

EUROPEAN UNION - TACIS

Technical Assistance to the Southern Republics of the CIS and
Georgia - TRACECA

TRADE AND TRANSPORT SECTORS

Terms of Reference

for

**Transit Roads - Armenia, Azerbaijan & Georgia
(Module A & B)**

**Preparation of a Road Improvement Project:
Ashgabad to Mary**

**Pavement Management System - Purchase of Equipment
and Training**

Final Recipients:
TRACECA Region Ministries of Transport

CONTENTS

1. Background

MODULE A

2.A Introduction

3A. Objectives

4A. Scope of Work

4A.1 General

4A.2 Existing Studies

4A.3 Road Condition Assessment

4A.4 Traffic Data

4A.5 Definition of Technical Solutions

4A.6 Economic Evaluation

4A.7 Equipment

4A.8 Other Related Projects

4A.9 Local Participation

4A.10 Foreign Expertise

4A.11 Logistics

5A. Time Table and Reporting

ANNEX: "General Requirements For The Preparation Of The Feasibility Study"

MODULE B

2B. Introduction

3B. Objectives

4B. Scope of Work

5B. Organisation and Timing

6B. Other Related Projects

7B. Accomodation, Logistics

8B. Reporting and Deliverables

1. Background

1.1 During May 1993 a conference was held in Brussels organised by the Commission and attended by authorities of the eight Republics of the south of the former USSR:

Armenia,	Kyrgyzstan,
Azerbaijan,	Tadjikistan,
Georgia,	Turkmenistan,
Kazakstan,	Uzbekistan.

They are the Beneficiary States of this programme.

The objectives of the conference were :

- to stimulate co-operation among the participating Republics in all matters pertaining to the development and improvement of trade within the Region
- to promote the Central Asian - Trans Caucasian - Europe Transport Corridor
- to identify problems and deficiencies in the Region's trade and transport systems
- to define, in terms of contents and timing a Technical Assistance Programme to be financed by the European Union (EU).

TRACECA (Transport Corridor Europe Caucasus Asia) was thence created as a component of the TACIS interstate programme.

1.2 Regional sectoral Working Groups (trade, rail, road, maritime), composed of experts and officials from each TRACECA state and the EU, have been established as part of the TRACECA programme. They meet periodically in the Region and in Europe. They have inaugurated substantial specific projects of Regional importance, including this present one, and they will monitor results.

1.3 The World Bank (WB) is negotiating separate loans to two TRACECA States, Armenia and Georgia. In the case of Georgia there is the possibility of additional financing to accompany the WB loan, from another International Financial Institution (IFI). This present project comprises two modules, each linked respectively to the two WB programmes in the neighbouring Beneficiary States.

1.4 The EBRD is interested in financing a roads project in Azerbaijan. A TACIS national project has produced a feasibility study of the road south from Baku, to Alyat and further to the south. However the major TRACECA route turns west at Alyat towards the Georgian border. It now remains to investigate this route. The Islamic Bank has commissioned some studies of this route, but the outcome appears inconclusive.

2A. Introduction - Module A

In Georgia, the World Bank is prepared to engage limited resources for a Transport Rehabilitation Project, to avoid a complete collapse of the sector in the immediate future. Two components are foreseen: Institutional and Investment. For investment, road maintenance is considered a priority. This present project arises from the need to encourage other International Financial Institutions (IFI) to participate in concertion with the package, and to broaden the focus to consider rehabilitation.

In Azerbaijan, the EBRD interest in the east west route must be encouraged.

3A. Objectives

The objective of the project is to review existing reports and elaborate to the standard necessary for definitive negotiations between Georgia and IFI, a feasibility study for rehabilitation works on the following road sections:

Tblisi-Kashuri

Tblisi-Taltari-Azeri Border (-then continuing to Alyat, see below)

Tblisi-Marneuli-Guguti-Armenian Border

Marneuli-Sadakhlo-Armenian Border

Tblisi bypass

Samtrelia-Lanchkhuti-Ureki (shortening the route Tblisi-Batoumi)

These objectives are extended for Azerbaijan to the section of road:

Alyat-Gjandza-Azeri Border

4A. Scope of Work

4A.1 General

“General Requirements for the Preparation of the Feasibility Study” issued by one possible funding institution are included in annex. The Final Report of this project, in so far as concerns Georgia, must satisfy these Requirements.

As these requirements are so general certain particular aspects of the project are highlighted hereafter.

The work in Azerbaijan should conform to standards for feasibility studies set by the EBRD.

4A.2 Existing Studies

Extensive “Technical Documentation on Rehabilitation of the Highways of the Republic of Georgia-Volumes I and II, Tblisi 1995” has been prepared by the The State Highways Survey and Design Institute (Saksakhgzaprojecti), and is also included in annex.

The contents of this study are essentially technical. It identifies works which are to be included in this study.

The TRACECA Pavement Management System project will also provide pertinent input and it may influence the selection of priority works to be undertaken.

4A.3 Road Condition Assessment

The consultant will acquire and record all data necessary for road condition assessment and identify the works required to attain appropriate standards for the traffic. Typically this will include road geometry, pavement structure sub-grade characteristics, pavement deterioration and measurements such as deflection and roughness. Drainage systems and structures including bridges, tunnels and retaining works should be similarly inventoried.

4A.4. Traffic Data

Archived traffic data will be collected and reviewed. It is to be anticipated that traffic counts will need to be performed within the scope of this project.

Traffic should be categorised according to an internationally acceptable standard. Axle load surveys on sample sections must be performed. Transit traffic should be separately counted.

Road traffic forecasts should be projected for the next fifteen years. The forecasts may be based on macro-economic appraisal of trade and passenger flows, include high-low scenarios, and take into account the most authoritative economic projections available (eg. World Bank,...).

Any particularities of the traffic which might distort projections should be recorded (eg. food distribution campaign convoys,...).

4A.5 Definition of Technical Solutions

The Consultant should review the current road and bridge design standards, justify and recommend appropriate acceptable standards for the future design to the various project sections.

The Consultant shall study the merits of the technical solutions proposed for the rehabilitation or completion of the designated roads, drainage, slope protections, bridges and any other necessary works. He should suggest any necessary changes and fully integrated the final proposed solution with the economic analysis, and the possible budget envelopes to be discussed with all parties to the project.

Unit costs for road, bridge and associated rehabilitation works shall be established and justified in accordance with the standard recommendations of IFI.

The availability and quality of all resources necessary to carry out the works should be verified. After discussion with Georgian and Azeri authorities and IFI, recommendations should be made on the division of works into appropriate lots.

The definition of technical solutions should be developed to the level of detail necessary to validate the economic analysis, and to establish the technical feasibility of the recommendations.

4A.6 Economic Evaluation

Vehicle operating costs (VOC) should be established for the known range of vehicle types. VOC should be formulated using a standard internationally accepted model (eg.HDM3), modified as necessary for local conditions.

The roads shall be considered in separate homogenous sections, for incremental cost/benefit analysis. The standard economic indexes such as cost/benefit, NPV, and IERR are to be presented.

Based on the preceding the consultant shall present the final economic evaluation and define the appropriate programme for the construction and rehabilitation works.

A multi-criteria approach may be presented to account for environmental, safety or other factors, (while respecting the overall “General Requirements for the Preparation of the Feasibility Study” in Georgia).

All data generated within the project should be stored on computerised spread sheets, and left with the Recipient State in an organised and reusable format. A copy should be provided to TACIS.

4A.7 Equipment

Any pavement testing equipment, computer hardware, software or other equipment required for the project should be left with the Recipient State. The Consultant should provide full details in his Technical Proposal.

4A.8 Other Related Projects

Several related reports prepared by Western consultants precede this project. They include:

Aménagement de la Section Erevan-Batoumi de l' Axe Routier Meghri-Batoumi	Georgia and Armenia	TACIS
Road Development Study	Republic of Kazakhstan	EBRD
Armenia Highway Study	Republic of Armenia	TACIS
Roads & Road Transport Study	Russia, Ukraine, Kazakhstan & Bielorussia	EBRD
Azerbaijan Road Project	Azerbaijan	TACIS

At the time of writing the following TRACECA projects, sharing certain domains of interest with this one, are expected to commence shortly. The first two are of particular relevance to the scope of this project:

- Implementation of Pavement Management Systems
- Regional Traffic Forecasting
- Improvement of Roadside Services

Other related projects are or may be expected to commence within the timeframe of this present one.

The Consultants appointed to carry out this project are to co-ordinate their work closely with all other related activities within the TRACECA region. A full collaboration with such projects will be required, including data sharing.

The preceding listing of related projects must not be considered limitative.

4A.9 Local Participation

National consultants should be deeply involved in all aspects of the project. All TRACECA countries have Institutions specialising in various aspects of transport planning and engineering. It is a firm requirement that Organisation and Methodologies include local experts and Institutions to:

- make full use of local experience, antecedent projects and data bases
- promote the emergence of a financially viable local consulting sector
- ensure the effective transfer of know-how to the Beneficiary states
- ensure the enduring effect of project output

Consultants should base their activities for this module largely in Georgia, carrying out the project in collaboration with a local technical organisation(s), and employing both senior and junior professional staff.

Consultants must make amply clear in their Technical Proposal the arrangements they have made to work with local entities. This should include the time allocated to locally hired staff (as distinct from counterpart staff).

Although training is not a defined objective of this project, the consultant may propose training initiatives for the transfer of project know-how unfamiliar to local professionals.

4A.10 Foreign Expertise

The Consultant is free to compose his expatriate Team for this project as he sees fit. The following domains of expertise should be visible in his proposed staff list:

- highway engineering
- structural engineering
- geotechnical engineering
- transport economics

Time allocated to foreign staff should be clearly described in the Technical Proposal, as should the division between time on site and time at home office.

4A.11 Logistics

The Consultant shall be responsible for arranging necessary living accommodation, international and local transportation, telecommunications, equipment (IT and other), surveys, investigations, document reproduction, printing, secretarial services, interpretation, translation, office space and all other input required for the purposes of the work.

5A. Time Table and Reporting

5A.1 The project is to be completed within a period of six months to Draft Final Report stage.

Task durations and staff assignments are to be clearly shown on planning schedules in the proposal. Milestones for output and key dates for data acquisition are to be indicated.

5A.2 All reports are to be delivered in the numbers, languages and locations as follows:

	Bound		Loose-leaf		Diskette
	English	Russian	English	Russian	
(Eng.+Rus)					
TACIS Brussels	5	1	1		2
TRACECA CU	1	5	1		0
(Georgia)					
IFI	5	1	1		0

The word processing programme to be used will be agreed with TACIS (and DOS compatible).

5A.3 Reporting is to be in accordance with standard TACIS Guidelines and foresee:

Project inception report

An Inception Report shall be issued within 2 months of the commencement of the project. It shall summarise initial findings and propose any modifications to the methodology and work plan. In particular it will adapt the work plan to the Recipient State and funding institutions' needs, into account the parallel activities of other Technical Assistance programmes, avoiding duplication of effort.

Final Report

The Draft Final Report will be submitted at the end of month 6.

It will comprise the full feasibility study.

Any comments on the Draft Final Report will be issued by TACIS Brussels within six weeks of its receipt. The Final Report incorporating any modifications will be issued one month thereafter (2,5 months after issue of the Draft Final)

2B. Introduction - Module B

2B.1 A study of road conditions and roads maintenance in Armenia was commissioned by TACIS in 1994. It was carried out by European consultants in conjunction with the Armenian Road Directorate (ARD).

The report of this study has led to the negotiation of a loan package, from the World Bank (WB) to the Armenian Road Directorate, for the purpose of preservation of the Armenian road network. As part of the loan package, and given the priority it places on Regional road links, the TRACECA programme will continue to provide technical assistance to the ARD for the full and effective implementation of the funding programme.

This present project forms a component of that ongoing technical assistance, and is closely linked to the disbursement of the WB loan. Furthermore the documentary output of this project is expected to be adaptable for use across the TRACECA Region.

2B.2 In many countries maintenance of roads and bridges is carried out by the Governments own direct labour forces. During the past decade a number of countries around the world revised their policies towards the use of contractors. The forms of contract for such works vary from country to country. Some countries limit the contracted work to certain well defined activities such as overlays, major bridge repairs, or rehabilitation of road pavements. Others, among them Sweden, have started contracting out the total responsibility for routine road and bridge maintenance in a specific road network.

The mere introduction of competition has resulted in substantial cost reductions compared with the force account alternative. However important issues such as technical specifications, quality and measurement of work, traffic safety and the environment have to be considered in the process of change.

There is no single solution which is applicable to all countries, but the administrative homogeneity inherited in the former Soviet Union (FSU) allows the possibility of adapting for wider use a model Routine Maintenance Contract system (RMCS) which must now be developed for Armenia. The transition between force account and contracting which implies the development of an RMCS should be made with due consideration to local conditions, including climatic, physical and socio-economic background. The present project may be considered an important pilot.

The ARD has readily accepted both the concept of contracting of works, and a rapid implementation schedule.

3B. Objectives

The main objective is to assist the Armenian Road Directorate of the Ministry of Transport and Communications in the Republic of Armenia in the development of a system whereby routine road and bridge maintenance will be carried out by contract.

The assistance shall be given in the form of a pilot project and in such a way that the results of the project will be sustainable in Armenia, and possible to transfer to other countries with similar conditions.

4B. Scope of Work

4B.1 The success and sustainability of the project requires that the project be carried out in the very closest cooperation between the consultant and the ARD. For this reason substantially all of the consultants expatriate time allocated to the project should be spent in Armenia.

4B.2. The consultant shall be assigned to perform the following activities.

4B.2.1. Review the present system for execution of routine road and bridge maintenance in Armenia, including the :

- organisational set-up of maintenance management and execution of works
- function and potential of equipment and labour based techniques
- standard routines and practice for works
- accounting practices and financial situation of the ARD and its agencies
- *constitutional obligations of the ARD and its agencies*

In particular the adaptability of these elements to a competitive bidding environment is to be examined.

4B.2.3. Actively assist in the establishment of new entities (public authorities and private enterprises) for the execution of works.

4B.2.4. Propose road and bridge maintenance standards and trigger levels or functional requirements for implementation of maintenance works, covering but not restricted to:

- paved roads
- gravel and earth roads
- bridges
- snow clearing and anti-skidding measures
- removal of objects from road surface
- traffic safety measures
- environmental protection
- traffic management

It may be noted that under a separate project technical assistance in the domains of PMS and BMS will be provided (see Section ...)

4B.2.5. Propose a system for quality assurance including:

- appropriate methods and standards for measurements and testing
- routines for clarification of authority and responsibility in quality matters

4B.2.6 Elaborate forms of contract, including:

- general specifications for technical works
- general information
- scope of the contract works
- definitions
- forms of bidding
- contents of bidding documents
- procedures for bidding
- evaluation of bids
- model special conditions of contract for works (scope, implementation, organisation, time schedule, responsibility, costing and payment system, inspections, site documentation...)
- protection of third party rights, such as private property, cables,...

4B.2.7. Elaborate standard Bills of Quantities for maintenance works.

4B.2.8. Elaborate a model for the evaluation of bids concerning maintenance contracts

4B.2.9. Assist in the selection of a number of test and full scale procedures of bidding and contracting in the pilot area

4B.2.10 Write manuals and guideline reference texts accompanying the above documentary output to assist the end-users both public and private in its application. Propose a plan for and take part in the progressive dissemination of the results of the above activities, through seminars.

5B. Organisation and Timing

The project shall be carried out in co-operation between the consultant and an RMCS Committee which will be composed of members of the PIU and based in Armenia. The ARD shall assign a local Project Manager to assist and advice the consultant generally, and to lead the implementation and local components of the work. Also the ARD will assign a legal consultant to provide occasional briefings, opinions and reviews of output.

The Project shall be carried out in two phases, the first including the activities detailed under Section 3 above, and the second covering the execution of contract(s) to be considered as pilots, which will lead to evaluation, adjustments, and formulation of final recommendations.

The Consultants input is estimated to be:

- Phase 1: 30 man.weeks -to be completed within twelve months from the start
Phase 2: 8 man.weeks -to be completed (tentatively) within two years from the start

The Consultants input is to be organised as a series of visits (eg. 3 visits during Phase 1, and 3 visits during Phase 2), between which the Project Committee and other local staff assigned to the the Project will carry out specific tasks.

The execution of the project by one single expert is considered desirable.

While some home-office time (eg.for mobilisation, responding to requests for guidance between assignments, etc.) might be required, the development of the project documentary output is to be consultative and iterative process carried out closely with Armenian counterparts from the ARD. Consultants should base their activities for this project largely in Armenia.

6B. Other Related Projects

Collaborative liaison will be required with several concurrent projects including:

Azerbaijan Road Project	Azerbaijan	TACIS
Road Improvement Project	Republic of Turkmenistan	EBRD/TACIS
Highway Project	Republic of Georgia	WB/TRACECA
Yerevan-Batoumi Road Study	Republics of Armenia and Georgia	TACIS/PCP
Transport Legal Reform	TRACECA	
Pavement Management Systems	TRACECA	

The Consultants appointed to carry out this project are to co-ordinate their work closely with all other related activities within the TRACECA region. The preceding information must not be considered limitative.

7B. Accomodation, Logistics

The Consultant shall be responsible for arranging necessary living accommodation, international and local transportation, telecommunications, equipment (IT and other), investigations, document reproduction, printing, secretarial services, interpretation, translation, office space and all other input required for the purposes of the work.

The ARD has offered to provide at no charge basic furnished office accomodation to the consultant, but the adequacy or otherwise of this accomodation for the purpose of carrying out this study remains the responsibility of the consultant.

8B. Reporting and Deliverables

The consultant is to detail in his technical proposal the Titles and timing of deliverables which he proposes to produce for Section 3. preceding.

All reports and deliverables are to be provided in the numbers, languages and locations as follows:

	Bound		Loose-leaf		Diskette	
	English	Russian	English	Russian	English	Russian
(Eng.+Rus)						
TACIS Brussels	5	1	1	1	2	
PIU Armenia	5	10	1	1	1	

The word processing programme to be used will be agreed with TACIS (and DOS compatible).

All reports and deliverables are to be prefaced by an Executive Summary, and be in accordance with standard TACIS Guidelines.

The following reports must be submitted.

Project inception report

An Inception Report will be issued within two months of the commencement of the project. It will summarise initial findings and actions, and propose any modifications to the work plan.

Project progress report I

This report will be issued at the end of month 6.

Progress report II

This report will be issued at the end of month 12 (end of Phase 1).

Final Report

The Draft Final Report will be submitted at the end of Phase 2.

Any comments on the Draft Final Report will be issued by TACIS Brussels within six weeks of its receipt. The Final Report incorporating any modifications will be issued one month thereafter (2,5 months after issue of the Draft Final)

TERMS OF REFERENCE

TURKMENISTAN

Preparation of a Road Improvement Project: Ashgabat to Mary Road

BACKGROUND

In 1995, a feasibility study for road rehabilitation in the Republic of Turkmenistan was carried out by Turkmenautoellari, the National Road Agency of Turkmenistan with the assistance of a West European consultant with TACIS financing. On the basis of the findings of that study, Turkmenistan intends to apply to the European Bank for Reconstruction and Development (EBRD) for a loan which will cover pavement strengthening along the principal M37 road from Ashgabat, the capital, to Mary, an industrial centre about 350 km to the east. The M37 traverses Turkmenistan from the Caspian Sea in the west to the border of Uzbekistan in the east, and is a key link in one of the main TRACECA corridors. These consultancy services will be administered in close collaboration with EBRD as part of its project to rehabilitate the M37 road and to assist Turkmenautoellari to maintain and improve the road system in Turkmenistan.

Preliminary site investigations, outline designs, and technical specifications have been drafted. A preliminary bridge survey has also been carried out. Under a separate TRACECA project a Pavement Management System (PMS) is to be implemented. The EBRD foresees that the reconstruction works to be carried out between Ashgabat and Mary will be carried out in three lots. A first package of consultancy services is being prepared by EBRD to allow the first construction work to be tendered in 1997. The EBRD now wishes to engage the services of a suitably qualified and experienced consultant to carry this road project forward to the stage where subject to completion of the arrangements for the EBRD loan, contracts for the remaining works can be awarded. Given the prime importance to the TRACECA programme of this road section, TACIS will finance technical assistance to facilitate the EBRD loan.

RATIONALE AND OBJECTIVES

The objective of this project is to assist Turkmenautoellari to maintain and improve the road system in Turkmenistan, with a specific focus on the M37 TRACECA corridor road between Ashgabat and Mary. This objective will be achieved principally by (i) preparation of engineering designs and tender documents; (ii) assistance to Turkmenautoellari with tendering, including bid evaluation; (iii) study of design, capacity and safety issues where the M37 passes through urban areas; and (iv) assistance to Turkmenautoellari with strengthening road maintenance capability so that the roads remain in good condition once the immediate rehabilitation works are completed.

MAIN COMPONENTS

Preparation of engineering designs and tender documents

This task requires: (a) a review of traffic data, preliminary survey data and design documentation; (b) all necessary topographical, geotechnical and traffic surveys; (c) preparation of engineering designs, cost estimates and tender documents for the rehabilitation of the final 145 km section between Tedjen and Mary; and (d) environmental due diligence.

The consultants will review available **traffic data** and, if required, will undertake additional counts. In 1994 and 1995, some initial **road condition surveys** were undertaken on the Ashgabat to Mary road by Turkmendorproyekt, with assistance from EBRD consultants, to assess the existing road condition. Based on this preliminary **designs and technical specifications** were drafted for the rehabilitation work. A similar initial review of **bridges and structures** was made. This work will be available for the consultant's inspection and review.

The consultants will develop a **survey programme**, following their review of existing data. The most significant survey effort is expected to be for those surveys which are required as input to the engineering designs for the pavement rehabilitation works. This will include topographical and geotechnical surveys. The topographical survey will cover the paved areas and adjacent verges. The geotechnical surveys will need to collect data on the pavement foundation and the stability of existing earthworks. In this regard, the consultants must pay attention to the problem of saturated ground conditions particularly in the vicinity of the Karakum Canal. A construction materials survey is required to assess the type and quality of materials available for construction of earthworks and sub-base. The quality and availability of local bitumen and other materials should also be investigated.

Engineering designs and tender documents will be prepared for the 145 km section between Tedjen and Mary. In preparing their designs the consultants will take account of the need for general road improvements along the rest of the route. This is expected to comprise principally redesign of junctions and similar safety-related improvements. Should expenditure on any one improvement, or the aggregate on a number of small improvements, require investment in excess of one million dollars, the consultant will report on the economic rationale. Wherever low cost improvements presenting a high rate of return are identified, these should be included in the project.

The consultants will ensure that **environmental, health and safety** concerns associated with the investment project are identified and appropriate mitigation measures are included in the engineering design and tender documents. Specifically, the consultants should distinguish between mandatory mitigation measures and recommended additional mitigation measures. Mandatory mitigation measures will be required where the potential impacts could be significant, or due to regulatory requirements. Such concerns may include noise, water quality, dust, waste management, materials handling and storage areas, borrow pits, workers' health and safety, and road safety. The consultant should provide a list of key permits and

approvals required for the project to meet national and local environmental, health and safety regulatory requirements, specifically those associated with the Turkmen Law on State Ecological Expertise adopted in July 1995. The consultant should identify Turkmen requirements on public participation for the road rehabilitation and quarrying operations. The consultant will also propose suitable clauses that could be incorporated in the construction contracts to mitigate short-term impacts of construction activities, such as noise, dust, waste generation etc. The consultant will analyse the environmental impacts associated with the use of various quarry sites and propose mitigation measures to reduce these impacts. The consultant will also review opportunities and, where appropriate, make proposals for additional environmental enhancement, for example, tree planting and additional road safety improvements.

Assistance with tendering

The consultant will **prepare a full package of tender documents** to enable Turkmenautoellari to let the contract for these works by open tendering according to the Procurement Policies and Rules of the EBRD. Responsibility will rest with Turkmenautoellari to obtain the Bank's "no objection" at every stage in the process, but the consultant will assist Turkmenautoellari at all stages. The tender documents will consist of: (i) Instructions for Tenderers, Tender Data, and Conditions of Contract based on standard EBRD tender documents, or with the agreement of the Bank, World Bank or FIDIC standard documents, including all necessary accompanying documentation (tender securities, guarantee forms, performance bonds, etc.); (ii) contract drawings; (iii) Bills of Quantities and Cost Estimates; and (iv) Specifications for the work to be carried out. The tender documents will be in the English language and English will be the ruling language. The consultant will also assist Turkmenautoellari in their task of translating all documents into the local language [or Russian]. Following approval by Turkmenautoellari and EBRD, the consultant will arrange for printing of about 30 sets of the contract documents on a reimbursable basis (this cost should therefore be included in the financial proposal); the exact number of copies will be agreed following completion of the prequalification process.

It is expected that **prequalification** of contractors will be completed during previous EBRD contracts. However, if necessary, the consultants will assist with further prequalification based on the latest version of the EBRD's Standard Prequalification Documents, Procurement of Works (major equipment and industrial installations, 1995). After these documents have been approved by the EBRD for issue, the consultant will assist Turkmenautoellari in publishing a Procurement Notice inviting prequalification by appropriately experienced contractors. The consultant will with Turkmenautoellari also review applications when received and will prepare a list of prequalified tenderers and a comprehensive report substantiating the basis for prequalification, or rejection, of each applicant for Turkmenautoellari to submit to the EBRD.

The consultant will assist Turkmenautoellari with the **tendering** process. Specifically, they will: invite tenders and distribute sets of contract documents to intending tenderers; organise and participate in site visits and pre-tender meetings; prepare for receipt and opening of tenders; draft minutes of all such formal meetings; assist with the receipt and opening of tenders; tender evaluation, and the award of contracts; preparation of detailed and complete

records of all the steps involved in the evaluation of tenders and the award of contracts. The record will make clear the criteria employed in the evaluation and the reasons for all decisions which are made. The tender, evaluation and award of contracts will be carried out strictly in accordance with the EBRD's Procurement Policies and Rules.

Design, capacity and safety issues

The M37 is the main traffic artery in Turkmenistan, and Turkmenautoellari wishes to ensure that this road conforms to an appropriate design standard considering its functional importance, and having in mind its present and likely future traffic. The need to consider low cost capacity and safety improvements, with a high rate of return, has already been highlighted. In addition, the consultants should examine the impact of transit traffic where the M37 passes through urban areas. In Ashgabat parts of a northern bypass of the city already exist, but this bypass is not yet adequately linked to the M37 route, so that most transit traffic passes through the central urban streets of the city. Many urban sections carry heavy traffic flows, and in some cases, particularly in the immediate vicinity of Ashgabat, "dualling" of parts of the route might be justified.

The consultants will review this issue and prepare a strategy for transit traffic passing through the urban areas of Ashgabat and Mary. Appropriate traffic, engineering, and economic analysis will be made so that the consultant is able to recommend the optimum timing and phasing of improvements over a 15 year time horizon. Environmental issues must be fully taken into account.

Strengthening road maintenance capability

The EBRD wishes to ensure that, so far as possible, once the Bank financed rehabilitation works are completed, the road remains in good condition. To this end, the Bank is working with the Government to ensure that funds for the road sector are at least sufficient to enable road maintenance work to be carried. However, there are also concerns about the capability of the country's Road Maintenance Units to undertake the required work.

The consultants will describe the existing institutional structure under which road maintenance is carried out in Turkmenistan. They should assess the capability of the entities involved, covering all aspects of this task: planning, finance, management, and equipment. This work is complementary to the on-going TRACECA financed studies for the implementation of a regional pavement management system, and must be fully integrated with it.

The consultants, with the assistance of Turkmenautoellari will undertake an inventory of the major items equipment available to the road maintenance unit. They will comment on its condition and adequacy for the maintenance task to be undertaken on the primary road network. It is expected that over the next ten years Turkmenistan will need to undertake significant upgrading of its road maintenance equipment, and the consultants should prepare indicative specifications and budgets to meet this requirement.

The Government of Turkmenistan is now initiating a policy to give greater autonomy to state companies. In principle, this policy would result in the commercialization and, eventually, the privatization of Turkmenautoellari's force account units. This in turn creates the opportunity for road construction and major periodic maintenance works to be let through a competitive tendering process. The consultants will examine the potential for such changes to be introduced in Turkmenistan and prepare a phased programme to assist with the institutional, financial, legal, management, training and other issues raised by this process.

IMPLEMENTATION ARRANGEMENTS

The technical co-operation will be managed by the Turkmenautoellari, in close consultation with EBRD.

The consultant will supply all necessary computer hardware and software, as well as all equipment to be used for the road surveys. The consultant is encouraged to consider in their proposal the possibility that such equipment would be handed over to Turkmenautoellari after completion of the assignment.

The consultant will be responsible for provision of all residential accommodation for their staff, subsistence, local and international transportation for their staff and dependants. The consultants will be responsible for all salaries, fees, allowances, insurance and leave pay for their staff involved on the assignment.

The Government will provide suitable furnished office accommodation with heating, lighting, electricity and telephone service (but the consultant will be responsible for the cost of the calls they make at the prevailing tariffs of the telephone utility), and access to water and toilet facilities. Government will also assist the consultant in finding competent bilingual (Russian - English) secretarial assistance, but the consultant will be responsible for negotiating terms for such assistance.

The Government will facilitate all visas, permits, licences and customs clearances necessary for the performances of the services in Turkmenistan. However, the costs of these will be borne by the consultant.

STAFFING

Approximately ___ staff months of senior professional service, comprising a highway engineer/team leader who will provide a continual input in Turkmenistan. He/she will be supported by other technical staff suitably qualified in engineering design, preparation contracts (preferably with IFIs), economic analysis, traffic engineering and environmental assessment. Relevant work experience in other countries of the former Soviet Union will be viewed favourably.

The consultant is encouraged to co-operate with local engineering and survey staff from Turkmenautoellari and Turkmendorproyekt.

PROJECT SCHEDULE

The project should start by October 1996 and be completed, within eight months.

REPORTING REQUIREMENTS

The consultant will, within six weeks of commencement, submit a brief Inception Report detailing progress made to date and outlining any significant problems encountered, with proposals to overcome them. Thereafter, the consultants will submit brief monthly reports giving details of progress and of any problems which may affect completion on schedule.

The consultant's first main task will be to prepare engineering costs, designs and quantities for the road sections proposed for rehabilitation, together with the tender documents. One complete set of contract documents will be delivered to the Government and another complete set to the EBRD. In parallel with this, the consultant will assist Turkmenautoellari with the prequalification of contractors, and tender, evaluation and award of contracts. Progress with these tasks will be recorded in the consultants' monthly reports and subsequently fully documented in the consultant's final report. The final report will also include, in a separate volume, the consultant's report on the survey of bridges and structures. The Final Report is to be submitted at the end of the six month period. All reports will be submitted with 5 copies in Russian to Turkmenautoellari and 3 copies in English to the EBRD.

The consultant must provide all significant study outputs in English and Russian. However, some detailed material (e.g. survey reports and technical annexes) may, by mutual agreement between the consultants, Turkmenautoellari and the Bank, be provided in the English language only.

TERMS OF REFERENCE - TRACECA

Pavement Management System - Purchase of Equipment and Training

1. The Consultant will propose one set of Falling Weight Deflectometer equipment complying with the requirements of the hardware and software of the Pavement Management System (PMS) project presently under implementation in the TRACECA states. All necessary accessories, tools and consumables sufficient for two years operation shall be included.

The equipment will be delivered to the TRACECA region and utilised within the present PMS project activities. The ultimate recipient organisations of the two sets of field testing equipment supplied (one foreseen in the initial PMS project and this additional set now ordered) will be decided later, though in principle one set will remain in the Caucasus and the other in Central Asia.

2. The Consultant will provide to the beneficiary states further on-the-job training in the implementation of the PMS system. This will be done after the completion of the activities foreseen in the initial PMS project, and after a short additional delay (eg.two months) to allow each beneficiary state to assimilate the technical assistance provided to date. The Consultant will then provide additional training in system implementation, of about two weeks duration in each TRACECA state. The technical content of the additional training will compensate any revealed deficiencies in application of the system.

The trainer will liaise with other technical assistance missions present in the region, such as those of the World Bank, Asian Development Bank and EBRD, to promote the wide ongoing application and utilisation of the PMS.