3) Project finding and selection, and
(4) Budget allocation.

It is recommended that IRPG reports to two committees: the Regional Steering Committee chaired by NPC president and attended by Director of the Department of Budget, Minister of MMRA, Governor of Irbid, President of Yarmouk University and Director of IRPG; and the National Steering Committee which is identical with the Committee for Planning and Development. The former is responsible for technical issues and the latter for policy issues and those technical issue having a national scale.

2.4 Human Resources

2.015 Despite the rapid urbanization centering in Irbid City, the Study Area will continue to be the population "push" area through 2000, though the magnitude of the outmigration of the younger productive segments of its population is expected to decline after 1980s when the Area will develop to offer more varied employment opportunities and amenities for living.

2.016 In terms of available quantity of labor force, the Area should be more than sufficient in supply judging by the current size of its youthful population. In terms of the quality of labor force, however, improvement is needed to train those new entrants to labor market in accordance with the increasing and diversifying demands of the productive sector not only of the Study Area but of the country as a whole.

2.017 It is recommended to expand and improve 5 existing or planned vocational training centers in the Study Area, by diversifying and upgrading training specializations offered there with better equipment and facilities.

2.5 Water Resources Development

2.018 A major issue in the Study Area lies in shortage of municipal water supply which will be overcome by the proposed water sources development of Yarmouk River which is not involved in Maqarin Dam project and ground water in Samasdoud near Mafraq and Muzeirib in Syria which needs mutual agreements between the two countries. By 1985, additional 20 MCM/a produced by the above sources plus the existing production of 8 MCM/a will be able to meet the demand of the Study Area until 1990. Total investment cost of the above three projects will be some JD.11 million.

2.019 The Study Team recommends to carry out a feasibility study and implement improvement/extension of water distribution system in Irbid City in earliest opportunity, which will cost approximately JD.8 million. And the Study also recommends construction of two small dams aiming at developing wadis in dry highland.

2.6 Agriculture

2.020 According to the recent agricultural census, largely rain-fed agriculture supported two-fifths of the population in the Study Area. The development of this sector should take note of this fact and be designed to help raise the level of farm income which widely fluctuates subject to the vagaries of weather. The following conclusions are drawn from the interviews with 100 farmers in various parts of the Study Area.

2.021 The planting of olive trees currently being promoted by the government should be expanded further, not solely because of their profitability, which is only moderately high compared to some other agricultural undertakings, but because of the stability of income from them.

2.022 Cultivation of vegetables is generally highly profitable and should be promoted in places where availability of water other than rainfall is assured.

2.023 Poultry and traditional sheep-raising are found to be very profitable. Especially the latter can be easily promoted by providing common grazing grounds and small collection reservoirs not too far from the village communities.

2.024 As an alternative cash crop for rain-fed agriculture, the experimental cultivation of Jerusalem artichoke, a tuber crop from which fructose is extracted, is recommended. If proven successful, Jordan will be able to reduce its total dependence on imported sugar.

2.025 As another alternative source of cash income, the experimental fish culture is recommended near Hemma.

2.7 Manufacturing and Mining

2.026 Considering the relatively weak natural resources and limited manpower resource endowments, and on the contrary utilizing accumulated experiences in foreign trade and transit and transhipment transport and other potentials identified by the Team, manufacturing industries suitable to the landlocked area must be developed at the maximum extent. Action must be initiated by the government on industrialization policies and development of related infrastructure.

2.027 Among them, a trial of stage construction of high quality industrial estates in the city of Irbid and other several sites, including the Syrian-Jordanian Industrial Free Zone at the border, is advised to be the top ranking proper action of this sector. The first trial of only 20 hecatres in Irbid must surely be successful enough to set up the future goal of two or three times wider estates compared with the present target of 400 hectares in the border free zone.

2.8 Housing Construction

2.028 Based upon the crucial policy issues of housing supply, particularly for low-income group, housing construction must be developed as apart of modern industry, aiming at the cost saving mass production.

2.029 Replying the total housing demand of annual 3,600 to 5,700 houses in 1980 and 1990 in the Study Area, required investment in five years amounts 50 to 100 million JD. up to that respective years, including about 40 percent of land purchase cost. This shows a big scale of a single industry or project in the coming years.

2.030 Several proposals on cost saving in housing construction with a diversified financing system for low-income group are the major recommendations.

2.9 Tourism and Recreation

2.031 The number of tourists in Jordan has been rapidly growing in recent years although hindered sometimes by the political incidents in the region.

2.032 Jordan possesses a potential to attract more tourists than it does today, and it is presumably true that tourists will keep increasing as long as the current political situation continues.

2.033 Receipts of the foreign exchange reached JD.68.86 million in 1976, recording JD.35.72 million net income.

2.034 The characteristics of the touristic assets in the Study Area are (1) antiquities, (2) cool climate in summer, (3) verdant landscape, and (4) closeness to Syria which generates over one third of total tourists.

2.035 The touristic development in the Study Area should be chiefly oriented toward the Arab nationalities.

2.036 In the period of 1981 and 1985, several projects are scheduled in that light, while restoration of Jerash and Um Qeis are meant mainly for the non-Arabs.

2.037 A large resort development related to the proposed Maqarin Dam is planned for the period towards the year 2000.

2.10 Transportation

2.038 For the use of domestic and also international transportation, road plays an extremely important role in the Kingdom and particularly in the Study Area.

2.039 Even by the somewhat conservative estimates of future traffic demands on major roads, on an average about 1.8 times both during the period 1976-1985 and also 1985-2000, making more than three times during the coming 25 years, road expansion program is of the most important in the Study Area.

2.040 Including street construction in the city of Irbid, six projects by the year 1985, five projects after 1985 with related studies and policies are recommended. Among them, opening of the new route Zarqa through Irbid via Rihab will keep the top priority aiming at the high speed highway with four lanes by the year 2000.

2.11 Power and Telecommunication

2.041 Electricity in the Study Area is supplied by the Irbid District Electricity Company (IDECO) which generates 11 MW by its own diesel units and by importing 10 MW from Syria through a 66 KV transmission line. This amount of 21 MW exceeds slightly over the current demand. A 132 KV double circuit transmission line from Hussein Thermal Power Station in Zarqa to Irbid substation is expected to be commissioned by Jordan Electricity Authority (JEA) by the end of 1978 or early 1979 so that the future rapid growth of demand in the Study Area can be met by this transmission.

2.042 Rural electrification in the Area has been carried out in line with JEA's program which started in 1974 with a target of supplying electricity to all villages with a population of more than 500 inhabitants.

2.043 So far as telecommunications service in the Study Area is concerned, it is obvious that the present demand exceeds about twice as much as the supply. However, a construction of new exchanges (5,000 lines) in Irbid City will be finished by middle of 1979, which will be able to mitigate the current severe shortages.

2.044 A National Telecommunication Fundamental Plan of Telecommunication Corporation envisages to sweep away all the shortages of telecommunication facilities in the Area by 1985 with a total investment cost of JD.14.2 million. At that time, the telephone penetration factor in Irbid City becomes approximately 20 percent, while 15 percent for other cities, and 10 percent for rural areas.

2.12 Urban Planning and Community Facilities

2.045 Scale of urbanization in the future was analyzed in many aspects, including land requirement in the city of Irbid. Its present built-up area of 880 hectares for a 128,000 population in 1975 will be expanded 1,200 hectares for 199,000 population in 1985.

2.046 In that expanding area, housing and related community facilities including schools must be prepared with road and public utilities.

2.047 Among seven investment programs until 1985, total about JD.59 million, new town housing construction in the city of Irbid, JD.20 million, and infrastructure to the same city and educational facilities to the entire Study Area, both JD.12 million each, are the three largest.

2.13 Land Use

2.048 After the preparation and evaluation of present land utilization on maps of scale 1/25,000, regional land use planning for the entire Study Area was made.

2.049 On the three groups of present land use pattern in rural area, A - Western forest area with orchard, B - Central crop area with orchard, subdivided into olive belt, wheat plain and southern mixed area, C - Eastern step area with livestock, a most suitable master plan was introduced, composed of major agricultural area and two urbanized growth poles. This master plan has a character of fundamental development strategy shown on the map.

2.050 For the purpose of agricultural development, projects related to afforestation, land preservation, reclamation and livestock are supported. For urbanization, the Greater Irbid and Yarmouk University areas are the two poles connected in and out of the study region by highway network.

2.051 Major kinds of land use development in urban area are housing and industrial sites.

CHAPTER III

SUMMARY RESULT OF PHASE II STUDY

CHAPTER III

RESULT OF PHASE II STUDY

3.1 Introduction and Background

3.001 This Report presents the results of the Phase II work on the Integrated Regional Development Study of the Northern Jordan. Based on the agreement between representatives of the Jordan Government and the Japan International Cooperation Agency, made after the Phase I, the following three projects were studied, as described in this report:

(1) Industrial Estate of Irbid (IEI),
(2) Ring Roads of Irbid (RRI), and
(3) Ajlun-Dibbin-Jerash Tourism Plan.

3.002 Objectives of the Phase II Study are to carry out pre-feasibility studies for IEI and RRI and to prepare a tourism development plan for the Ajlun-Dibbin-Jerash area. The purpose of the pre-feasibility study is to provide the organizations concerned with essential information to determine whether or not the projects are sound.

3.003 In this Final Report for Phase II, common problems such as projected population for the Irbid Metropolitan Area are presented first, and following that individual projects are summarized in turn.

3.2 Projection of Population and Urbanization, Irbid City and Its Surroundings

3.004 Projection of population and urbanization has been undertaken in order to obtain a perspective view of spatial patterns of development in Irbid City and its surroundings and to establish a basis for determining demands and locations of Ring Roads and Industrial Estate projects, which are discussed in Chapters III and IV of Part III. Key indicators used in the projection are population size, built-up area and population density in the built-up area.

3.005 Projection has been made at three levels, i.e., Greater Irbid,[1] Irbid Expanded[2] and Irbid City. The baseline of the projection is set in 1975 and the reference years of projections are 1985 and 2000.

3.006 Results of projections are given in Table 2.1 of Volume 5. Population of Irbid City will increase by 3.6 percent per annum until reaching 182,600 in 1985. After 1985, however, the population growth rate will decline to the point at 0.7 percent per annum and population will be 201,675 in the year 2000. In contrast to this, the population will grow rapidly in the adjacent municipalities and villages. Thus, the total population of Irbid Expanded will increase from 144,913 in 1975 to 206,154 in 1985 and 369,199 in 2000. The built-up area of Irbid Expanded will expand more rapidly than the population does, from 1,461 hectares in 1975 to 2,916 in 1985 and 6,048 in the year 2000. However, a substantial increase will be seen in population density of the present built-up area, implying that Irbid City will enhance its economic potential as urbanization takes place in the city's surroundings.

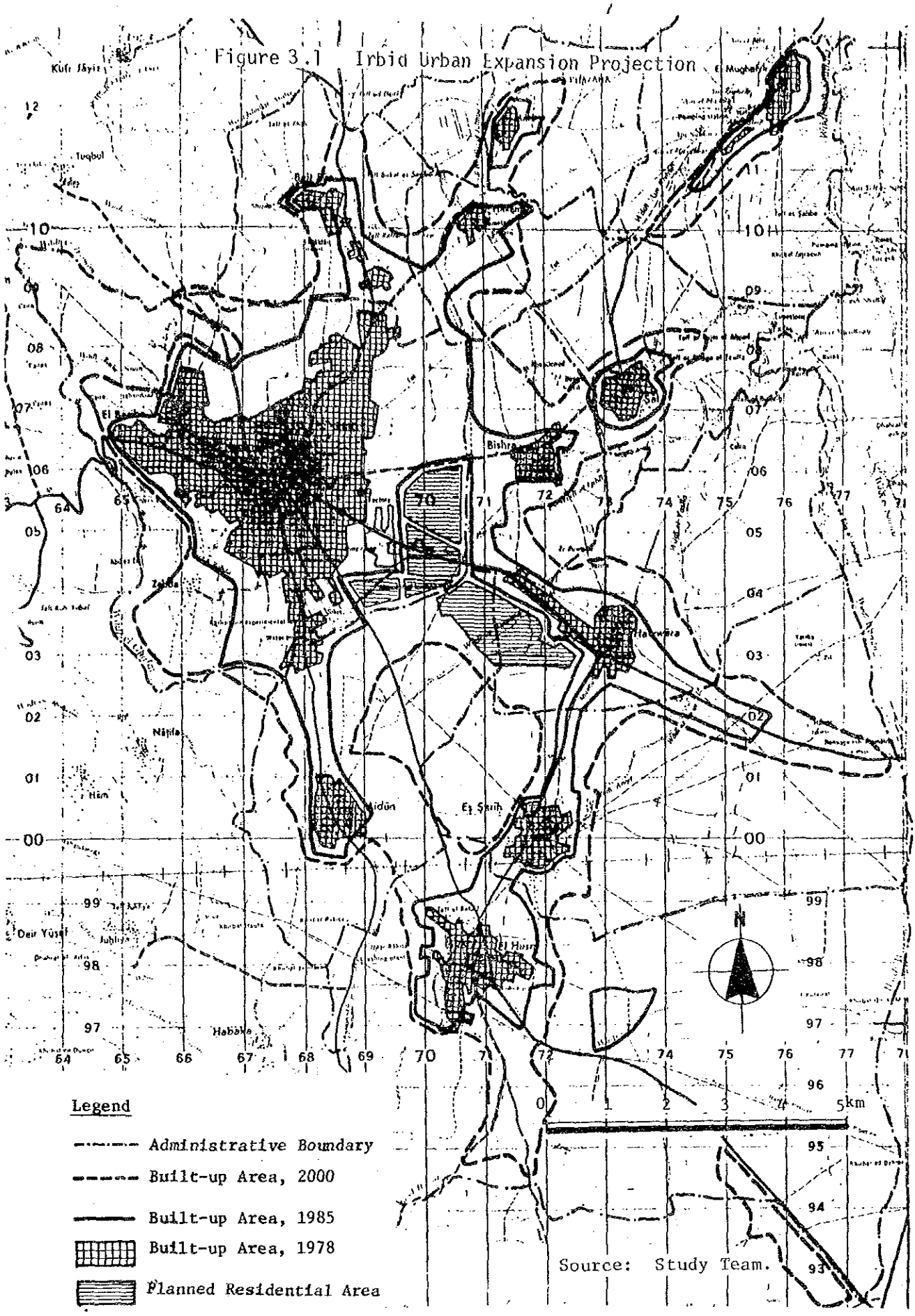
3.007 Based on the changes in spatial pattern of urbanization in the past and results of projections for population and built-up area, the future pattern of the built-up area has been worked out with the result as shown in Figure 3.1. In 1985, the built-up area will expand to reach or slightly exceed the proposed location of the Outer Ring Road, and will do so in almost all directions. Along major trunk roads, the built-up area will expand further so that built-up areas of Beit Ras, Hakama, Bishra, Hawara and Aidun will merge with that of Irbid City. The area surrounding the intersection of the Boundary Ring Road and Baghdad Street will be developed as a planned residential area. After 1985, the built-up area will expand in such a way that agricultural land and moderate slopes, left between major trunk roads, will be converted into urban land and thus there will be a sizable and contiguous built-up area cutting across six municipalities and villages within Irbid Expanded in the year 2000.

3.008 Although this projection demonstrates the most likely situation in Irbid in the future, it is not necessarily desirable to permit large-scale urban sprawl, from the viewpoint of protection of agricultural land and insuring efficient supply of urban services such as utilities. However, compact urban areas can be formed if the national government enforces strong land use regulations to prevent and eliminate unused, vacant lands in the built-up area by, for example, charging very heavy taxes on unused land holdings larger than a certain area.

1/ Greater Irbid includes Irbid Municipality, Hawara, Aidun, Bishra, Beit Ras, Hakama, Ramtha, Husn, Es Sarih, El Mughayir, Sal and Maru.

2/ Irbid Expanded includes Irbid Municipality, Hawara, Aidun, Bishra, Beit Ras, and Hakama.

Figure 3.1 Irbid Urban Expansion Projection



Source: Study Team.

In addition to above, as an alternative, another population projection has been made based on the assumption that strong government land use regulations will be introduced to keep the population within the city, whose population would otherwise move to the suburbs outside the city boundary. These population in the city will be 182,600 in 1985 and 304,000 in 2000.

3.009 Thus, the conclusion is that, if the present land use control regulations prevail even in the future, the built-up area will have the shape shown on Figure 3.1, and that, if very storng land use regulations woulb be enacted in the future, the built-up area would have a shape different from Figure 3.1. We took the assumption that the present land use control regulations will prevail.

3.3 Industrial Estate of Irbid (Irbid Municipality Industrial Park)

3.3.1 Background

3.010 In spite of the fact that the Study Area has about 30 percent of the country's population and contributes a 21 percent share of the GDP, its share in terms of value of production from the mining and manufacturing sector is only 1.4 percent. The dominant economic sector in the Study Area is agriculture, which is based on relatively good rainfall. Yet agricultural productivity is unstable and low, due to the high dependency on rainfall. In terms of land productivity in the Study Area, there is a striking difference between industry and agriculture. One hectare of industrial land is roughly equal to 600 hectares of agricultural land on a value-added basis.

3.011 Industrial development in the Study Area is an urgent issue which demands attention, in order that the existing unbalanced industrial structure may be rectified, and that regional desparity may be reduced. The government has taken positive measures towards acceleration of industrial development in the Study Area; these measures deserve to be highly evaluated.

3.012 Major development programs such as the Maqarin Dam, the Yarmouk University, a Poly-Technic Center, a Vocational Training Center, the Zarqa-Irbid Highway, an Autostrada and the expansion of electricity and telephone facilities will no doubt help to promote industrial development. Financial and institutional arrangements are improving but one thing lacking here yet necessary to attract industrial investors is well planned and prepared industrial land. The Irbid Municipality is the primary growth center of the Study Area and is now equipped with the necessary conditions to accommodate new industries, with provision of facilities for relocating and modernizing existing industries.

3.3.2 Project Proposal

a. Primary Objectives of the Project

3.013 The project is designed to achieve the following objectives:

(1) To accelerate industrial development in the Irbid Municipality and consequently the Study Area in order to reduce its income disparity relative to other Governorates.

(2) To support and enhance the urban development of Irbid in order to reduce population out-migration from the Study Area to the Amman Municipality through provision of employment opportunities.

(3) To help in reducing congestion problems at the city center of Irbid which have been caused by the existing industries there, and to provide an opportunity to expand and/or modernize their activities.

b. Project Scheme and Development Frame

3.014 As for industrial development in the Study Area, the following strategies are proposed.

(1) Early Stage (-1985)

To promote the small- and medium-scale industries in the Irbid Municipality and to broaden the economic base of the city as a growth pole.

(2) Later Stage (-2000)

To develop the large industrial complex which includes an industrial center, a commercial and distribution center and a research and development center at the southern area of the Yarmouk University Campus where the trunk roads cross and to form the area as the second growth pole.
To promote industrial development in the rural area by establishing a satellite industrial promotion center which will function as a workshop training center for the rural communities.

3.015 The development frame and land demand for industries in the Study Area were projected as follows:

(1) Gross Regional Domestic Product (GRDP)

Year	GRDP (JD Million at 1976 Prices)	Annual Growth Rate
1985	184	10%
1990	271	8%
2000	585	8%

(2) Share of Mining and Manufacturing Sector in GRDP

Year	Percentage Share
1977	1.3%
1985	3.0%
1990	5.0%
2000	9.0%

(3) Employment for Mining and Manufacturing

Year	Number
1977	1,350
1985	3,879
1990	7,461
2000	17,799

Note: Assumed growth rate of labor productivity is 5%.

(4) Land Demand

Year	Planning Standard	Land Demand
1985	100 m^2/worker	24.0 ha
1986-1990	110 m^2/worker	37.4 ha
1991-2000	120 m^2/worker	117.9 ha

c. Type of Project

3.016 Based on the understanding with the Ministry of Industry and Trade, the project is not qualified to be called Irbid Industrial Estate, due to the fact that the project is of the urban type, to be located within the municipal boundary, and hence JIEC cannot sponsor the project. The Study Team decided to tentatively call the project the "Irbid Municipality Industrial Park," because the physical function, motivation and industrial activities of the project are just the same as the industrial estate of JIEC. The differences are sponsorship and locational type of the project. The urban type industrial estate has the following advantages over the semi-urban and rural type:

(1) It achieves economies in the provision of urban services and utilities;

(2) It minimizes commutation distances between workers' home and work places, and thereby reduces the load on the transport system;

(3) It effectively promotes participation of women in the labor market, which helps to stabilize the local labor market;

(4) It offers the investors a readily available consumer market for their products on their doorstep; and

(5) It allows the local populace to become familiar with industrial activities and to motivate them to participate in and support industrial development.

d. Industry Selected

3.017 The candidate industries which are likely to be located in the proposed Irbid Municipality Industrial Park were selected by taking 5 steps of analysis from national level ot project level. As a result, 23 industries were selected, as shown in Table 3.1.

Table 3.1 Selected Industries

Code	ISIC	Products
9	3122	Animal feeds
17	3311	Sawmill
18	3312	Wooden cases, boxes, containers and cabinets
19	3319	Other wooden products
34	3691	Structural clay products
35	3692	Cement, Lime and Plaster
36	3699	Non-metallic mineral products
37	3822	Agricultural machinery and equipment
20	3320	Furniture and Fixtures
5	3115	Vegetable oil, Fruit oil and Animal fats
16	3240	Leather footwear
31	3560	Plastic products (Egg trays, Boxes, Containers)
32	3610	Pottery, China and Earthenware
29	3819	Fabricated metal products (Locks, Springs, etc.)
6	3117	Bakery
8	3121	Mayonnaise and Ice making
13	3215	Cordage and Rope
15	3233	Leather products
22	3412	Paper boxes and containers
25	3512	Fertilizer and Pesticides
33	3620	Glass products
37	3811	Cultery, Hand tools and General hardware of metal
38	3813	Metal products

Source: Table 3.35 in Volume 5.

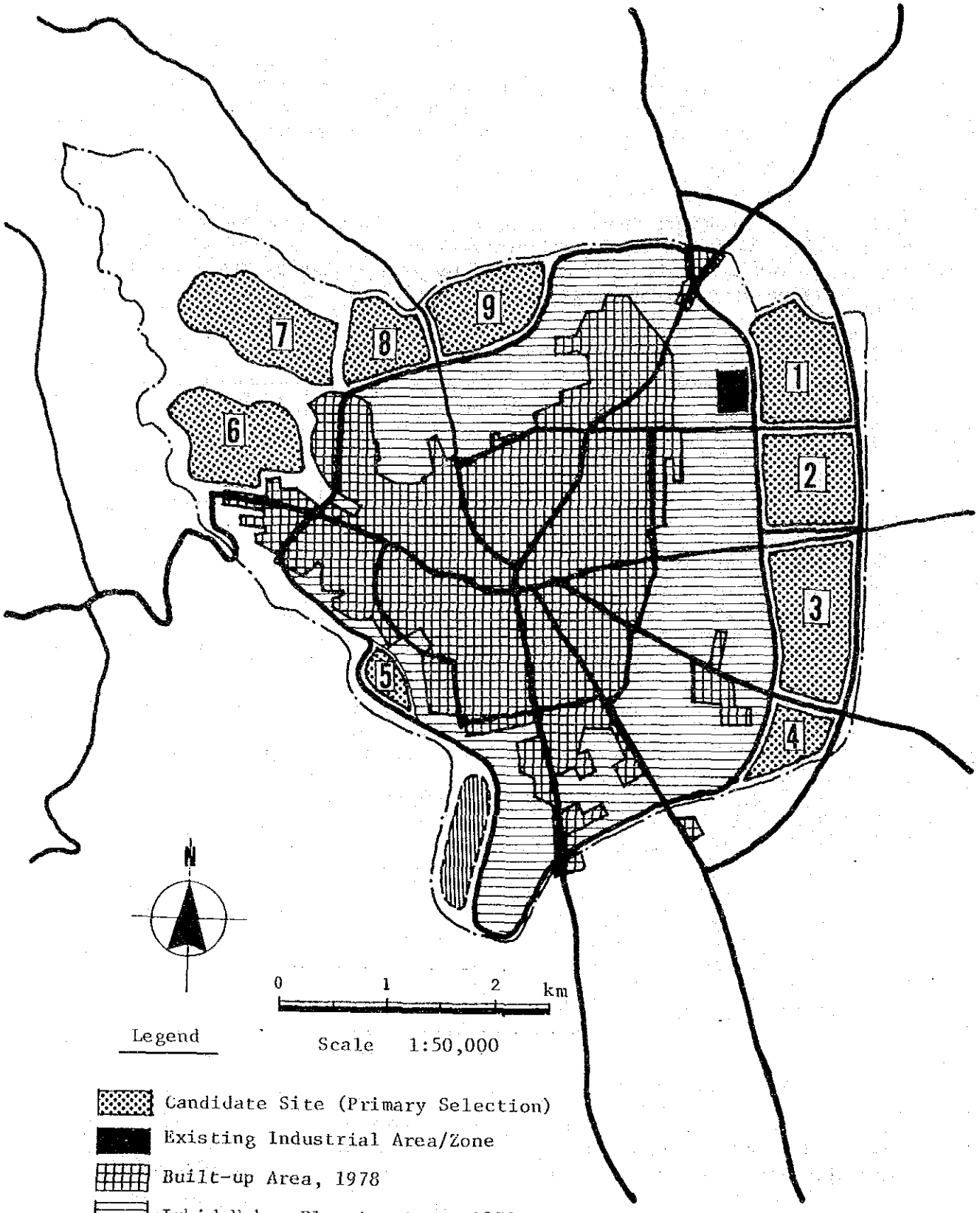
e. Site Selected

3.018 Selection of the most suitable site was done as follows, keeping in mind in the interests of the Municipality, people living near the site, the industrial investors and workers to be employed.

(1) Elimination of the urbanized area and village;

(2) Identification of the candidate sites within the planned development areas as shown on Figure 3.2 (9 sites);

Figure 3.2 Primary Selection of Industrial Park Site



Source: Study Team.

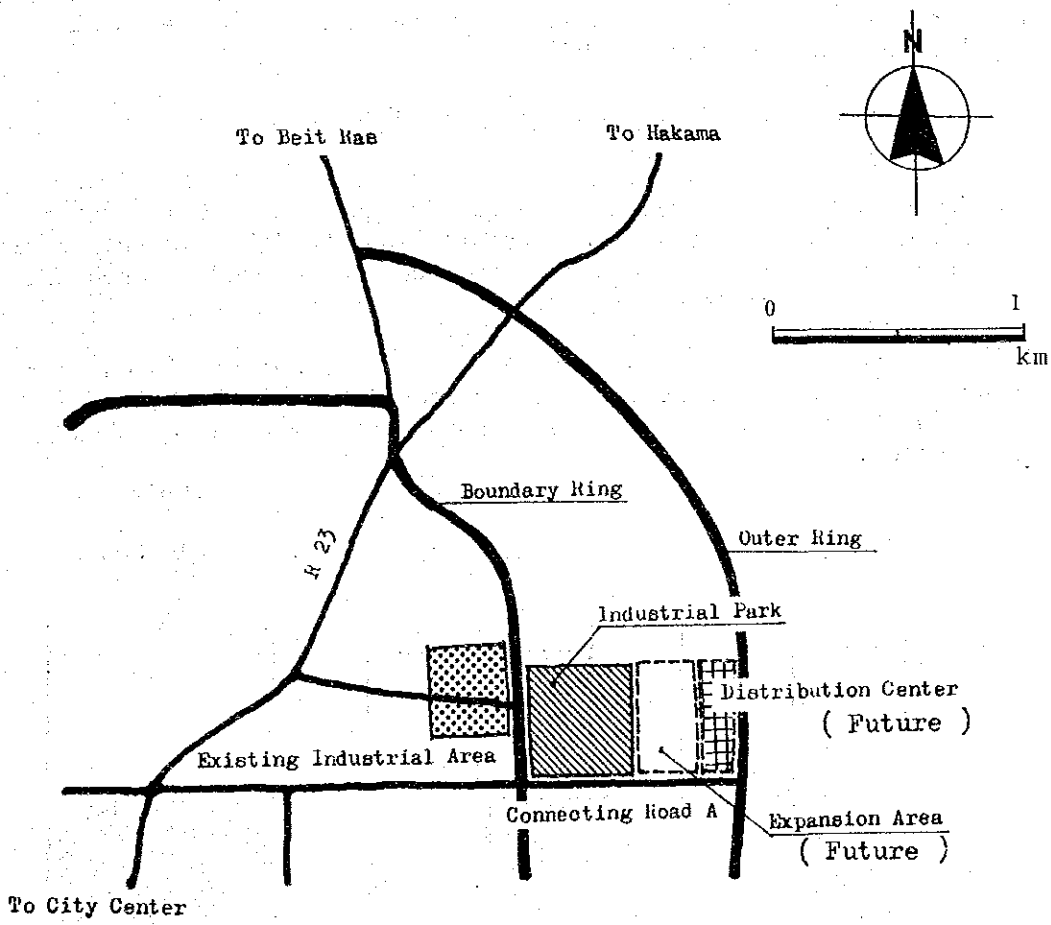
(3) Evaluation of the candidate sites with the following four points: compatibility with desired land use, present and future conditions of the infrastructure, physical conditions (topography, shape, wind direction, expandability) and degree of difficulty in land acquisition (price, ownership); and

(4) Result of evaluation.

3.019 Through the above procedures, it has been determined that Site No. 1 is the most suitable one for the project.

3.020 As shown on Figure 3.3, it is proposed to locate the project so it faces the existing industrial area across the Boundary Ring Road. This offers the advantage that both areas may function as a unit and facilitate the areas' becoming a nucleus of the industrial activities of the Municipality.

Figure 3.3 Location of Site Selected



Source: Study Team.

f. Physical Plan

i. Size of Land

3.021 The goal of the project is to develop a comparatively moderate size urban-type industrial estate to accommodate (1) new small- and medium-scale industries such as food processing and metalworking, (2) expansion of the existing industries and (3) relocating industries such as auto repair shops and other small enterprises which are now located in the center of the City and are scheduled to move out of there by 1985.

3.022 The size of the project shall be approximately 26.6 hectares, composed of 5 hectares for relocated industry and 21.6 hectares for new industry.

ii. Employment

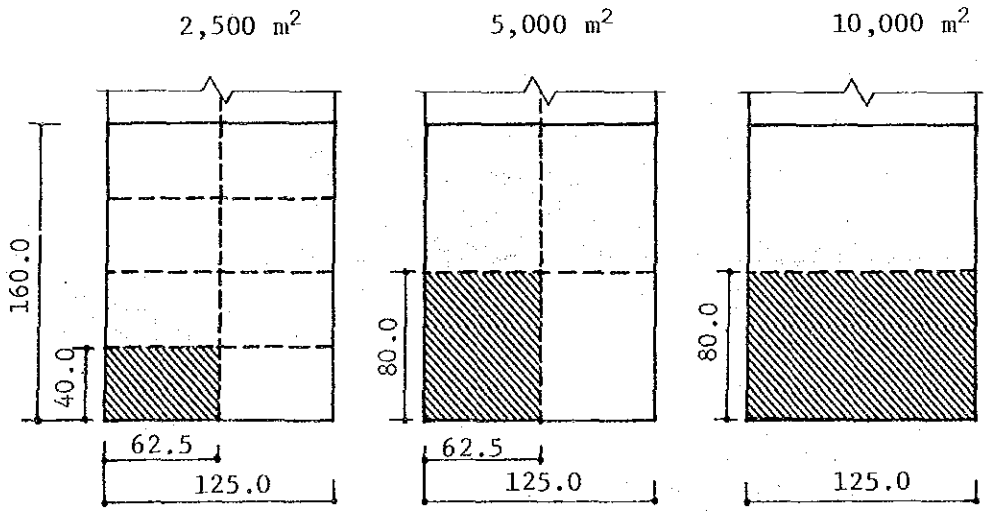
3.023 It was assumed that the total direct employees would be 1,920 persons, composed of 600 persons for the relocated industries (150 persons/ha) and 1,320 persons for the new industries (66 persons/ha). The number of other indirect or associated workers, for the management and services is assumed to be about 80 persons. Thus the total population would be around 2,000.

iii. Factory Lot and Standard Shed

3.024 The project should contribute to giving a better image for the Municipality and serve as a model of industrial development in the Study Area. In this sense, the factory land shall be limited to around 70 percent of the total area, the remainder to be used as open space that includes common facility area, roads and green area.

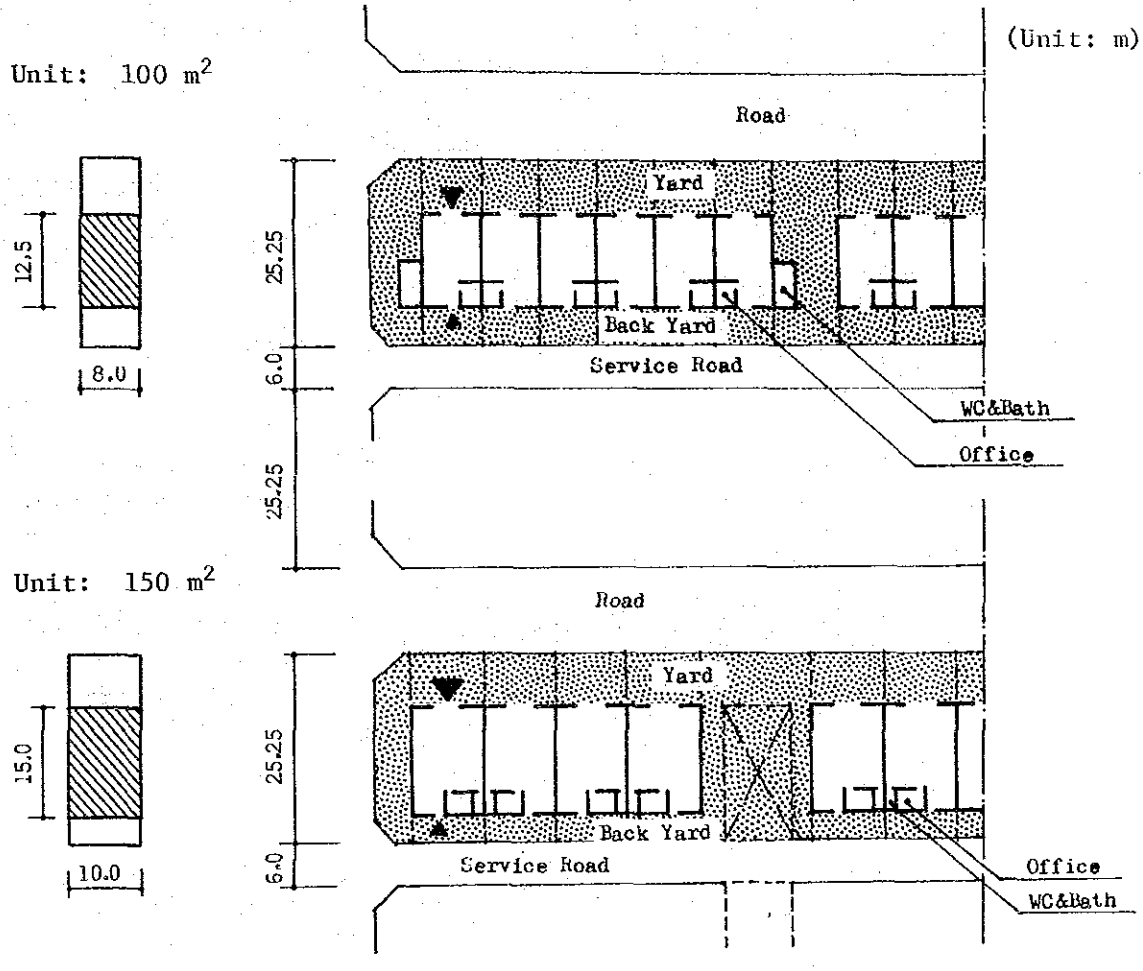
3.025 Common size of factory lots for the candidate industries proposed in industry selection ranges from 2,000 m^2 to 10,000 m^2. Based on the above data a module of subdivision was established as shown below.

(Unit: m)



3.026 The above module of subdivision can be applied to the Standard Shed for the relocated industries.

3.027 In order to give flexibility, 100 m^2 unit and 150 m^2 unit are planned for the Standard Shed as shown below.



Source: Study Team.

iv. Site Layout

3.028 The candidate industries were grouped on the basis of common elements of each industry, to determine the most rational layout. The groups are:

(1) Grouping based on common raw materials
- Wood Group (Woodwork and Furniture)
- Metal Group (Metalworking)
- Plastic Group (Furniture, Container, etc.)
- Food Group (Bakery, Oil, Meat, etc.)

(2) Grouping based on common needs for large water supply.
- Wet Group (Food Processing, Bottling)

(3) Grouping based on common needs for welfare facilities.
- High Density Workers Group (Relocated Industries)

(4) Grouping based on generating common pollutant.
- Noise and Vibration Group (Metalworking, Printing)
- Air Pollution Group (Feed, Building Materials)
- Dusty Group (Feed, Building Materials)
- Water Pollution Group (Food Processing, Bottling, Metals)

The site layout is shown on Figure 3.4. This site layout was designed to be a prototype layout applicable to some other sites.

v. Infrastructure

3.029 Infrastructure for the site is proposed as follows:

(1) Roads

The standards of primary and secondary roads in the Park were set at 20 m width and 12 m width respectively.

(2) Water Supply

The total demand for water was estimated at 500 m^3/day. The main pipe for water from the Yarmouk River is planned to be installed along the Boundary Ring Road where the distribution pipe to the Park is connected.

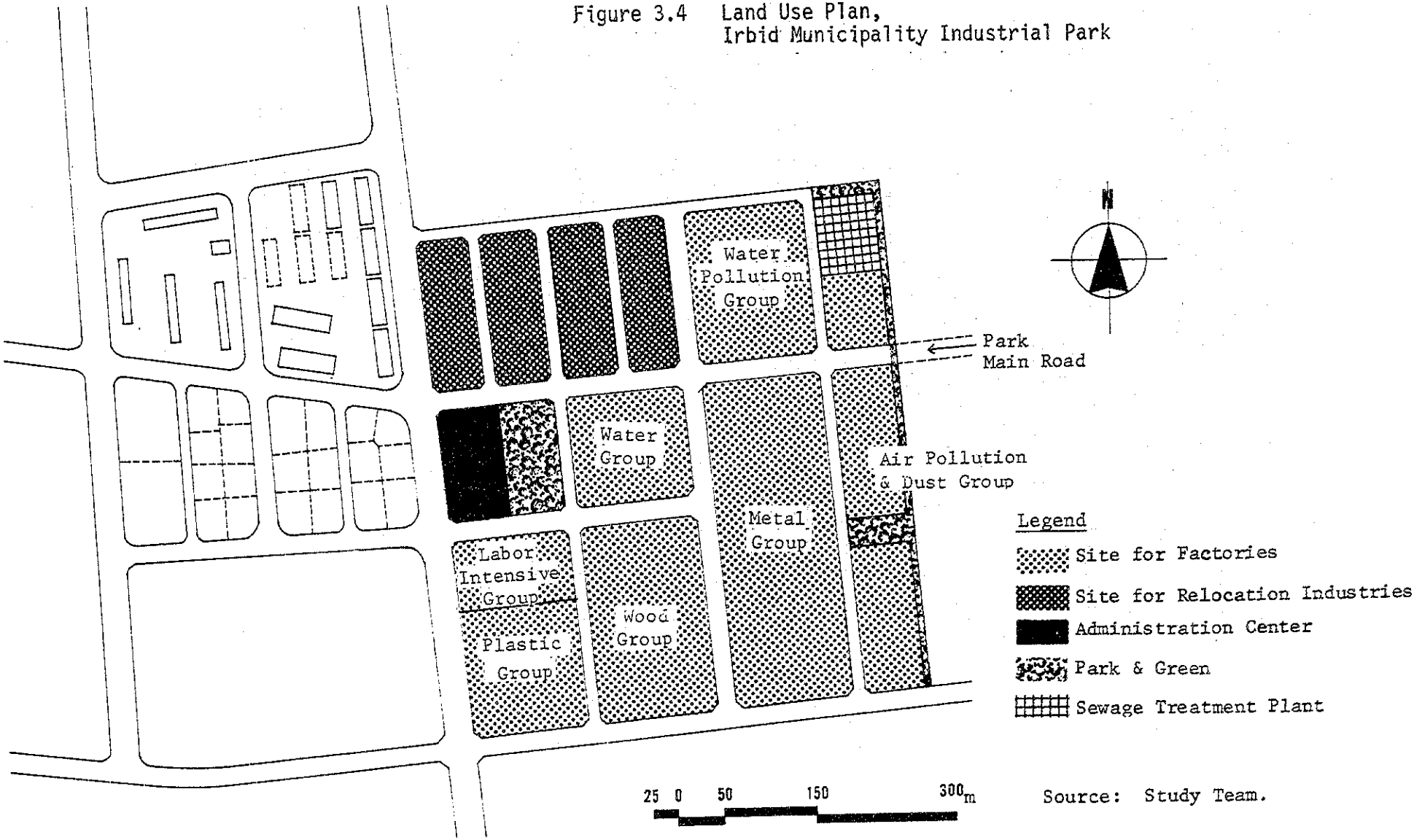
(3) Sewer System

Ordinary waste water from factories shall be directly discharged into a dual function pipe for sewage and drainage installed under the main roads in the Park. Waste water not suitable for bio-treatment must be treated at each establishment. The sewage pipe shall be connected to the municipal sewer system when it becomes available for use. However, to be sure, it is recommended that a treatment facility should be provided, at the corner of north east of the Park.

(4) Electric Power Supply

The estimated power demand of the Park is 2.0 MW. A transmission line from the main substation of the Irbid District Electric Company (IDECO) to the proposed substation in the Park (approximately 3 km) may be required.

Figure 3.4 Land Use Plan,
Irbid Municipality Industrial Park



Source: Study Team.

(5) Garbage and Solid Waste Disposal

The disposal facility shall not be in the Park due to environmental considerations and it is necessary to rely on the service provided by the Municipality.

(6) Common Facilities

The common facilities which are listed below have the important role of creating such amenities as listed in Table 3.2 for the Park.

Table 3.2 Common Facilities

	Purpose	Facilities
(a)	Administration Security Welfare	•Administrative Office •Fire Station •Post Office •Clinic and Garden
(b)	Commercial	•Shops •Gasoline •Bank •Warehouse •Restaurant
(c)	Seminars & Meetings	•Large Hall •Small Meeting Room
(d)	Religion	•Mosque

Source: Study Team.

vi. Cost Estimate

3.030 The total internal development cost of the project is approximately JD 2.87 million, of which 46 percent is for land purchase (JD 1.3 million) and the rest for land improvement and buildings. The foreign currency portion of the project cost is estimated at JD 921,000, accounting for 32 percent of total cost at 1978 prices.

3.3.3 Project Feasibility

a. Financial Feasibility

3.031 In the first place, the basic matters concerned with operational policy of the project were studied. They are as follows:

(1) Method of recovery of investment (sale and/or lease);
(2) Pricing (cost plus profit margin and/or market price); and
(3) Source of financing (government's contribution, domestic bank loan, and/or foreign government's loan).

Also, considerations were given to such subjects as entrepreneurs' preference for either purchasing or leasing land, pricing policy of the Sahab Industrial Estate and current market prices in Irbid.

3.032 Based on the above factors and considerations, the following alternatives were developed for the purpose of financial analysis:

(1) Leasing system of industrial lots,
(2) Sales of sub-divided industrial lots, and
(3) Composite type of sales and leasing system.

3.033 As a governmental policy, all Standard Sheds will be leased.

3.034 The financial analysis on these three alternatives were made by producing many more alternatives. Its result is as follows. In the case that the executing agency of IEI can get no assistance from the Central Government, the financially best alternative is the Alternative No. 4 in the main text of this report. The No. 4 is the alternative whose policy is to lease the standard shed at JD 11.25/m^2 and to sale the industrial lot at JD 13.8/m^2 at 1978 prices. The IRR of this alternative is 9.4 percent, which indicates that this project is feasible. If a tie-in loan with a banking institution is set up for this project, the IRR will be enhanced to reach the level of approximately 11.1 percent. In the case that the executing agency of IEI can get no assistance from the Central Government and that the land sales is not allowed, Alternative No. 1 in the main text of this report is the best. The Alternative No. 1 is the policy to lease the standard shed at the fixed price of JD 11.25/m^2 to lease the industrial lot at the rent which starts from JD 0.6/m^2 per year at the beginning and then increases by 40 percent in every 5 years. The IRR of this alternative is 8.2 percent which is bearly feasibility judging from the datum line of 9 percent. In order to make this alternative reasonably barely feasible, i.e., to let it achieve 9 percent IRR, JD 202,000 (at 1978 prices) of capital subscription by a public institution will be necessary for this project. This is the conclusion of the financial analysis for IEI project.

b. Economic Feasibility

3.035 The concept of the economic benefit/cost analysis of this project is summed up as follows:

(1) Economic Benefits

Products and services to be generated in the factories in the Park, and

(2) Economic Costs

1) The construction and operation cost of the Industrial Park,
2) Fixed capital investments in factories, and
3) Operation cost of the factories.

3.036 As calculated on the basis of the above economic costs and benefits, economic rate of return is estimated at 18.5 percent, which is likely to be more than the opportunity cost of capital, when compared with the money market rate of 9 to 12 percent and the long-term foreign free-market loan of 4 to 9 percent.

3.3.4 Conclusion and Investment Schedule

a. Conclusion

3.037 The Study revealed that the Study Area has enough potential for industrial development in terms of availability of factors of production such as human resources, land, water and minerals (limestone and oil shale) and man-made resources of the various forms of infrastructure. The recent introduction in Irbid of several new industries such as ball point pen, foundry, industrialized room component, dairy, and sanitary wares indicates the beginning of a new era for the Study Area.

3.038 Irbid is the second largest municipality in the country and its role in the Study Area is extremely important. The project under this Study was selected in line with the long-term development strategy of the Study Area and is designed to generate the following direct benefits:

(1) About 2,000 new job opportunities,
(2) About JD 13.7 million (at 1978 prices) of yearly output (sales minus taxes), and
(3) About JD 3.3 million (at 1978 prices) in terms of value-added.

3.039 Though the level of the Study is preliminary, the results of the Study show that the project is feasible technically, financially and economically. In addition, the project has good effects on regional and national economy including indirect benefits such as improvement of inter-regional distribution.

3.040 Thus, the project is recommended for implementation.

b. Organizational Arrangement

3.041 We would like to recommend the Jordan Government to study and decide on the sponsorship before proceeding to the next phase. Our tentative recommendations in terms of the sponsorship of the project are as follows:

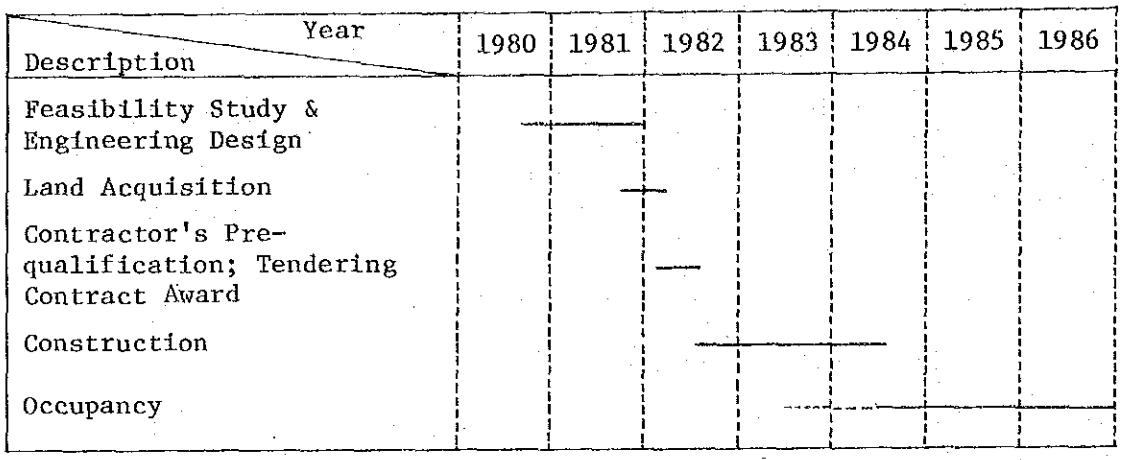
(1) To form a joint corporation of the Central Government and the Irbid Municipality, having representatives from the authorities concerned on its board and having a management service contract with the JIEC; or

(2) To form a quasi-public corporation with participation by Governmental agencies, such as the Central Government, the Municipality, IDB and Pension Fund, and the members of the private sector who have interest in the project.

c. Investment Schedule

3.042 Before the start of construction, preparatory work such as engineering design is required. Particularly, concerning the candidate industries, determining the feasibility of establishing some selected industries, and sounding out the interests of potential investors, are required. In addition, land acquisition and necessary financial arrangements are essential. The rough schedule for these works and construction is recommended in Figure 3.5.

Figure 3.5 Investment Schedule



3.4 Ring Roads of Irbid

3.4.1 Introduction

3.043 Ring roads have been planned since 1970, by the Municipality of Irbid, as a part of city planning. The major objectives of the project are as follows:

(1) Mitigation of traffic congestion in the center of the city by diverting the through-traffic to the Ring Road;

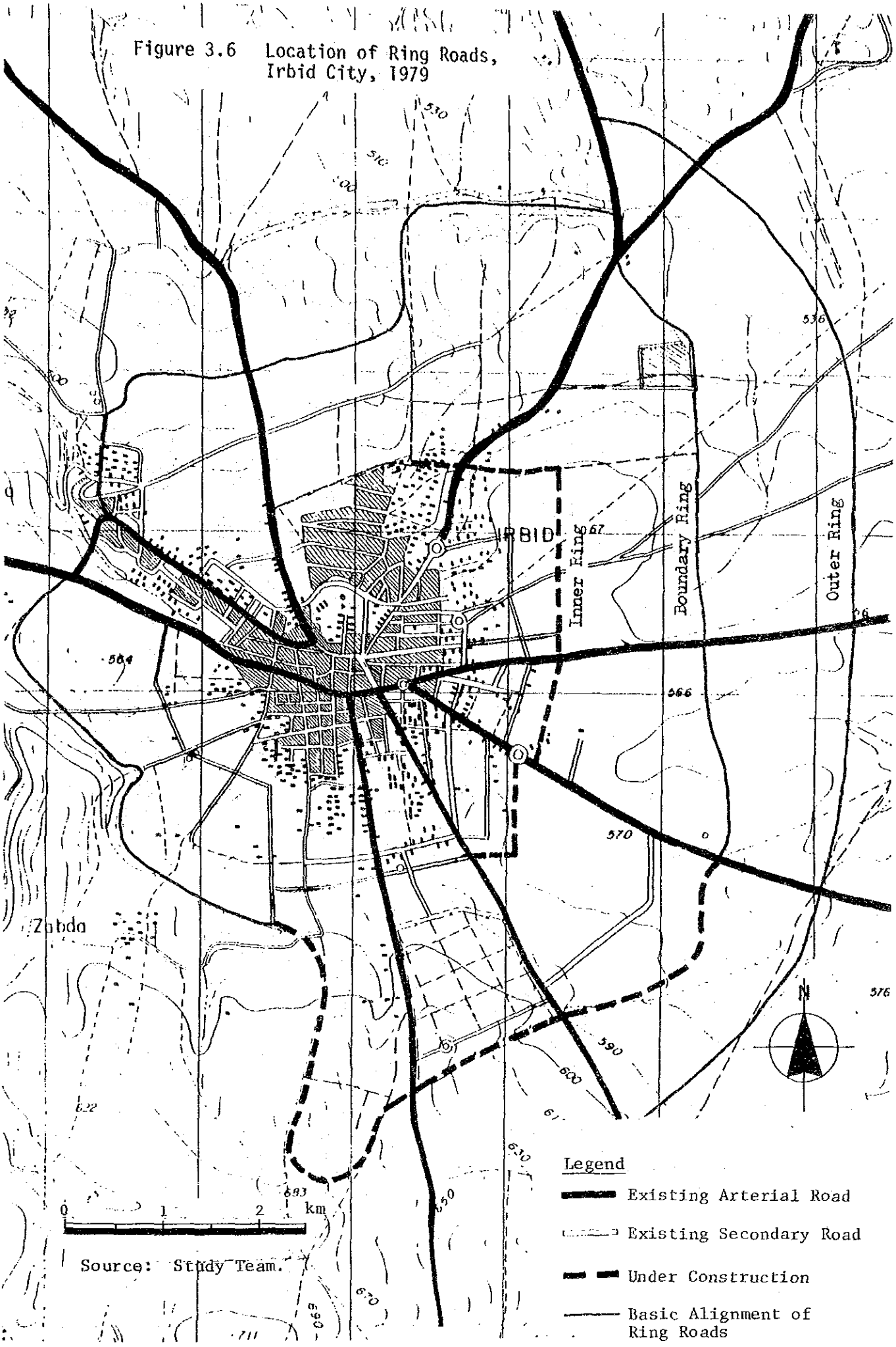
(2) To help develop the less-developed areas, by provision of a better transport facility; and

(3) To afford a framework to the city for a proper planning of land use, which will prevent unfavorable sprawl of the urbanized area.

3.044 The ring roads are of three types, according to location; Inner Ring, Boundary Ring and Outer Ring. The construction of the Inner Ring and some work on the Boundary Ring are presently going on. The location of the three rings are illustrated in Figure 3.6.

3.045 Of the three ring roads, our main concern is the remaining part of the Boundary Ring and the Outer Ring Road, of which basic alignments are determined below.

Figure 3.6 Location of Ring Roads, Irbid City, 1979



Source: Study Team.

3.4.2 Traffic Projection

3.046 On the basis of the existing traffic data, traffic volume projections were made for the years 1985 and 2000.

3.047 By employing some formulas and the growth rates of the intercity and through-traffic, the traffic demands in Irbid were calculated for the years 1985 and 2000. The results are shown in Table 3.3 in terms of trip ends.

Table 3.3 Estimated Trip Ends in Irbid (Vehicles/Day)

(Unit: Cars)

Year	Type of Trips	Passenger Cars	Goods Vehicles	Total	Growth Rates
1976	Intra-city	30,599	9,601	39,200	
	Intercity	14,637	6,206	20,843	
	Through	600	1,203	1,803	
	Total	45,836	16,010	61,846	1.00
1985	Intra-city	60,943	13,636	74,579	
	Intercity	28,343	7,895	36,238	
	Through	881	1,499	2,380	
	Total	90,167	23,030	113,197	1.85
2000	Intra-city	86,232	22,522	108,754	
	Intercity	38,926	13,058	51,984	
	Through	1,448	2,161	3,609	
	Total	126,606	37,741	164,347	2.68

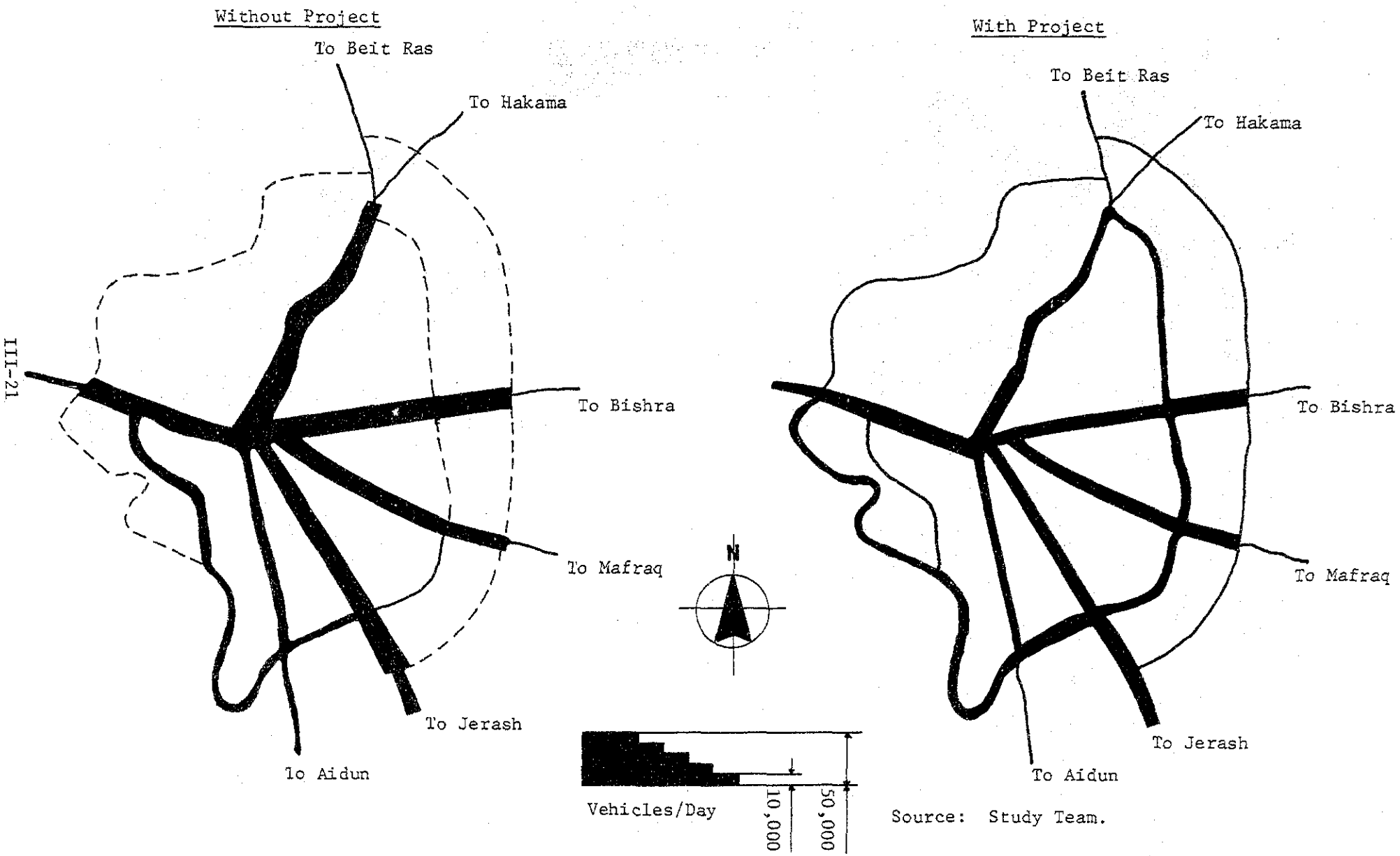
Source: Study Team.

3.048 The estimated future traffic demands were assigned to the two alternative road networks in the city, i.e., with the Ring Roads project and without it. The results are presented in Figure 3.7 and Figure 3.8.

3.049 It is noted that the traffic volumes on the existing radial roads would be remarkably reduced by the Ring Roads project.

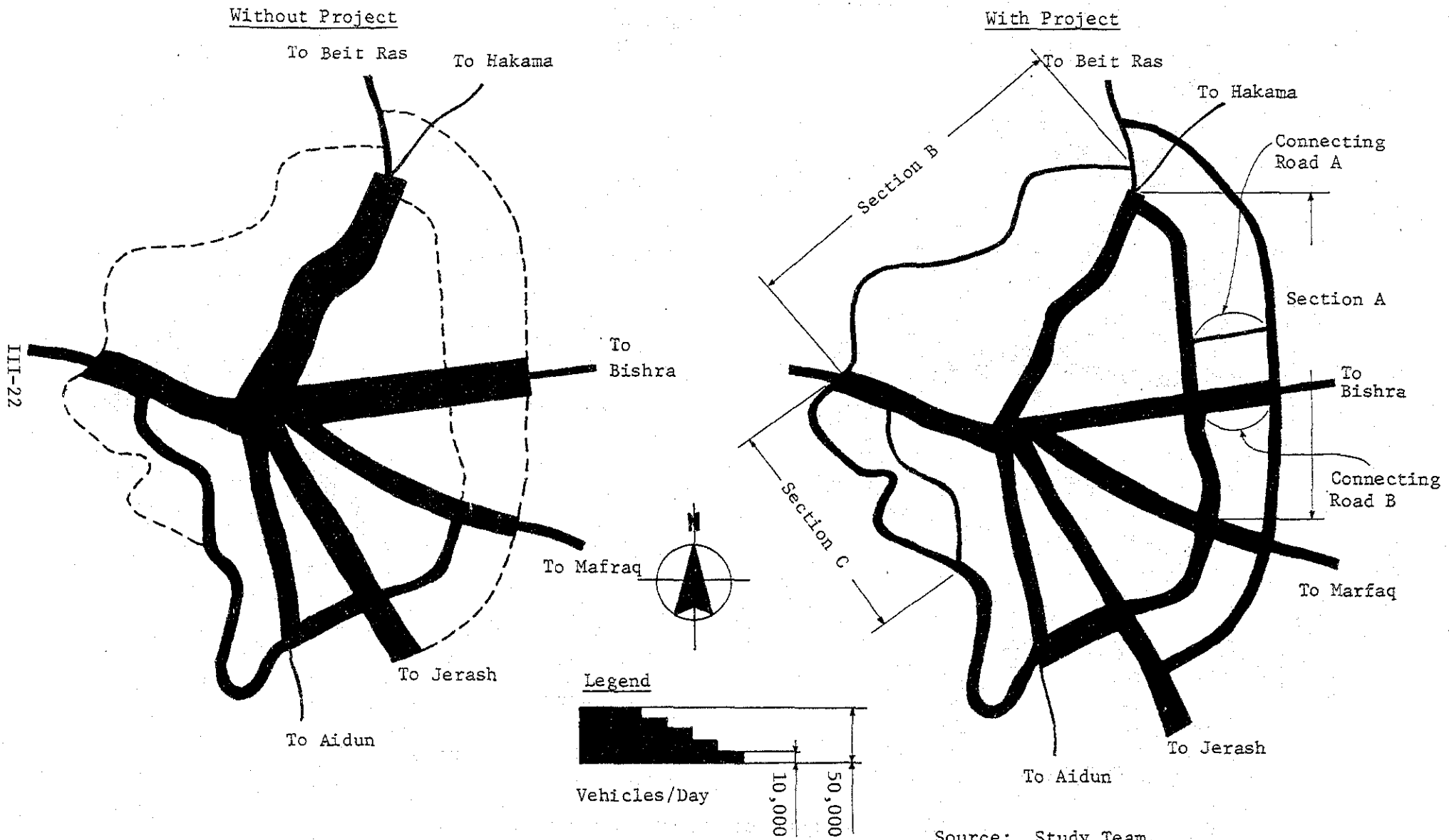
3.050 It is also noted that the traffic volume of the Boundary Ring Road is expected to be about 3,500 to 9,000 vehicles per day in the west section and about 10,000 to 15,000 vehicles per day on both the Boundary and Outer Rings in the east section by 1985. These traffic volumes reflect the fact that the urbanization of Irbid is expanding in the directions of northeast and southeast.

Figure 3.7 Estimated Traffic Volumes, 1985



Source: Study Team.

Figure 3.8 Estimated Traffic Volumes, 2000



Source: Study Team.

3.4.3 Formulation of Alternatives

3.051 In order to create the best project, alternative plans were generated, as shown in Table 3.4.

Table 3.4 Alternatives

Roads Concerned	Alternative 1			Alternative 2		
	1985	1990	2005	1985	1990	2005
Boundary Ring						
Section A	2 lanes	4 lanes	4 lanes	4 lanes	4 lanes	4 lanes
Sections B & C	2	2	2	2	2	2
Outer Ring	2	2	2	0	0	0
Connecting Road						
A	2	2	2	2	2	2
B	2	4	4	0	0	0

Source: Study Team.

3.052 The main difference between the two alternatives is whether or not the Outer Ring is constructed.

3.4.4 Preliminary Design and Cost Estimates

a. Geometric Design Standards

3.053 The main items of the design standards and typical cross sections for the Irbid Road are described in Table 3.5 and illustrated in Figure 3.9. As seen in the Table, there are two standards: original standard and modified standard. Both standards are acceptable. So, it is recommended for the Jordan Government to make decision on which standard should be adopted for the Ring Roads project.

Table 3.5 Roadway Geometric Design Standard

Major Item	Unit	Recommended Standards	
		Original Standard	Modified Standard
Design Speed	km/hr	60	Same
R.O.W. Width	m	30 (4-lane)	32.0
		20 (2-lane)	21.4
Lane Width	m	3.3	3.6
Parking Lane Width	m	2.0	2.4
Minimum Radius	m	125	Same
Maximum Gradient	%	5*	Same
Stopping Sight Distance	m	80	Same

Source: Study Team.

Note: * Absolute maximum.

b. Route Alignment Design

3.054 Considering several conditions such as efficiency and the design standards, route alignments of Ring Roads were chosen as shown in Figure 3.10.

c. Pavement Design

3.055 The pavement thickness for the Ring Roads was calculated as shown below, taking account of daily traffic volume, serviceability of the pavement, bearing values of the soil and other factors.

Asphalt Concrete Surface (two layers)	10 cm
High Quality Base Course	20 cm
Compacted Selected Topping	15 cm

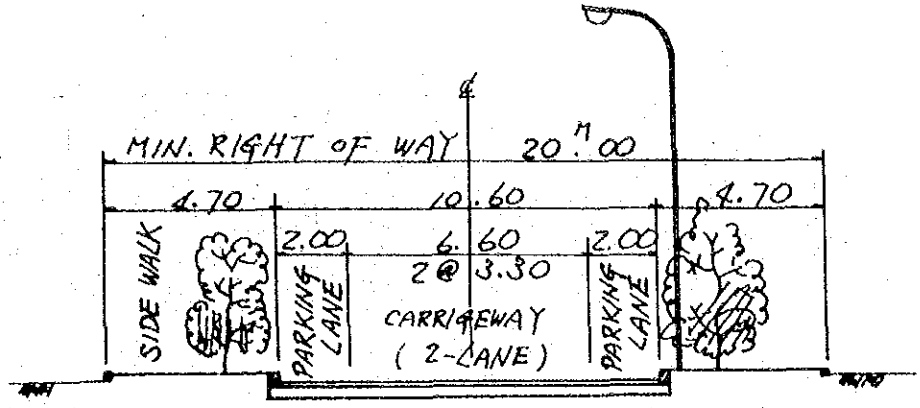
d. Cost Estimates

3.056 The preliminary construction cost estimates were made, based on the quantities estimated in the preliminary design and on the unit price of work items.

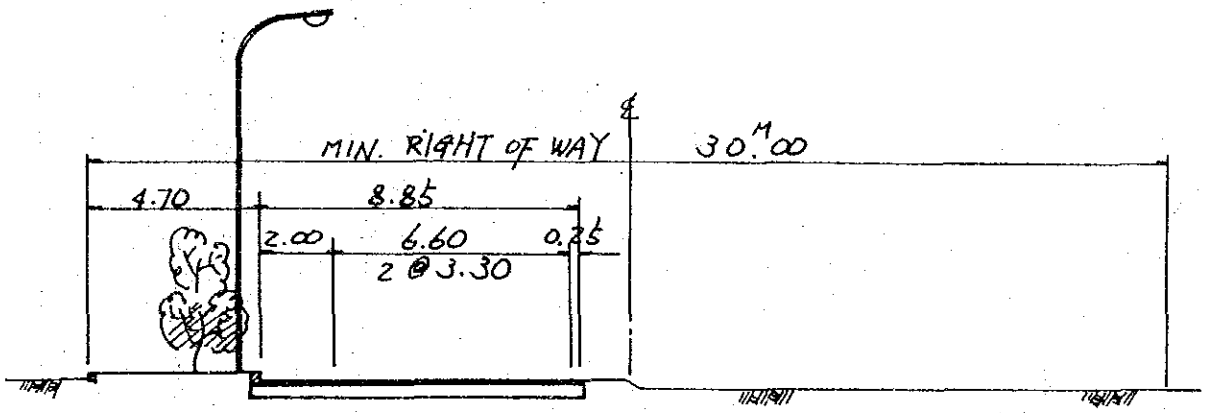
3.057 The total construction costs in 1978 prices were estimated to be JD 2,173,500 for the Boundary Ring Road, JD 830,600 for the Outer Ring Road, JD 224,800 for the two Connecting Roads (see Tables 4.17 and 4.18), when the original standards of the lane and the parking lane widths are adopted. If the modified standards are adopted, JD 2,312,200 for the Boundary Ring Road, JD 864,300 for the Outer Ring Road, and JD 235,500 for the two Connecting Roads.

3.058 The total project cost in 1978 prices was estimated to be JD 3,228,900, of which the foreign portion is JD 1,536,700, when the original standards are adopted. If the modified standards are adopted, it will be JD 3,412,000.

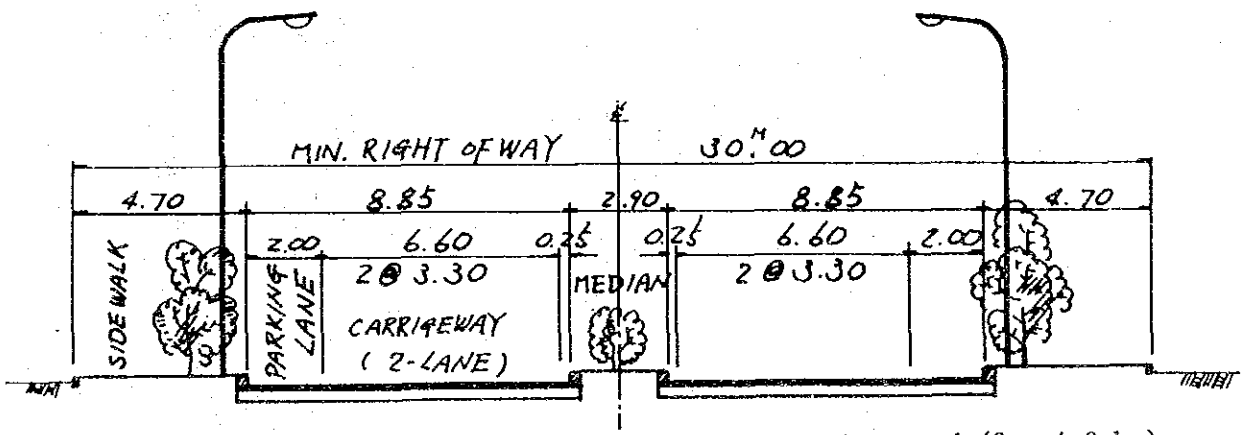
Figure 3.9 Typical Roadway Cross Section, Original Standard



2-Lane 2-Way for Boundary Ring Road (4.0 - 12.67 km)
Outer Ring Road (0 - 7.7 km)
Connecting Road A

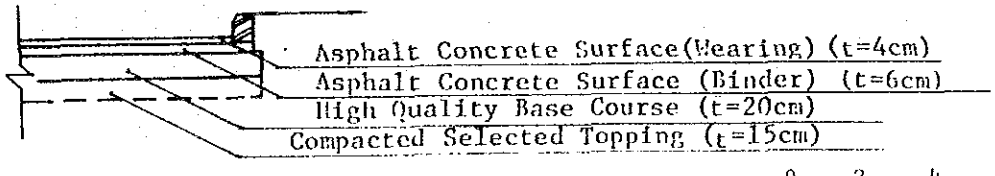


2-Lane 2-Way for 1st Stage (1985) of Boundary Ring Road (0 - 4.0 km)
Connecting Road B



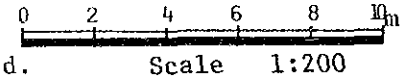
4-Lane 2-Way for Ultimate Stage (1990) of Boundary Ring Road (0 - 4.0 km)
Connecting Road B

Details of Pavement



Source: Study Team.

Note: In cost estimation, roadside trees are excluded.



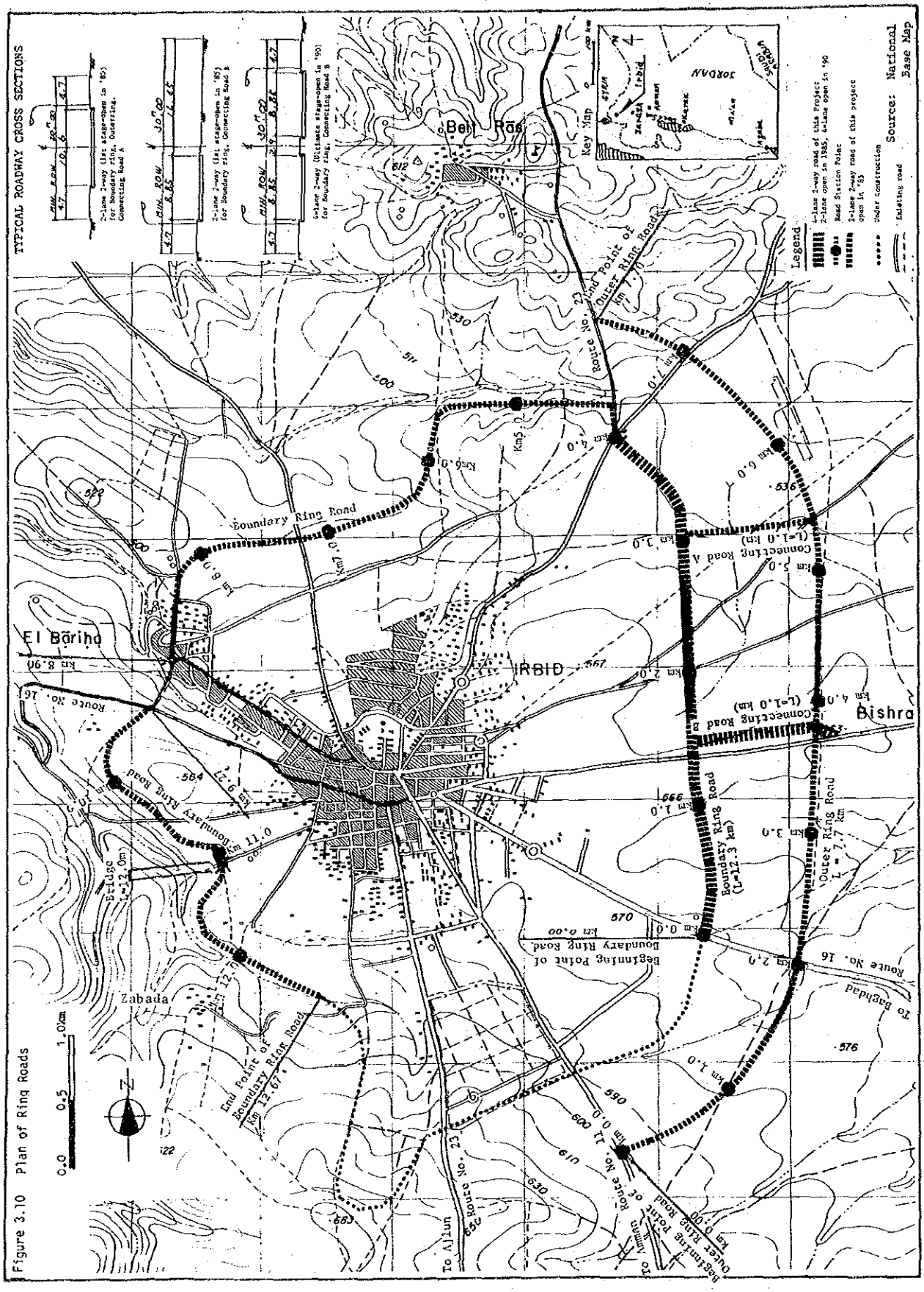


Figure 3.10 Plan of Ring Roads

3.059 In addition, maintenance cost per year was calculated approximately at JD 0.14 million.

3.4.5 Economic Evaluation

a. Economic Costs Based on Original Design Standard

3.060 The construction, land acquisition, compensation and maintenance costs were converted into economic costs by deducting duties and taxes or by utilizing conversion rates. They were discounted to 1978 present value at an annual discount rates of 9 percent, 12 percent and 15 percent and the results are shown in Table 3.6.

Table 3.6 1978 Present Value of Total Economic Costs for the Project Life Span of 20 Years

(Unit: JD 10^3 at 1978 Prices)

	1978 Present Value at Annual Discount Rate of		
	9%	12%	15%
Alternative 1	4,742.3	4,046.4	3,462.8
Alternative 2	-	2,818.3	2,443.9

Source: Study Team.

b. Economic Benefits

3.061 In general, the most important economic benefits derived from road construction should include:

(1) Promotion of economic productivity;
(2) Reduction of operating expenses, initially to the users of the new road or sometimes also to those who continue to use the existing roads;
(3) Savings in time for both passengers and freight;
(4) Reduction of accidents and damage; and
(5) Increase of comfort and convenience.

3.062 Here, land value can be considered to be an measurement of benefits which represent (1), (2) and (3). Accordingly, the incremental land value is regarded as the major benefit from the new road.

3.063 Assuming that the costs for grubbing and clearing the land are JD 0.3/m^2, the benefits were calculated for the two alternatives as given in Table 3.7.

Table 3.7 1978 Present Value of Economic Benefits

(Unit: JD at 1978 Prices)

	Present Value at Discount Rate of	
	12%	15%
Alternative 1	JD 4,765,500	JD 3,694,400
Alternative 2	JD 3,312,600	JD 2,547,000

Source: Study Team.

Note: Project life is 20 years.

c. Selection of Alternatives Based on Original Design Standard

3.064 The results of the economic evaluation of the project for the two alternatives are summarized in Table 3.8. The table shows that both of the alternatives are economically feasible. However, we have concluded that Alternative 1 is more advantageous than Alternative 2, since the Net Present Worth as well as the Internal Rate of Return for Alternative 1 is slightly higher than the other. Thus, the Study Team recommends Alternative 1 to be implemented.

Table 3.8 Indicators for Economic Evaluation

(Unit: JD at 1978 Prices)

Alternative	Net Present Worth (JD 1,000)	B/C Ratio	Internal Rate of Return (%)
1	719.1	1.18	16.5
2	494.3	1.17	16.0

Notes: 1. Project life is 20 years.
2. Discount rate is 12 percent.

d. Project Feasibility Based on Two Design Standards

3.065 As a result of the economic feasibility studies, when the original design standards are adopted, the benefit-cost ratio of the project is 1.18 at the discount rate of 12 percent, the net present worth is JD 719,100 and the internal rate of return (IRR) is 16.5 percent. When the modified design standards are adopted, the internal rate of return is 15.9 percent. In either case, IRR is well above the opportunity cost of capital which is estimated to be about 9 percent. Thus, RRI project is feasible regardless of which design standards of two is adopted.

e. Conventional Economic Evaluation of Alternative 1 Based on Original Design Standard

3.066 The benefit estimated above is certainly the one applicable to the project, but the estimation method is not a broadly familiar one.

3.067 Therefore, in economic benefit estimation, the more orthodox method was undertaken in order to ensure the economic feasibility of the selected alternative plan. This method is to calculate the improvement in traffic conditions with the development of a new road, i.e., emphasizing mainly the benefits of (2) and (3) described above. These benefits are defined as the difference in travel times and running costs hitherto affected with and without the project.

3.068 The total benefit by this method resulted in JD 5,359,800 as the value of 1978, at the annual discount rate of 9 percent.

3.069 The economic benefit-cost ratio was found to be 1.13 and the net present worth to be JD 617,500 at the discount rate of 9 percent; the internal rate of return was 9.9 percent.

3.070 Consequently, the feasibility of the Ring Roads project can be economically justified even by this conventional evaluation method.

3.4.6 Conclusion and Investment Schedule

a. Concluding Remarks on the Ring Roads Project

3.071 The Ring Roads project studied by the Study Team involved the following sections:

Boundary Ring Road	12.3 km
Outer Ring Road	7.7 km
Two Connecting Roads between the Boundary Ring and the Outer Ring	2.0 km
	22.0 km

3.072 The results of this Study show that the Ring Roads are really needed and are economically feasible. The conclusions of the Study are summarized below.

(1) The Boundary Ring Road is planned as a 4-lane road, but all the Ring should be open to traffic as a 2-lane road by 1985, except for the section between Route 11 to Jerash and Route 23 to Ajlun, which is required to have 4 lanes by 1985. The section of the Boundary Ring between Baghdad Street and Route 23 to Beit Ras should be widened to 4 lanes in 1990.

(2) The construction of the Boundary Ring should be initiated at the section between Baghdad Street and Route 23 to Beit Ras in order to support the Industrial Estate project.

(3) The Outer Ring Road is planned as a half ring road at the east side of the city, with 2 lanes. Widening to 4 lanes is not necessary for the coming two decades, if the Boundary Ring is widened.

(4) The connecting roads are planned as a 2-lane road for Road A and as 4-lane road for Road B. Road B should be open to traffic as a 2-lane road in 1985 and should be widened to 4 lanes in 1990.

(5) Even though there are sections on the west part of the Boundary Ring Road or the Outer Ring Road which do not need 4 lanes for the coming two decades, it is recommended to acquire enough land at all sections for possible future road widening purposes as well to create better residential areas.

(6) At intersections of the Ring Road and main roads, it is recommended that in future traffic signals should be installed instead of rotary type intersections, i.e., roundabouts.

(7) As to the design standards of the RRI, it is recommended for Jordan Government to decide which design standards should be adopted for the RRI project, the original standards or the modified standards.

b. Other Recommended Projects

3.073 The road networks recommended for the years 1985 and 2000 are shown in Figure 3.11, and in addition to the Ring Roads project the following are recommended.

(1) Projects for the period till 1985

1) Inner Ring

The east part of the Ring which is now under construction should be completed and have 2 lanes.

2) The Road near the Industrial Park connecting the three Rings

The road nearest to the existing industrial area connecting the three Ring Roads should be completed and have 2 lanes in order to support the development of the industrial area and the candidate site of the Industrial Estate project.

(2) Projects for the period after 1985

1) Completion of the Inner Ring

The northwest part of the Ring should be completed at the earliest possible time.

c. Other Recommendations

3.074 In addition to the above, there are more recommendations for the Irbid road network. They are:

(1) It is recommended that traffic signals be installed at the main intersections of the city. This will help reduce traffic accidents and congestion.

(2) Parking should be prohibited in certain streets, to increase the road capacity, and several parking areas in the city center should be provided. A toll system could be introduced.

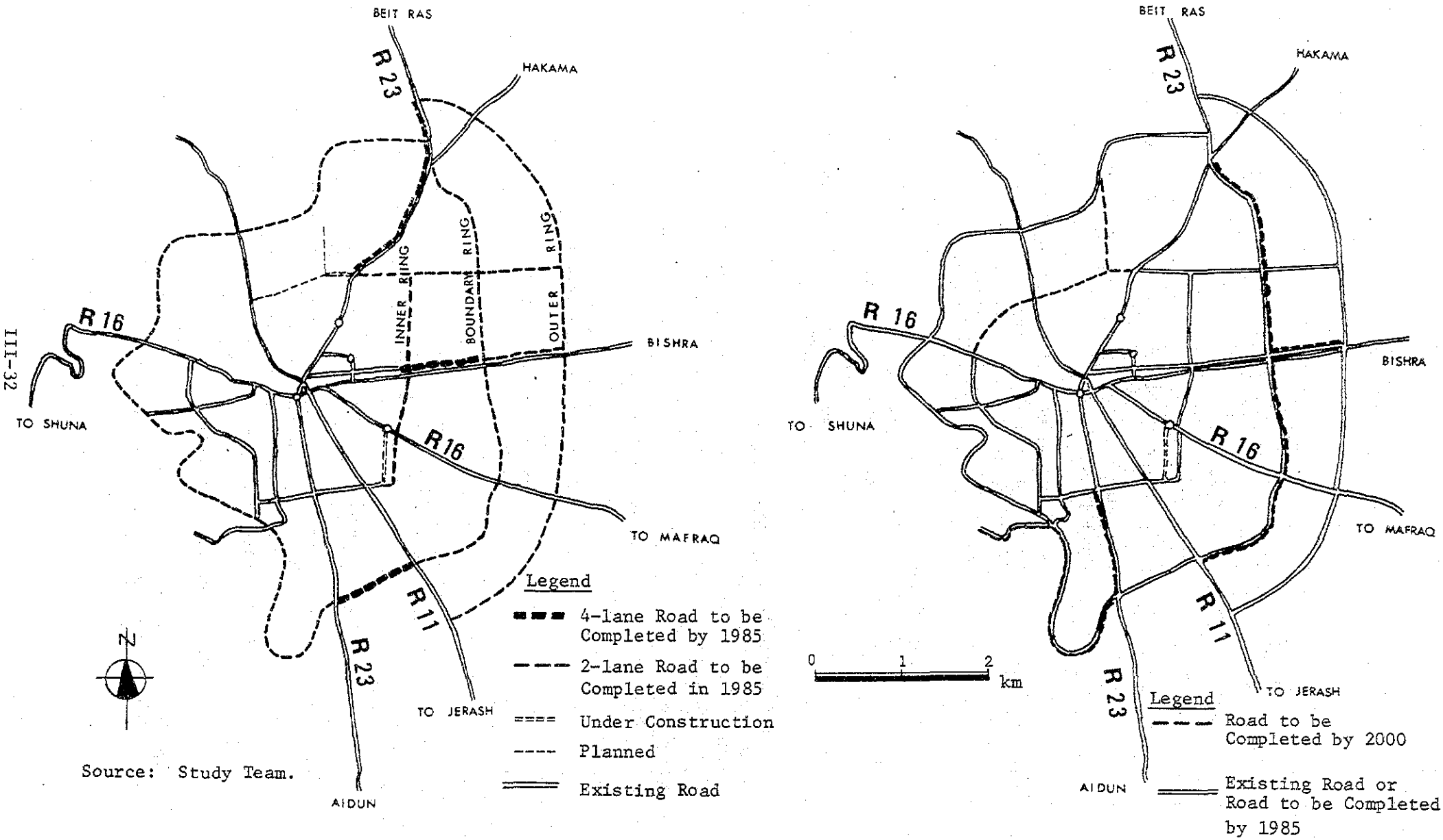
(3) A bus corporation should be established to operate on the three Ring Roads. If heavy dependence on taxis for public transportation continues, it will be one of the causes of traffic congestion in the near future.

(4) A comprehensive city plan for the whole city area should be prepared as soon as possible, the purpose being to help in the implementation of projects such as road construction. It would be more effective and easier if the plan is approved before the project area is fully urbanized.

d. Investment Schedule

3.075 In order to implement the Ring Roads project, the following investment schedule is recommended as shown in Figure 3.12.

Figure 3.11 Recommended Road Network



Source: Study Team.

Figure 3.12 Overall Investment Schedule, Ring Roads Project

(Unit: JD 1,000 in 1978 Prices)

Description \ Year			1980	1981	1982	1983	1984	1985	1986		1989	1990
Engineering												
Land Acquisition												
Contractor's Prequalification												
Tender												
Construction: 1st stage						(45%)	(55%)					
Ultimate stage											(100%)	
Investment Amount	Original Case	F.C.				598	732				207	
		L.C.			819	343	419				111	
	Modified Case 1/	F.C.				655	799				216	
		L.C.			841	352	430				119	
Remarks					(Land & Comp.)	(Construction)					(Construction)	

Source: Study Team.

Note: 1/ This is estimated using the modified design standards stated in Section 3.4.4.

3.5 Ajlun-Dibbin-Jerash Tourism Plan

3.5.1 Introduction

3.076 The Study concentrates on establishing an integrated tourism development plan for the area covering the cities of Jerash and Ajlun, and their environs inclusive of Dibbin National Park, King Talal Dam, Wadi Yabis and Ishtafina Tourism Park. The plan prescribes the resource inputs to be made for the tourism development towards the year 2000 with an intermediate target set for 1985.

3.5.2 The Target Area

3.077 Tourism resources of the Target Area can be divided into natural resources, historical/archeological assets, other man-made resources, utilities and conveniences. Area-wise assessment of these resource potentials has revealed six high potential areas such as Jerash, Dibbin, Ajlun, Ishtafina, the area between Dibbin and Ajlun, and the area between Suf and Ibbin. Of these, Jerash, Dibbin, Ajlun and Ishtafina are relatively compact tourism resource complexes in which intensive investments seem effective for tourism development whilst the area between Dibbin and Ajlun, and the area between Suf and Ibbin, are of a linear type and have relatively high potential because of their nature, as corridors between the resource complexes, coupled with potential resources of their own.

3.5.3 Development Framework

a. Development Scenario

3.078 In view of the comparative advantages of the Target Area in relation to national tourism development, the potential tourism resources within the Target Area and the overall objectives of regional development set by the Phase I Study, tourism development scenario for the Target Area can be considered in four different ways.

Alternative 1	Tourism development primarily to increase foreign currency earnings in the country;
Alternative 2	Tourism development emphasizing the provision of recreational opportunities as a part of a social education and welfare program;
Alternative 3	Tourism development as a lever for promoting regional development in the Target Area; or
Alternative 4	Tourism development giving top priority to the preservation and rehabilitation of historical assets in the Target Area from the archeological and educational viewpoints.

3.079 For identifying the most desirable alternative from above, the four alternatives have been assessed on the basis of expected benefits and their magnitude, measured by the following criteria:

(1)	National benefit I	Foreign exchange earnings in the country;
(2)	National benefit II	Recreational opportunities for the people;
(3)	Regional benefit I	Viable local economic activities;
(4)	Regional benefit II	Improved infrastructure and urban utilities;
(5)	Investment benefit I	Immediate effects; and
(6)	Investment benefit II	Multiplier effects.

3.080 As a result of the assessment, Alternatives 1 and 2 have emerged as the most desirable from the viewpoint of aggregated benefits from (1) through (6), followed by Alternative 3.

3.081 Each alternative attaches a different degree of importance to the relative conditions for development, such as quality of natural environment and landscape, existence of historical assets, accessibility and convenience, levels and diversity of recreational facilities and tourism services, and availability of public utilities. Consideration of these conditions leads to the respective alternatives of having a priority area and an area-specific approach of their own, taking into account the difference in resource potentials and constraints among areas in the Target Area (see Table 3.9).

Table 3.9 Priority Areas of Alternative Development Scenario and Area-specific Approaches

Priority Area	Alternative				Area-specific Approach 1/		
	1	2	3	4	A	B	C
Jerash	x			x			x
Ajlun	x	x	x	x	x		
Dibbin		x			x		
Ishtafina		x			x		
Between Jerash & Ajlun		x	x			x	
Around Suf			x			x	

Source: Study Team.

Note: 1/ Area-specific approaches are specified as:
- A: Fostering development cores with intensive investments.
- B: Inducing activities of development cores with supporting investments.
- C: Making use of existing physical resource and economic potentials with investment stimulus.

3.082 Bearing in mind the results of assessment and identified area-specific approaches, this Study recommends the following:

(1) Alternatives 1 and 2 should be given top priority as immediate tourism development strategies to be followed until 1985.

(2) Towards the year 2000, Alternative 3 should be given increased consideration. Alternatives 1 and 2 should then be incorporated in the Alternative 3.

(3) Ajlun area should be given top priority for intensive investment on account of its gravity in both Alternatives 1 and 2.

These recommendations are schematically shown in Figure 3.13.

b. Tourism Demand

3.083 Next, the number of tourists has been projected, based on past trends and the development scenario. Results of projection are given in Table 3.10.

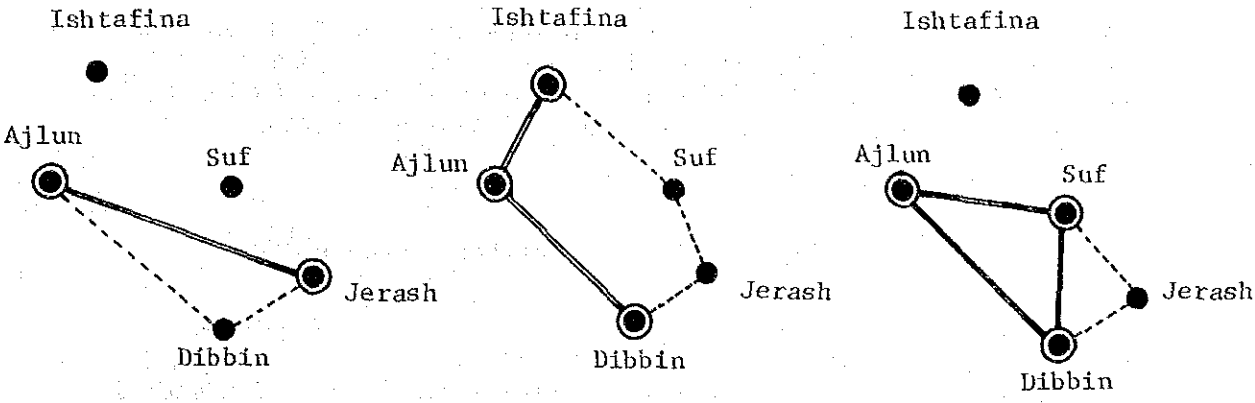
Table 3.10 Projection of Tourists to Target Area

	Type of Tourists	Actual 1979	Estimated 1985	Estimated 2000
Annual Total (in Person-days)	Total Lodgers (1)	19,710	344,200	590,800
	Foreign Lodgers (2)		207,300	377,600
	Domestic Lodgers (3)		136,900	213,200
	Domestic Day-return Tourists (4)	1,826,640	3,348,000	10,716,000
Daily Average in Peak Season (in Person)	Total Lodgers (5)	54	943	1,619
	Foreign Lodgers (6)		568	1,035
	Domestic Lodgers (7)		375	584
	Domestic Day-return Tourists (8)	15,222	27,900	89,300

Sources: Study Team.
Day-return tourists are from Table 5.16 in Part III and lodgers are from Table 5.18 in Part III.

Note: (8) = Results of the survey by the Team.
(7) = (3)/365. (6) = (2)/365.
(5) = (1)/365. (4) = (8) x 4 months x 30 days

Figure 3.13 Schematic Chart of Alternatives Recommended



Alternative 1:

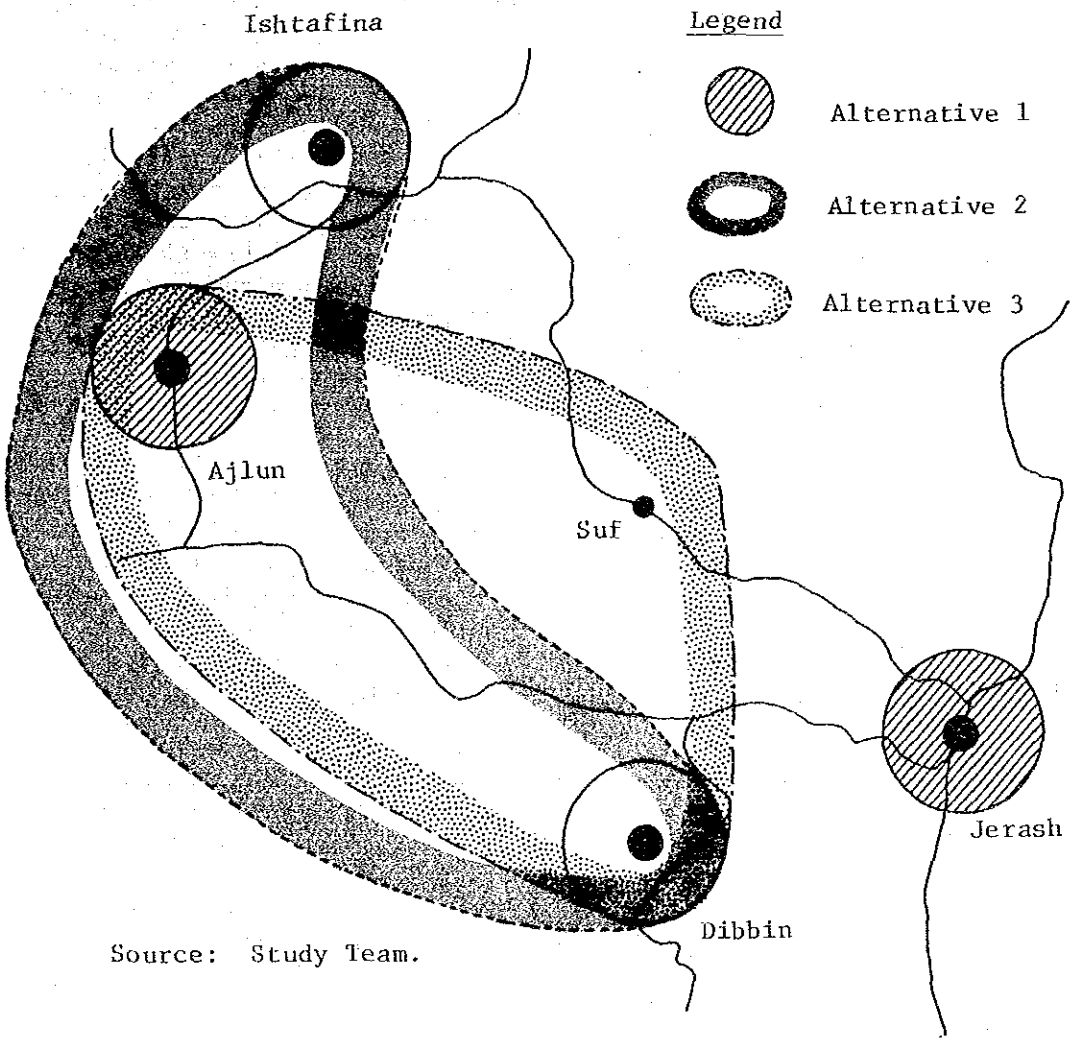
Foreign Tourist Oriented

Alternative 2:

Recreation Oriented

Alternative 3:

Regional Development Oriented



Source: Study Team.

3.084 In view of potential tourism activities derived from the resource potential, this potential tourism activities have been translated into types of the facilities required according to purpose of tourism and nature of the environment (see Table 3.11).

Table 3.11 Types of Facilities Required

Type of Tourist Activity	Water Front and Recreation Facility	Verdant Plateau Facility	Man-made Components
Sightseeing	-King Talal Dam -Observatories	-Observatories -Botanic gardens -International gardens -Tourism Skyline Highway -Ropeways -Rest houses	-Antiquity sites -Arab villages -Handicraft industries -Rest houses, restaurants, museums -Accommodations -Festival plazas -Performances -Sound and Light programs -Trotting races -Sports complex -Tour routes through ruins -Souvenir shops
Recreation	-King Talal Dam -Fishing ponds -Paddling pool	-Picnic spots -Observatories -Tourism orchard -Dude ranch -Hiking trails -Riding -Ropeways -Youth hostels	-Sports complex -Festival plaza -Arab villages
Resort	-King Talal Dam -Fishing ponds	-Camping sites -Summer houses -Auto-camping sites -Chalets	-Resort Hotels -Sports complex -Visitor's center

Source: Study Team.

3.085 Out of these facilities, requirements have been estimated in quantitative terms, particularly for accommodation and restaurants, because these facilities are most needed by lodgers and day-return tourists. The results are shown in Table 3.12.

Table 3.12 Required Accommodation and Picnic Spots

		1977	1985	2000
Accommodation[1/] (in Number of Beds)	Deluxe	0	450	800
	Standard	90	670	1,100
	Economy	0	450	800
	Total	90	1,570	2,700
Picnic Spots (in Hectares)	Requirement	225	380	750
	Available land	450	450	750

Sources: Study Team.
Table 5.18 in Part III.

Note: 1/ Deluxe accommodation includes hotels and bungalows of international class, standard includes ordinary hotels and chalets and economy includes auto-camp, youth hostel and pension.

3.5.4 The Plan

3.086 Based on the assessment of resource and other potentials and the development framework, the Study proposes to set the following development objectives for tourism in the Target Area:

(1) To attract foreign tourists into the Target Area to the maximum extent possible, thereby contributing to an improvement in the balance of payments of the country;

(2) To provide better and more recreational opportunities for the people of Jordan, thereby enhancing the people's quality of life; and

(3) To preserve and revitalize the historical and cultural assets of the country.

3.087 Based on a projection, the target amount of income from foreign tourists is set at JD 3.2 million or US$10.6 million in 1985 and JD 8.2 million or US$27.3 million in 2000, in 1978 prices.[3/]

3.088 The target number of recreational opportunities per year is 136,900 lodger man-days and 3,348,000 day-return tourists for 1985, and 213,200 and 10,716,000 respectively in the year 2000. It follows that in both the Amman and Irbid Governorates, one out of eighteen people will make one-overnight tour to the Target Area in 1985 and one out of nineteen people will make such a tour in the year 2000. Further, on the average, each family will make one-day tours 1.4 times a year in 1985 and 2.7 times a year in the year 2000.

3.089 As for antiquities, special attention should be given to the rehabilitation of Qal'at er Rabad and the ancient city of Jerash, to properly realize their potential for tourism.

3.090 In order to achieve these objectives and targets, the following strategies are recommended:

(1) To utilize to the maximum extent the excellent climate, the vegetation, landscape, and historical and cultural assets;

(2) To provide clusters of tourism areas with intensive investments in a selected potential resource complex;

(3) To closely link the clusters to each other by making full use of natural conditions such as skyline, forest belt and wadis, and by improving the access network; and

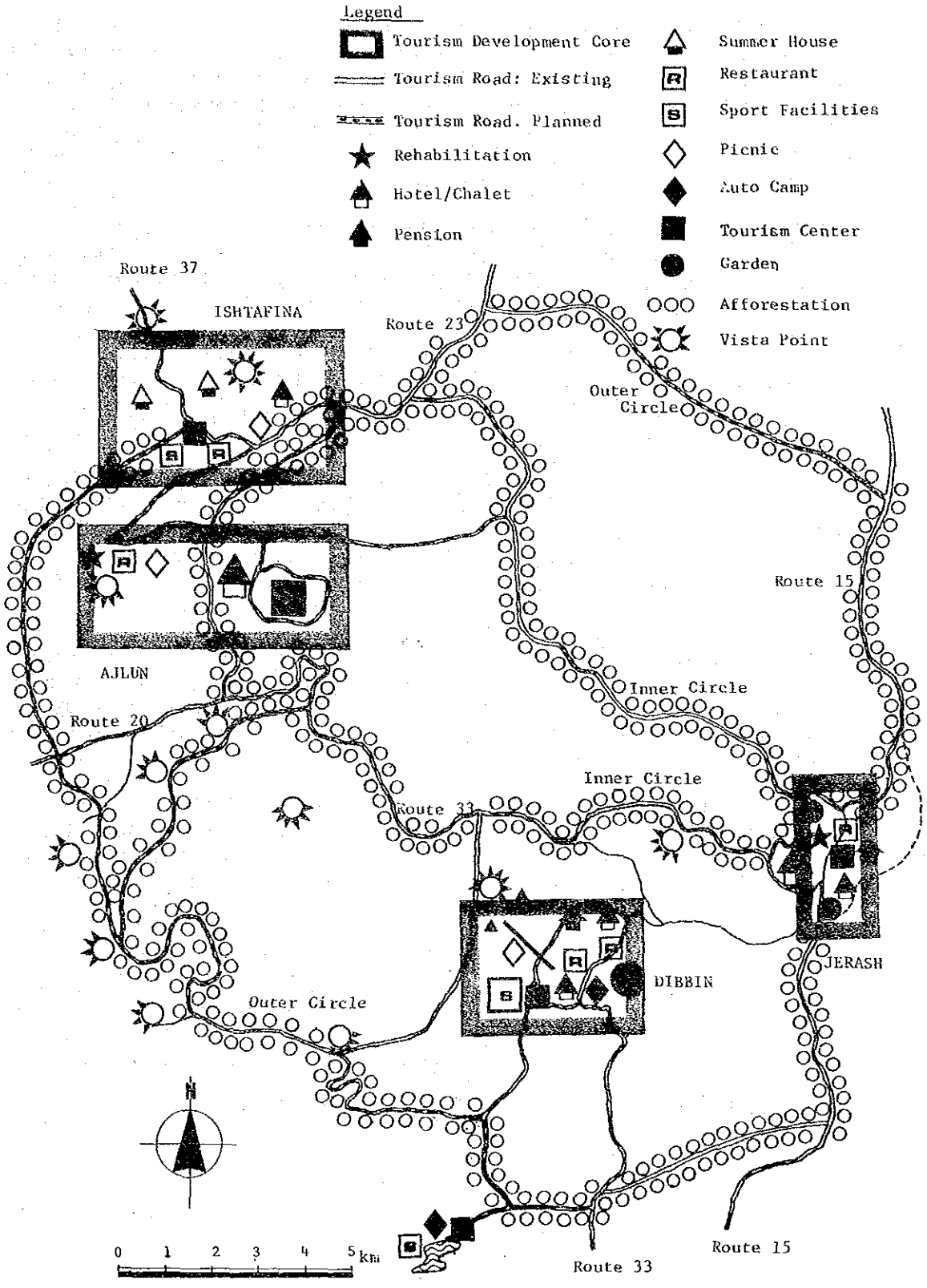
(4) To have each cluster acquire a different type of tourism appeal, so as to effectively meet the diversity of demand, such as by emphasis on sight-seeing, recreation or resort life.

3.091 By translating these strategies and the development scenario into spatial allocation of tourism facilities and services, the Study established a concrete tourism development plan for the Target Area, the plan comprising such elements as zoning, access network, green network and key strategic facilities. The plan is shown on the map named "Tourism Development Plan, 2000" which is in the envelope attached to the back cover of this Report. The basic concept of the plan is summarized in a diagram on Figure 3.14.

3.092 Four development cores are proposed for tourism development in the Target Area. They are Ajlun, Ishtafina, Dibbin and Jerash.

3/ The target figures have been derived from results of a Tourism Expenditure Survey and trends in world economic growth.

Figure 3.14 Diagram of the Target Area
Tourism Development, 2000



Source: Study Team.

3.093 Broadly speaking, the Target Area has two zones. One is the Jerash-Ajlun zone, characterized by antiquities and contemporary Arab towns with development cores at Jerash and Ajlun/Rabad. The other is the Dibbin-Ajlun-Ishtafina zone, characterized by excellent natural environment with development cores at Dibbin, Ajlun/Anjara and Ishtafina. The Ajlun area situated at the crossing of the two zones, in the center of the Target Area.

3.094 For the respective areas surrounding the development cores of Jerash, Ajlun, Dibbin and Ishtafina, the Study proposes area-specific development objectives and strategies (see Table 3.13 and maps in the envelope attached to the back cover of Volume 7).

3.095 The Study recommends implementation of these strategies according to phases. The period from 1980-2000 can be divided roughly into Phase I, up to 1985; Phases II to IV covering the period of 1985-2000.

3.096 During the years 1981 to 1985, emphasis should be given to (1) road upgrading with the highest priority given to Inner Circle and Route 33; (2) construction of an International Resort Hotel at Ajlun; (3) project preparation for the Arab Village at Ajlun and accommodation at Dibbin. Forestation of green clusters around Jerash, the King Talal Dam and Anjara should also be given priority in this phase.

3.097 During the first half of the period 1986-2000, (1) essential roads will have been upgraded; (2) the Arab Village should be completed as early as possible; (3) a central plaza at Dibbin and a ropeway to Mt. Aqra will be constructed and (4) the construction of accommodation facilities in Ishtafina and other places should be accelerated.

3.098 During the latter half of the period 1986-2000, (1) a hotel will be developed at Mt. Aqra, (2) summer resort house estate will start to be constructed and (3) at the same time, sport facilities at Ishtafina for resort tourists will need to be constructed.

3.099 Development of youth hostels, camping sites and auto-camps should continue throughout Phases I, II, III and IV. Afforestation will have to be done similarly although the priority area will change from one phase to another. Another activity which needs to continue during all the periods is renewal of buildings and streets at Anjara, Ajlun and Jerash. Research and development for this renewal, and institution building, will be required during the Phase I period and its implementation should start at the beginning of the Phase II period.

Table 3.13 Area-specific Objectives and Strategies for Development Core Areas

Objectives	Strategies
Jerash	
1. To attract tourists as the gateway to the Target Area.	1. To provide a tourism facility complex at the crossing of planned by-pass of Amman-Irbid road, Jerash-Ajlun road and King Talal Dam-Jerash green belt. 2. To create green clusters along west side of the ancient city wall. 3. To develop, in a phased manner, the central tourist plaza along the existing Amman-Irbid road upon completion of its by-pass.
Ajlun	
1. To link effectively natural environmental resources and historical assets. 2. To create the space symbolic of Arab history and culture. 3. To create a center for high income tourists.	1. To rehabilitate the Castle of Rabad and enhance its attractiveness with modern facilities such as a museum, outdoor escalator and picnic spots. 2. To create in the eastern part of the area, a large-scale modern resort/recreational complex, including an International Resort Hotel with variety of gardens and amusement facilities and Arab Village, a mini-Arab world. 3. To upgrade Ajlun-Rabad road as a decent tourist driveway and promenade. 4. To promote renewal of the streets of Ajlun and Anjara, including road upgrading, street furniture provision and building control.

(to continue)

(continued)

Objectives	Strategies
Dibbin	
1. To provide diversified recreational opportunities especially for family and youth group tourists who come for a short or medium term stay.	1. To provide around the center of the existing national park a central tourist plaza, various types of accommodations such as chalet, auto-camping sites and camping sites, and a large-scale sport facility complex. 2. To make full use of the excellent view from Mt. Aqra with provision of a ropeway, observatories, restaurants, a hotel and a riding field. 3. To create, in contrast to the sport facility complex, a quiet attractive point, the International Gardens, making use of forests and the Wadi at the eastern flat area.
Ishtafina	
1. To develop a spacious and exclusive resort for long-stay tourists (high income tourists).	1. To make full use of good accessibility to Ajlun International Resort Hotel and Arab Village. 2. To provide more chalets with higher quality, and observatories, around the center of the existing national park. 3. To develop exclusive and low density summer houses at the northwest of the existing national park. 4. To create, between Ishtafina and Ajlun, the area for space consuming sports such as gun shooting, archery, golf, tennis and hang glider especially for the use of lodgers in chalets and summer houses. 5. To develop the tourism center, around the crossing of trunk roads between the summer house area and the sport area, with restaurants and shops (possibly seasonal branches of first-class stores in Amman).

3.5.5 Project Proposal

3.100 A set of necessary actions to be taken to realize the plan described above has been identified in the form of five project packages, including Jerash Development, Dibbin National Park Development, Ajlun Development, Ishtafina National Park Development, and King Talal Dam Tourism Development, and four special projects, including Arab Village, International Resort Hotel, Skyline Driveway and Summer Resort House.

3.101 Development projects required to achieve the plan is listed in Table 5.23 of Volume 7. The total costs of the projects will amount to JD 37,725,000 at 1979 prices including private undertakings. Although this Study does not go so far as to undertake detailed analysis of economic feasibility, a simple calculation suggests that the total amount of tourists' expenditures less the running costs including payroll and other overhead costs will amount to at least 1.8 times as much as the total construction cost in terms of aggregated amount for the period 1980-2000.

3.102 For effective implementation and full utilization of these projects, this study recommends (1) the improvement of training of skilled manpower such as qualified guides and recreation leaders; (2) the start of research and development, with special reference to environmental assessment for tourism and land use and other regulations; (3) diversification of implementing bodies and linking them in response to the different size of projects with an emphasis on establishment of public corporations and introduction of foreign private capitals, and (4) promotion of international events, for example, for national days in the Arab Village, performance of folk music and dancing of various countries, and motor racing.