

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

(CONTRACT # 391-0480-C-00-8246-00)

ROAD RESOURCES MANAGEMENT PROJECT

PAKISTAN

WORK PLAN

1989

CONSTRUCTION CONTROL SERVICES CORPORATION

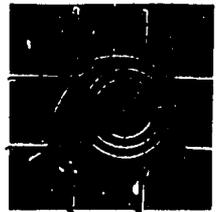
USAID CONSULTANTS FOR ROAD RESOURCES MANAGEMENT PROJECT

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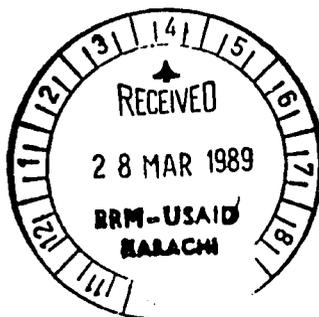
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WORK PLAN

1989



VOLUME 1 OF 1
9 PAGES

ABBREVIATIONS AND ACRONYMS

AADT	Average Annual Daily Traffic on a road
AASHTO	American Association of State Highway and Transportation Officials
AD	Assistant Director
ADT	Average Daily Traffic on a road
ADB	Asian Development Bank
ADP	Annual Development Program. These are one-year public sector development programs prepared by both the federal and provincial governments
AID	See USAID
AWPRR	Annual Work Program Resource Requirements
BAJRI	Aggregate (Stone or Brick)
BELDAR	Laborer
BILLION	One thousand million. Written 1,000,000,00
BTK	Billion ton-kilometers
C&W	Provincial Department of Communications and Works
CBU	Completely Built Up (Imported vehicle ready for the road)
CCN	Cooperating Country Nationals
CED	Central Excise Duty
CHOWKIDAR	Guard
CDWP	Central Development Working Party
CKD	Completely knocked down (Imported vehicle i kit form to be assembled in Pakistan)
CONSULTANT	"The Consultant" refers to Construction Control Services Corporation

CRORE	A term meaning 100 lakhs or 10 million. Written 1,00,00,000
COMMISSIONER	The administrative/executive head of a Division.
CURRENT FISCAL YEAR	Is the present Fiscal Year
DAROGHA	Supervisor of beldars
DBST	Double Bituminous Surface Treatment
DC	Deputy Commissioner The administrative/executive head of a District, now becoming more of an advisory position.
DCO	District Council Office(s)
DEO	District Engineer Office
DHV	Design Hourly Volume. The volume of traffic for which a road is designed
DISTRICT	A geographical sub-division, headed by a deputy Commissioner. Several districts form a division.
DISTRICT COUNCIL	A locally elected government body controlling the district. In recent years, the Chairman of the District Council has assumed many of the former responsibilities of the Deputy Commissioner
DIVISION	A sub-unit of a province containing several districts.
DSSL	Deficit in sustainable Service Level
EAD	Economic Affairs Division
ECNEC	Executive Committee of the National Economic Council
ESA	Equivalent Standard Axles
ESSL	Existing Sustainable Service Level
FATA	Federally Administered Tribal Areas

FBS	Federal Bureau of Statistics
FEDERAL	Applying to the Central Government in Islamabad
FEC	Foreign Exchange Component (Currency)
FOREMAN	Field Supervisor (Work-Mistry)
FRREC	Federal Rural Roads and Engineering Cell. The technical organization of the Ministry of Local Government and Rural Development responsible for rural roads, water supply and allied matters.
FY	Fiscal Year. The Government of Pakistan's Fiscal Year is from July 1 of one year to June 30 of the next, and is designated by showing both years, e.g. 1988-89
GOP	Government of Pakistan
HARI	landless agricultural labor in Sind (Tenant)
HSD	High Speed Diesel (fuel)
KATCHA ROAD	An unpaved (earth) road
LAKH	One hundred thousand, written 1,00,000
LDC	Lower Division Clerk
LGRD	Local Government and Rural Development. A Ministry in the federal government; a department in each provincial government except Baluchistan.
LGRDA	Local Government, Rural Development and Agrovilles. The name of the LGRD department in Baluchistan.
MC	Municipal Committee
MES	Military Engineering Services
METALLED	Paved with bituminous or asphalt carpet surface. Also called "Pacca"

METRIC SYSTEM	Pakistan is converting to the metric system. Most distances are measured in kilometers (km), and mileposts along most roads have been replaced by kilometers markers. Most dimensions are given in the metric system, however, some measurements may be given in the English system.
MLGRD	Ministry of Local Government and Rural Development. A ministry in the federal government: a department in each provincial government except Baluchistan.
MMS	Management Maintenance System
MSSL	Maximum Sustainable Service Level
MV	Motor Vehicle
NEC	National Economic Council
NHB	National Highway Board
NIPA	National Institute of Public Administration
NLC	National Logistics Cell
NTRC	National Transport Research Centre
NWFP	North West Frontier Province
O & M	Operation and Maintenance
P & D	Planning & Development Departments in the Provincial governments
PACCA ROAD	A metalled or paved road
PAVED	A road surfaced with bituminous treatment or asphalt carpet
PC-1	A GOP document defining the requirements for a development project.
PETROL	Gasoline
PID	Project Identification document (USAID)
POL	Petroleum, Oil and Lubricants
PRIP	Paved Road Inventory Requirements

PROVINCE	One of the four major self-governing regions of Pakistan
RUPEES (RS)	The Pakistani monetary unit
RDP	Rural Development Program. The district council block grants program in provinces other than NWFP.
RMP	Road Measurement Properties
RMTP	Road Maintenance Treatment Program
RMU	Road Maintenance Unit
RoMMS	Road Maintenance Management System (Sub-component of RRM)
RoMP	Road Maintenance Programming (Sub-component of RRM)
RoSI	Road System Improvement(Sub-component of RRM)
RRM	The Road Resources Management Project
RWP	Rural Works Program, the district council block grants program in NWFP
SCUG	Sind Council Unified Grades
SDO	Sub-Divisional Officer
SHINGLE (ROAD)	A gravel, stone or brick surfaced road, without blacktopping
TALUKA	A sub-division of a district in Sind, equivalent to a tehsil
TBST	Triple Bituminous Surface Treatment
TSC or TST	Technical Services Contractor/Team
UNION COUNCIL	The smallest elective unit of government
USAID	United States Agency for International Development
USG	United States Government
VOC	Vehicle Operating Costs
ZILA	District

Note: All abbreviations or descriptions shown are not used in these procedures but are included for future references.

0. INTRODUCTION

- 0.1 The Road Resources Management Project was created to raise the productivity of public sector capital in the road sector, both physical and financial, so as to provide a maintainable system of roads and other services within the available resource limits. This system will, in turn, promote the more rapid and equitable growth of national income in Pakistan, especially in rural areas.
- 0.2 The project purposes are to lay the groundwork for putting the national road network on a sound financial, organizational, and technical basis, by establishing a maintainable rural road system in one province and identifying the policy, management, and financial reforms needed in the systemwide.
- 0.3 The Technical Service Team was fielded on January 04, 1988 with the arrival of the Chief of Party.
- 0.4 In April 1988 a preliminary work plan was prepared for the RRM Project. It listed a number of activities to be performed in 1988.
- 0.5 As this project was just being implemented, and the main personnel was not fielded before May 1988, the preparation and implementation of this work plan proved somewhat difficult.
- 0.6 The present work plan will be presented under a different

format, that is in form of a bar chart.

0.7 It is thought useful that a general four year plan be also included in order to obtain an overall view of the activities required to attain the goals and objectives. This four year plan is written at this time as closely as if it were written with the arrival of the COP in January 1988. Obviously, it is evident that a number of activities did not happen as predicted between then and now. It lists however, activities that are part of the program.

I. FOUR YEAR PLAN (TENTATIVE - FROM JANUARY 1988)

1.1 SIGNING OF CONTRACT

The CCSC contract was signed on December 22, 1987.

1.2 MOBILIZATION AND LENGTH OF CONTRACT

The Chief of Party was fielded on January 04, 1988. The Road Planner is also to be fielded at this time. The Finance Specialist is to be fielded by May 1988. It is therefore considered that the contract, which is for a period of four years would start on January 01, 1988 and terminate on December 31, 1991.

1.3 COMMODITIES

The procurement of commodities by AID had begun before the signing of the contract and was to be completed by March 31, 1988.

1.4 INVENTORY OF ROADS

Inventory of the roads was the responsibility of Techno Consult and is to be completed by February 1988.

1.5 CCSC WORK PLAN

CCSC Work Plan is to be completed one month after the fielding of the team and so is due by February 04, 1988.

1.6 SETTING UP OFFICES

As this project is a new implementation, new offices are to be located and set up. This should be completed by mid April 1988.

1.7 OFFICE EQUIPMENT AND FURNITURE

The office equipment and furniture is to progress as the offices are made available and should be completed by April 1989.

1.8 SIND PROJECT COMMITTEE

The TST is not involved in the establishment of the Sind Project Committee. It is mentioned here because, eventually, design and construction activities will have to be approved by such a committee and this will become an activity of the TST in future work plans.

1.9 RECRUITMENT OF CCN PERSONNEL

The recruitment of CCN Personnel will be a continuous operation as the needs arise during the implementation of the project. So it is shown starting in March 1988 and continuing on.

1.10 TRAINING

Training program is to be assisted by an expatriate training specialist. It is programmed to start in April 1988 and continue on at different intervals.

1.11 IDENTIFICATION OF ROADS

The district councils with the assistance of the Techno Consult report and the TST is to identify the roads to be condition surveyed. This should be finished by April 01, 1989.

1.12 TRAFFIC COUNTS

There are to be several traffic counts. The first one is scheduled to start on April 15, 1988 and last 3 months. The second one would start on October 01, 1988, the third one in March 1989. A fourth traffic count would be taken after the completion of the rehabilitated roads, probably in September 1991.

1.13 CONDITION SURVEYS

Condition surveys will start April 01 and be completed by May 31, 1988.

1.14 MAINTENANCE PLAN

The preliminary Road Maintenance Plan is to be completed by May 31, 1988. Analysis and comments by district councils to be completed by June 30, 1988.

1.15 COMPLETION OF SIND MASTER PLAN

This master plan for the Province of Sind should be completed by February 1989. It is to be noted that the maps available from the districts are at a relatively

small scale (1" = 2 miles or 1:126720 and 1" = 4 miles or 1:253440). These scales are too small to be effectively used as a master plan. TSC will attempt to obtain maps at 1:50,000. It is probable that the finalization of the master plan will become a continuous operation as some roads will be dropped and others added. It will also serve as a "as built" plan. Progressive copies will be made available. This activity is not part of the CCSC contract.

1.16 TECHNICAL RESOURCE ASSESSMENT

The technical resource assessment is to be started in March and terminated at the end of June and is part of the Road Maintenance Program. It consists in evaluating the technical resources of the districts. It will also serve to evaluate the training program.

1.17 FINANCIAL ASSESSMENT ANALYSIS

The financial assessment analysis is to start on May 01, 1988. In principle it should be completed by August 31, 1988. However, the fielding of the local finance specialist in May 1989 will cause this activity to become a continuous activity as it will involve several revisions at the level of the districts' budgets.

1.18 ESTABLISHMENT OF RMU'S

The establishment of RMU's is scheduled for completion on

May 1989. Although the Technical Assistance Team is not involved, it will assist the district councils in this task.

1.19 HIGHWAY POLICIES

Highway policies, federal and provincial, are to be analyzed, revised and submitted to GOP, GOS and AID for approval and review. This activity is to start on April 15 and be completed by the third week of September.

1.20 SET UP LABORATORIES

2 Laboratories for soils analysis will be set up in each division. They will be set up starting May 01 and completed June 30, 1988.

1.21 EQUIPMENT SELECTION

Road maintenance equipment will be identified by an equipment specialist. He should be fielded by early May 1988 and report available by the end of July 1988.

1.22 PRIORITIZATION OF ROADS

After the traffic counts and the road condition surveys have been forwarded to the districts, the district councils will have to make a selection of the priority of roads. This should start on July 01, 1988 and be completed by August 31, 1988. The TST is not involved in this choice but will assist upon request.

1.23 SURVEY

Surveying of roads will start immediately after prioritization of roads. It should start early October and be completed by March 1989. However, this activity is liable to be on going as some roads will be added and some others deleted. The exact date of ending of activity cannot be accurately estimated.

1.24 QUARTERLY REPORTS

These reports will be prepared by the third week after the end of each quarters, one report acting as annual report.

1.25 INCEPTION REPORT

The inception report is to be presented by March 31, 1989.

It consists of:

Current status of the roads, current maintenance program, current levels of tax collected (particularly user charges and economic proxies), current levels of social services.

1.26 BUDGET REVISION

CCSC's budget revision will be done occasionally and usually after the first year of operation. It will be done in January 1989.

1.27 PHASE ONE REPORT

Phase I report is tentatively set for the end of October 1989. However, this report will be based on the meeting of conditions precedent by the district councils and can vary. In principle it should include:

Delivery of inputs (timing, etc.), success of initial program of training and inventories, district acceptance of Phase II program and modifications necessary, status of national rural roads policy, and results of initial study of highways policy and financing.

1.28 WORK PLANS

Each year, a yearly work plan will be prepared to be presented to AID two months prior to the beginning of the fiscal year of the project. Presentation date is to be the end of October of each year.

1.29 DESIGN OF ROADS

The design of roads will start immediately after the completion of the surveys. As it is impossible to gear this activity in the program because of the unknowns, all the roads will be assumed to be designed simultaneously. The actual schedule of design will be established in annual work plans or revised work plans. It is assumed that the design will be completed by May 1989.

1.30 CALL FOR TENDERS

It is assumed that call for tenders by the district councils will be made from July 1988 to October 1989.

1.31 CONSTRUCTION OF ROADS

Construction of roads is to start in November 1988 and continue until the end of the project. The exact progression of the construction will be refined as the project progresses.

1.32 FINANCIAL ANALYSIS OF DISTRICTS' FINANCES

The financial activity and analysis is to start in May 1988 and will continue to be revised with the fielding of the expatriate finance expert in June 1989 until the end of June 1990.

1.33 EVALUATION OF FIRST YEAR PHASE II

1991
1990
The end of Phase II is scheduled at end of July 1990. The evaluation of the achievements of Phase II after 1 year will require one month and be completed by July 31, 1991.

1.34 EQUIPMENT - CALL FOR TENDERS AND DELIVERY

Call for tenders for road maintenance equipment and delivery will start in August 1988 and equipment delivery plus training will be completed by November 1989.

1.35 MID TERM EVALUATION

A mid term evaluation of the project by AID will be done in October 1990 and will require two months including report, review and final report.

Basically the mid term evaluation will:

provide an independent review of the findings of the internal evaluation, will examine the validity of the project concept, in view of Phase I results, particularly with respect to district willingness to accept the proposed maintenance and construction program, the severity of fiscal limits on district maintenance activities, and the success to date in achieving desired policy changes, especially at the provincial level. While not responsible with this activity, CCSC will be cooperating closely with the evaluations.

1.36 Training in financial management of DC Personnel will continue until June 1992 and is outside the scope of this work plan.

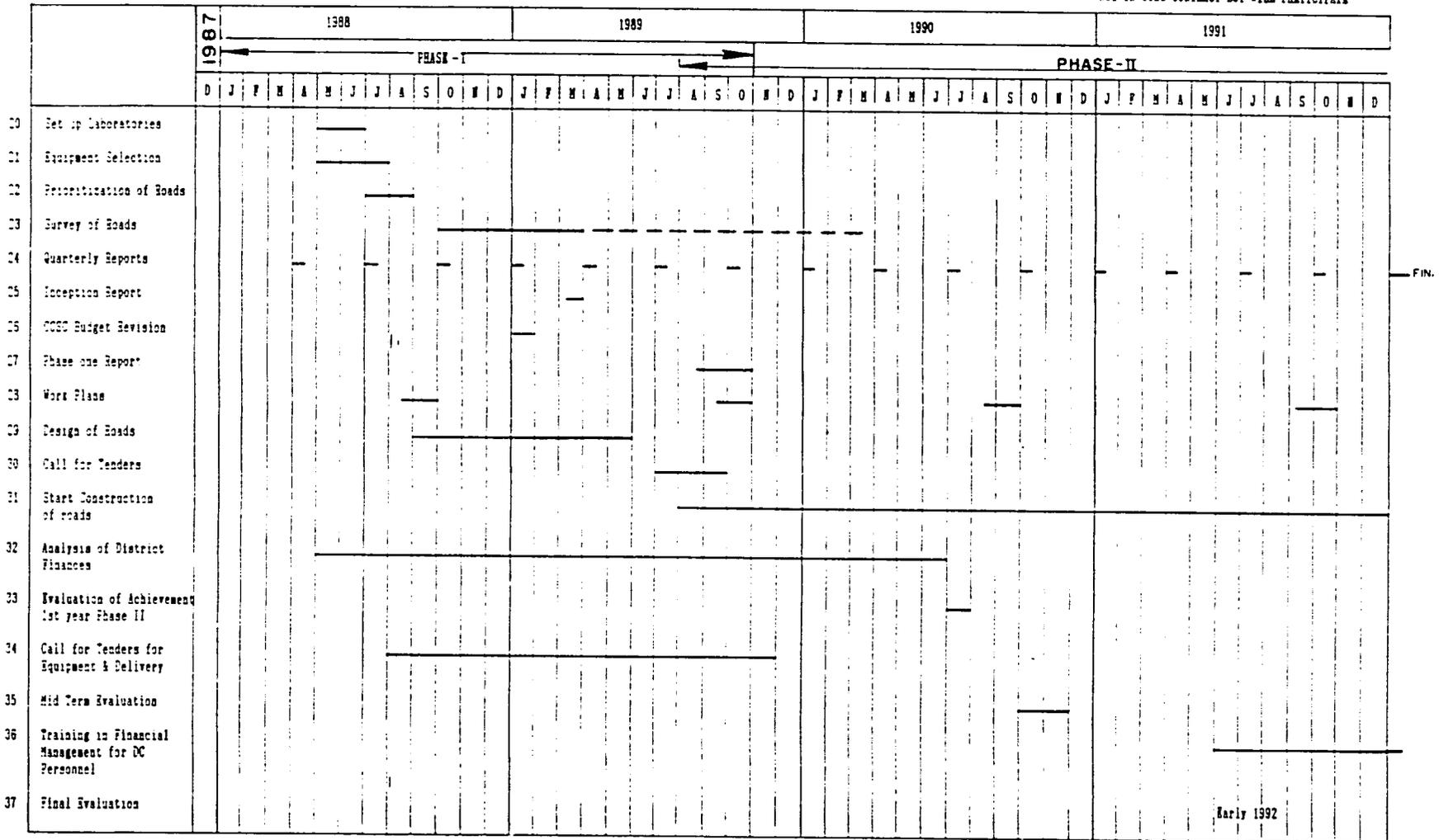
1.37 FINAL EVALUATION

The final evaluation will take place in early 1992 and the final report should be ready by March 1992. Basically, it will be the same as second internal evaluation, with two additions: an assessment of social and economic changes in the project area and a determination of project

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implications for future programming in Pakistan's roads sector and the potential replicability of the project or its approach.

----- CONTINUOUS ACTIVITY
 - - - - - NOT IN CCSC CONTRACT BUT WILL PARTICIPATE



II. MANAGEMENT

- 2.1 The local Finance Specialist's recruitment has been delayed because of difficulties in identifying the qualified candidate. It is expected that he/she will be recruited by the end of January 1989.
- 2.2 After 12 months of operation and adjustments in the Level of Effort, it is deemed necessary to revise the CCSC budget. This should be completed by the third week of February and an approval by AID should be received by March 15, 1989.
- 2.3 A constant follow up with the District Councils is planned every month. This will either be done by the field engineers or by regular visits by the Home Office Personnel.
- 2.4 The RMU's are to be organized by the district councils and though the technical service team is not part of the activity, it is thought advisable to have the Road Planner assist the district councils.
- 2.5 Quarterly reports will be presented by the third week following the end of the quarter.
- 2.6 While the contract does not mention the preparation of an annual report, (F-C-12) it is thought preferable to prepare one detailing the activities of the previous year and comparing it with the yearly work plan. Although the

contract requires a semi annual report to be submitted within 45 days after the end of the period, every effort will be made to prepare quarterly reports within 20 days after the end of the period.

- 2.7 Phase I report is tentatively scheduled to be completed by the end of October.
- 2.8 Inception report should be prepared by the end of March 1989. However, some difficulties have been encountered at the level of the districts to obtain information on the level of social services in each district.
- 2.9 Management of the project is a continuous activity.
- 2.10 Analysis of the expenditures on the project budget will be made every quarter and enclosed in the quarterly report.

II MANAGEMENT

GRAPH II MANAGEMENT

ACTIVITIES	1988		1989												1990						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
	2.01 Local Finance Specialist	-----																			
2.02 Revise COSC Budget and Approval by USAID			-----																		
2.03 Follow up with D.C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2.04 Assist With RMU's							-----														
2.05 Quarterly Reports						-----		-----				-----						-----			
2.06 Annual Report			-----												-----						
2.07 Phase I Report															-----						
2.08 Inception Report					-----																
2.09 Continuous Management of the Project			-----																		
2.10 Quarterly Analysis of Project Expenditure			-----		-----		-----		-----		-----		-----		-----		-----		-----		-----

III. TRAINING

- 3.1 The completion of final report delayed to the second week in January because of the absence of the Training Specialist.
- 3.2.1 Identification of participating trainees to be received by December 05, 1988.
- 3.2.2 Preparation of TOR for training contractors will require 3 weeks to third week in January.
- 3.2.3 Preparation of tender documents will require at least 2 weeks to the first week in February.
- 3.2.4 Call for tenders will require 4 weeks to first week in March.
- 3.2.5 Analysis of tenders by committee will take 6 weeks to 2nd week in April.
- 3.2.6 Choice of contractors and approval by AID will require at least 3 weeks till first week in May.
- 3.2.7 Start of courses in engineering is to be in the second week of May. The actual schedule of these courses is undefined and will be submitted at a later date in more details.
- 3.3 The 3.3 schedule is identical to the 3.2 schedule and applies to District Council Officials' training.

3.4 The work plan submitted by the Training Specialist is shown in section 3.4.1 to 3.4.22. Unfortunately, the Training Specialist was away at the time of the preparation of the present work plan and therefore this training work plan could not be defended or modified.

While COP is not in complete accord with the draft Training Work Plan, it is inserted as presented. It will be modified and simplified at a later date and the work plan will be revised.

ACTIVITIES	1988		1989												1990					
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
3.1 Final Report																				
3.1.1 Finalize																				
3.1.2 Print (T.S.-COP)																				
3.1.3 Submit AID for approval																				
3.2 Train Eng's Personnel																				
3.2.1 Identify Eng Personnel																				
3.2.2 Terms of References for Courses (T.S.-R.P.-COP)																				
3.2.3 Prepare Tender Documents (T.S.-R.P.-COP)																				
3.2.4 Call for Tenders by AID (COP-G.M)																				
3.2.5 Analysis of Tenders (T.S.-R.P.-COP-G.M-F.S-AID)																				
3.2.6 Choice of Contractors Approval By Aid (T.S.P.-COP-GM-FS-Aid)																				
3.2.7 Courses Start (T.S.-R.P.-COP+IC)																				
3.3 Dist.Council Official Training																				
3.3.1 Identify Personnel (T.S-COP)																				
3.3.2 Prepare Terms Reference for Courses (T.S-R.P-F.S-COP-G.M)																				
3.3.3 Prepare Tender Documents (T.S-COP-G.M)																				
3.3.4 Call for Tenders (COP+G.M)																				
3.3.5 Analysis of Tenders (TS-COP-FS-GM)																				
3.3.6 Choice of Cont. approval by (AID-Award R.COP-GM)																				
3.3.7 Start and End Courses																				

ACTIVITIES	1988		1989												1990						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
3.4 Training Recommend by T.S																					
3.4.1 Management/Supervision DL-1							-	-			-	-									
3.4.2 Supervisory Training DL-2									—												
3.4.3 Rd.Equipment Maintenance Manag T (DL-3) Basic														—							
3.4.4 Rd.Equipment Maintenance Management (Admin-DL4)																					
3.4.5 Distric Eng.Workshop (DL5)							-														
3.4.6 Contr't Adm & Quality Control (DL-6)							-			-											
3.4.7 TSP Operation For RMU's DL-7																					
3.4.8 Road Bridge Culvert Cond. And Insp.(DL-8)														-							
3.4.9 Job Control Scheduling DL-9																					
3.4.10 Construction Machinery Operation Etc (DL-10)																					
3.4.11 Vehicle Operation Safety DL-11																-	-	-	-		
3.4.12 Hand Operated Eq't Maint Operation (DL-12)																				-	-
3.4.13 Basic Accounting Book Keeping (DL-13)																-					
3.4.14 District Council Resource Generation (DL-14)																-					-
3.4.15 Contractor Training Rd. Maintenance & Constr (DL-15)																					
3.4.16 Road & Bridge Design Overview (DL-16)																					

III 1991

(NOV-DEC 1990)

ACTIVITIES	1962		1963												1964						
	JAN	FEB	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
3.4.17 Intensive Seminars (REF)								-													
3.4.18 Management Seminar (REF)								-													
3.4.19 Master Degree in MSA Three years-REF																					
3.4.20 Observation Tours Abroad Four Tours of six weeks Sixty Participants (REF)			Not Detailed																		
3.4.21 Highway Policy Workshops (REF)																					
3.4.22 Financial Policy (REF)																					

IV. SEMINARS

- 4.1 The seminars will be divided into 3 sections, starting with GOP/GOS Officials in last week of January.
- 4.2 Then the District Council Officers in the second week of February.
- 4.3 The District Council engineers in
- Hyderabad by the end of February
 - Sukkur by the second week in March.

ACTIVITIES	1988		1989												1990						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
4.1 GDE/GOB Seminars (COOP-T.S-F.S-G.M)			-																		
4.2 D.O Officials (COOP-T.S-F.S-G.M)				-																	
4.3 D.O Engineers				-																	
4.3.1 Hyderabad					-																
4.3.2 Sukkur (COOP-T.S-F.S-G.M)						-															

6

CONSTRUCTION

- 5.1 Final inventory reconciliation is presumed to be completed by the end of January.
- 5.2 Some condition surveys are to be done over again because of deletions and additions from the original surveys. This activity should be completed by mid February. The condition surveys of the additional roads was done with the collaboration of the district engineers.

NOTE: The order of estimation for each district is by no way final as the priorities are not set at the time this program is prepared. The time required for each district is based on the length of roads to be condition surveyed as shown in Appendix 1.

- 5.3 **Traffic Counts:** It is estimated that traffic counts will total 3 or perhaps more. The first one is scheduled to take place early in the program to permit designs to be started, the second one during part of the rain season, the third one either before or after rehabilitation of the roads. It is even suggested a final traffic count be done three months before the end of the program, preferably September, October, November 1991 leaving December 1991 for evaluation.

The traffic counts serve several purposes. First they will provide the basis for prioritizing the roads for maintenance and rehabilitation. The traffic volume will

be a factor in developing standard road designs. It will also provide baseline information in evaluating the impact of project by variations in road usage.

The purpose of several traffic counts is to allow for seasonal variation and arrive at a realistic figure of traffic volume.

5.4 Preparation of Road Maps: It is necessary to prepare maps showing all roads to either be maintained (by the districts) as well as the total roads to be rehabilitated or constructed. These maps should be on a scale of a minimum of 1:50,000. Request to GOP will be made to obtain these maps, which are limited in distribution. It is estimated that this operation will be a continuous activity and will eventually result in the "as built" set of maps, to be prepared at the end of the program, although not mentioned in the contract. This activity might require a full time draughtman. This will be decided later, taking into consideration that there will be a total of approximately 192 Km of rehabilitated roads and 851 Km of total roads, if we chose to map all the roads.

5.5 Preparation of Maintenance Cost Estimates: This activity is to be performed by the Road Planner and should go according to the kilometrage of "maintainable roads" as shown on Appendix 1, namely 604.73 Km. This maintenance is the responsibility of the districts, using USAID

supplied equipment. The number of Kms mentioned above are only approximate as the condition surveys are not as yet finalized. These maintenance cost estimates will be based on condition surveys and the activities as described in the Road Maintenance Program as designed by the Road Planner. This activity is scheduled to be completed by the end of May 1989.

- 5.6 Rehabilitation Costs of roads in Conditions 1 and 2: This evaluation is also the responsibility of the Road Planner and applies to the cost of rehabilitating 264.98 Km of roads as shown on Appendix 1. This evaluation is to be based on the condition surveys.

Here also these numbers are only estimates as the condition surveys are not completed. The expected date of completion is the end of May 1989. These costs, for the first year will be based on the population served by each road.

- 5.7 Analysis of Federal Highway Component Policy to be completed by January 15.
- 5.8 Analysis of Provincial Highway Component and finalization of report to be finished by the end of February. After considerable research at the levels of both Federal and Provincial Governments, it was concluded that there were no policies established per say.

- 5.8 It therefore becomes necessary for CCSC to elaborate some road policies for government approval and implementation. The objectives are to make the GOP and GOS adopt these development policies. The Federal policy statement is a condition precedent. These activities should be completed by the end of February 1989.
- 5.9 Revision of the Road Maintenance Program is to be finalized by the end of February.
- 5.9 Prioritizing of Roads Rehabilitation: This activity is to be carried out by the districts. It will be based on information to be supplied to the DCs concerning the traffic counts, the road condition surveys, the construction costs. It is estimated the information will be supplied to the districts by the end of March 1989. The prioritizing by the districts cannot be forecasted.
- 5.10 Recruit Surveyors: To be completed by March 30 and start work by April 15. However, this activity cannot be started until the roads have been prioritized by the district councils.
- 5.10A Recruit Soil Engineer: One soil engineer will be recruited in a first tense. He will be used to evaluate the laboratory situation. He should be on board by February 15, 1989.

5.10B Soils Laboratory: The soil engineer will investigate the options of either opening a soils laboratory in each division, or one soil lab in Hyderabad or analyze the possibility of using commercial laboratories. These options should be submitted to AID for approval by February 15, 1989.

5.11 Road Surveys: There are 188.59 Km of roads to be surveyed in Hyderabad and 98.39 Km in Sukkur.

Assuming one team can survey and level 1 Km of road per day, the time required is as shown on Chart V for each district. It is assumed that Dadu will have 40.25 Km to be surveyed and Larkana 52.95 Km, which are probably exaggerated values.

NOTE: The kilometerages shown on Appendix 1 are approximate only as the inventories and surveys are not completed at the time of preparation of the Work Plan. It will be revised as soon as this information is received.

5.12 Road Design Standards For:

- road maintenance
- road rehabilitation

Road design standards have been requested from each district in order to co-ordinate and adopt one road standard that would be common to most districts. It is admitted that certain areas can not be standardized in

design. These will be the object of special designs and experimental designs. These are expected to be completed by February 15, 1989.

5.12A Experimental Road Construction: Experimental road construction is to be undertaken in each district in view of obtaining new designs that would result in less costly maintenance. This activity is to be undertaken with the full cooperation and participation of the districts and their engineering personnel. The results of these experiments is to be the basis for design of certain katcha roads to be built under this program. It should start in June and be terminated by the end of December 1989. It should be undertaken by contractors following identification by the districts, soils analysis, design evaluation, call for tenders. A period of 1 year observation will be necessary before the final adoption of the design.

5.13 Design of Roads: It is assumed that 1 Km of road can be designed and drawn in one day by each the senior and junior design engineers.

It is assumed that Dadu has 40.25 Km of roads to design and draw and Larkana has 52.95 Km.

The design activities are to be co-ordinated with the survey activities and in collaboration with the district engineers.

The design team is also to co-ordinate all design activities with the districts' engineers and be supervised by the Road Planner. This activity should be completed by June 15, 1989, depending on the receipt of the priorities from the districts.

- 5.14 Road Costs: The Road Planner and the Cost Estimator are to evaluate the cost of roads of one district in two weeks. This evaluation period could probably be shortened. It should at any rate be finished by the first week of July.
- 5.15 The complete set of plans and specifications and tender submitted to authorities by July 15, i.e. two weeks after completion of cost estimates.
- 5.16 Preparation of Tender Documents: This activity can start immediately after design and should require about four weeks after completion of design. These documents can be submitted for approval at the same time as the plans and specifications. These documents are to be prepared by the district councils with the assistance of CCSC and to eventually be approved by the authorities. This should be completed by the end of September.
- 5.17 Prequalification of Contractors: The district councils are to prequalify contractors according to their prequalifying standards with the assistance of CCSC.

- 5.18 Call for Tenders: District councils will call for tenders from prequalified contractors and allow one month for this activity. It should be completed by the end of November. Although it is obvious that tenders can not be called for in all districts at the same time, it is virtually impossible to phase these calls for tenders. These will be based on the priorities.
- 5.19 Tender Analysis: This activity should take 2 weeks after opening of tenders. It will be carried out by the district councils assisted by CCSC and AID. It should be completed by November 15, 1989.
- 5.20 Approval of tenders by district councils assisted by CCSC and AID and award of contracts should be completed by the end of November 1989.
- 5.21 Start of construction would then be the first week of December. It is assumed that the normal performance of a contractor would be 1 Km per month. Thus the construction schedule would be as shown on the work program chart.

This assumption is based on one contractor per district. If there are more than one contractor per district then the time will be reduced accordingly.

At the time of preparation of this work plan, a study is being carried out to identify the qualified contractors and their equipment. Following this evaluation the work plan will be revised if necessary.

5.22 Minimal Access Katcha Roads

- 5.22.1 Identification of these roads by the district councils should be done by the end of August or at least confirm the roads identified in the Techno Consult study.
- 5.22.2 Design of these roads (possibly experimental designs) to be done over a period of time and continuously and starting early September.
- 5.22.3 Call for tenders is to be made by the district councils and should start by early October.
- 5.22.4 Construction will start by early November.
- 5.22.5 **Note:** This section is inserted as a reference only and it is quite possible and even probable that it will start in 1990.

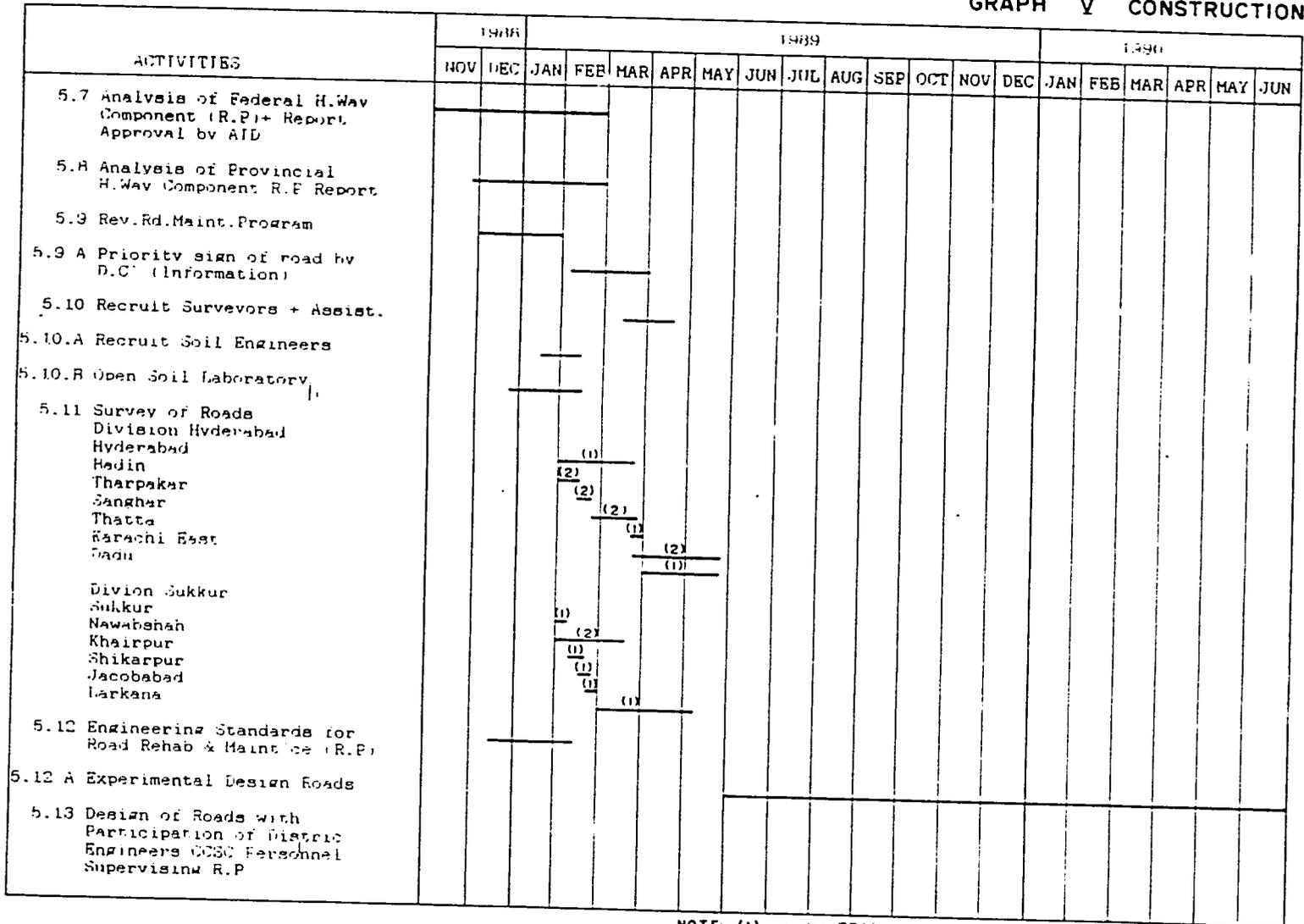
ACTIVITIES	1968		1969												1950						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
5.1 Inventory Reconciliation																					
Division Hyderabad																					
Hyderabad																					
Badin																					
Tharpakar																					
Sanghar																					
Thatta																					
Karachi East																					
Dadu																					
Division Sukkur																					
Sukkur																					
Nawabshah																					
Khatipur																					
Sukkarpur																					
Jacobabad																					
Larkana																					
5.2 Condition Surveys																					
Division Hyderabad																					
Hyderabad																					
Badin																					
Tharpakar																					
Sanghar																					
Thatta																					
Karachi East																					
Dadu																					
Division Sukkur																					
Sukkur																					
Nawabshah																					
Khatipur																					
Sukkarpur																					
Jacobabad																					
Larkana																					
5.3 Traffic Counts																					
Division Hyderabad																					
Hyderabad																					
Badin																					
Tharpakar																					
Sanghar																					
Thatta																					
Karachi East																					
Dadu																					
Division Sukkur																					
Sukkur																					
Nawabshah																					
Khatipur																					
Sukkarpur																					
Jacobabad																					
Larkana																					

NOTE:- (1) = 1st TEAM

(2) = 2nd TEAM

ACTIVITIES	1988		1989												1990					
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Division Sukkur Sukkur Nawabshah Khairpur Shikarpur Jacobabad Larkana		(1) (2)		(2)				(1) (2)				(1) (2)		(2)				(1) (2)		(1) (2)
5.4 Preparation of Road Maps for Rd Inventory Division Hyderabad Hyderabad Badin Tharpakar Sanghar Thatta Karachi East Dadu				(1) (2)				(1) (2)				(1) (2)		(1) (2)				(1) (2)		(1) (2)
Division Sukkur Sukkur Nawabshah Khairpur Shikarpur Jacobabad Larkana																				
5.5 Preparation Maintenance Costs																				
5.6 Rehabilitation Cost of Roads in conditions 1 and 2 (R.P) Division : Hyderabad Hyderabad Badin Tharpakar Sanghar Thatta Karachi East Dadu																				
Division: Sukkur Sukkur Nawabshah Khairpur Shikarpur Jacobabad Larkana																				

NOTE:- (1) = 1st TEAM
(2) = 2nd TEAM



NOTE:- (1) = 1st TEAM
 (2) = 2nd TEAM

ACTIVITIES	1988		1989												1990						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
	Division: Hyderabad Hyderabad Badin Tharpakar Sanghar Thatta Karachi East Dadu Division: Sukkur Sukkur Nawabshah Khairpur Shikarpur Jacobabad Larkana																				
5.14 Evaluate Cost of Roads by R.P Division: Hyderabad Hyderabad Badin Tharpakar Sanghar Thatta Karachi East Dadu Division: Sukkur Sukkur Nawabshah Khairpur Shikarpur Jacobabad Larkana																					
5.15 Seek Approval Rd. Designs and Cost Evaluation from AID & GOP (COP/RP) Dist. Engrs																					
5.16 Prepare Tender Documents & Submit for Approval by R.P + Engineers - COP Hyderabad Badin Tharpakar Sanghar Thatta Karachi East Dadu																					

NOTE: S = SENIOR DESIGN ENGINEER
 J = JUNIOR DESIGN ENGINEER

GRAPH V CONSTRUCTION

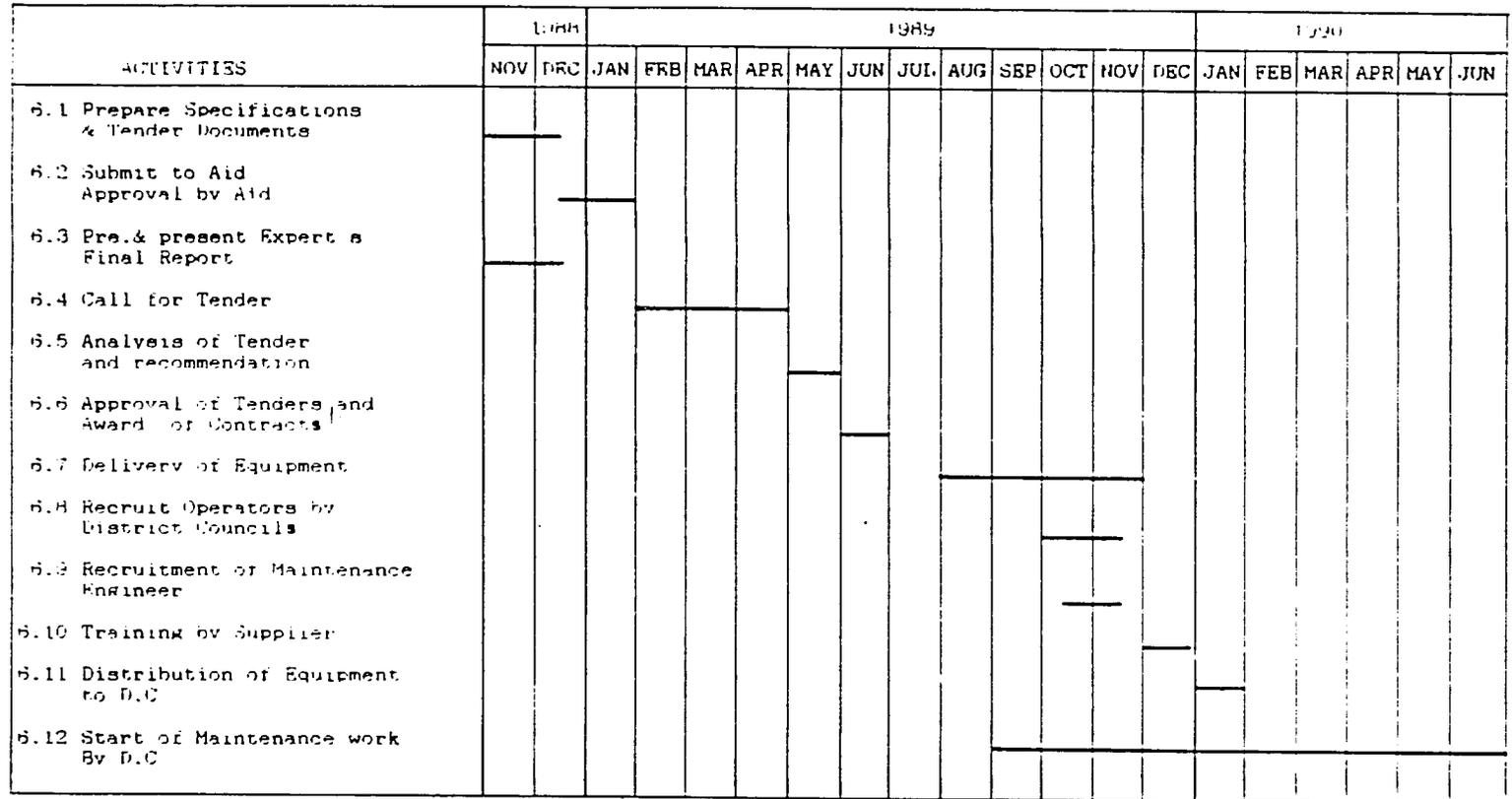
ACTIVITIES	1988		1989												1990						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
	Division Sukkur Sukkur Nawabshah Khairpur Shikarpur Jacobabad Larkana																				
5.17 Prequalification of Contractors																					
5.18 Call for Tenders Division: Hyderabad Hyderabad Badin Tharpakar Sanghar Thatta Karachi East Dadu																					
Division: Sukkur Sukkur Nawabshah Khairpur Shikarpur Jacobabad Larkana																					
5.19 Analyse Tenders Division: Hyderabad Hyderabad Badin Tharpakar Sanghar Thatta Karachi East Dadu																					
Division: Sukkur Sukkur Nawabshah Khairpur Shikarpur Jacobabad Larkana																					
5.20 Seek Approval Of Tenders by AID & Award Contracts																					

ACTIVITIES	1988		1989												1990						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
	5.20.A Recruit Rd Inspectors																				
5.21 Start & Complete Const. based one Contrc. per Dist.																					
Division: Hyderabad																					
Hyderabad																					
Badin																					TO JUN 1993
Tharpakar																					TO DEC 1990
Sanghar																					TO NOV 1990
Thatta																					TO JAN 1994
Karachi East																					TO AUG 1990
Dadu																					TO JAN 1991
Division: Sukkur																					TO MAR 1993
Sukkur																					
Nawabshah																					TO FEB 1993
Khairpur																					TO JUL 1993
Shikarpur																					
Jacobabad																					
Larkana																					TO MAY 1992
5.22 Access Katcha Roads																					
5.22.1 Identification																					
5.22.2 Design																					
5.22.3 Call for Tenders																					
5.22.4 Construction																					

VI. MAINTENANCE EQUIPMENT

- 6.1 Prepare specifications and tender documents. These were prepared by the Equipment Specialist. They should have been completed by December 15, 1988.
- 6.2 Above documents submitted to AID for approval. To be submitted and reviewed by AID by end January 1989.
- 6.3 The draft report of Equipment Specialist is to be presented prior to his departure in the third week of December.
- 6.4 Call for tenders. This is to be done by the Director of Industries assisted by CCSC. If the equipment is purchased in the US a period of three months is necessary. Tenders to be called by First of February and received by the end of April.
- 6.5 Analysis of tenders by special committee composed of DC's, Department of Industry, CCSC and AID, from May 1 to May 31, 1989.
- 6.6 Award of contract after approval of tenders, from June 1 to June 30, 1989.
- 6.7 Delivery of equipment will require at least 5 months that is by the end of November, 1989.
- 6.8 The District Councils should recruit their operators and mechanics by November 15, 1989.

- 6.9 Recruitment of maintenance engineer should coincide with the recruitment of the District Councils operators and mechanics. The maintenance engineer is to assist in training. He should be recruited by November 15, 1989.
- 6.10 Training by the supplier is to start by December 01, 1989.
- 6.11 Distribution of equipment from Karachi to District Councils is to start on January 01 and terminate on January 31, 1990.
- 6.12 Start of road maintenance work by District Councils possibly by labor intensive methods and hand tools prior to the delivery of the maintenance equipment. Tentatively the schedule is set to start by September 1989.



VII. ENVIRONMENTAL IMPACT

7.1 It is assumed and believed obvious that there will be no environmental consequences in the mere maintenance and rehabilitation of roads in the Province of Sind.

The bulk of the work will be mostly over existing roads whose environment has adapted to their presence or whose presence has adapted to the environment.

The environmental evaluation will be necessary when the construction program of experimental katcha or minimal access roads will start after identification of these roads. It is tentatively set for the middle of August 1989.

VII ENVIRONMENTAL

GRAPH VII ENVIRONMENTAL

ACTIVITIES	1988		1989												1990						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
7.1 Environmental Evaluation																					

VIII FINANCIAL

GRAPH VIII FINANCIAL

ACTIVITIES	1988		1989												1990						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
8.1 Advise & Monitor Activity of A-C Staff in T.S. Team																					
8.2 EOOD & MSEL																					
8.3 Preliminary Financial Assessment																					
8.4 District Council Finance & Management Assistance																					
8.5 Provincial-Improved Syst. To Monitor District Coun Performance																					TO AUG 1990
8.6 Provincial Budgeting & Policy Guidelines																					
8.7 Provincial Tax Policies and Procedures																					
8.8 Provincial Administrative Guidance																					
8.9 District Council & Provincial Follow Up																					

VIII. FINANCIAL

- 8.1 Advising and monitoring of Training Specialist team account personnel is a continuous operation.
- 8.2 ESSL and MSSL: These activities will start after first traffic counts are made available i.e. from March 1989. The cost of maintenance is directly related to the volume of traffic. The road planner's maintenance program and maintenance costs estimates are based on an average road. It is highly likely that the traffic levels on some roads will differ significantly from the statistical norm. Therefore, the tasks required for routine maintenance and their frequency will differ from the typical road. The ESSL and MSSL depend upon the costs of maintenance. Therefore, as traffic changes from the norm, so will the cost of maintenance and the ESSL and MSSL.
- As the districts budgets will officially be approved by July 1, 1989, the final figures retained for maintenance of roads will affect the ESSL and MSSL if different from the original established figures. Because of this, the second activity of the ESSL and MSSL start on July and continue until the end of the second traffic count. A new revision will be made after each traffic count thereafter.
- 8.3 Preliminary financial assessment will start in January (already started in fact) and be completed by the end of July 1989.

- 8.4 District council financial and management assistance to start in August 1989 and continue until August 1990. This assistance to the financial and management staff of the district councils is to improve their ability to manage revenue collection, contracting, and other functions that directly support the district road system.
- 8.5 Improved systems to monitor district council performance in resource generation, maintenance, construction, and provision of services. It will start in September 1990 and does not appear on this plan.
- 8.6 Budgetary and policy guidance to the district councils regarding appropriate resource allocations for rural roads. This activity will start in November 1990 and does not appear on the present plan.
- 8.7 Tax policies and procedures that encourage districts to increase revenue generation and ensure that districts receive their allotted share of taxes collected by the province on their behalf. This activity will start in January of 1991 and is not shown on this plan.
- 8.8 Administrative guidance to encourage districts to establish accounting and disbursement procedures to control costs and ensure adequate safeguarding of public resources. This activity will start in March 1991 and is not shown on this plan.

- 8.9 District council and provincial follow-up. This activity will start in April 1991 and is not shown on this plan.
- 8.10 Because the activities shown in 8.4 to 8.9 will start only in 1990 and 1991, the detail of their programs cannot be elaborated in this work plan as a large amount of data will be collected during 1990. Their program will be prepared in the 1990 work plan.

IX. PHASE I

9.1 To meet the conditions stipulated in the contract, the end of Phase I has been set for the end of October 1989.

METALLED ROAD CONDITION CHART

APPENDIX I

S.NO.	DISTRICTS NAME	TOTAL LENGTH (KM)	MAINTAINABLE LENGTH (KM)	REHABILITATION LENGTH (KM)	TOTAL NUMBER OF ROADS
A.	<u>HYDERABAD DIVISION</u>				
1.	Thatta	37.31	33.89	3.42	23
2.	Badin	24.70	16.90	7.80	6
3.	Tharparkar	80.19	77.49	2.70	25
4.	Dadu	40.25	---	40.25	23
5.	Hyderabad	186.19	144.05	42.14	85
6.	Sanghar	77.16	57.05	20.11	46
7.	Karachi East	169.97	119.80	50.17	59
		<u>615.77</u>	<u>449.18</u>	<u>166.59</u>	<u>267</u>
B.	<u>SUKKUR DIVISION</u>				
8.	Sukkur	44.40	38.03	6.37	10
9.	Jacobabad	0.35	0.29	0.06	1
10.	Larkana	52.95	---	52.95	20
11.	Shikarpur	18.54	16.18	2.36	19
12.	Nawabshah	98.65	65.60	33.05	38
13.	Khairpur	39.05	35.45	3.60	20
		<u>253.94</u>	<u>155.55</u>	<u>98.39</u>	<u>108</u>
	<u>TOTAL: A + B</u>	869.71	604.73	264.98	375

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