

REQUEST FOR PROPOSALS

FEASIBILITY STUDY FOR THE

BELO HORIZONTE INTELLIGENT TRANSPORTATION SYSTEM

Submission Deadline: **1:00 pm LOCAL TIME**
MONDAY, APRIL 21, 2008

Submission Place: **Marcos Fontoura de Oliveira**
Diretor de Ação Regional e Operação - DRO
Empresa de Transportes e Trânsito de Belo Horizonte SA
Av. Eng. Carlos Goulart, 900 - Buritis
Belo Horizonte – MG CEP 30.455-700
Brazil
Phone: +55(31)3379-5743

SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

REQUEST FOR PROPOSALS

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Section 1: INTRODUCTION

The U.S. Trade and Development Agency (USTDA) has provided a grant to conduct a Feasibility Study for the Belo Horizonte Intelligent Transportation System project on behalf of the Belo Horizonte Traffic and Transportation Company (BHTRANS). The grant agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to carry out the Feasibility Study.

1.1 BACKGROUND SUMMARY

Belo Horizonte is the fourth largest metropolitan area in Brazil. The city has a population of approximately 2.5 million people, with over 4.5 million residing in the metropolitan area. The city has a strong service sector which plays an important role in the national economy and is the center of a highly developed industrial sector traditionally focused on metallurgy. Due to both governmental and private economic diversification efforts, the city most recently has become an international center for information technology and biotechnology.

The city operates a large public transportation system administered by BHTRANS which transports 1.4 million passengers per day with 300 bus lines operated by 50 independent companies under concessions awarded by BHTRANS. The metro system consists of one main line with 19 stations.

BHTRANS was created by the prefecture of Belo Horizonte as a semi-independent agency responsible for the administration of all traffic and transportation operations for the city of Belo Horizonte. BHTRANS is governed by a board of directors with an administrative staff responsible for traffic engineering and traffic management operations. BHTRANS responsibilities include the planning and implementation of traffic operations and the roadway system within the city, such as the management of all public transportation services, including taxis, public transportation, school transportation, and others.

BHTRANS intends to continue to improve its traffic management capabilities and is seeking to expand its current Closed-Circuit-Television System(CCTV) and Variable Message Sign System(VMS) systems to include additional cameras in the field as well as variable message signs in order to provide a broader coverage in the city. BHTRANS is interested in developing an Intelligent Transportation Systems (ITS) action plan for the expansion of the CCTV and VMS systems in the city and has requested feasibility study assistance.

The Feasibility Study would review the application of an Integrated Traffic Information Management System for the integration of all traffic management operations within the city. BHTRANS is looking to integrate all of the information generated by its various departments and operations in one central database that would include a GIS based system. The ITIMS envisioned by BHTRANS would include the automation of all field operations handled by the field operations and emergency teams by way of "hand-held" computers to register the field information and quickly transfer that information by wireless communications to the intelligent

traffic control system center. Once all the field information is received in the central control, then the information would be available for use within the entire BHTRANS organization allowing users to benefit from the most up to date traffic information. Traffic information could then be displayed and posted on a web site for the benefit of the public. BHTRANS would like to explore the potential of marketing and selling the available traffic information to the public, similar to what is done by some private companies in the U.S.

A background Desk Study is provided for reference in Annex 2.

1.2 OBJECTIVE

The development of these ITS applications have the following objectives:

1. To coordinate, integrate, and optimize the future investment of new ITS technologies and applications to the existing urban transportation program in Belo Horizonte.
2. To integrate and provide for compatibility of new and existing technologies for BHTRANS.
3. To provide for “real time” traffic information to BHTRANS and its users (including public transportation system information).
4. To improve the traffic circulation between areas of high traffic demand.
5. To improve internal central operations of BHTRANS including updating office and field equipment.
6. To improve the response time for the public’s request for information.
7. To allow for detail analysis and diagnostics of operational problems throughout the agency.
8. To allow for the efficient management of traffic incidents and emergencies and to provide for a more efficient public transportation system.
9. To improve the daily operations and activities of those traffic operations and emergency teams that work in the field.
10. To update and create a new and efficient traveler information system that the public can depend on.

The Terms of Reference (TOR) for this Feasibility Study is attached as Annex 5.

1.3 PROPOSALS TO BE SUBMITTED

Technical proposals are solicited from interested and qualified U.S. firms. The administrative and technical requirements as detailed throughout the Request for Proposals (RFP) will apply. Specific proposal format and content requirements are detailed in Section 3.

COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted; upon detailed evaluation of technical proposals, one firm will be selected for contract negotiations. The amount for the negotiated contract has been established by a USTDA grant of U.S. \$294,000 dollars.

1.4 CONTRACT FUNDED BY USTDA

The negotiated contract will be funded by USTDA in accordance with the terms and conditions of its grant to the Grantee. The contract must include certain USTDA mandatory clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA mandatory clauses are attached at Annexes 3 and 4 for reference.

Section 2: INSTRUCTIONS TO PROPOSERS

2.1 PROJECT TITLE

The project is called the "Belo Horizonte Intelligent Transportation System."

2.2 DEFINITIONS

Please note the following definitions of terms as used in this RFP.

The term "Request for Proposals" means this solicitation of a formal technical proposal including qualifications statement.

The term "Offeror" means the U.S. individual, or U.S. firm, including any and all subcontractors, which responds to the RFP and submits a formal proposal and which may or may not be successful in being awarded this procurement.

2.3 DESK STUDY REPORT

USTDA sponsored a Desk Study to address technical, financial, sociopolitical, environmental and other aspects of the proposed project. A copy of the Report is attached at Annex 2 for background information only.

2.4 EXAMINATION OF DOCUMENTS

Offerors should carefully examine this RFP. It will be assumed that Offerors have done such inspection and that through examinations, inquiries and investigation they have become familiarized with local conditions and the nature of problems to be solved during the execution of the Feasibility Study.

Offerors shall address all items as specified in this RFP. Failure to adhere to this format may disqualify an Offeror from further consideration.

Submission of a proposal shall constitute evidence that the Offeror has made all the above mentioned examinations and investigations, and is free of any uncertainty with respect to conditions which would affect the execution, and completion of the Feasibility Study.

2.5 PROJECT FUNDING SOURCE

The Feasibility Study will be funded under a grant from USTDA. The total amount of the grant is not to exceed U.S. \$294,000 dollars.

2.6 RESPONSIBILITY FOR COSTS

Offeror shall be fully responsible for all costs incurred in the development and submission of the proposal or any other cost incurred by Offeror prior to issuance of an agreement or contract. Neither USTDA nor the Grantee assumes any contractual obligation as a result of the issuance of this proposal request, the preparation or submission of a proposal by an Offeror, the evaluation of proposals, or final selection.

2.7 TAXES

Offerors should submit proposals which note that in Annex 4, USTDA Mandatory Contract Provisions, USTDA funds are not to be used to pay taxes or duties under the laws of host country.

2.8 CONFIDENTIALITY

The Grantee will use its best efforts to preserve the confidentiality of any business proprietary or confidential information submitted by the Offeror, which is clearly designated as such by the Offeror.

2.9 ECONOMY OF PROPOSALS

Proposal documents should be prepared simply and economically, providing a comprehensive and concise description of the Offeror's capabilities to satisfy the requirements of the RFP. There is no necessity for expensive bindings, colored displays, or other promotional material unless such material is absolutely pertinent to the proposal. Emphasis should be placed on completeness and clarity of content.

2.10 SUBSTANTIVE PROPOSALS

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on the behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with, and agreement of, any undisclosed group, association, organization, or corporation; (b) that it has not directly or indirectly induced or solicited any other Offeror to put in a false proposal; (c) that it has not solicited or induced any other person, firm, or corporation to refrain from submitting a proposal; and (d) that it has not sought by collusion to obtain for himself any advantage over any other Offeror or over the Grantee or USTDA or any employee thereof.

2.11 CONDITIONS REQUIRED FOR PARTICIPATION

Only U.S. firms are eligible to participate in this tender. However, U.S. firms may utilize subcontractors from host country for up to 20 percent of the amount of the USTDA grant. USTDA nationality requirements are detailed in Annex 3.

2.12 LANGUAGE OF PROPOSAL

All proposal documents shall be prepared and submitted in English and Portuguese.

2.13 PROPOSAL SUBMISSION REQUIREMENTS

The **Cover Letter** in the proposal must be addressed to:

Marcos Fontoura de Oliveira, Diretor de Ação Regional e Operação – DRO, Empresa de Transportes e Trânsito de Belo Horizonte SA
Av. Eng. Carlos Goulart, 900 - Buritis
Belo Horizonte – MG CEP 30.455-700 Brazil
Phone: +55(31)3379-5743

An Original, in English and Portuguese, and two (2) copies, in English and Portuguese, of your proposal must be received at the above address no later than 1:00 pm (local time), on April 21, 2008.

Proposals may be either sent by mail, overnight courier, or hand-delivered. Whether the proposal is sent by mail, courier or hand-delivered, the Offeror shall be responsible for actual delivery of the proposal to the above address before the deadline. Any proposal received after the deadline will be returned unopened.

Upon timely receipt, all proposals become the property of the Grantee.

2.14 PACKAGING

Each proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content including "original" or "copy number x"; the original, in English and Portuguese, and two (2) copies, in English and Portuguese, should be collectively wrapped and sealed, and clearly marked for content.

Neither USTDA nor the Grantee will be responsible for premature opening of proposals not properly labeled.

2.15 AUTHORIZED SIGNATURE

The proposal must contain the signature of a duly authorized officer or agent of the Offeror empowered with the right to bind the Offeror.

2.16 EFFECTIVE PERIOD OF PROPOSAL

The proposal shall be binding upon the Offeror for sixty (60) days after the proposal due date, and Offeror may withdraw or modify this proposal at any time prior to the due date upon written request, signed in the same manner and by the same person who signed the original proposal.

2.17 EXCEPTIONS

Firms agree by their response to the RFP announcement to abide by the procedures set forth therein. Material modifications in the TOR or responsibilities of the parties will not be accepted.

Any exceptions in the proposal shall be clearly identified, and shall include the scope of such exception, and its impact, on the procurement. The Grantee shall make final determination as to the responsiveness of such exceptions and their acceptability.

2.18 OFFEROR QUALIFICATIONS

As provided in Section 3, Offerors shall submit evidence that they have relevant past experience and have previously delivered advisory and Feasibility Study services similar to those required in the TOR.

2.19 RIGHT TO REJECT PROPOSALS

The Grantee reserves the right to reject any and all proposals and to accept or reject any or all of the items in the proposal, and to award the contract in whole or in part if it is deemed in the best interest of the Grantee.

2.20 PRIME CONTRACTOR RESPONSIBILITY

Offerors have the option of subcontracting parts of the services they propose. The Offeror's proposal must include a description of any anticipated subcontracting arrangements, including the name, address, and qualifications of consultants and subcontractors. USTDA nationality provisions are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all mandatory USTDA clauses, to be inserted in all subcontracts ensuing to ensure fulfillment of all contractual provisions by subcontractors.

2.21 AWARD

An award resulting from this RFP shall be made to the best qualified Offeror, taking into consideration the evaluation factors set forth herein; however, the right is reserved to reject any and all proposals received and, in all cases, the Grantee will be the judge as to whether a proposal has or has not satisfactorily met the requirements of this RFP.

2.22 COMPLETE SERVICES

The successful Offeror shall be required to (a) furnish all supplies, supervision, transportation, and other execution accessories, services, and facilities; (b) provide and perform all necessary labor; and (c) in accordance with good technical practice, with due diligence, and in accordance with the requirements, stipulations, provisions and conditions of this RFP and the resultant contract, execute and complete all specified work to the satisfaction of the Grantee.

2.23 INVOICING AND PAYMENT

Deliverables under the contract shall be delivered on a schedule to be agreed upon in a contract with the Grantee. The Contractor may submit invoices to the designated Grantee Project Director in accordance with a schedule to be negotiated and included in the contract. Upon approval of each invoice, the Grantee will forward the invoice to USTDA which will process payment to the Contractor. All payments by USTDA under the Grant Agreement will be made in U.S. currency.

Section 3: PROPOSAL FORMAT AND CONTENT

To expedite proposal review and evaluation, and to assure that each proposal receives the same orderly review, all proposals must follow the format described in this section.

Proposal sections and pages shall be appropriately numbered and the proposal shall include a Table of Contents. Offerors are encouraged to submit concise and clear responses to the RFP. Proposals shall contain all elements of information requested without exception. Instructions regarding the required scope and content are given in this section. The Grantee reserves the right to include any part of the selected proposal in the final contract.

The proposal shall consist of a technical proposal only. No cost proposal is required as the value of the USTDA grant is established at U.S. \$294,000 dollars.

Offerors shall submit one (1) original, in English and Portuguese, and two (2) copies of the proposal, in English and Portuguese. Proposals received by fax cannot be accepted.

The following sections and content are required for each proposal:

- Transmittal Letter,
- Cover/Title Page,
- Table of Contents,
- Introduction and Executive Summary,
- Company Information,
- Organizational Structure, Management Plan, and Key Personnel,
- Technical Approach and Work Plan,
- Experience and Qualifications, and
- Miscellaneous.

Detailed requirements and directions for the preparation of each section are presented below.

3.1 SECTION 1: INTRODUCTION AND EXECUTIVE SUMMARY

An Executive Summary should be prepared describing the major facts or features of the proposal, including any conclusions, assumptions, and generalized recommendations the Offeror desires to make. Offerors are requested to make every effort to limit the length of the Executive Summary to no more than five (5) pages.

3.2 SECTION 2: COMPANY INFORMATION

3.2.1 Company Profile

Provide the information listed below relative to the Offeror's firm. If the Offeror is proposing to subcontract some of the proposed work to another firm(s), similar information must be provided for each subcontractor. Offerors are requested to limit the length of the Company Profile Information to one (1) page per firm.

1. Name of firm and business address, including telephone and fax numbers.
2. Year established (include former firm names and year established, if applicable).
3. Type of ownership and parent company, if any.
4. Project Manager's name, address, telephone and fax number, if different from (1).

3.2.2 Offeror's Authorized Negotiator

Provide name, title, address, telephone and fax number of the Offeror's authorized negotiator. The person cited shall be empowered to make binding commitments for the Offeror and its subcontractors, if any.

3.2.3 Negotiation Prerequisites

1. Discuss any impact of any current or anticipated commitments which may impact the ability of the Offeror or its subcontractors to complete the Feasibility Study as proposed and within the project schedule.
2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

3.3 SECTION 3: ORGANIZATIONAL STRUCTURE, MANAGEMENT, AND KEY PERSONNEL

Describe the Offeror's proposed project organizational structure. Discuss how the project will be managed including the principal and key staff assignments for this Feasibility Study. Identify the Project Manager who will be the individual responsible for this project. The Project Manager must have the responsibility and authority to act on behalf of the Offeror in matters related to the proposed Feasibility Study.

Provide a listing of personnel (including subcontractors and consultants) to be engaged in the project, either U.S. or local with the following information for key staff: position in the project; pertinent experience, curriculum vitae; other relevant information. If subcontractors are to be used, the organizational relationship between the firms must be described.

A manpower schedule and the level of effort for the project period, by activities and tasks, as detailed under the Work Plan shall be submitted. A statement confirming the availability of the proposed project manager and key staff over the duration of the project must be included in the proposal.

3.4 SECTION 4: TECHNICAL APPROACH AND WORK PLAN

Describe in detail the proposed technical approach and work plan. Discuss the project requirements as perceived by the Offeror. Include a brief narrative of tasks within each activity series. Begin with the information gathering phase and continue through delivery and approval of all required reports.

Prepare a detailed schedule of performance that describes all activities and tasks within the Technical Work Plan, including periodic reporting or review points, incremental delivery dates, and other project milestones.

Based on the Technical Work Plan, and previous project experience, explain when and where Offeror will require support from the Grantee. Detail the amount of staff time required by the Grantee or participating agencies and any work space or facilities needed to complete the Feasibility Study.

3.5 SECTION 5: EXPERIENCE AND QUALIFICATIONS

Provide a discussion of the Offeror's experience and qualifications which are relevant to the objectives and TOR for the Feasibility Study. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project. Relevant experience and qualifications of key staff proposed shall be provided including letters of commitment from the individuals proposed concerning their availability for contract performance.

As many as possible but not more than six (6) relevant and verifiable project references must be provided, including the following information:

- Project name,
- Name and address of client (indicate if joint venture),
- Client contact person (name/ position/ current phone and fax numbers),
- Period of Contract,
- Description of services provided,
- Dollar amount of Contract, and
- Status and comments.

Offerors are strongly encouraged to include in their experience summary primarily those projects that are similar to or larger in scope than the Feasibility Study as described in this RFP.

Section 4: AWARD CRITERIA

Individual proposals will be initially evaluated by a Procurement Selection Committee of representatives from the Grantee. The Committee will then conduct a final evaluation and completion of ranking of qualified Offerors, and the Grantee shall promptly negotiate a contract with the best qualified Offeror. If a satisfactory contract cannot be negotiated with the best qualified Offeror, negotiations will be formally terminated. Negotiations shall then be undertaken with the second most qualified Offeror and so forth.

The selection of the Contractor will be based on the following criteria:

Intelligent Transportation Systems (ITS) Experience, including the following: (40 points)

- Experience in all concepts and practices related to the development of ITS standards and specifications
- Experience in studying, defining, and recommending ITS strategic plans including standards and technical specifications
- Experience with ITS interoperability issues
- Experience in areas of ITS systems integration and interoperability to include planning, design, and implementation of ITS systems including but not limited to CCTV, VMS, and Integrated Traffic Information Management systems
- Experience in the areas of conducting economical and financial analysis in connection with Intelligent Transportation System projects
- Experience in the area of developing ITS strategic plans at the federal, state, and municipal levels including the development of technical specifications and ITS standards

Technical Approach and Work Plan (35 points)

Financial and Regional Experience, including the following: (25 points)

- Experience in identifying eligible financial resources for ITS implementation within the private sector and /or multilateral lending institutions
- International experience related to the development of ITS standards and specifications, preferably in Brazil and/or Latin America
- Experience and ability to work in the Portuguese language
- The consultant should have previous experience in the area of ITS system development. It is paramount that the consultant have full knowledge and complete understanding of all concepts and practices in developing ITS standards and specifications
- Previous experience and actual involvement in studying, defining, and recommending ITS strategic plans including standards and technical specifications is very important for the Belo Horizonte project. Ample knowledge of ITS interoperability issues is required

- The consultant should have previous experience in areas of ITS systems integration and interoperability to include planning, design, and implementation of ITS systems including but not limited to CCTV, VMS, and Integrated Traffic Information Management systems
- Experience in the areas of conducting economical and financial analysis in connection with Intelligent Transportation System projects should be extensive
- The consultant should have significant experience in the area of developing ITS strategic plans at the federal, state, and municipal levels including the development of technical specifications and ITS standards. The ITS strategic plan for Belo Horizonte will be based on the city's needs
- Additional experience and/or involvement in identifying eligible financial resources for ITS implementation within the private sector and /or multilateral lending institutions is important. Understanding the practices and concepts of public-private partnerships that have led to the successful implementation of ITS technology is required
- It is required that the consultant to have significant experience at the international level, preferably experience in Brazil and/or in Latin America
- The consulting team must have at least one person (at the professional and technical level) if not more, with full (reading, writing and speaking) Portuguese language proficiency.

Proposals which do not include all requested information may be considered non-responsive.

Price will not be a factor in contractor selection.

ANNEX 1

Marcos Fontoura de Oliveira, Diretor de Ação Regional e Operação – DRO, Empresa de Transportes e Trânsito de Belo Horizonte SA, Av. Eng. Carlos Goulart, 900 – Buritis, Belo Horizonte – MG CEP 30.455-700 Brazil, Phone: +55(31)3379-5743

B - BRAZIL: BELO HORIZONTE INTELLIGENT TRANSPORTATION SYSTEM PROJECT

POC Evangela Kunene, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. BELO HORIZONTE INTELLIGENT TRANSPORTATION SYSTEM PROJECT. The Grantee invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms which are qualified on the basis of experience and capability to develop a feasibility study for an Integrated Traffic Information Management System(ITIMS) for Belo Horizonte's Traffic and Transportation Company (Empresa de Transportes e Trânsito de Belo Horizonte SA, BHTRANS).

The feasibility study would review the application of an ITIMS for the integration of all traffic management operations within the city. BHTRANS is looking to integrate all of the information generated by its various departments and operations in one central database that would include a GIS based system.

The ITIMS envisioned by BHTRANS would include the automation of all field operations handled by the field operations and emergency teams by way of "hand-held" computers to register the field information and quickly transfer that information by wireless communications to the intelligent traffic control system center. Once all the field information is received in the central control, then the information would be available for use within the entire BHTRANS organization allowing users to benefit from the most up to date traffic information. Traffic information could then be displayed and posted on a web site for the benefit of the public. BHTRANS would like to explore the potential of marketing and selling the available traffic information to the public, similar to what is done by some private companies in the U.S.

The U.S. firm selected will be paid in U.S. dollars from a \$294,000 grant to the Grantee from the U.S. Trade and Development Agency (USTDA).

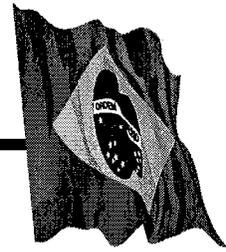
A detailed Request for Proposals (RFP), which includes requirements for the Proposal, the Terms of Reference, and a background desk study report are available from USTDA, at 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901. To request the RFP in PDF format, please go to: <https://www.ustda.gov/USTDA/FedBizOpps/RFP/rfpform.asp>. Requests for a mailed hardcopy version of the RFP may also be faxed to the IRC, USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time for preparation of an adequate response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the request for the RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check

your internal fax verification receipt. Because of the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

Only U.S. firms and individuals may bid on this USTDA financed activity. Interested firms, their subcontractors and employees of all participants must qualify under USTDA's nationality requirements as of the due date for submission of qualifications and proposals and, if selected to carry out the USTDA-financed activity, must continue to meet such requirements throughout the duration of the USTDA-financed activity. All goods and services to be provided by the selected firm shall have their nationality, source and origin in the U.S. or host country. The U.S. firm may use subcontractors from the host country for up to 20 percent of the USTDA grant amount. Details of USTDA's nationality requirements and mandatory contract clauses are also included in the RFP.

Interested U.S. firms should submit their Proposal in English and Portuguese directly to the Grantee by 1:00pm (local time), April 21, 2008 at the above address. Evaluation criteria for the Proposal are included in the RFP. Price will not be a factor in contractor selection, and therefore, cost proposals should NOT be submitted. The Grantee reserves the right to reject any and/or all Proposals. The Grantee also reserves the right to contract with the selected firm for subsequent work related to the project. The Grantee is not bound to pay for any costs associated with the preparation and submission of Proposals.

ANNEX 2



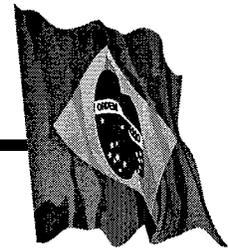
A. EXECUTIVE SUMMARY

In June of 2007, the Belo Horizonte Traffic and Transportation Company known as BHTRANS and the Municipality of Belo Horizonte, Brazil submitted a request for financial assistance from the U.S. Trade and Development Agency (USTDA) for the conduct of a feasibility study for the implementation of Intelligent Transportation Systems (ITS) in Belo Horizonte. BHTRANS is a semi-independent government agency that was created by the Municipality of Belo Horizonte 15 years ago with the responsibility for the overall traffic and transportation functions in the city. BHTRANS also has under its jurisdiction the responsibility for the development and implementation of Intelligent Transportation Systems for the purpose to improve the overall transportation system in the city. BHTRANS has already implemented an Intelligent Traffic Control Center (referred to as the "CIT" center), including several computerized traffic signal systems, a Closed-Circuit-Television System (CCTV), a Variable Message Sign System (VMS), and an electronic fare collection system for the city's public transportation, including buses and the metro. In the process to continue with the implementation of ITS systems in the city, BHTRANS has recently identified the need to expand and/or upgrade its CCTV and VMS systems to provide for a larger coverage of traffic surveillance and information in Belo Horizonte. In addition, BHTRANS has identified the need to implement an Integrated Traffic Information Management System (ITIMS) for the integration of all traffic management operations within the city. BHTRANS refers to this system as "SIGOP" (Sistema de Informacion-Gestao de Operacoes) and the agency seeks to integrate all of the traffic information generated by its various departments and operations in one central data base that would include a GIS based system.

In order to accomplish the implementation of these ITS systems (CCTV, VMS, and ITIMS) BHTRANS desires to conduct an ITS feasibility study for the purpose to develop a strategic ITS plan that includes standards and technical specifications that would lead to the procurement of the needed ITS systems in the near future.

The Desk Study evaluations determined that the project's sponsor (BHTRANS and the Municipality of Belo Horizonte) have demonstrated a strong commitment to the proposed ITS project as well as a commitment to continue with the implementation of ITS systems for the benefit of improving the efficiency of the transportation system in Belo Horizonte.

A review of the financial implementation elements for the proposed project revealed that the Municipality of Belo Horizonte and BHTRANS have both good financial standings and are capable of financing the proposed ITS project and both organizations are found to be credit worthy that



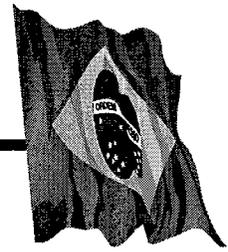
qualify them to receive loans from various local and international financial institutions. The financial institutions contacted all indicated that the type of project envisioned by Belo Horizonte would be eligible for financial assistance from the institutions. The proposed ITS project is found to be technically and financially feasible.

It is estimated that the proposed ITS project offer good opportunities for U.S. exports. The information obtained as part of the Desk Study indicate that the type of ITS technologies necessary for the project must be, in its majority, imported by Belo Horizonte. The proposed ITS project involves several ITS applications that have been well developed for some years in the United States. U.S. companies definitely have the expertise to provide the services and technologies expected to be required by the ITS project. In reviewing the potential need for ITS equipment, software, systems and services, it is determined that many U.S. companies are in a position to adequately supply the required goods and services for the proposed project in Belo Horizonte. The technologies that are most likely to be required for the ITS project are currently being utilized widely throughout the United States and therefore readily available for export. The U.S. export potential is estimated to be in excess of \$ 15 million.

U.S. companies in the ITS industry that were contacted as part of the Desk Study all indicated a positive interest in the possibility of supplying ITS systems and services for Belo Horizonte. However, the foreign competition associated with the proposed project is expected to be high due to the strong presence of mainly European companies that have and continue to export their ITS systems to Brazil. At this time there is substantial evidence of ITS technologies being implemented in Belo Horizonte by non-U.S. companies.

The project's developmental impact assessment indicates that there could be significant benefits such as improvements to the efficiency of the existing transportation system, traffic safety and mobility improvements, and positive environmental impacts. In addition, the proposed project is not anticipated to have a negative impact on U.S. labor.

In summary, based on the overall findings of the Desk Study, it is recommended that USTDA fund the ITS feasibility study in the amount of U.S.\$ 294, 000.



B. PROJECT DESCRIPTION

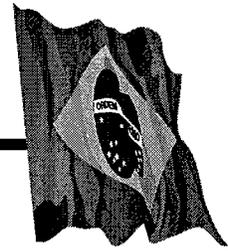
Background

Belo Horizonte is the fourth largest metropolitan area in Brazil, and the city is the capital of the Minas Gerais State, located in the southeastern region of Brazil. Belo Horizonte has a population of approximately 2.5 million people and over 4.5 million reside in the Belo Horizonte metropolitan area. Belo Horizonte's economy has continued to strengthen over the years and today the city and the State of Minas Gerais have become one of the strongest economies in Brazil. The service sector plays a very important role in the economy, representing approximately 85% of the city's GDP, with industry making up for most of the remaining 15%. Belo Horizonte has a developed industrial sector, being traditionally the concentration of the Brazilian metalurgical industries, mostly given the fact that the state of Minas Gerais has always been very rich in minerals. Belo Horizonte is home to many multinational companies like Fiat, Arcelor, and Toshiba as these companies have subsidiaries in the region along with other textile, cosmetic, food, chemical, pharmaceutical, and furnishing companies. There are many companies headquartered in the city such as Acominas, (one of the largest multinationals that originated in Brazil), Usiminas, Belgo-Minera, Acesita, Mobil Communications Telemaker, Cellular, as well as the NYSE –Listed Electrical Company – CEMIG, which is said to have the best transmission quality in Brazil. Due to both governmental and private funding in the diversification of its economy, the city has become an international reference in information technology and biotechnology and is cited because of the advance corporate and university research in bio-diesel fuel. Over 16% of the Brazilian bio-technological industries are located in Belo Horizonte, with annual revenues more than U.S. \$550 million.

During the past few years, the city has made investments in “business-tourism” by promoting more than 3,000 national and international events yearly. One of the largest events that ever took place in Belo Horizonte was the Inter-American Development Bank meeting that occurred in 2006 and attracted people from 47 countries.

Transportation

The city of Belo Horizonte is connected to the rest of the Minas Gerais State and the country by several highways. One of the most important highways is the BR-040, which connects Belo Horizonte with Rio de Janeiro, southern Belo Horizonte and Brasilia. This highway also traverses through other cities in the state such as Juiz de Fora, Conselheiro la Faiete, Santos Dumont, and



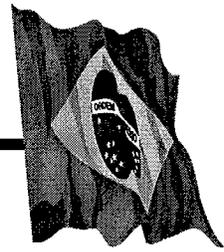
others. In the southern region of the city, another important highway is the BR-262 which begins in Mato Grosso Du Sul and ends in Espiritus Santo, crossing Minas Gerais from west to east. The BR-381 is a very important federal highway between Belo Horizonte and Sau Paulo, the largest and richest city in Brazil.

The city of Belo Horizonte is also served by other minor roads such as state highways MG-020, MG-050, MG-030, MG-433 all providing access to and from the Belo Horizonte metropolitan area to the towns and cities adjacent to Belo Horizonte.

Bus Transportation System

The city of Belo Horizonte has a large number of bus lines servicing many parts of the city and this public transportation system is administered by BHTRANS. The Belo Horizonte public transportation system transports 1.4 million passengers per day with 300 bus lines operated by 50 independent companies that have been given concessions to operate by BHTRANS. The total fleet consists of approximately 3,000 vehicles where the average vehicle age is 5.8 years. The Belo Horizonte public transportation system has been improved since 1995 when the city began the plan for restructuring the public transportation system (BHBUS) with the intent to create an integrated network for transportation in the city that includes the metro, the municipal buses, and the inter-municipal buses. The entire system is divided in two subsystems: main line and feeder subsystem and the urban subsystem. The main line subsystem provides transportation linking the outer areas of the city with the central urban system. The feeder line subsystem feed the metro system as well as the urban subsystem. The operation of the public transportation system in Belo Horizonte was authorized under various concessions for the many operators of the system for a period of 10 years. The process allowed for the creation of the Urban Transportation Fund (Fundo de Transportes Urbanos – FTU) that provides the resources for the construction of the bus stations and other improvement projects for the system.

The public transportation system in Belo Horizonte is funded mostly through its fare collection which represents 98.77% of the revenues. The other source of funding is the advertising program that is allowed on the vehicles and contributes some 0.3% of the total operation cost. The financial model created for Belo Horizonte's public transportation system was based on the fact that the most profitable routes would cover the cost of the least profitable routes creating thus a balance throughout the system that would equally distribute the funds for the operation of the entire system. The creation of this new program was unique in Brazil, where BHTRANS created a standard base fare that would be equal throughout the system. This concept was very difficult to



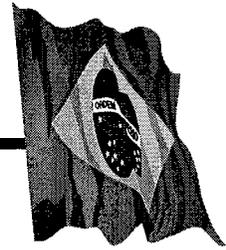
implement given that bus operators that had the most profitable concessions were reluctant to subsidize the other least profitable routes. The government of Belo Horizonte took the initiative to standardize the bus fare and created the Urban Transportation Fund where all operators contribute to in order to operate the system efficiently and allow for all the routes to receive equitable compensation for the services provided.

Metro

Belo Horizonte's metro began operating in the late 1970's and is one of the oldest urban railways in Brazil. The metro system consists of one main line with 19 stations from Dilarinho to El Dorado in Contagem. The original metro system became obsolete in terms of handling the number of commuters and the high demand for rail transportation in the city. As such, two new lines, one from Santa Teresa to Barreiro and one from Pampulha to Savassi are being planned. There is also a project planned for the expansion of the original line from Vilarinho to Ribeirao Das Neves and from El Dorado to Betim.

Belo Horizonte Traffic and Transportation Company (BHTRANS)

BHTRANS was created by the Municipality of Belo Horizonte as a semi-independent agency with the responsibility of all traffic and transportation operations for the city of Belo Horizonte. BHTRANS is governed by a board of directors with an administrative staff responsible for traffic engineering and traffic management operations. BHTRANS' 2006 budget was approximately U.S. \$50 million, 20% of which is subsidized by the Municipality of Belo Horizonte. BHTRANS has 1,600 employees that work in the technical, operational, maintenance, and administrative functions. There are approximately 720,000 vehicles registered in Belo Horizonte and 1.4 million people use public transportation every day. BHTRANS responsibilities include the planning and implementation of traffic operations and the roadway system within the city, such as the management of all public transportation services, including taxis, public transportation, school transportation, and others. In the last 15 years, BHTRANS has become a reliable source of information for the citizens of Belo Horizonte and the agency has been recognized by winning several national awards in Brazil, such as the National Award for Best Quality Public Transportation from the National Public Transportation Association of Brazil (Associação Nacional de Transporte Público do Brasil-ANTP) for two consecutive years. BHTRANS is involved in strategic projects such as the program for restructuring of school bus transportation system, the central area master plan (PACE), the intelligent traffic control system (ITC), and other projects that supplement the



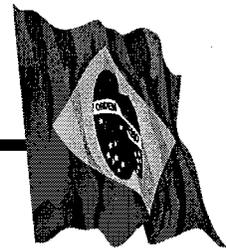
operation of the Belo Horizonte Metro. The agency's goals are to provide the best transportation service and to improve the traffic and transportation system for better quality of life and improvement of the environment for the citizens of Belo Horizonte.

PACE is comprised of a group of initiatives for short, medium, and long range plans for the area within Avenida Ducontorno. The plan was developed to improve environmental conditions and traffic and pedestrian safety in the area of the city with the highest concentration of pedestrian and vehicular activity, where some 400,000 vehicles a day travel this area. The improvements implemented include, pedestrian crosswalks at strategic locations, signalized intersections, pavement markings, refuge islands, landscaping and other improvements.

Some of the areas that have received improvements are Avenida Parana, Avenida Professor Moraes- Rio Grande Do Norte, Avenida Nossa Senhora Do Carmo, Floresta, Paracatu, and others.

BHTRANS has under its jurisdiction the responsibility for the development and implementation of intelligent transportation systems (ITS) for Belo Horizonte. Over the years, BHTRANS has been implementing various ITS systems in the city such as computerized traffic control systems, closed circuit television system, variable message signs systems, red light running systems, advanced public transportation systems, electronic fare collection systems for public transportation, and others in order to better manage traffic conditions and to provide more effective and efficient transportation to the citizens of Belo Horizonte. In addition, BHTRANS is responsible for the vertical and horizontal signage throughout the Municipality of Belo Horizonte which include local, and remote traffic operations as well as towing enforcement. BHTRANS handles improvements to the expansion of existing systems, which include the design and implementation, studies and statistical analysis for the transportation system in Belo Horizonte.

There are approximately 750 signalized intersections throughout Belo Horizonte and these are controlled by three separate systems. One system consisting of some 270 intersections is controlled by a Telvent system (Spanish company), 260 signalized intersections are controlled by a Tesc system (Brazilian company), and the remainder are controlled by a Digicom system (Brazilian company) and a Phillip System (Dutch). BHTRANS also has traffic operation programs that seek to enhance the monitoring of traffic conditions and to provide traffic information to the public. In the areas of Noroeste-Pampulha, Venda Nova Norte-Nordeste, Sul-Leste and the central city, BHTRANS has staff responsible for traffic monitoring and roadway emergency operations. These roadway enforcements and roadway emergency teams provide "on-the-ground" support to the



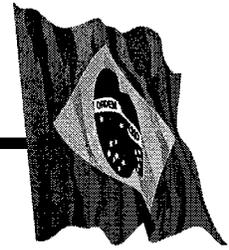
traffic management program by quickly identifying incidents or emergencies in the field and attending to those as quickly as possible. These teams are equipped with radio communications to coordinate with the ITC center for any activities that require the immediate actions. BHTRANS staff are also strategically located on top of structures and buildings, monitoring traffic with standard binoculars reporting via radio communications with the ITC center for the most up to date traffic information. This operation includes other activities such as:

- Traffic monitoring posts
- Aerial traffic monitoring, the presence by the traffic teams on critical intersections, the use of speed radars on main traffic corridors
- The teams are authorized to create traffic detours depending on traffic conditions in the field
- Parking enforcement functions
- Towing operations of vehicles that park illegally on the right of way
- Towing operations of heavy duty equipment and vehicles that disrupt traffic flow
- Monitoring and enforcement of the parking program

BHTRANS utilizes electronic devices such as radars to control speed throughout specific roads in the Municipality of Belo Horizonte. Since 2002, BHTRANS has been utilizing automatic speed radar detectors in conjunction with other traffic safety programs in order to improve traffic safety and circulation in the city's roadway network. The results have been positive since the use the electronic speed radar detectors began, which has contributed to a decrease in vehicular accidents throughout the city.

BHTRANS Existing ITS Systems

BHTRANS completed the implementation of an Intelligent Traffic Control System (ITC) for the city of Belo Horizonte in 2005. The main goal of the new ITC is to improve traffic flow and transportation management, as well as traffic safety throughout the roadway system in Belo Horizonte by means of utilizing CCTV and VMS systems throughout the city. Both the CCTV and the VMS systems are integrated into the ITC system. The ITC also includes a computerized traffic signal system that operates over 750 signalized intersections throughout Belo Horizonte. With the new ITC center, it is possible to program specific traffic signal plans into the traffic signals according to the volume of traffic in order to reduce delay and improve traffic flow at the many signalized intersections in the city. The new ITC system is capable of generating alarms that alert



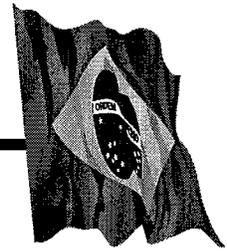
the system's operators of failures that occurred in the field so that the operators and maintenance personnel can quickly attend to these failures. The ITC center has improved maintenance response time given that the system monitors the conditions of the local control equipment 24 hours a day.

In 2005, BHTRANS installed 566 new pedestrian signals throughout the city, in addition to 10 VMS signs along strategic points of the city to alert and provide motorists with up to date traffic and traveler information. In addition, 20 cameras were installed between 2001 and 2005 at strategic intersections throughout Belo Horizonte in order to monitor the traffic conditions in the most congested areas of the city. The ITC system also included the installation of approximately



1,970 inductive loop detectors throughout the city that provide information to the ITC center, thus allowing the central system to make decisions based on traffic demand. The ITC's computerized traffic signal system utilizes the "adaptive" control method in "real time" in order to provide the highest level of traffic efficiency in the city. The adaptive control method operates on the basis of the level of traffic demand that exists on the system, allowing the central computers to analyze the data that receives from field detectors in order to then select the best possible traffic signal timing plan for the system. As traffic demand increases on specific roads, the ITC system's computers are able to increase the traffic signal cycle to accommodate a higher level of volume demand, but at the same time respecting the minimum pedestrian signal timings. On the other hand, as vehicular traffic demand decreases, the system is capable of automatically lowering the traffic signal cycles and adjustment of splits and offsets to better serve the city's street network under lighter traffic conditions.

The ITC system was funded by the World Bank through the Federal Government and the Companhia Brasileira de Trens Urbanos (CBTU) and the Municipality of Belo Horizonte (PBH). The total cost of the initial intelligent traffic control system was U.S.\$ 10 million . The ITC system is



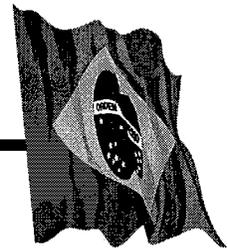
comprised of the city's computerized traffic signal system (which has three separate subsystems), the CCTV system, and the VMS system. The integration of these ITS systems and the sharing of information among the systems allow BHTRANS to manage the surface transportation throughout the city's roadway network.

The benefits of the ITC system are:

- The capability of adjusting the local traffic signal timings dynamically according to traffic variations measured by the roadway sensors.
- The ITC provides for better surveillance of traffic conditions by use of cameras that are installed throughout the city at strategic points.
- The ITC improves maintenance capabilities for traffic signals as the system provides information and alarms that allow the maintenance personnel to identify failures expeditiously.
- The ITC improves the communications with the roadway users by way of operating the VMS system throughout strategic points in the city's roadway network.
- The ITC provides better traffic flow by reducing delay and increasing travel time.
- Reduction in fuel consumption and pollution which improves environmental conditions in the city.
- Improvement to pedestrian safety and pedestrian signal operations as many more signalized intersections have been equipped with actuation devices for pedestrian signals.
- Improvement to pedestrian crossing as adequate crossing times have been designed and implemented.
- The ITC system is capable of prioritizing traffic flow on specific public transportation routes.

CCTV System

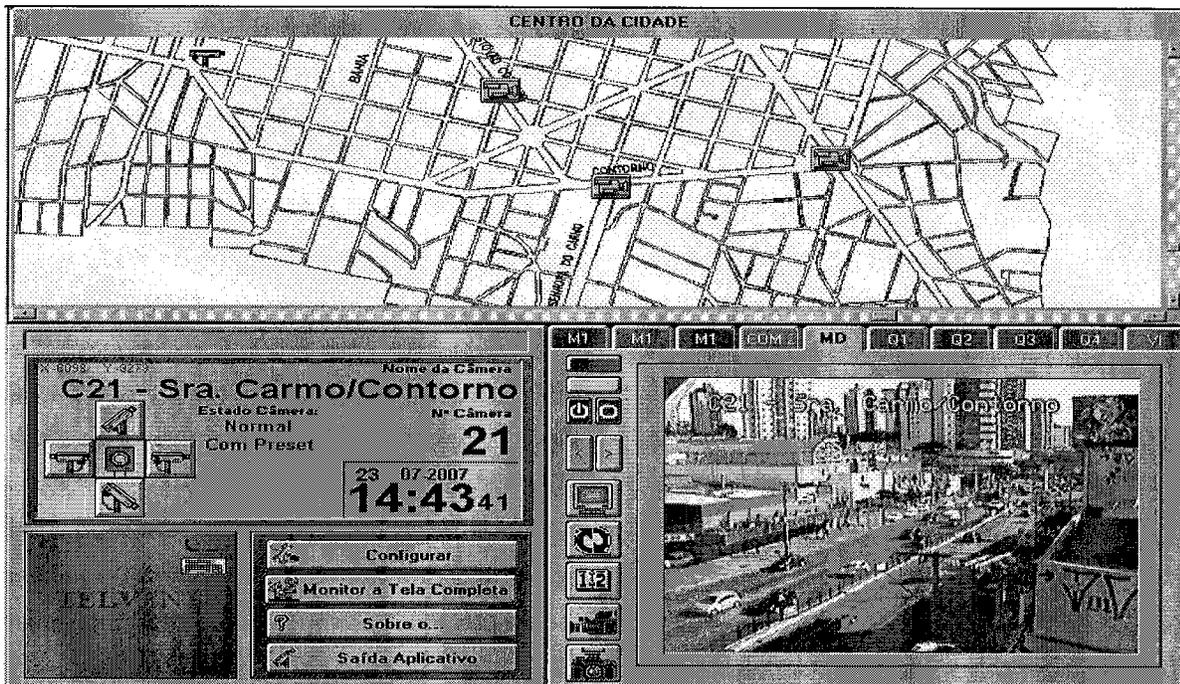
The CCTV system is comprised of 20 surveillance cameras that have been installed at strategic locations in downtown Belo Horizonte and are connected to the ITC center by way of a city owned communications systems. The images from the cameras in the field are distributed among the 18 TV monitors that are installed in the control center. Additionally there is a large screen TV where camera images are displayed for monitoring traffic conditions. The cameras can be moved remotely from the ITC center in order for the operators to locate incidents on the roadway. The communications between the field cameras and the control center is conducted by way of a city-owned fiber optic system. The camera images are transmitted to the control center day and night providing operators at the control center with 24-hour day coverage.

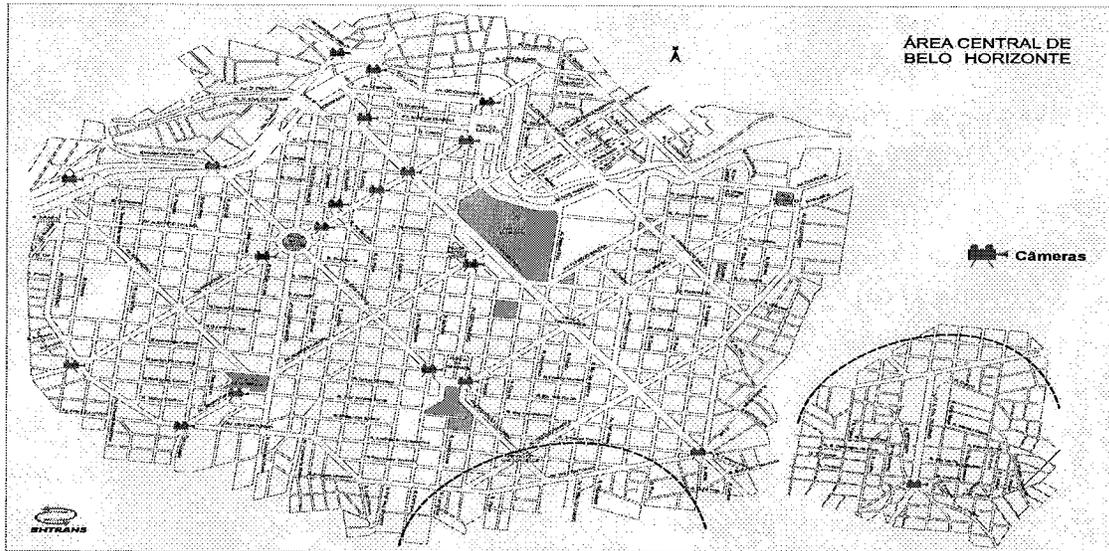
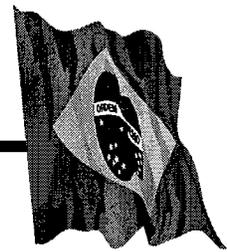


The information received from the CCTV system allows the operators to make decisions and implement changes by way of the other ITC systems available to them. In addition, the CCTV system allows the control center operator to verify incidents in the field prior to making decisions and changes to other systems in the field. The detection of incidents is fundamental to a good traffic management program and the CCTV system allows for the verification of occurrences in the roadway network. The CCTV system provides for the constant surveillance of field equipment that is located throughout the intersections in the city, allowing BHTRANS personnel to quickly respond to vandalism incidents. The CCTV system is comprised of the following major equipment:

- Microcomputers with alphanumeric keyboard and mouse for the control of the cameras.
- 28" monitor, 14" monitors
- Video recorder (time lapse)
- Central control software which includes communications interphase with 64 inputs of cameras and 24 TV monitor outputs, alarm interphase, and video quad.

The command keyboard allows operators to control every camera in the field remotely from the control center in addition to selecting (manually) any camera the operator may wish to control.

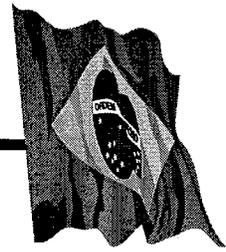




VMS System

The VMS central control software allows the operator to open a series of “Windows” that display the status and conditions of the VMS signs in the field. These “Windows” provide a “Drop-Down” menu identifying the major components that comprise a VMS sign and the status for each. The status and condition of each VMS sign is updated automatically as the central control constantly receives information from the field.

During the implementation of the VMS system, a series of messages and graphics were developed by the VMS system supplier in conjunction with staff from BHTRANS, and those messages and graphics are stored in the system’s computer memory. These messages (text lines) and graphics are selected by the central control operator depending on the conditions in the field that may justify the use of a specific message or graphic. For example, if an accident occurs on a particular road that requires the diversion of traffic, the operator at the ITC center may select a previously programmed message from the system’s memory to indicate “Accident Ahead Use Alternate Route” providing in this fashion information to the motorists prior to arriving at the scene of the accident. The system allows the operator to manually create specific messages that may be needed depending on the conditions in the field. Each individual VMS sign in the field is capable of displaying different messages simultaneously or on the contrary every VMS sign in the field is capable of displaying the same message throughout the system. Only certain personnel at the ITC can modify the programmed messages and graphics that have been designed and stored in the system’s computer memory.



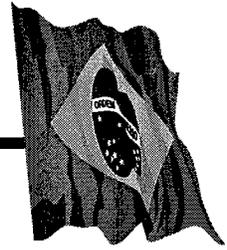
The VMS system's software has a security access hierarchy that allows for different levels of access and control. The VMS system's software (database) is comprised of a maximum of 245 text lines that serve to create the various messages. At the same time, the system provides for a maximum of 249 graphical items that serve to create the graphical messages.

The VMS central system software is capable of displaying the actual (real time) message that is displayed in the field, therefore permitting the operator to verify the accuracy of the messages.

The VMS central control software provides for a different color border around a graphical representation of the VMS sign displayed in the computer monitor to indicate the condition of each sign. A black border around the VMS sign indicates normal operating conditions; a yellow border around the VMS sign indicates a minor failure; and a red border around the sign indicates a major failure. When a lower level failure indication (yellow color) changes to a higher-level failure level (red color), the system generates an acoustical signal or alarm to alert the operator of the change in operational status. This alarm also allows the operator to quickly identify which VMS sign has reported a failure, thus the operator can quickly access the specific sign to determine the cause of the failure. The system also displays a summary of all the VMS signs on a "status table" identifying each VMS sign in the field by name and the various conditions of the signs. The following indicates the area/street where each of the 10 VMS signs are installed today and their designation number in the VMS central system.

- PMV0101 – Cristiano Machado
- PMV0102 – Antonio Carlo
- PMV0103 – Pedro II
- PMV0104 – Tereza Cristina
- PMV0105 - Amazonas
- PMV0106 – Rajagabaglia
- PMV0107 – Nossa Senhora Do Carmo
- PMV0108 – Alfonso Pena com Trifana
- PMV0109 - Floresta
- PMV0110 – Alfonso Pena com Brasil

The VMS signs installed in Belo Horizonte were manufactured and supplied by ODECO from Spain. The current system utilizes analog technology which needs to be updated to digital data transmission technology. The BHTRANS needs to be able to transmit information from the ITC

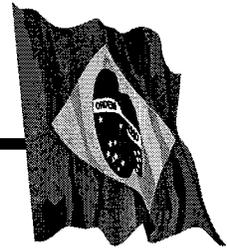


center to VMS signs that would be located more than 10 kilometers away. With the existing technology, is not possible to do so, and as such, BHTRANS seeks to upgrade its VMS system. The VMS central control system was provided by Telvent from Spain. BHTRANS implemented a VMS system comprised of 10 signs installed on the city's main downtown corridors with the purpose to provide traffic information to the motorist. The type of information that is displayed on the VMS signs include information regarding incidents, accidents, suggested alternate routes, traffic congestion levels on specific corridors, educational messages and other related transportation information that BHTRANS may deem important to the motorists.

The majority of the VMS signs have been installed on primarily routes that provide access in and out of the center city of Belo Horizonte with a few signs located in the outer perimeter of the city. The VMS signs utilize the LED technology (light emitting diode) and are capable of generating green, yellow and red displays allowing the intensity of the illumination to be controlled by utilizing several different illumination levels. Each VMS sign is capable of displaying messages with three different size lettering providing flexibility in the size of the message and the amount of information that may be required. The VMS signs are controlled remotely from the ITC center by VMS control system software.



The VMS sign equipment consist of a 192 x 32 matrix capable of displaying three lines of text in three different letter sizes as well as specific graphics. The VMS sign can operate automatically in a predetermined sequence (selected by the operator) and the messages and graphics can be programmed by time of day and day of the week. The VMS system allows for the control of different functional parameters such as operating temperature, illumination intensity, communications with the central control, and automatic shot down.



The VMS system monitors the condition of the VMS signs in the field and provides the operational status of each sign in the central control. The VMS central system is also capable of identifying the VMS sign internal temperature, operating illumination intensity, failures, battery status, power supply status, indication that the maintenance door is open/closed and others.

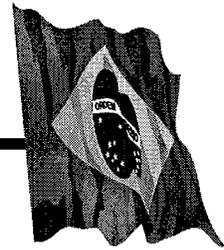
The messages displayed on the VMS signs are comprised of text and graphics that are previously designed, programmed, and stored in the system's memory. The VMS signs have the capability to store and display 128 text of (1 line each) in its ROM memory and 128 text lines in its RAM memory. The VMS sign central control system (software) constantly monitors the operation of the VMS signs in the field requesting the operational status of each VMS sign, verifies the correct display and message that is supposed to appear at each VMS sign in the field, and requests and transmits the time of day data.

The VMS central software displays the various locations where VMS signs are installed in the field, utilizing a background map of the city of Belo Horizonte. The operator is able to access the VMS location map and view the images of each VMS sign in the field by way of a computer monitor. The Belo Horizonte digital map displays the various locations of the VMS signs and each VMS sign is identified by name and ID number on the computer screen, allowing the operator to select a specific VMS sign for a particular purpose.

The existing VMS system communicates via copper cable as opposed to a fiber optic communication system and as such, BHTRANS seeks to upgrade its communications system to a fiber optic system for the expansion of its VMS system.

BHTRANS Project Needs

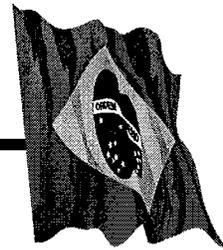
BHTRANS intends to continue to improve its traffic management capabilities, and as such, the agency seeks to expand its current CCTV and VMS systems to include additional cameras in the field as well as variable message signs in order to provide a broader coverage in the city. BHTRANS seeks to conduct an ITS feasibility study to develop an ITS strategic plan for the expansion of the CCTV and VMS systems in the city. In addition, the feasibility study would review the application of an Integrated Traffic Information Management System (ITIMS) for the integration of all traffic management operations within the city. BHTRANS calls this system SIGOP (Sistema de Informacion Gestao de Operacoes). Given the fact that BHTRANS has a broad responsibility when it comes to traffic operations and traffic management for the city of Belo Horizonte,



BHTRANS seeks to integrate all of the information generated by its various departments and operations in one central database that would include a GIS based system. The Integrated Traffic Information Management System envisioned by BHTRANS would include the automation of all field operations handled by the field operations and emergency teams by way of "hand-held" computers to register the field information and quickly transfer that information by wireless communications to the ITC center. The intent is that once all of the field information is received in the central control, then the information would be available for use within the entire BHTRANS organization allowing the personnel and users the benefit of the most up to date traffic information. All of the traffic information could then be displayed and posted in a web site for the benefit of the public. As part of the feasibility study, BHTRANS would like to explore the potential of marketing and selling the available traffic information to the public, similar to what is done by some private companies in the United States.

The development of these ITS applications have the following objectives:

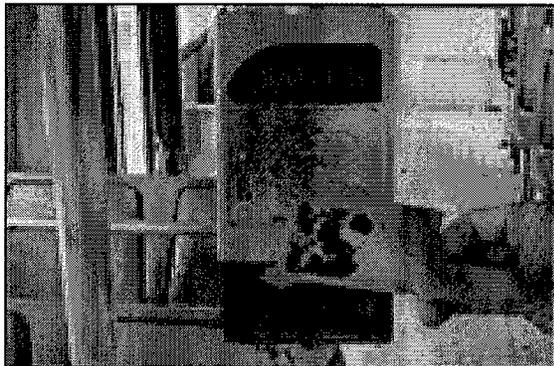
1. To coordinate, integrate, and optimize the future investment of new ITS technologies and applications to the existing urban transportation program in Belo Horizonte.
2. To integrate and provide for compatibility of new and existing technologies for BHTRANS.
3. To provide for "real time" traffic information to BHTRANS and its users (including public transportation system information)
4. To improve the traffic circulation between areas of high traffic demand
5. To improve internal central operations of BHTRANS including updating office and field equipment.
6. To improve the response time for the public's request for information
7. To allow for detail analysis and diagnostics of operational problems throughout the agency
8. To allow for the efficient management of traffic incidents and emergencies and to provide for a more efficient public transportation system.
9. To improve the daily operations and activities of those traffic operations and emergency teams that work in the field
10. To update and create a new and efficient traveler information system that the public can depend on.



C. PROJECT SPONSOR'S CAPABILITIES AND COMMITMENT

One of the first indications of commitment from the Municipality of Belo Horizonte towards the implementation of ITS and better traffic management, was shown by the action taken by the municipality with the creation of a semi-independent BHTRANS in 1991. The Municipality of Belo Horizonte recognized the need for improving traffic operations in the city with the implementation of ITS systems as well as other traffic management and safety programs for the benefit of mobility and quality of life. Since 1991 when BHTRANS was created, the agency has undertaken a number of programs and implemented a number of projects with the purpose to modernize transportation in the city and to provide an efficient public transportation system as well. Some of the projects implemented by BHTRANS include the construction of large bus terminals for the city's public transportation system. These strategic bus terminals service a daily passenger demand of nearly 200,000 passengers per day.

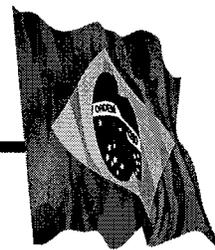
BHTRANS also concluded a long process of reorganizing the city's public transportation system that guarantees service throughout the city regardless of whether or not there are routes that are more profitable than others. With the reorganization of its public transportation system, BHTRANS proceeded to implement the ITS technology known as Advanced Public Transportation Systems (APTS) applications such as the use of electronic fare collection systems.



In 2005, BHTRANS working with all the private operators, directed the implementation of an electronic fare collection system for all of its public transportation buses. The system utilizes smart cards with electronic smart card readers in approximately 3,000 buses. This project intended to integrate the fare system not only with buses, but also with the Belo Horizonte Metro.

To further improve traffic safety in the city, BHTRANS embarked on the implementation of electronic red light running and electronic speed detection systems for certain corridors in the city. These systems utilize advanced technology that is able to capture the images of vehicular license plates when either speed or red light running violations are detected. The photographic image is then transmitted to a central office



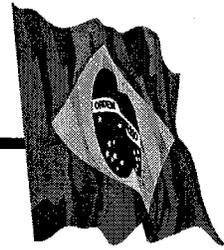


where the image and the license plate number of the vehicles are matched with the vehicle's owner information. The computer system then generates a citation that is automatically mailed to the vehicle's owner. The system has proven successful for BHTRANS mostly with results that indicate a decrease in red light running crashes in the city, as well as a general reduction in vehicular accidents normally associate to speeding. Furthermore, the initiative by BHTRANS to implement an ITC center that includes a computerized traffic signal systems (three subsystems) along with a CCTV system with 20 cameras and a VMS system with 10 VMS signs clearly demonstrates the agency's commitment to the utilization of intelligent transportation systems to provide efficient transportation in Belo Horizonte.

BHTRANS has approximately 1,020 full time employees and 580 part time employees providing the agency with 1,600 employees for its management and operation. Of these 1,600 employees, 230 are analysts and/or managers, 130 are technical staff for traffic operations and 420 employees are dedicated to the management and supervision of the public transportation system. Of the full time employees, 1.6% have PhD degrees, 50% have college education, 23.5% have post high school technical education and 18% have Masters degree. Every four years BHTRANS updates and/or modifies its strategic plan, defining new goals and objectives for the following four years. Historically, BHTRANS has been able to complete 70% of its established goals during the 4 year planning period which demonstrates the great commitment that the agency has towards planning and improvement of its transportation programs.

BHTRANS has been recognized four times as the top transportation agency of the country by the National Association of Public Transportation of Brazil (ANTP) for the implementation of various programs that have been innovative and proven to work for the efficiency of transportation in Belo Horizonte. Some of the initiatives implemented by BHTRANS have been adopted by other municipalities around Brazil. The proposed ITS project for which BHTRANS seeks the development of an ITS feasibility study, is part of BHTRANS's long range plan which intends to utilize the application of advanced technologies for the city's transportation system and continue to search and implement the best programs to provide the highest level of efficiency and convenience to transportation users in the city.

BHTRANS and the Municipality of Belo Horizonte recognize that they have made significant investments in the use ITS technology and that it is imperative that the established programs continue to grow with the purpose to continue to provide the citizens of Belo Horizonte with the best transportation service available. To this date, BHTRANS has put emphasis on implementing ITS

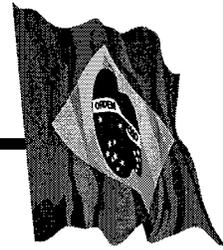


systems and technologies in the areas of public transportation, traffic management, traffic signal control, and speed and red light running control. The agency now realizes that while the implemented systems are producing great results, BHTRANS lacks a centralized information system that can integrate the various technologies and applications to further improve the dissemination of transportation information to ITS personnel and the citizens. The field personnel covering the areas of traffic monitoring, incident management, emergency operations, towing operations, parking monitoring and enforcement, public transportation inspection operations, and other related field operations, lack the tools and technology to make those operations more dependable, efficient, and cost effective for BHTRANS. As such, BHTRANS through its internal evaluation of determining its technological needs, decided that the next ITS projects should be the expansion of the CCTV and VMS systems, as well as the creation of a new Integrated Traffic Information Management System (ITIMS).

Since the creation of BHTRANS in 1991, the agency's record speaks for itself as BHTRANS has been successful in bringing about one of the highest level of transportation efficiency for the city and have demonstrated through its actions the agency's commitment to not only maintaining a higher standard, but also a commitment to continue to explore new technologies and applications for the future. Throughout most of BHTRANS's existence, the agency has been funded by the generation of its own funds, but also by receiving subsidies from the Municipality of Belo Horizonte. However, as BHTRANS has continued to implement new enforcement programs, this has allowed BHTRANS to increase revenues. In 2007, the agency only received approximately 20% of its annual budget from the Municipality of Belo Horizonte. This clearly indicates that the agency is becoming more self sufficient, thus requiring less subsidies from the Municipality of Belo Horizonte every year.

In 2006 for example, there were a number of safety and traffic improvement projects implemented by the BHTRANS, totaling 113 kilometers of roadways throughout nine different regions. This project was funded by the FTU along with funds from the Ministry of Tourism for the installation of tourist information signage throughout the city. The main projects implemented in 2006 included the following roads:

- Prudente de Morais Avenue
- Cristiano Machado Avenue
- Boulevard Arrudas Avenue
- Presidente Antonio Carlo Avenue



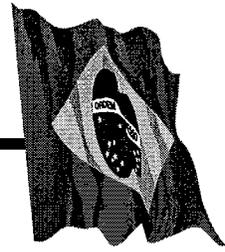
- Pista de Cooper and Ciclo Via at Avenue Dosandradas
- Brigadeiro Eduardo Gomez Avenue
- Ivai Avenue
- Villariño Avenue
- Mario Werneck Avenue
- Amazonas Avenue
- Turqueza Road

BHTRANS installed traffic signals at 19 new intersections and 10 new pedestrian signal facilities were installed at signalized intersections. In addition, 22 traffic signals were installed in support of traffic detours that were required as part of roadway construction in the city.

The incandescent type traffic signals at 13 intersections were converted to the new LED technology during 2006 along Avenue Amazonas. The use of the LED technology for the traffic signals has reduced power consumption for the city, reduced the need for maintenance of traffic signals, and has increased the reliability and visibility of traffic signals making the intersections safer. Some U.S.\$4,680,991.74 were invested in traffic signal maintenance in 2006 funded by the FTU.

Other procurement of traffic related equipment in 2006 included six portable variable message signs, 100 barricades and 100 reflectorized barricades for the purposes of the daily field traffic operations that is performed by BHTRANS staff. This equipment also allows the city and BHTRANS to be prepared for various national and international events that occur every year in the city.

BHTRANS and the Municipality of Belo Horizonte worked diligently in the implementation of an integrated fare collection system that includes the bus transportation system and the Belo Horizonte metro with the use of the new BHBUS Smart Card. This initiative allows the use of the new BHBUS Smart Card to be used interchangeably between the bus system and the metro. This ITS initiative took a lot of planning, coordination, and innovation on the part of BHTRANS, the Municipality of Belo Horizonte, the private bus operators and the Belo Horizonte metro. The integrated fare collection system benefited some 200,000 users per day in the City of Belo Horizonte and approximately 28,000 users per day for those citizens that use the bus feeder lines through the Sao Gabriel Station. BHTRANS and the Municipality of Belo Horizonte are working with 23 other municipalities in the Greater Metropolitan Area of Belo Horizonte to enter into



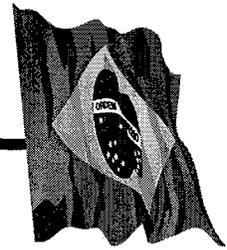
governmental mutual agreements for the purpose of including other municipalities into the integrated fare system.

The Mayor of the Municipality of Belo Horizonte, Fernando Pimentel, during his speech at the Interamerican Development Bank Annual meeting in Belo Horizonte, mentioned that the municipality have met the requirements from the federal senate of Brazil as well as the IDB to engage in financial loans for the municipality. Furthermore, Mayor Pimentel mentioned at the IDB meeting that traffic flow is one of the key issues that Belo Horizonte has continued to plan for and executed improvement projects to allow Belo Horizonte to grow and to be a better place to live.

D. IMPLEMENTATION FINANCING

As part of the financial evaluation for the Municipality of Belo Horizonte and BHTRANS, the Desk Study consultant reviewed the 2006 annual report presented by Mayor Fernando Da Mata Pimentel, Mayor of the Municipality of Belo Horizonte for the main programs and projects that were executed in 2006. The financial section of the 2006 annual report indicates that the revenue received by the Municipality of Belo Horizonte showed an increase of 13.9% compared to 2005, which represented a higher percentage than the main economic indicators for the country. The total revenue collected in 2006 was approximately U.S. \$1.7 billion compared to approximately U.S. \$1.5 billion in 2005. The annual report also indicates that the revenues from the various taxes collected by the municipality have increased over the years. For example, the IPTU tax revenue observed an increase of 9.97%, the ISSQN tax revenue observed a 15.07% increase, and ITBI tax revenue observed a 20.9% increase in 2006 when compared to the revenues in 2005. These increments in revenue collection are attributed to the significant investments made by the Municipality of Belo Horizonte in the modernization of its tax collection and administration system that currently uses state-of-the-art technology.

The Municipality of Belo Horizonte has invested significantly in the modernization of the tax collection system allowing taxpayers the ability to receive notices and information "on-line", as well as being able to make "on-line" payments or receive credits. This program is known as the Sistema Integrado de Administracao Tributaria e Urbana, which seeks to integrate the tax collection operation according to the law. The system also allows for the supervision and monitoring of the tax revenue collection operation through an electronic tax declaration system that has been automated. The total expenditures in 2005 registered approximately U.S. \$ 1.52 billion, while in 2006 the expenditures registered approximately U.S. \$ 1.78 billion, with a 16.9% increase in expenditures from 2005 to 2006. The expenditures were concentrated in the areas of health,

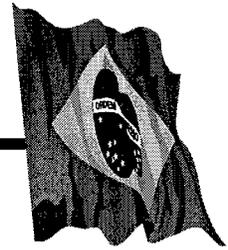


education, administration, sanitation, urbanism, social assistance, legislative, transportation, housing, culture, public safety, and others.

The 2006 annual report concluded that the Municipality of Belo Horizonte is in good financial standing and that the municipality has made sound and appropriate investments with the available capital. The report sites that with new legislation and tax policies implemented, as well as the continued integration of the tax revenue collection systems, it is anticipated that 2007 revenue projections will exceed the 2006 figures.

In addition to reviewing the financial standing of the Municipality of Belo Horizonte, the Desk Study consultant researched the financial standing and stability of BHTRANS. One of the most comprehensive financial evaluations of transportation entities in Brazil was conducted by a Brazilian publication known as Revista de Transporte Moderno (Modern Transportation Magazine) which is a national private publication that focuses on all aspects of modern transportation in Brazil. In the November 2006 edition of the Revista de Transporte Urbano the magazine published an article entitled "Maiores & Melhores do Transporte e Logística". The magazine conducted a comprehensive evaluation of some 325 transportation agencies and operators in Brazil. These 325 transportation operators and agencies had their financial operations analyzed by the administrative and accounting firm of Any Riverro Dos Santos, with the cooperation of Pedro Antonio Cassio Silva. The firm developed a list of relevant financial criteria and evaluated each transportation entity based on the criteria by assigning a score from 1 to 10 (1 being a low score and 10 being the highest) for each criteria. The criteria under which the transportation agencies were evaluated included liquid operational revenue, liquid capital, general debt, revenue source dependability, capital investments and productivity, and the historical total revenue growth from year to year.

The Revista de Transporte Moderno presented the results of the financial analysis in its November 2006 edition, after the private firm evaluated all transportation entities. The results placed BHTRANS in third place when all the financial elements were evaluated. It is worth mentioning that the financial analysis of all the Brazilian transportation agencies was an independent process conducted by a private firm and published by a private magazine, which gives credibility to the results obtained. The results from this independent financial analysis is perhaps the better method of evaluating BHTRANS's financial stability, because the analysis not only speaks as to the good financial standing of BHTRANS, but also it compares the agency with others in Brazil.



The review and evaluation of the financial elements in connection with the Municipality of Belo Horizonte and BHTRANS all indicate that these two governmental entities have demonstrated a good financial standing and financial stability over the last few years and furthermore, with the investments made by these organizations in technology, policies, institutional strengthening, education, and training, future financial projections are viewed as positive. Therefore, it is determined that the Municipality of Belo Horizonte and BHTRANS have the financial capability to undertake the proposed ITS project.

Financial Institutions

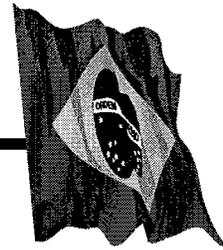
Contact was made with various financial institutions both in the United States and in Brazil to determine if the proposed ITS project would meet the requirements for financial assistance from each institution. The following financial institutions were contacted by telephone and/or electronic mail.

- World Bank
- Inter-American Development Bank
- Overseas Private Corporation
- International Finance Corporation
- Ex-Im Bank
- BNDES
- FINEP

World Bank

The World Bank is a multilateral financial institution that provides vital resources in terms of financing and technical assistance to developing countries around the world for the reduction of poverty and the improvement of living standards. This includes financing infrastructure projects in the transportation sector in developing countries.

The World Bank participated in the Belo Horizonte Metropolitan Transport Decentralization Project. Loan were the Federal Republic of Brazil, and the Brazilian Urban Train's company (CBTU) worked with the Municipality of Belo Horizonte on the city's metro project. The decision by the government of Brazil was to decentralized and transfer several sub-divisions of the Brazilian Urban Train Company (CBTU) to state and municipal governments. The State of Minas Gerais and the

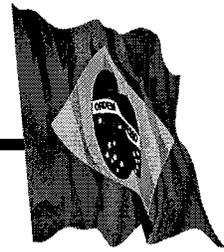


Municipality of Belo Horizonte wanted to better integrate rail transportation with the bus transportation system to better serve the commuting needs of the city. The World Bank's loan for the Belo Horizonte Metropolitan Transport decentralization project was U.S. \$ 99 million with a fifteen-year payment loan. As part of this project, the World Bank funded the new ITC center that includes the city's four computerized traffic signal systems, as well as the CCTV and VMS sign systems for BHTRANS. Over the years the World Bank has been a principal participant in providing financial support throughout Brazil, where urban transport projects have total U.S. \$540 million with most of the funds specifically made in loans through various federal, state and municipal governments for the modernization and improvement of transportation systems.

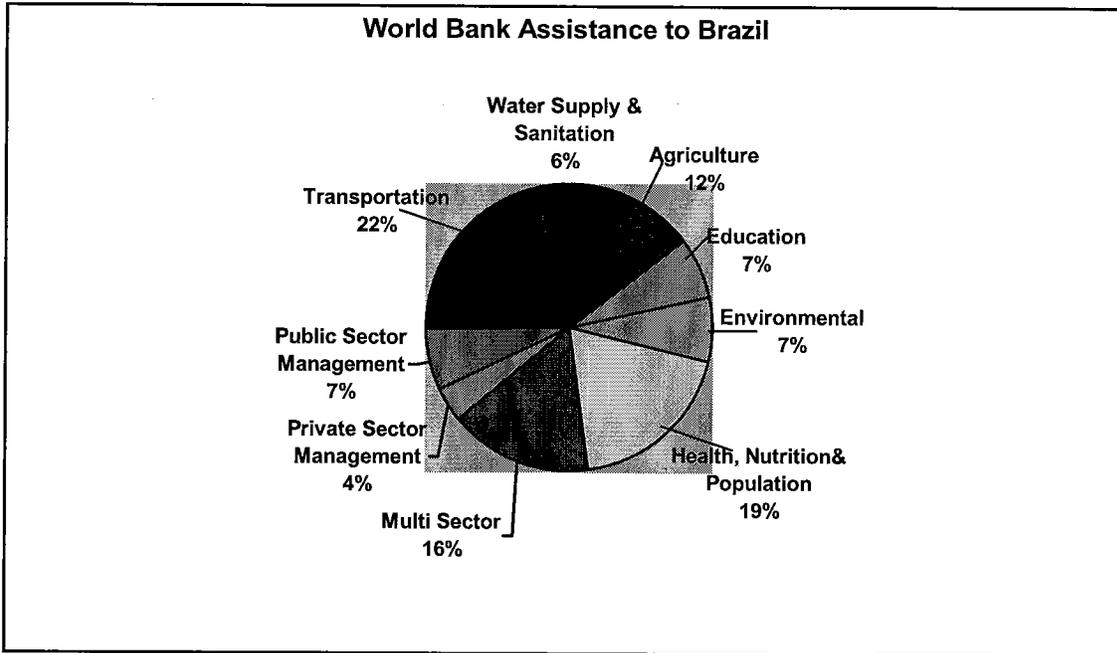
The World Bank's strategy in Brazil continues to focus on promoting a more sustainable market-oriented supply of public transportation services throughout regulations which seek to facilitate market entry and fare regulations. The World Bank has been supportive of investments in projects such as exclusive bus corridors that provide more efficient and integrated transportation to cities and metropolitan areas, therefore, reducing the environmental impacts that urban transport normally present. The World Bank has also funded many master plan studies in the urban areas for transportation, promoting private sector participation in the urban transportation systems of the various regions.

Contact was made with Jorge Rebelo, Lead Transport Specialist from the World Bank to learn about the World Bank's activity in the State of Minas Gerais and the Municipality of Belo Horizonte, and to inquire about interest in the possibility of providing financial assistance for the BHTRANS project. Mr. Rebelo indicated that the World Bank financed the successful completion of the Intelligent Traffic Control System in Belo Horizonte and that the implementation of additional ITS systems for BHTRANS would qualify for bank funding, and furthermore, that the bank would be very interested in financing these ITS projects if BHTRANS made the proper request.

The World Bank is a lending partner in Brazil and has supported a broad range of programs including education, health, infrastructure, transportation, environmental projects, and public service reforms. Currently the World Bank is financing 45 investment projects in Brazil with a total commitment of U.S. \$3.6 billion, with a total of U.S. \$771.5 million in net commitments for development policy loans.



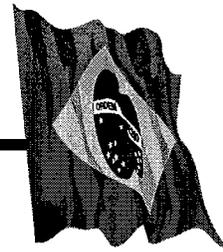
World Bank's percentages of funding by sectors (2007)



Approximately 22% of the World Bank's funding in Brazil goes to transportation projects, making it the leader sector in investments by the World Bank. Working with Brazil's leaders, the World Bank group is supporting a country assistance strategy aimed at providing economic stability and increasing government efficiency as well as challenge resources to projects that seek to improve living conditions for communities.

In 2006, the World Bank announced its financial participation in the Brazil Road Transport Project, which has as an objective to stimulate high economic growth by increase effectiveness in the use of the federal road infrastructure. The Ministry of Transportation for the federal government of Brazil requested financial assistance from the World Bank for this project. The project was approved by the World Bank and has a total cost of over U.S. \$ 500 million. The project is expected to improve the quality of public expenditures and the roadway sector in order to allow the federal government to strengthen its roadway transportation infrastructure throughout the country.

In summary, it is clear that various Brazilian states and municipalities have ample experience in working with the World Bank in the various sectors, including transportation. There is evidence of the World Bank working with the Municipality of Belo Horizonte and BHTRANS in the funding of the ITC center and the Decentralization and Transfer of the CBTU train. As indicated by Mr. Rebelo,



the World Bank would be interested in discussing with BHTRANS representatives the potential of financing the ITS project.

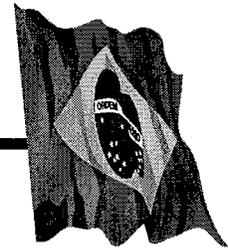
Oversees Private Corporation - (OPIC)

The Oversees Private Corporation (OPIC) helps U.S. business invest overseas, fosters economic development in new and emergent markets, complement the private sector in management risks associated with foreign direct investment and supports U.S. foreign policy. The Oversees Private Corporation (OPIC) support projects that make a difference in expanding economic development, which can encourage political stability and free market reforms overseas. The Oversees Private Corporation (OPIC) has programs now available in more than 150 countries worldwide and it provides financing and political risk insurance to also help U.S. business of all sizes to compete in emerging markets and meet the challenges of investing overseas when private sector support is not available. The Oversees Private Corporation (OPIC) has provided numerous loans and risk insurance to U.S. small businesses that seek to invest in Brazil. Some of the projects supported by OPIC facilitated the growth of U.S. small business which often makes a valuable contribution to the foreign economy by enhancing production capacity and generating higher secure jobs in the process.

Contact was made with Mrs. Nancy A. Rivera to inquire about the BHTRANS ITS projects and the possibility of OPIC being interested in participating in the project. Mrs. Rivera indicated that OPIC has not been contacted for this particular project at this time. Mrs. Rivera indicated that since the ITS project would most likely involve the financing of the procurement of equipment that this is a role for the Ex-Im Bank. However, if there were private firms seeking to invest in the ITS project in Belo Horizonte, OPIC would consider a request if made to the corporation.

International Finance Corporation (IFC)

The International Finance Corporation (IFC) is the private sector arm of the World Bank group. The International Finance Corporation (IFC) promotes sustainable private sector investment in developing countries by helping to reduce poverty and improve the lives of the citizens. One of the particular focuses of the International Finance Corporation (IFC) is to promote economic development by encouraging the growth of productive enterprises and efficiency capital markets. By investing in the emerging markets, IFC is able to contribute to the creation of jobs, building

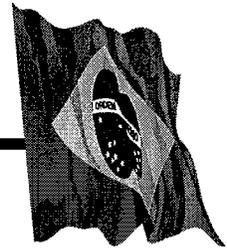


economies, and the generation of tax revenue. The International Finance Corporation (IFC) offers an array of financial products and services as well as an array of technical assistance and advises services to support the private sector development in developing countries. The International Finance Corporation (IFC) promotes private participation in infrastructure that can help people in developing countries by extending their access to basic infrastructure by improving quality of life. IFC has being involved in private infrastructure investment worth in excess of U.S. \$4.8 billion covering more than 46 developing countries.

The IFC has financed significant amount of investments in the transportation sector in Brazil. In the last two years the IFC has been involved in financing several of the major transportation initiatives involving the private sector in Brazil. In 2006, the IFC provided funding to the Companhia Paulista de Parcerias, S.A. (CPP), holy owned company of the State of Sao Paulo, to provide sound and liquid guarantees to support public/private partnerships. The CPP through the Companhia do Metropolitano de Sao Paulo Metro, is planning the implementation of a line "4" of its metro system as a public/private partnership. As part of this partnership, CPP and Metro seek to finance civil works while a private concessionaire will supply an operate the rolling stock and related equipment. The project's sponsor is the CPP, entity that is supported from the State of Sao Paulo's annual budget and qualifies as a non-dependent entity under Brazil's fiscal law. The total project cost and IFC's exposure under this facility will be up to U.S. \$35 million. The expansion of the metro system will provide additional service to the Sao Paulo greater metropolitan area from Vilazonia to Luz station in downtown Sao Paulo, and will link lines 1, 2 and 3.

Another IFC project approved in 2005, was the MRS Logistica, S.A., a company that operates 1,674 kilometers of freight rail network connections throughout the largest industrial regions of Sao Paulo, Minas Gerais, and Belo Horizonte, under a 30 year concession granted by the Brazilian federal government. The company's rail network consist of many lines and a branch line that links Brazil's principal **Iron** mines and steel plants connecting to the principal sea ports. MRS five year capital investment program is estimated at U.S. \$890 million dollars and the company intends to finance the expansion of the rail network for which it has requested financial assistance from IFC. The IFC approved a U.S. \$100 million corporate loan package to MRS logistics for the company's capital investment program.

Another IFC project approved in 2005 was the involvement of Tam Airlines, which provides air transportation in both the Brazilian domestic market and the international market. Tam is one of the leading airlines in the Brazilian market with 44.3% market share, when the project began. The



IFC's role in the project was to support a privately owned and well operated airline and to assist Tam Airlines in maintaining and expanding its operations by providing a revolving credit facility for pre-delivery payments for the purchase eight A-320 aircrafts.

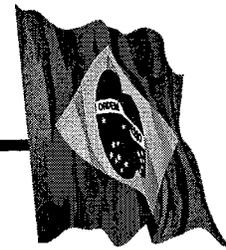
Contact was made with Mr. Amnon Mates with the IFC to inquire about the IFC's participation in Belo Horizonte and to determine if the ITS project from BHTRANS would be eligible for potential funding. Mr. Mates indicated that the most recent participation in ITS projects by IFC in Brazil was the finance of toll roads (Diadura and Autoban) However, Mr. Mates indicated that if there were private sector investment firms that were interested in pursuing the implementation and construction of the ITS project for BHTRANS, this type of project could be eligible for financial assistance.

The Export- Import Bank (Ex-Im Bank)

The Export-Import Bank (Ex-Im Bank) of the United States is the official export credit agency of the United States, which supports the purchases of U.S. goods and services from international buyers that cannot obtain credit through traditional trade and structured finance sources. The Export-Import Bank (Ex-Im Bank) normally assumes country and credit risk that the private sector is unable or unwilling to accept and helps to level the plain field for U.S. exporters by matching the financing that other governments provide to their exporters. During its operation the Export-Import Bank (Ex-Im Bank) has supported more than U.S. \$400 billion of U.S. exports to international markets.

The Ex-Im Bank has had a long standing relationship with Brazil for more than 60 years. In the fiscal year 2004 the Ex-Im Bank approved U.S. \$213 million in support of U.S. exports to Brazil. The Ex-Im finances purchases for a wide range sectors including oil and gas, agriculture, transportation, telecommunications, an textile in Brazil. Brazil's Public-Private Partnership (PPP) law seeks to promote infrastructure investments that could generate significant business for U.S. suppliers. The Ex-Im Bank seeks to identify ways to develop a closer working relationship with the Brazilian government, particularly with BNDES to finance infrastructure projects under Brazil's PPP program.

The Brazilian currency, the Real, has been approved as an eligible currency under the Ex-Im Bank's foreign currency guarantee program. A number of commercial banks are currently reviewing funding mechanism for Real-based Guarantees. In addition, the Ex-Im Bank supports



the small and medium companies for the purchase of goods and services from the United States. The Ex-Im Bank financing programs in Brazil include working capital, insurance, direct loans to foreign buyers, and guarantees. The Ex-Im Bank provides for short, medium, and long term export credit insurance and guarantees of commercial loans to international buyers of the U.S. goods and services including those in Brazil.

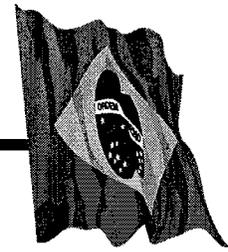
Contact was made with Xiomara Creque, business development agent for the Ex-Im Bank to inquire about the bank's participation in Brazil, as well as to determine if the BHTRANS ITS project would be an eligible project that could meet the bank's requirements. Mrs. Creque indicated that the Ex-Im Bank has not been contacted regarding the BHTRANS ITS project at this time. However, ITS projects would qualify for the bank's support if the requirements from the borrower provided assurance of repayment. In addition, if the borrower is a state or municipal government, these entities would have to have credit wordiness in order to meet the bank's compliance. If these requirements were met, then there could be participation from the bank.

Brazilian Development Bank (BNDES)

The Brazilian Development Bank (BNDES) is a federal public company that is associated to the Brazilian Ministry of Development, Industry, and Foreign Trade, which has an objective for long term financing of endeavors that contribute towards the development of the country. BNDES also seeks to strengthen the capital structure of private companies and the development of the capital structure of private companies and capital markets, trade of machines and equipment and the financing of Brazilian exports. The Brazilian Development Bank was established in 1952 by the Brazilian government, and since then, the bank has financed large industrial and infrastructure projects. The bank has also supported significant investments in agriculture, commerce, and service to micro, small, and medium enterprises. The BNDES also supports social investments aimed at education and health, agriculture, basic sanitation and transportation. The BNDES mission is to promote Brazil's development by strengthening the competitiveness of the Brazilian economy, given priority both to the reduction of social and regional inequalities and to the maintenance and generation of employment.

Infrastructure Program for Urban Mobility (PRO-MOB)

BNDES has many funding programs for various sectors including the infrastructure program for urban mobility (PRO-MOB). PRO-MOB's objective is to provide financial support for traffic and



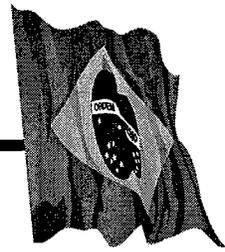
transportation systems and programs that promote urban mobility improvements through the implementation of transportation infrastructure projects for the benefit of municipal transportation and mobility. Municipalities in Brazil with a population equal to or over 100,000 people are eligible for funding under the PRO-MOB program.

Eligible projects under the PRO-MOB funding program are:

- Rehabilitation of traffic system infrastructure
- Street resurfacing of sidewalks, curb and gutter
- Traffic signal systems
- Horizontal and vertical signage
- Traffic safety project
- Construction of bicycle facilities
- Project that support public transportation systems
- Rehabilitation of deficient roadway networks
- Public transportation integration projects
- Exclusive bus (lanes) corridors
- Construction of bus terminals, stations, bus shelters, and other related infrastructure needed to support public transportation systems
- Traffic improvement projects that seek to improve the efficiency of the overall transportation system
- Other transportation related projects

Funds for transportation projects are made available to the Brazilian municipalities by way of loans that normally carry a 4% annual interest. Loans of this type are normally funded up to 90% of the projects costs with a 10% local match that has to be provided by the municipality. Most of the loans under the PRO-MOB are awarded for up to 24 months. Municipalities wishing to apply for funding must develop a comprehensive proposal detailing the project's objectives, cost, benefits to the community, and transportation among other factors. The Ministry of Cities is the agency responsible for evaluating the proposals made by municipalities utilizing the criteria as follows:

- The highest number of citizens to benefit by the project.
- Significant level of improvement to the public transportation system of a city.
- Integration of a regional transportation program, roads, public transportation, and other related transportation programs.



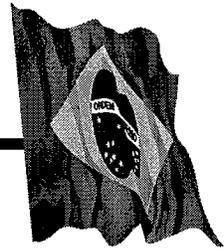
- The program seeks to provide employment and compensation to the population.

The Ministry of Cities is responsible for deciding the eligibility of the projects and upon a previous public selection process, the Ministry of Cities recommends approval to the BNDES. BNDES works with a significant number of accredited financial institutions in Brazil that provide the credits and loans for the projects. Among some of the accredited financial institutions are: Banco Do Brazil, Banco Do Brazil Leasing, Banese, Bradesco, Citibank, Citibank Leasing, Daimler Chrysler, Daimler Chrysler Leasing, HSBC, Banrisul, Unibanco, Banestes, and many others.

Contact was made with Ms. Camila Mathias from BNDES who indicated that the type of ITS project that BHTRANS seeks to implement is definitely eligible for bank financing as long as the project involves actions to improve the urban transportation system in Belo Horizonte. Ms. Mathias indicated that BNDES has funded the first two phases of BHBUS project (BHBUS I and BHBUS II) for the Municipality of Belo Horizonte. Furthermore, the funding for the third phase of BHBUS III was approved last year by the bank's board of directors and the contract between BNDES and the Municipality of Belo Horizonte and BHTRANS is pending. Ms. Mathias is quoted by indicating that "since Belo Horizonte already has its Urban Transport Structuring Project (BHBUS), we believe the ITS project could be considered a complement to the BHBUS project and, as such, would be eligible for funding". Ms. Mathias also indicated that BNDES is participating in other municipal projects with the Municipality of Belo Horizonte such as the urban infrastructure project for the biggest shantytown in Belo Horizonte named "Aglomeradoda Serra", two projects for drainage improvements in the city, and a project to modernize the city's information technology systems funded through the Modernization of Tax Administration and Management of Basic Social Sectors program. This is the second contract between BNDES and the Municipality of Belo Horizonte for the modernization of information technology. Ms. Mathias' response concerning the possibility of the bank financing the ITS project for BHTRANS was very positive and indicative of interest on the part of BNDES to fund this project.

Urban Transportation Fund (FTU)

The Urban Transportation Fund (FTU) was created by the Municipality of Belo Horizonte in 1991 and later amended in 1998 to establish financial resources targeted toward the activities of the city's urban transportation system. The ordinance establishes the specific revenues that are collected by the fund and how these funds are to be disbursed. The FTU is managed by the Municipality of Belo Horizonte, through the Secretary of the Environment and Urban Policies, Mr. Murillo Valadares and the City Mayor Mr. Fernando Pimentel. The FTU funds can be utilized for



services and goods destined for the implementation of projects related to public transportation, bus shelters, exclusive bus corridors, bus control equipment, traffic control equipment, traffic engineering, traffic operations, incident detection and removal, traffic safety and education, and traffic enforcement. The FTU is funded through the collection of revenue from traffic fines and transportation fees that, by Brazilian law, must be spent on traffic related projects. The FTU receives approximately U.S. \$ 20 million in revenues every year. This is a substantial amount of funds that must be directed towards traffic and transportation improvements in the city. The BHTRANS ITS project is eligible to receive financial support from the FTU as ITS technology seeks to improve the efficiency of transportation systems. Since the FTU funds are managed and controlled by the municipality, there is the likelihood that BHTRANS could receive financial assistance from the FTU fund for the implementation of ITS systems.

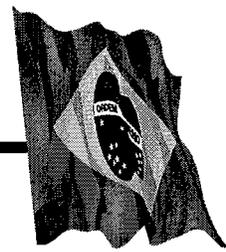
Financiadora de Estudos e Projetos – FINEP (Research and Projects Financing)

FINEP, also known as the Brazilian Innovation Agency, is a publicly owned company subordinated to the Ministry of Science and Technology (MCT). It was founded on July 24, 1967 with the purpose of financing scientific and technological research and graduate courses in Brazilian universities and research institutions, as well as research and development in companies.

Since its foundation, FINEP has a double role; it provides grants to non-profitable institutions, such as universities and research centers, and it lends money to companies. FINEP has encouraged intense mobilization in scientific and business circles, funding the implementation of new research groups, the creation of specific programs, the growth of science and technology infrastructure, and the institutional consolidation of post-graduate activities. It has also stimulated the increase in supply and demand for technology, by mobilizing universities, research centers, consulting firms and contractors of services, products, and processes.

FINEP's operating procedures are oriented towards:

- Extending knowledge and skills to human resources in the National Science and Technology System
- Research, development, and innovation of products and processes in the business community;
- Increasing quality and value-added of products, processes, and services in the domestic market, targeting improving the quality of life of the population and the selective replacement of imports;



- Increasing competitive edge of products, processes, and services in the international market, with a view to increasing exports;
- Promoting social inclusion and reducing regional contrast;
- Adding value to installed scientific and technological capacity to Brazil's natural resources.

Recently, FINEP has created new instruments to support high-tech firms. Some have been developed in the Inovar project, supported by the Inter American Development Bank.

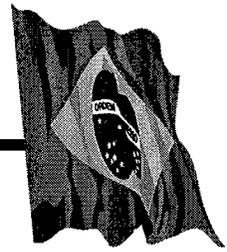
Financial support is granted by FINEP by means of an agreement with the applying organization, specifying objectives, returns expected, working plan, performance indicators, disbursement schedule, and deadline for submission of the technical report and financial summary.

Contact was made with Mr. Rodrigo Girwood from FINEP who is responsible for the analysis and review of all transportation projects submitted to FINEP for funding. Mr. Girwood indicated that FINEP has funded several mobility plans for BHTRANS and the Municipality of Belo Horizonte. Mr. Girwood indicated that ITS projects are eligible for funding from FINEP, but at this time due to FINEP's policies, the agency may not be able to participate in the funding of an ITS feasibility study with USTDA due to the fact that BHTRANS currently has a mobility plan being funded by the agency. FINEP's policies do not allow for more than one project to be funded for one particular agency at the same time.

The Inter-American Development Bank – IDB

The Inter-American Development Bank has been active in Brazil for many years assisting the Brazilian government in the development of social, environmental, technological and infrastructure sectors. Currently the IDB has 81 officers working in the country monitoring the projects and execution and identifying new projects as well as helping prepare the projects for support and implementation.

The country office staff helps determine the scope and financial needs of a particular project, define local counterpart funds and review the country's institutional capacity for execution. During the execution of a particular project, the country officer provides local support for management of the project as they report on each phase of the operation, including the project completion report.



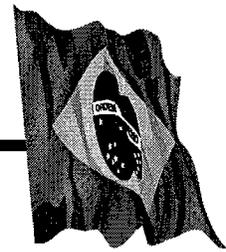
The Inter-American Development Bank has funded numerous projects and programs in the state of Minas Gerais over the years. The following are some of the most recent projects funded by the Inter-American Development Bank in the state of Minas Gerais:

- Program to improve the accessibility of small size municipalities in Minas Gerais (Pro-Accesso)
- Conditional credit line for investment projects and program to improve road access to small municipalities in Minas Gerais
- Environmental strategy associated with programs to improve road access to small municipalities in Minas Gerais
- Minas Gerais municipal road access program

The Minas Gerais small municipality access road program was approved by the Inter-American Development Bank in 2005 and its implementation began in 2006. The total cost for the project is estimated to be U.S.\$ 83,335,000 of which U.S.\$ 33,335,000 is being funded by the State of Minas Gerais. Minas Gerais is implementing a road program called Pro-Accesso to improve the accessibility for small municipalities. This program benefits 240 municipalities located in the poorest and less developed areas of Minas Gerais, mainly in the northeast region of the state. The IDB's participation will focus on the improvement of dirt roads that provide access to municipalities with low human development index values, which represents nearly 25% of the roads included in Pro-Accesso.

The specific components of the programs are: engineering and administration, interventions to improve local roads, institutional and road management strengthening, expropriations, and social and environmental compensations.

In addition, in 2006 the Inter-American Development Bank announced the approval of U.S.\$800,000,000 lending facility to Brazil for the Pro-Cidades program, designed to address growing demand for integrated municipal development projects, targeting specific areas of a city. The program will concentrate IDB support to the municipal level in Brazil and streamline procedures for project preparation and approval by decentralizing operations. The projects are part of a municipal development plan that takes into account priorities and focuses on sectors with high social and economic impact.

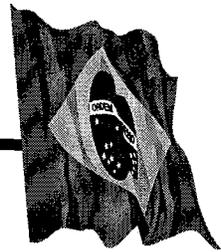


Pro-Cidade program will finance investments in integrated urban development aimed at city services and infrastructure for improving the efficiency and performance of municipal governments including: mass transit systems, mobility projects, roadway infrastructure project, and other general transportation related programs. Municipal governments in Brazil hold the main responsibility for public investments in areas such as primary care, basic education, urban infrastructure, housing, sanitation, and transportation. Municipal governments are also responsible for local public service, such as collection and disposal of solid waste and urban regulation as well as providing transportation infrastructure, environmental management and public safety. In the past, the majority of the financial activity of the IDB in Brazil was directed at the state and federal levels, but the IDB's participation in Brazil has undergone significant shift from federal and state levels to the municipalities, particularly for the reasons mentioned above. As such, the Pro-Cidade program was created as a lending facility to allow the IDB's participation at the Brazilian municipal levels. The Pro-Cidade program is also intended to finance sector interventions such as, transportation and road improvement, along with other urban services, environmental management and social development.

The Municipality of Belo Horizonte is developing a plan for environmental recovery in the city known as "Sanitation for All" (Saneamento para Todos) with the financial support from international financial organizations such as the Inter-American Development Bank. This program intends to contribute the improvement of quality of life for the city's population by way of recovering and rehabilitating many waterways such as streams and rivers within the city to reduce flooding, improve drainage, and regulate and strengthen environmental regulations. The cost of the project is U.S. \$77.5 million dollars, which was initiated with financing from the IDB in the amount of U.S. \$46.5 million.

In 2006, Belo Horizonte was the host of the Inter-American Development Bank annual meeting, which brought representatives and officials from the bank and other business and world leaders from 47 countries to the city. The city of Belo Horizonte has a good relationship with the IDB as evidenced by the quote from the mayor of Belo Horizonte, Fernando Pimentel during the opening ceremonies of the Inter-American Development Bank annual meeting "Our city has an excellent relationship with the Inter-American Development Bank as we have worked in many projects with the bank in our city, and continue to explore other avenues for future improvement".

Contact was made with Mario R. Duran Ortiz, Infrastructure Specialist from the IDB, to inquire about the IDB's activity in Belo Horizonte and to inquire about the IDB's interest in financing the

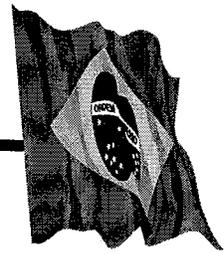


ITS project envisioned by BHTRANS. Mr. Duran indicated that the Municipality of Belo Horizonte and the IDB have a long history of working together in many areas and that the IDB is very active in supporting the municipality of Belo Horizonte's plans and programs as evidenced by previous loans and ongoing projects being funded by the bank. Mr. Duran indicated that with the recently created Pro-Cidade program, which has a total credit line of U.S. \$ 800,000,000 for Brazil, loans up to U.S. \$50 million could be provided to municipalities in Brazil, such as Belo Horizonte, for projects that include the transportation sector. The Pro-Cidade program passes through a different preparation and approval process than the standard IDB project, were staff from the IDB in Brazil is able to prepare documentation and receive approval at the local level. Mr. Duran indicated that the type of ITS project that BHTRANS seeks to implement is eligible for bank financing and the IDB would be willing to finance such projects if requested by BHTRANS and the Municipality of Belo Horizonte. In summarizing the discussions held with representatives from the various financial institutions contacted, all representatives indicated that the proposed ITS project for BHTRANS would be eligible to receive funding as long as the standard requirements for the financial institution are met. BHTRANS and the Municipality of Belo Horizonte plan to finance the proposed ITS project by utilizing a combination of funding sources such as the FTU fund, BHTRANS capital improvement funds, and funds that are expected to come from loans from financial institutions such as BNDES, World Bank, or the IDB. The feasibility study will assist BHTRANS in developing the best implementation financing plan for the proposed ITS project, including the identification of the most likely sources of financing the ITS project.

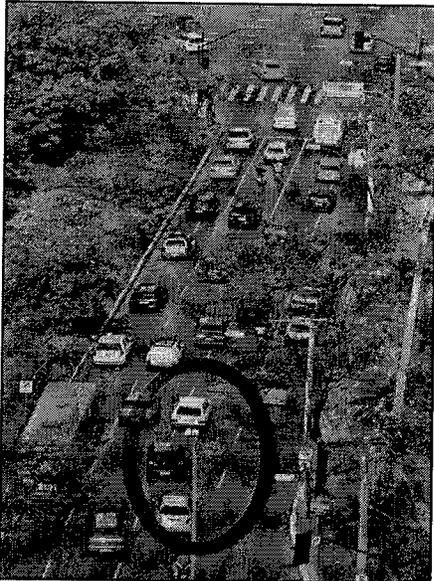
E. U.S. EXPORT POTENTIAL

Estimate of Potential Procurement

Based on the review and discussions with BHTRANS officials about the ITS market in Belo Horizonte, it is estimated that the ITS project in Belo Horizonte offer good potential opportunities for U.S. Exports. The information obtained as part of the Desk Study indicates that the types of technologies necessary for the project must be, in its majority, imported by Belo Horizonte. The project would cover specific applications of Intelligent Transportation Systems that have been developed for some years in the United States. U.S. companies definitely have the expertise to provide the services and technologies required by this project. In reviewing the potential need for equipment, materials, software and ITS services and systems, it is determined that many U.S.

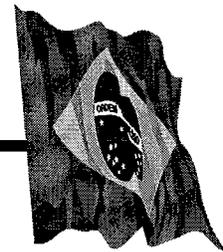


companies could adequately supply the required services and equipment for the Belo Horizonte project. The technology that is most likely to be required for the proposed project is currently being utilized widely throughout the United States, and it is therefore, readily available for export to Belo Horizonte.



BHTRANS has conducted a preliminary assessment to identify the ITS technologies and equipment that are necessary for the ITS project in Belo Horizonte for which BHTRANS is requesting financial assistance from USTDA . Based on the preliminary assessment, BHTRANS seeks to expand its CCTV system to include at least 70 new surveillance cameras to be strategically installed throughout the city. BHTRANS seeks to upgrade its existing CCTV system from analog to digital technology. The existing CCTV system is based on the use of analog electrical signals that are transmitted from the field to the ITC center. The use of the analog transmission system has limitations in terms of distance where the maximum range of transmission is approximately 20 kilometers. While the existing CCTV system is capable of utilizing signal repeaters to enhance signal transmission, BHTRANS recognizes that the quality of the transmission as well as the camera images are being affected by the use of the outdated analog technology. BHTRANS has intentions of installing additional traffic monitoring cameras where the distance from the ITC center to the camera locations exceed 20 kilometers. As such, BHTRANS seeks to utilize the digital technology for its new CCTV system. BHTRANS envisions a feasibility study that would not only create a plan for expanding the CCTV system, but also that the study develop a plan to replace the existing analog system with a new digital transmission system.

The preliminary needs assessment performed by BHTRANS also indicate the need to expand its current VMS system in order to provide traffic information to a larger coverage area of the city of Belo Horizonte. BHTRANS anticipates the need to install an additional 20 VMS signs in the field due to the fact that the VMS initiative has proven beneficial to better communicate with the motoring public. BHTRANS staff has indicated that the existing VMS signs are too large to suitably fit the urban scale of the city, and as such BHTRANS seeks to implement alternative VMS signs that perhaps are smaller in size to better adapt these signs to the existing environment.



In addition to the expansion of the CCTV and VMS systems, BHTRANS is in need of an Integrated Traffic Information Management System (ITIMS). This ITIMS system would become a completely new ITS application for BHTRANS and one that has not yet been implemented in other cities in Brazil. BHTRANS seeks the use of an ITIMS system to integrate the various databases that would result from the numerous transportation functions that

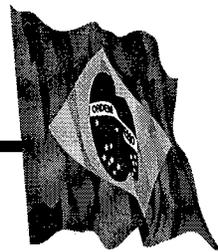


staff from the agency perform on a daily basis. The ITIMS system would operate under a GIS database platform that would be capable of interacting with other information systems and databases of the agency.

BHTRANS is in need of an ITIMS system in order to become more efficient in its overall operation and to provide the public with more reliable, faster, and convenient traffic information. Since no such system exists in a Brazilian city today, BHTRANS has intentions of becoming a leader in the application of this type of ITS system.

The following is an estimate of potential procurement of U.S. goods and services associated with the BHTRANS ITS project. The estimates are supported by a breakdown by category and dollar value of the good and services most likely to be exported to Brazil.

Intelligent Transportation Systems Application		U.S. \$
Closed Circuit Television Systems expansion		
Intelligent Traffic Control Center		
▪ Computers		10,000
▪ CCTV Consoles		100,000
▪ Digital video recorder		10,000
▪ Communications interphase and related equipment		50,000
▪ CCTV central control software		100,000
▪ Fiber optic receiver/transmitters		30,000
▪ Handheld CCTV system controller		7,500
▪ Electronic equipment cabinets and racks		10,000
Field Equipment		
▪ Color CCD cameras (day/night)		100,000
▪ Camera/housing control (pan, zoom, tilt)		100,000

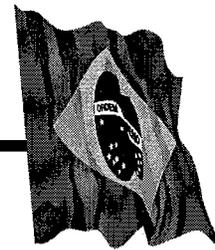


▪ Fiber optic transmitters/receivers and fiber communications		600,000
▪ Field equipment cabinets		140,000
Total CCTV		1,257,500
Variable Message Sign System		
Intelligent Traffic Control Center		
▪ Computers		5,000
▪ VMS central control software		100,000
▪ Communications interphase unit		20,000
▪ Control center equipment cabinets		5,000
Field Equipment		
▪ VMS signs		8,000,000
▪ Communications interphase equipment		20,000
▪ Fiber optic receivers/transmitters		10,000
▪ VMS sign controller		50,000
▪ Controller and equipment cabinet		40,000
Total VMS		8,250,000
Integrated Traffic Information Management System (ITIMS)		
▪ Central operating systems with GIS platform (operating software and hardware)		800,000
▪ Intelligent operations system (operating software and hardware with multi-dimensional model)		200,000
▪ Electronic hand-held field system (smart phone units) communications software and hardware		970,000
▪ Portal BHTRANS (internet)		330,000
▪ Network servers		45,000
▪ UPS systems		40,000
Total ITIMS		3,105,000
Engineering Services		
▪ ITS systems design		600,000
▪ ITS systems integration		800,000
▪ Software application/design/development/installation		750,000
▪ ITS system programming and training		400,000
Total Engineering Services		2,550,000
TOTAL		15,162,500

The estimate of potential procurement of U.S. good and services for the Belo Horizonte ITS project is U.S. \$15,162,500.

List of Potential U.S. Suppliers

A complete list of some potential U.S. suppliers of the goods and services most likely required by the Belo Horizonte ITS project appears in Appendix A. Based on the responses from a sample of U.S. Companies contacted, there is sufficient evidence to indicate an interest on the part of U.S. firms and suppliers for the ITS proposed project in Belo Horizonte.



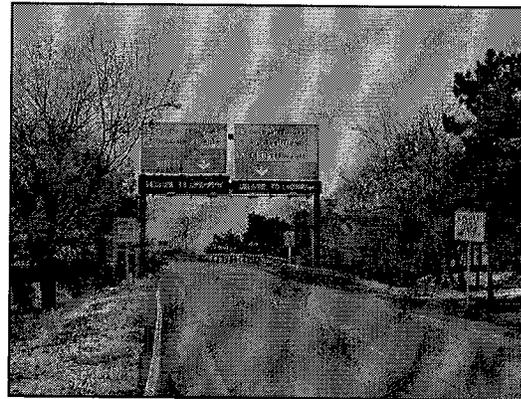
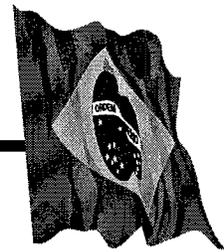
Contact was made with several U.S. suppliers of ITS products to appraise the companies' interest in the Belo Horizonte ITS project. The responses from the U.S. suppliers contacted were positive with almost all contacts made indicating interest in the project. The main question raised by U.S. suppliers were: 1) How was the project going to be funded? 2) Will the specifications for products allow U.S. technology to be utilized?; and 3) Who would be the designer for the ITS systems? U.S. suppliers of CCTV and VMS systems indicated interest in the project, but questioned the fact of who would be developing the system's specifications for the project as well as protocols of communications. This question is very important to U.S. suppliers given the fact that sometimes system specifications are written to favor other standards such as European, which eliminates the participation of U.S. companies from competing in international projects. Other suppliers questioned if the new system would be specified to comply with National Transportation Communications for ITS Protocol (NTCIP) standards.

VMS Companies in the U.S.

There are several companies in the United States that manufacture variable messages signs but there are four companies that have the larger percentage of the market in the United. The largest suppliers of VMS signs in the country are Daktronics of Brookings, SD, Skyline Products from Colorado Springs, CO, ADDCO from Minnesota, and Adaptive Microsystems from Milwaukee WI. These four companies have been active in the implementation of ITS projects throughout the United States. These companies are considered the leaders in the VMS systems technology and have adopted the National Transportation Communications for ITS Protocol which is a national ITS standard developed and adopted in the United States for the purpose of allowing interchangeability and interoperability of various ITS systems and components.

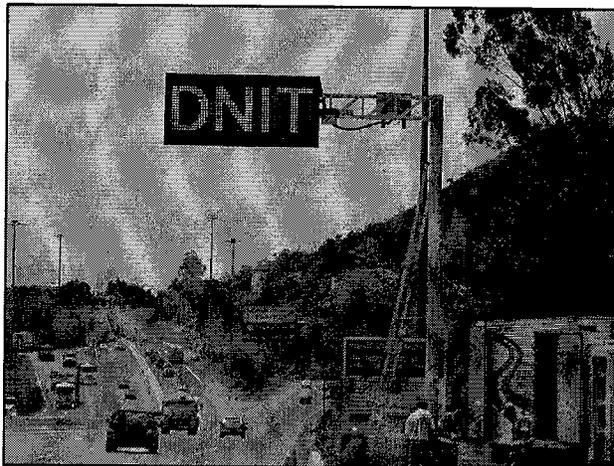
Daktronics

Daktronics has been in business since 1968, and is now known as the world leader in the display industry with their products in nearly 100 countries around the world. In addition to manufacturing VMS signs, Daktronics is the world leader in Score Boards and Media Boards that are utilized in large public areas and sports facilities around the world. In discussions with Daktronics representatives they indicated that they have exported displays systems to Brazil, but none for ITS applications. However, it was indicated that Daktronics would be very interested in pursuing the Belo Horizonte project, specially if the VMS systems specification for expansion would require NTCIP standards. The following pictures are sample VMS signs from Daktronics:



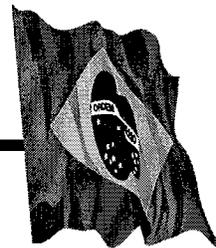
ADDCO

ADDCO Company is another U.S. manufacturer of VMS signs and has been in the business for many years focusing on the manufacturing of transportation display boards and VMS signs. ADDCO manufactures both permanent and portable VMS signs and has exported its products worldwide. ADDCO already has a presence in Brazil as well as in the State of Minas Gerais. ADDCO distributes its products in Brazil through a local Brazilian company named Sinalisa located in Sao Paulo. Since 1995 ADDCO has supplied and installed over 70 VMS signs throughout Brazil



making the company the only U.S. manufacturer of VMS signs with that many sales in that country. Since 1995 ADDCO has competed against other Brazilian and European VMS manufacturers in Brazil by utilizing Sinalisa as its local partner that provides engineering and technical support in that country. ADDCO has supplied VMS signs to the federal, state, and municipal governments throughout Brazil. Representatives from ADDCO were contacted and indicated that they were

aware of BHTRANS project in Belo Horizonte and that ADDCO was extremely interested in supplying their products for this project. ADDCO representatives have already visited with staff from BHTRANS to promote ADDCO signs for their use in Belo Horizonte. ADDCO through Sinalisa are currently under contract with the State of Sao Paulo for the supply of 42 VMS signs throughout that state in Brazil. At the time of the Desk Study ADDCO and Sinalisa had supplied and installed 15 VMS signs in the State of Sao Paulo under the 42 VMS sign contract.



Skyline Products

Skyline products is another company that has been a leader manufacturing of Skyline Dynamic Message signs for ITS applications as well as electronics price displays throughout the United States. In conversations with the international sales manager for Skyline, it was indicated that they would be very interested in participating in the Belo Horizonte ITS project to potentially supply VMS signs and the associated control systems. Skyline products are also NTCIP compliant.

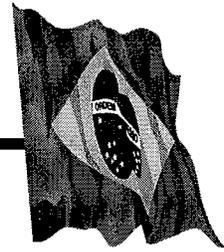


Adaptive Micro Systems

Adaptive Micro Systems is another company that manufactures VMS signs for transportation management and electronic signage for airports, as well as scrolling electronic displays. A representative from Adaptive Micro Systems indicated that the company has a distributor in Sao Paulo, Brazil with the purpose to start promoting their products in that country. Representatives from Adaptive Micro Systems indicated that the company is interested in the BHTRANS project and could pursue the project through its local distributor in Brazil.

CCTV Companies in the U.S.

In the area of CCTV systems, there is a significant number of companies in the United States that manufacture the various components of CCTV systems. While the number of companies involved in the CCTV business in the United States is very large, there are companies that specialize in the use of CCTV systems for ITS applications. Some of these companies are Pelco, from Central California, Cohu from San Diego, California, Rainbow from Costa Mesa, California, Coretec headquartered in Lake Mary, Florida, and IFS from New Town Connecticut. Representatives from



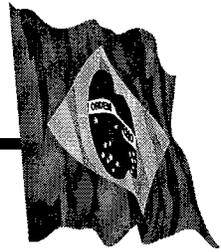
these companies were contacted about the ITS project in Belo Horizonte and all indicated to have the capability and interest to supply CCTV equipment for the proposed project.

Pelco

Pelco is the world leader in the design, development, and manufacturing of video security and surveillance systems and supporting equipment. Pelco has been in business for almost 50 years providing high quality video surveillance equipment becoming the most sought after product supplier in the industry. Pelco has the largest manufacturing complex of video surveillance and security systems in the world. Pelco produces a complete offering of cameras, camera housing and enclosures, positioning systems, network video products, matrix systems, digital video recorders, and other video security electronics products.

Pelco has distributors and product representatives worldwide and the company specializes in all types of security surveillance and other surveillance applications throughout the world. Pelco, already has numerous installations in Brazil where the company products are represented and distributed by Crockett International in Sao Paulo, Brazil. Pelco supplied the camera enclosures and control hardware for the CCTV system in Belo Horizonte. Pelco has numerous installations of its CCTV surveillance systems in Brazil and the following are a sample of these installations:

Brasilia Airport
Confins Airport
Rio de Janeiro Airport
Congonhas and Cumbica Airports in Sao Paulo
Manaus Airport
Salvador Airport
Recife Airport
Porto Alegre Airport
Palmas Airport
Belo Horizonte BHTRANS CCTV
Porto Alegre City Surveillance System
Rio de Janeiro PROJAC
Sao Sebastiao City Surveillance System
Sao Caetano City Surveillance System
CBTU rail
CET Rio , Rio de Janeiro



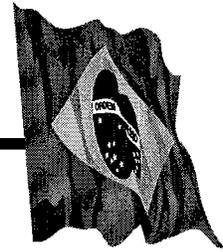
Companhia do Metro Metropolitano, Sao Paulo
Concessionaria AUTOBAN Highway
Concessionaria CONCEPA de Rodovias
Concessionaria ECOVIA Caminho do Mar
Concessionaria Via Oeste highway
CPTM Transportation Authority
CTAFOR Traffic Control System, Fortaleza
Port of Itajai
Tunnels 9 de Julho e Roboucas, Sao Paulo
Port of Paranagua
Port of Recife
Port of Rio de Janeiro
Port of Rio Grande
Port of Santos
Recife Subway system
Sistema ECOVIAS, Sao Paulo

There are other numerous institutions like banks, government agencies, and private entities utilizing Pelco surveillance systems throughout Brazil for a variety of applications. Pelco is a dominant force in the CCTV market and the company has a proven track record of high quality equipment that has made it a popular video product around the world.

Contact was made with Pelco representatives in the U.S. and in Sao Paulo regarding the BHTRANS ITS project. The Pelco representatives indicated a strong interest in the CCTV expansion project in Belo Horizonte and indicated their long standing presence in Brazil. Pelco has earned an excellent reputation when it comes to its quality products and that has allowed the company to compete in other markets outside the United States. Pelco produces and designs most of the components that will be needed for the proposed CCTV expansion project in Belo Horizonte. Pelco is one of the few CCTV companies with a strong presence in Brazil, that has been able to compete in the Brazilian market in the area of CCTV systems, specially due to the fact that it has local representation and technical support.

Rainbow

Rainbow has a Latin America distributor that covers the Brazilian market and the company is very interested in pursuing business in Brazil as it already has many installations in Mexico and other countries in Latin America.



Cohu, Inc.

Cohu Inc. has been a leader in the supply of CCTV cameras for ITS applications throughout the United States and the company would be interested in exporting its products into the Brazilian market. Cohu, Inc. indicated to have a distributor of its products in Chile where the company has multiple camera installations.

Coretec

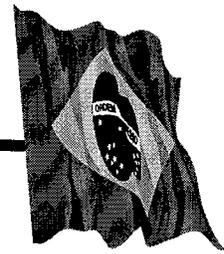
Coretec manufactures electronic equipment for video control, compressed video equipment and digital video network equipment for CCTV systems. Coretec has a distributor in Chile where the company has several installations. Coretec also indicated an interest in the BHTRANS CCTV project.

IFS

IFS is another company in the business of supplying fiber optic communications systems components (audio, data, and video transmission) used in CCTV systems and other ITS applications. IFS equipment is used worldwide in a variety of markets and applications and IFS is a leader in the supply of fiber optic communications equipment. IFS already has a presence in Brazil with many installations throughout the country and the company has a distributor in Brazil. A representative from IFS indicated that the company would be interested in the BHTRANS ITS project.

In addition to these manufacturing companies, the Desk Study identified at least two U.S. firms that are involved in the design, development, and implementation of Integrated Traffic Information Management Systems. These companies are large U.S. consulting firms and systems integration firms that specialize in all aspects of traffic information systems. These companies are Transcore, and Kimley-Horn and Associates and the firms have been involved in some form or another in the development of traffic information systems in Chicago, Illinois, Miami, Florida, and Broward County, Florida.

The U.S. companies involved in the manufacturing and sales of CCTV and VMS systems are very capable of supplying and installing the necessary ITS systems that BHTRANS seeks to implement in Belo Horizonte. These companies are just a small sample of the many firms throughout the United States that are in the business of manufacturing and supplying CCTV and VMS systems.



Appendix A list other companies that would also be capable of exporting CCTV and VMS systems and/or components.

In summarizing this section, there is clear indication of interest in the ITS project in Belo Horizonte by the U.S. suppliers contacted. However, the message was clear on their part that the various systems specifications need to be developed to be inclusive of U.S. technology and products in order for U.S. companies to compete.

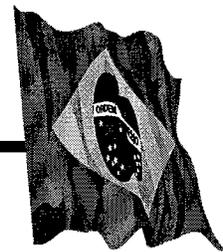
F. FOREIGN COMPETITION AND MARKET ENTRY ISSUES

It is important to note that while ITS technologies and services have been well developed in the United States, other countries in Europe and Asia have also been successful in developing their own ITS technologies. As part of the Desk Study review process, it was determined that the majority of the ITS systems in existence in Belo Horizonte (administered by BHTRANS) are of European origin. There is very little evidence of U.S. technology being utilized for ITS applications in Belo Horizonte at this time. For example, BHTRANS currently operates four traffic signal systems that control approximately 753 signalized intersections throughout the Municipality of Belo Horizonte. Of these 753 signalized intersections, 329 are controlled by a Tesc system (Brazilian company), 295 signals controlled by a Telvent system (Spanish company), 108 signals controlled by a Digicom system (Brazilian company) and 21 intersections controlled by a Philips systems (Dutch company). The ITC center was supplied and installed by Telvent, a large Spanish company that specializes in major infrastructure and system projects worldwide. The CCTV system in Belo Horizonte was supplied by Telvent where the majority of the system's components are of European origin.

The VMS sign system in existence was supplied by Telvent and Odeco (Spanish manufacturer of VMS signs). Telvent supplied the VMS central control software and Odeco supplied the VMS signs located in the field.

BHTRANS also utilizes electronic devices for automatic speed control detection and red light running enforcement. The equipment used for these enforcement programs are made by a Brazilian company named Brascontrol.

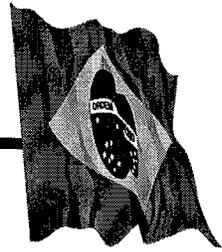
As mentioned before, BHTRANS integrated its public transportation fare collection system with the use of smart cards since 2002. This upgrade required the use of integrated fare collection system



that included “on-board” electronic fare collection units or smart card readers, central computer system for management and record keeping database, and the production of smart cards that are sold to the public. The electronic fare collection system was supplied by Tacom (Brazilian) and the smart cards are supplied by Sonsun (Brazilian). The following table summarizes the existing ITS systems being used by BHTRANS showing their respective brand name and country of origin.

ITS Systems and Components	Brand	Country of Origin	Quantity (Intersections/Locations)
Traffic Signal Systems	Digicon	Brazil	108
	Telvent	Spain	295
	Tesc	Brazil	329
	Philip	Netherlands	21
Intelligent Traffic Control Center	Telvent	Spain	
CCTV System Cameras	Capture	England	20
Housing/Control	Pelco	USA	20
Transmitter/Control	Ditel	England	Unknown
Time Lapse Recorder	Capture	England	1
Central Control Software	Telvet/Sainco	Spain	1
Video Screen	Finelet	France	1
TV Monitors	Philip	Netherlands	10
VMS System Central Control Software	Telvent	Spain	1
VMS Signs	Odeco	Spain	10
Electronic Fare Collection System			
▪ Smart Card Readers on-board units	Tacom	Brazil	3,000
▪ Smart Cards	Sonsun	Brazil	Unknown
▪ Central System	Tacom	Brazil	1

The examples described above clearly indicate that foreign competition for the ITS projects in Belo Horizonte is considered high. Traditionally, Latin American countries have selected, for the most part, European technologies when it comes to the transportation sector. There is clear evidence of European dominance not only in Brazil, but also in other countries such as Argentina, Chile, and others, where the majority of the ITS systems are of European origin. The European companies will continue to pursue ITS projects in the Brazilian market, unless the United States becomes aggressively involved in Brazil.

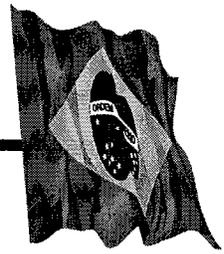


Private industry and the Belo Horizonte government have favored European technologies for a number of years, but as government representatives explained, they have not had much choice, especially when U.S. firms have predominantly been absent from the Brazilian market. There is also no doubt that European firms have jumped to an early lead in the initial ITS market in Belo Horizonte, and no doubt that they will push to continue to dominate the future market opportunities.

The ITS market potential in Belo Horizonte is still considered very good and the door is still open for U.S. firms to participate. The Desk Study evaluations conclude that there has not yet been a set of standards and specifications developed for the various ITS applications in Belo Horizonte, such as for CCTV, VMS, and Advanced Traveler Information Systems (ATIS).

The ITS systems are being implemented in Belo Horizonte without a strategic plan, without standards, nor interoperable plans that seek to combine the use of ITS technology. While this is a problem for the Municipality of Belo Horizonte, it is also an opportunity to develop and recommend ITS standards and technical specifications for the future. While currently there is evidence of ITS deployment in Belo Horizonte, ITS is still considered to be in its infancy stage, and therefore, the factor of timing is very good to begin the development ITS strategic plan including standards and technical specifications for the city. This timing factor is considered beneficial to the Municipality of Belo Horizonte, but also for U.S. companies, in that a U.S. consulting firm could have the opportunity to develop the ITS standards and technical specifications for the city. The message is that the door for the ITS market in Belo Horizonte is still open for U.S. firms to step in, but it won't be open for a long time as European firms already have one foot inside the door. This factor alone could be used as the most important element in deciding the recommendation for approval of the ITS feasibility study in Belo Horizonte. If USTDA funds the study, a U.S. consulting firm will have the opportunity to develop specifications that will include, as opposed to exclude, U.S. technology. If the study is not funded, then most likely European firms will have the opportunity to continue to implement their technologies and possibly, setting the standards for future ITS deployment.

Past procurement tendencies by BHTRANS have been directed toward Brazilian and European products, however BHTRANS staff indicated the desire to utilize U.S. made ITS systems in the past, but there has not been a strong participation on the part of U.S. companies in the market. BHTRANS wishes to engage a U.S. consulting firm for the conduct of the ITS feasibility study and hopes that the results from the study encourage U.S. suppliers to participate in future ITS projects in Belo Horizonte.



In addition to the high level of competition from foreign European companies, there is no question that local Brazilian companies continue to improve their electronic equipment production capabilities with the purpose to expand their markets and compete with foreign companies. The local industry capability in the manufacturing and marketing of electronic products is strengthening in Brazil, further raising the level of competitiveness in that country.

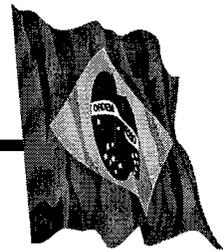
Market Entry Issues Identified

The United States is Brazil's largest trading partner. In 2005, U.S. exports to Brazil increased by U.S. \$1.0 billion from 2004. In 2006, the total U.S. exports to Brazil were U.S. \$ 19.2 billion and Brazil has been labeled as one of the top three locations for U.S. foreign direct investment. The U.S. government realizes the importance of having Brazil as a trading partner, and in June of 2006 a U.S. – Brazil commercial Dialogue was launched by the U.S. Secretary of Commerce and the Brazilian Minister of Development, Industry, and Trade in Belo Horizonte. The goal of the U.S. – Brazil commercial dialogue is to stimulate bilateral trade and investment, with a focus on improving competitiveness.

U.S. companies continue to face market entry issues in Brazil, mainly due to existing Brazilian legislation that seeks to protect the local industry. U.S. exporters face a number of significant tariff barriers in the Brazilian market. Import duties for electronic equipment and systems can be between 15 and 20 per cent, and additional fees can apply. Taxes and fees levied on imports can raise the cost of goods significantly where the goods then become too expensive to compete in the local market.

Brazilian legislation strongly encourages local end-users, specially at the federal, state, and municipal levels, to purchase Brazilian made goods not only through tariffs and duties, but at times offering subsidized credits for products with a local-content. These are long standing practices of the Brazilian government and these significant barriers are among the top of the U.S. government's list of priorities for Brazil as part of the commercial dialogue initiative.

Some U.S. and other foreign companies have taken advantage of partnering with local Brazilian firms in order to stay competitive in the local markets. In the ITS market, it seems that more European companies partner with local Brazilian firms than U.S. companies. However there are some U.S. companies that have formed partnerships with local Brazilian firms in order to gain



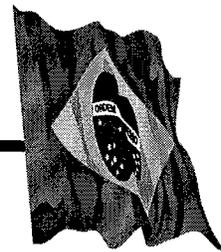
access to the ITS market in Brazil. Nonetheless, more U.S. companies need to consider this approach if they are to take a share of the ITS market in Brazil. In fact, BHTRANS staff indicated that one of the reasons why U.S. companies are not as active in participating in ITS projects in Belo Horizonte, is due to the fact that U.S. companies are at times intimidated by Brazilian legislation, tariffs, and the huge amount of requirements and documentation needed to sell their products in Brazil. Local Brazilian companies are much more knowledgeable of the Brazilian requirements for doing business in that country and as such foreign companies rely on this local knowledge and presence to export their goods.

The ITS feasibility study for BHTRANS is aimed at developing recommendations and technical specifications and standards for specific ITS applications (CCTV, VMS, and ITIMS) most likely following U.S. standards that could open the door for U.S. firms to compete. The NTCIP standard for ITS systems is a standard adopted in the United States for the purpose of standardizing the operations and functions of various ITS equipment and systems in order for these systems to have interoperability among various components. The NTCIP standards also allow for ITS systems to operate with equipment made by various manufacturers as opposed to using only proprietary equipment. It would be beneficial to U.S. companies if the ITS feasibility study recommended and specified the use of NTCIP standards as part of the ITS project in Belo Horizonte. Most of the U.S. suppliers of ITS products contacted as part of the Desk Study manufacture ITS equipment that is NTCIP compliant and sometimes is things like a change in standards that could lead to a market breakthrough for U.S. companies.

The procurement of ITS systems in Belo Horizonte is most likely to be conducted through an international bid process that would allow local as well as international firms to participate. Appendix B includes letters from the Mayor of the Municipality of Belo Horizonte and the president of BHTRANS expressing the commitment to allow U.S. companies to participate in the future ITS project.

G. DEVELOPMENTAL IMPACT

The City of Belo Horizonte is the fourth largest city in Brazil and it serves as the capital of the State of Minas Gerais and the center of the metropolitan area having 4.5 million residents that use the transportation infrastructure on a daily basis. Throughout its existence of 15 years, BHTRANS and the Municipality of Belo Horizonte have been able to transform the city's traffic and transportation system into one of the most efficient systems in Brazil, following the use of sound planning and good administration, in addition to utilizing advanced technology such as ITS systems. The



successful modernization of the transportation system in Belo Horizonte has let BHTRANS and the Municipality of Belo Horizonte to earn four national awards of quality transportation by the Brazilian National Association of Public Transportation (ANTP). The ITS project proposed by BHTRANS seeks to obtain the following benefits:

Table 2
TRAFFIC INFORMATION AND SURVEILLANCE SYSTEMS (CCTV and VMS)
▪ Improve the air quality by reducing vehicle emission and noise levels
▪ Provide real-time information for the community
▪ Improve customer satisfaction by reducing travel time, travel distance and delays
▪ Reduce delay signalized intersections
▪ Improve security and safety at night by reducing delay times at the signalized intersections
▪ Improve control of operations and traffic management
▪ Improve ability to solve traffic problems
▪ Reduce the number of the inspection field teams
▪ Provide a complete database of traffic demand
▪ Reduce energy consumption of traffic lights
▪ Increase the efficiency of the existing transportation systems
▪ Improvement to the transportation services currently provided
▪ Improvement to the traffic information services currently provided
▪ Improve the ability to monitor transportation operations in the field
▪ Travel time and delay reduction to the existing transportation network
▪ Improvement to traffic flow and minimization of congestion in the transportation network
▪ Reduction in the amount of fuel consumption
▪ Vehicular emission reductions
▪ Minimize the response time to incidents in the field
▪ Increase the ability to detect and identify incidents in the field

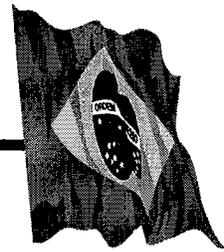
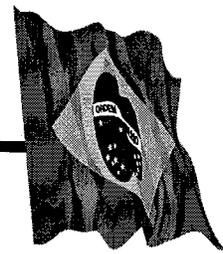


Table 2 (Continuation)	
TRAFFIC INFORMATION AND SURVEILLANCE SYSTEMS (CCTV and VMS)	
ITIMS	
	▪ Establish local and regional structures to develop and deploy ITS applications
	▪ Increase efficiency of current systems
	▪ Provide synergy among all current deployed systems
	▪ Increase the ability to monitor and control on-site patrols as well as the allocation of BHTRANS' operational fleet and of its employed contractors
	▪ Improve communication channels among BHTRANS, bus operation companies, and transportation and transit system users
	▪ Improve urban mobility
	▪ Increase productivity and communications among on-site patrols
	▪ Decrease the attendance time by on-site patrols
	▪ Provide synergy between operation center and the on-site patrols
	▪ Increase the ability to solve field incidents
	▪ Increase the ability to monitor strategic points on the roadway
	▪ Improvement to communication channels between management, operators, and users of the transportation systems

The ITS project if implemented, will supplement the existing transportation infrastructure of the city. More and more local governments are having difficulty in funding major roadway improvements primarily due to significant cost of land and construction. As a result, governments have begun to utilize other alternative methods of increasing the capacity and efficiency of existing transportation systems. ITS technologies provide such improvements for enhanced roadway capacity and efficiency and these systems have proven to work positively.

The implementation of a Integrated Traffic Information Management System would affect most of the 1,600 employees at BHTRANS by making their operations more efficient while increasing productivity.

The successful implementation of ITS systems should have a positive impact on the environment in Belo Horizonte as evidenced by the results obtained from the implementation of previous systems such as the intelligent traffic control center, CCTV, VMS, and computerized traffic signal systems. Studies were conducted as part of the implementation of the intelligent traffic control system. The study results indicate a significant reduction in total vehicle delay (vehicle-hour/hour) while the total



average vehicular operating speeds increased. The following table summarizes the results from the studies conducted.

Table 3

TOTAL DELAY				
Period	Time	Fixed Time/ Initial	Fixed Time/ Optimized	Adaptive Control Timing
A.M. Peak	6:00-10:00	5,444.60	2,343.70	1,779.80
P.M. Peak	4:00-8:00	7,545.20	3,324.80	2,341.10
A.M. Mid Peak	10:00-2:00	2,831.40	1,549.50	1,184.75
P.M. Mid Peak	2:00-4:00			
	8:00-12:00	2,405.90	1,443.50	1,132.60
Total Daily	6:00-12:00	77,720.20	37,533.00	28,018.20
TOTAL DAILY BENEFIT – (By Percentage)				
Comparative		Control Timing/ Initial Time	Control Timing / Optimal Time	Control Timing
		48.29	74.65	36.05
Reduction (%)		51.71	25.35	63.95

Table 4

PERCENTAGE DELAY REDUCTION				
Period	Time	Fixed Time/ Initial	Fixed Time/ Optimized	Adaptive Control Timing
A.M. Peak	6:00-10:00	43.05	75.94	32.69
P.M. Peak	4:00-8:00	44.07	70.41	31.03
A.M. Mid Peak	10:00-2:00	54.73	76.46	41.84
P.M. Mid Peak	2:00-4:00			
	8:00-12:00	60.00	78.46	47.08
Total Daily	6:00-12:00	48.29	74.65	36.05

Table 4 shows the various percentages of delay reduction for the three scenarios evaluated prior to and after the implementation of the intelligent traffic control center.

Table 5

AVERAGE SPEED KM/H				
Period	Time	Fixed Time/ Initial	Fixed Time/ Optimized	Adaptive Control Timing
A.M. Peak	6:00-10:00	9.90	16.02	18.05
P.M. Peak	4:00-8:00	8.42	14.10	16.73
A.M. Mid Peak	10:00-2:00	12.91	17.41	19.32
P.M. Mid Peak	2:00-4:00			
	8:00-12:00	13.85	17.67	19.39
Total Daily	6:00-12:00	11.56	16.45	18.49
TOTAL DAILY BENEFIT – (By Percentage)				
Comparative		Control Timing/ Initial Time	Control Timing / Optimal Time	Control Timing
		42.36	59.96	12.36

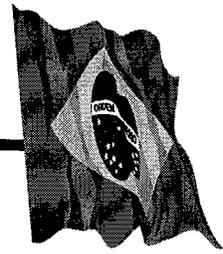


Table 5 shows the results from the study indicating the increase in operating vehicular speed by as much as 60 percent when compared to the use of the adaptive traffic control timings.

The studies also evaluated the impact of vehicle emissions on the environment. In this case the pollutants of greater importance were the primary emissions of gases from the vehicular exhaust systems. Among the pollutants analyzed were Carbon Monoxide (CO), Nitrogen Oxide (Nox), Volatile Organic Compounds (VOC), and Carbon Dioxide (CO2).

Table 6 demonstrates the estimated annual emissions of pollutants per year prior to and after the implementation of the intelligent traffic control system.

Table 6

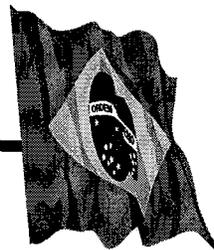
POLLUTANT	ANNUAL EMISSION / TONS/YEAR		
	Fixed Time/ Initial	Fixed Time/ Optimized	Adaptive Control Timing
CO	13187.72	9588.36	8674.44
NO x	1541.81	1220.17	1134.88
VOC	1299.22	1140.40	1118.13
CO2	230829.71	190588.47	180139.50

Table 7

POLLUTANT	ANNUAL reduction (%)		
	Fixed Time/ Initial	Fixed Time/ Optimized	Adaptive Control Timing
CO	27.29	34.22	9.53
NO x	20.86	26.39	6.99
VOC	5.69	7.53	1.95
CO2	17.43	21.96	5.48

Tables 7 shows the annual reductions as high as 34.22 percent for emissions of Carbon Monoxide, 26.39 percent for Nitrogen Oxide, and 21.96 percent for Carbon Dioxide. The reduction of these pollutants represent positive environmental impacts. It is expected that with the implementation of ITS systems in Belo Horizonte, additional improvements to the environment can be achieved.

The ITS project in Belo Horizonte is expected to have significant technology transfer applications as most of the technologies necessary for the proposed project must be imported by Belo Horizonte. In terms of productivity, the Integrated Traffic Information Management System (ITIMS) is expected to significantly increase productivity levels within BHTRANS as most of the manual record keeping and field operations can be automated and computerized, thus allowing BHTRANS personnel to work more effectively and efficiently to bring about cost savings for the organization.



As part of the technology transfer aspect, some 80 percent of BHTRANS employees would need to receive training in the operation and maintenance of the ITIMS system. This type of training for advanced technologies will further raise the educational level of BHTRANS personnel and should strengthen the capabilities of the work force in Belo Horizonte.

One of the objectives of the ITS feasibility study is to determine the opportunities to market and sell the traffic information that BHTRANS generates on a daily basis to roadway users and public transportation system users. This would be similar to how some Advanced Traveler Information Systems (ATIS) have subscribers that pay for a variety of traffic information. Since BHTRANS is the leading agency in Belo Horizonte in traffic data collection, the agency wishes to explore the possibility of combining and integrating all of its traffic databases under a GIS platform that could lead to the marketing and sale of this valuable information. This type of ITS application could represent yet another source of financial revenue for BHTRANS.

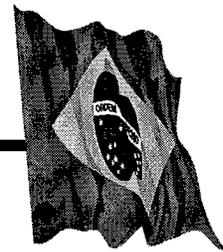
In summarizing this section of the report, the overall developmental impacts expected from the proposed ITS project in Belo Horizonte are considered to be positive for the Municipality of Belo Horizonte.

H. IMPACT ON THE ENVIRONMENT

The environment can be negatively impacted by several factors, and one of them implicates air pollution generated by vehicular emissions. While air quality in the Belo Horizonte City metropolitan area is not considered a problem, many vehicles, especially public transportation buses operate with the utilization of diesel fuel causing air contamination. On the other hand, traffic congestion also makes things worst for air quality. Each time a vehicle has to slow down or come to a complete stop due to congestion, idling occurs which translates into higher emission levels. In an area as large as Belo Horizonte, with a great number of vehicles and recurring traffic congestion, the level of vehicle-hour delay is significant and therefore, a negative impact on the environment.

One of the great benefits that Intelligent Transportation Systems offer is the improvement of the efficiency of transportation facilities. With the utilization of ITS, congestion is often reduced, accidents are reduced, mobility improves, delays are reduced and safety is improved. All could be improvements to the environment since it makes transportation more efficient and safe.

Some of the benefits from ITS as it relates to the environment are listed below.



- Less congestion
- Less vehicle emission
- Less fuel consumption
- Better air quality
- Time savings to users
- Operating cost reduction
- Reduction of accidents

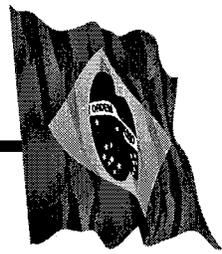
I. IMPACT ON U.S. LABOR

Components of Intelligent Transportation Systems that would be required for the Belo Horizonte project are being manufactured in the United States by U.S. companies. Other services such as consulting engineers, system design and integration could be performed by U.S. firms. Therefore the impact of U.S. labor should not be negatively impacted by this project, but could rather increase employment levels.

J. QUALIFICATIONS

The following qualifications should be required of the consulting team that would conduct the ITS feasibility study for Belo Horizonte:

- The consultant should have previous experience in the area of ITS system development. It is paramount that the consultant have full knowledge and complete understanding of all concepts and practices in developing ITS standards and specifications.
- Previous experience and actual involvement in studying, defining, and recommending ITS strategic plans including standards and technical specifications is very important for the Belo Horizonte project. Ample knowledge of ITS interoperability issues is required.
- The consultant should have previous experience in areas of ITS systems integration and interoperability to include planning, design, and implementation of ITS systems including but not limited to CCTV, VMS, and Integrated Traffic Information Management systems.
- Experience in the areas of conducting economical and financial analysis in connection with Intelligent Transportation System projects should be extensive.



- The consultant should have significant experience in the area of developing ITS strategic plans at the federal, state, and municipal levels including the development of technical specifications and ITS standards. The ITS strategic plan for Belo Horizonte will be based on the city's needs.
- Additional experience and/or involvement in identifying eligible financial resources for ITS implementation within the private sector and /or multilateral lending institutions is important. Understanding the practices and concepts of public-private partnerships that have led to the successful implementation of ITS technology is required.
- It is required that the consultant to have significant experience at the international level, preferably experience in Brazil and/or in Latin America.
- The consulting team must have at least one person (at the professional and technical level) if not more, with full (reading, writing and speaking) Portuguese language proficiency.

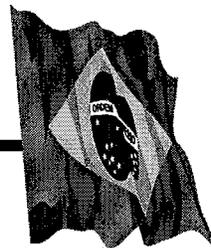
In summary, it is extremely important that the consulting personnel assigned to this project have a good understanding of all aspects of ITS issues, as well as a strong technical background in transportation. Often overlooked, is the lack of awareness of cultural differences by foreign consultants. This factor should be strongly considered in the selection of the consulting firm.

K. JUSTIFICATIONS

Based on the overall evaluation of the ITS project in Belo Horizonte, it is recommended that USTDA fund the ITS feasibility study for BHTRANS mainly because the project meets the necessary USTDA grant funding criteria. USTDA should fund the feasibility study because it is in the best interest for the U.S. to promote the sale of U.S. products in Belo Horizonte and to have the opportunity to compete in a foreign market that could soon be lost if actions are not taken soon. USTDA's funding of the feasibility study should be considered as an opportunity for the U.S. to define ITS standards and technical specifications in a foreign country that would eventually be inclusive of U.S. technology rather than exclusive.

During discussions with BHTRANS officials, they indicated their desire to establish a business relationship with the United States, but that lack of U.S. firm participation in Belo Horizonte has made this difficult. Perhaps this project will serve as the beginning of that business relationship.

In addition, export potential of U.S. goods and services is considered good for this project. The technologies most likely to be required for the project are available and ready for exporting from U.S. companies to Belo Horizonte. Discussions and communications with U.S. firms involved in



the ITS sector indicate that there is a strong interest to participate in the ITS project in Belo Horizonte. Furthermore, the project is not likely to have a negative impact on the environment or U.S. labor.

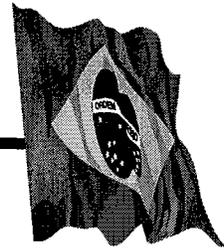
The proposed ITS project for BHTRANS is found to be financially and technically feasible and therefore meeting USTDA's grant funding criteria which justifies the approval of the ITS feasibility study for Belo Horizonte.

L. TERMS OF REFERENCES

There were no Terms of Reference submitted by BHTRANS as part of the ITS project proposal. Thus, it is recommended that a new TOR be developed to conform to USTDA's requirements to include the following:

- A technical analysis of the project
- An economic analysis of the project
- A financial analysis of the project
- An appropriate environmental analysis of the project
- A review of regulatory issues
- A list of proposed equipment and services for project implementation, including a list of U.S. sources of supply (company names and contact information)
- A developmental impact analysis
- An implementation plan (anticipated next steps necessary to implement the project), and
- A Final Report that summarizes the findings of the feasibility study and/or other appropriate deliverables.

The Terms of Reference for the Belo Horizonte ITS feasibility Study is comprised of ten major tasks as identified below and the study is expected to take 7 months to complete.



Belo Horizonte Intelligent Transportation System Feasibility Study

Overview

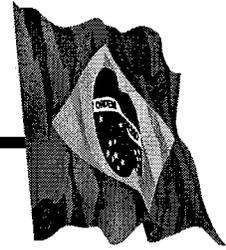
The Municipality of Belo Horizonte and the Empresa de Transporte e Transito de Belo Horizonte (BHTRANS) is seeking the development of an Intelligent Transportation Systems (ITS) strategic plan and ITS standards and specifications through the conduct of a Feasibility Study being financed by the U.S. Trade and Development Agency (USTDA).

BHTRANS anticipates expanding its current Closed-Circuit Television system (CCTV) to include a broader coverage area of Belo Horizonte. BHTRANS is expected to more than double the amount of cameras to be installed in the field as part of the CCTV system expansion. BHTRANS also anticipates expanding its Variable Message Sign (VMS) system to further its coverage throughout the city and for the purpose to provide the users with reliable traffic information. BHTRANS expect to more than double the size of coverage for its VMS system to include approximately 20 additional locations. The feasibility study will review the existing ITS systems already in operation in Belo Horizonte, with specific emphasis to be placed on the CCTV and VMS systems to determine the most feasible manner in which these two systems can be expanded.

The feasibility study will review the technical aspects of the systems and determine if the CCTV and the VMS systems are capable of incorporating additional field equipment from other manufacturers (other than or in addition to the ones in existence today). The study will also determine the feasibility of implementing a new CCTV and VMS system with more up to date and advanced technology than it already exist in Belo Horizonte today. The feasibility study will conduct a review of the various CCTV and VMS systems available in the market today, and will prioritize those systems based on the various systems functionalities, applications, advantages and disadvantages and applicability in Belo Horizonte.

The feasibility study will consider ITS operating standards such as, the National Transportation Communications for ITS Protocol (NTCIP) for potential adoptions of these standards by BHTRANS.

Furthermore, BHTRANS intends to implement an Integrated Traffic Information Management System (ITIMS) to consolidate the various agency operations under a GIS based platform. The



feasibility study will review and assess the specific needs for the use an ITIMS system, and will develop the necessary architecture and specifications needed to implement such system.

The final product of the feasibility study will be the development of recommendations and specifications for the implementation and expansion of the CCTV, VMS, and ITIMS Systems, along with the terms of reference that are needed for BHTRANS to conduct an international bidding process for the procurement of the systems. The terms of reference will be developed for each individual system in the event BHTRANS desires to advertise for each project separately.

Scope of Work

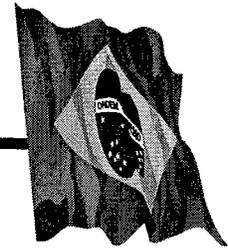
This scope of work will serve as a guide for the conduct of the ITS feasibility study to be conducted in Belo Horizonte, Brazil. The assessment will result in the development of an ITS strategic plan with specifications for the systems that could be implemented in Belo Horizonte. The feasibility study will be conducted over a period of seven months. The completed ITS strategic plan will recommend the types of systems to be implement (CCTV, VMS, and Integrated Traffic Information Management Systems), and will develop the necessary specifications for the systems and equipment that are required for the project.

This scope of work identifies the specific tasks and deliverables associated with the Belo Horizonte Intelligent Transportation Systems project. The ITS strategic plan will recommend specific ITS standards such as NTCIP and others to assist BHTRANS with the adoption of new standards that could be used for future ITS applications in Belo Horizonte. The new standards should take into consideration the future applications of other ITS systems that BHTRANS may wish to implement in the future.

The scope of work is comprised of ten major tasks as identified below:

Task 1 – Review existing conditions and define goals and objectives

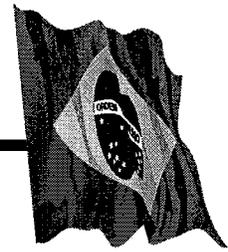
The Contractor shall review existing conditions in connection with the implementation of the ITS systems [(Closed-Circuit-Television System (CCTV), Variable Message Sign System (VMS), and Integrated Traffic Information Management System (ITIMS System)] for Belo Horizonte. The information included as part of the Desk Study report provides a good general overview of existing conditions; however the Contractor shall undertake a more in-depth approach in this review.



- 1.1. The Contractor shall identify stakeholders for the Project for participation in the Study.
- 1.2. The Contractor, in consultation with representatives from BHTRANS and the Municipality of Belo Horizonte, shall define the Study goals and objectives.
- 1.3. The Contractor, in conjunction with representatives from BHTRANS, shall develop a Project timeline to be used as a guide in the development of the Study.
- 1.4. The Contractor shall conduct a Study kickoff meeting. The purpose of the kick-off meeting will be to familiarize and acquaint BHTRANS and the Municipality's staff with the goals and responsibilities and to gather the necessary information including materials, documentation, previous technical studies, and other relevant information.
- 1.5. The Contractor shall review all previous studies that have been conducted in connection with the BHTRANS Intelligent Traffic Control Center.
- 1.6. The Contractor shall meet with key representatives from companies that supplied the existing CCTV and VMS systems that currently operate in Belo Horizonte in order to obtain in depth information regarding the operation, communications protocol, and other technical matters, as it relates to the expansion of the systems. The Contractor shall pay particular attention to the issue of being able to integrate other brands of CCTV systems and VMS systems to the existing systems.
- 1.7. The Contractor shall evaluate existing CCTV and VMS systems control software and firmware located in the Intelligent Traffic Control Center.

Task 2 – Technical Analysis for the ITS Applications

The Contractor shall evaluate the communications network being utilized for the Intelligent Traffic Control Center in Belo Horizonte and determine if the existing communications network should be upgraded and/or replaced. In the event the Contractor determines the network should be upgraded and/or replaced, the Contractor shall identify the most feasible method for upgrading and/or replacing the communications systems.



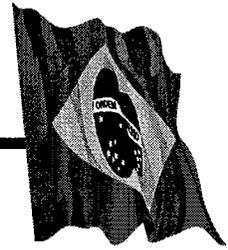
The Contractor shall identify the specific needs for the implementation of an Integrated Traffic Information Management System.

The Contractor shall conduct the following technical analysis:

- 2.1 The Contractor shall conduct a technical analysis of BHTRANS existing information systems to determine its potential upgrade and/or potential use with an ITIMS system.
- 2.2 The Contractor shall evaluate the feasibility of adopting a communications protocol standard similar to NTCIP to facilitate the integration of ITS systems in the future that would allow the integration of different manufacturers' components and systems.
- 2.3 The Contractor shall identify all the technical functions and needs for the ITS systems to be implemented.
- 2.4 The Contractor shall identify the ITS systems functional requirements for the CCTV, VMS, and the ITIMS systems.
- 2.5 The Contractor shall provide detailed information as to the system requirements including operation, implementation, maintenance and personnel needed.
- 2.6 The Contractor shall define personnel needs for operation and maintenance, as well as training requirements.
- 2.7 The Contractor shall identify all other system requirements that may be necessary for the successful implementation of the Project.

Task 3 – Economic and Financial Analysis

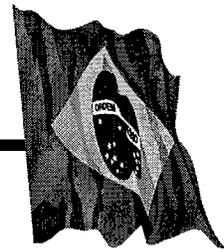
The Contractor shall perform an economic and financial analysis. Task 3 shall consist of the following activities:



- 3.1 The Contractor shall conduct a review of the financing alternatives for the implementation of ITS systems in Belo Horizonte.
- 3.2 The Contractor shall investigate all sources of funding from potential financial institutions, including, but not limited to, multilateral financial lending institutions, private and commercial sources, such as the Export-Import Bank of the United States, Overseas Private Investment Corporation, International Finance Corporation, The World Bank, Inter-American Development Bank, Brazilian Development Bank (BNDES); as well as the potential financing participation from the Brazilian Federal Government, the State of Minas Gerais, the Municipality of Belo Horizonte, and BHTRANS, and the local Urban Transportation Fund (FTU).
- 3.3 The Contractor shall review the cost, including operation and maintenance, method of procurement, as well as the benefit-cost analysis for the implementation of the Project.
- 3.4 The Contractor shall identify cost savings and social benefits that may be achieved by implementing the ITS systems in Belo Horizonte including potential positive impacts to the environment.
- 3.5 The Contractor shall evaluate all eligible potential sources of financing for the implementation and operation of the Project. This includes the identification of a financial structure and illustrated financial plan to include possible sources of capital and operating funds.
- 3.6 The Contractor shall include a review of a potential financial model that could allow BHTRANS to market and sell the traffic information to the public.
- 3.7 The Study recommendations and Project development strategies shall be designed to meet the requirements of the most likely sources of financing the Project.

Task 4 – Review Institutional Legal and Regulatory Issues

The Contractor shall review the institutional, legal, and regulatory issues pertaining to the implementation of the Project to determine what, if any, issues exist that could become a barrier to



the implementation of the ITS system in Belo Horizonte. The Contractor shall document any existing issues and recommend potential solution(s).

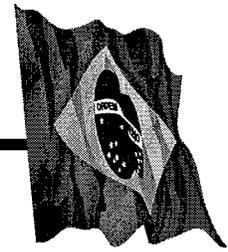
Task 5 – Environmental Impact and Benefits

The Contractor shall review the Project's environmental impact with reference to local requirements and those of multi-lateral lending agencies (such as the World Bank.) The Contractor shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for full environmental impact assessment in anticipation of the Project moving forward to the implementation stage.

Task 6 – Development of Systems Specifications and Standards Recommendations

The Contractor shall develop specifications and recommend standards that would be adopted by BHTRANS and the Municipality of Belo Horizonte for the use of the CCTV and VMS systems as well as for the ITIMS system. Task 6 shall consist of the following activities:

- 6.1 The Contractor shall develop the technical specifications for the expansion of the CCTV system for BHTRANS and recommend ITS standards for CCTV systems.
- 6.2 The Contractor shall develop the technical specifications for the expansion of the VMS sign system and recommend the necessary ITS standards for VMS systems.
- 6.3 The Contractor shall develop the technical specifications for an ITIMS system as well as the ITS architecture necessary for this system.
- 6.4 The Contractor shall develop a comprehensive list of U.S. manufacturers and suppliers of the ITS systems to be implemented, specifically for CCTV systems, VMS systems and ITIMS system. Business name, point of contact, address, telephone, fax, and email shall be included for each commercial source.



- 6.5 In the event it is feasible for BHTRANS to replace its existing CCTV and VMS systems, the Contractor shall develop a replacement plan and process to assist BHTRANS in the replacement and transition.

Task 7 – Proposed Systems and Services

The Contractor shall be responsible for developing a list of the proposed systems and services to be required for the Project and shall develop a list of U.S. sources for equipment, systems, and services including business name, point of contact, address, telephone, fax, and email. The Contractor shall develop a cost estimate for the overall potential market of the Project in Belo Horizonte.

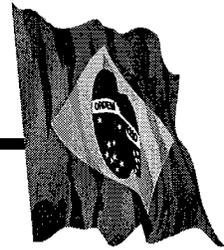
Task 8 – Developmental Impact

For the benefit of those interested in the Project, the Contractor shall identify and assess the developmental impacts that would be expected if the Project is implemented in accordance with the recommendations of the Study. The Contractor shall conduct an analysis of key developmental impacts including, but not limited to, infrastructure, human capacity building, technology transfer and productivity improvements, and market oriented reforms. The Contractor shall assess of each of the following categories in connection with the Project:

Infrastructure – The Contractor shall provide a statement describing how the implementation of the ITS system would supplement the existing transportation infrastructure in Belo Horizonte and how this could affect the developmental impact in that city.

Market-Oriented Reforms – The Contractor shall provide a description of any regulation, laws or institutional changes that would be recommended and the effect they would have if the systems were implemented.

Human Capacity Building – The Contractor shall assess the number and type of local positions that would most likely be needed for the implementation of the Project, as well as the number of people who would most likely receive training. The potential training program shall be described.



Technology Transfer and Productivity Enhancement – The Contractor shall provide a description of advanced technologies that will most likely be utilized in association with the Project. This will include mention of any efficiency factors that would be derived from the Project.

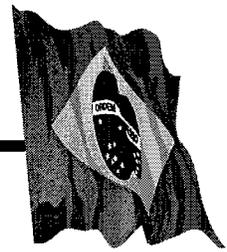
Other Issues – The Contractor shall identify and document any other developmental impact and/or benefits that are likely to result from the Project.

Deliverable: An interim report shall be developed and submitted at the end of Task 8.

Task 9 – Development of an Action Plan for ITS Implementation

The Contractor shall develop an Action plan which shall include specific activities necessary for the implementation of the CCTV, VMS, and ITIMS System in Belo Horizonte. The Contractor shall define the necessary actions to be taken in connection with the various requirements such as institutional, legal, financial and technical aspects. The Action Plan shall be very specific, and shall detail step by step the actions necessary to be taken by BHTRANS in order to implement the ITS systems and possible adoption of new ITS standards. The purpose of the Action Plan is to develop a practical approach that defines the actions needed to be taken by BHTRANS to effectively and efficiently implement the ITS systems. The Contractor is not responsible for developing an overall ITS architecture covering all possible ITS applications. Under this task, the Contractor shall be responsible for the following:

- 9.1 The Contractor shall develop a timeline, schedule, and process for BHTRANS to adopt the recommended ITS standards.
- 9.2 The Contractor shall develop the basic facts and information for an orientation visit to the United States where officials from BHTRANS could tour at least two facilities in the United States where the systems and equipment identified as part of the Study are currently being used and operated effectively and efficiently. This could also include a visit to various U.S. manufacturers and suppliers of the systems and equipment that have been identified to be used for the CCTV, VMS, and ITIMS

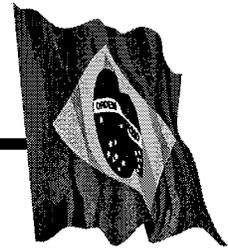


systems. The funding, organization, and participation by the Contractor for the orientation visit is beyond the scope of these Terms of Reference.

- 9.3 The Contractor shall develop a systematic action plan that details the actions necessary for the implementation of the ITS systems in Belo Horizonte. This systematic plan will form part of the strategic ITS plan that shall be developed by the Contractor.
- 9.4 The Contractor shall provide a complete list of local companies (with all available contact information and background data) that may possibly be able to partner with U.S. firms in order to facilitate the export of the ITS systems, equipment, and services to Belo Horizonte, Brazil. The Contractor shall contact the local U.S. Commercial Service office at the U.S. Embassy in Brazil. Business name, point of contact, address, telephone, fax, and email shall be included for each commercial source.
- 9.5 The Contractor shall become familiar with and document Brazilian trade laws in market entry barriers that present obstacles to foreign companies. In doing so, the Contractor shall make recommendations as to how U.S. suppliers may best enter the local market.
- 9.6 The Contractor shall develop the Terms of References (TOR) along with all related specifications for the various systems (CCTV, VMS, and ITIMS system) in a format suitable for bidding the Project, as well as a complete set of bid documents necessary for the procurement of the specified ITS systems. The bid documents shall comply with the procurement requirements of BHTRANS and the most likely source of financing the Project implementation. The Grantee is responsible for all procurement-related final decisions.

Task 10 – Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference (“Final Report”). The Final Report shall be organized according to the above tasks, and shall include all deliverables



and documents that have been provided to the Grantee. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement.

A CD-Rom version of the Final Report shall be provided to the Grantee and USTDA and shall include:

- Adobe Acrobat readable copies of all documents
- Source files for all drawings in AutoCAD or Visio format, and
- Source files for all documents in MS Office 2000 or later format.

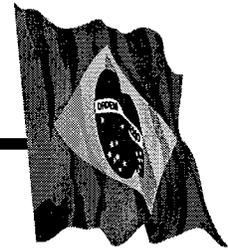
BUDGET, PERSONNEL REQUIREMENTS, AND SCHEDULE

Based on the scope of work developed in the Terms of Reference (TOR), a budget for the feasibility study has been developed and it is shown below:

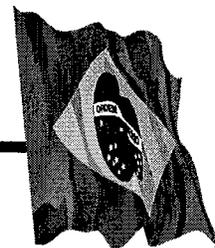
The recommended budget is provided with the breakdown indicating the various categories of expenditures including direct labor, travel, and other associated costs.

RECOMMENDED BUDGET

DIRECT LABOR COSTS:					
TOR TASK	TOR TASK NAME	POSITIONS	Total Person Days x	Daily Rate* =	TOTAL COST
1.0	Review of Existing Conditions and Define Goals and Objectives	Principal-Chief ITS Program Manager	5	685	\$3,425
		Project Director Development-ITS Program Manager	10	580	\$5,800
		Senior -ITS Systems Engineer	10	480	\$4,800
		ITS Systems Integrator	5	480	\$2,400
		Economic, Financial, and Environmental Personnel	-	-	-
		Secretarial Assistance	-	-	-
		T O T A L S:	30		\$16,425
2.0	Technical Analysis for ITS applications	Principal-Chief ITS Program Manager	5	685	\$3,425
		Project Director Development-ITS Program Manager	20	580	\$11,600
		Senior -ITS Systems Engineer	15	480	\$7,200
		ITS Systems Integrator	15	480	\$7,200
		Economic, Financial, and Environmental Personnel	-	-	-
		Secretarial Assistance	8	110	\$880
		T O T A L S:	63		\$30,305

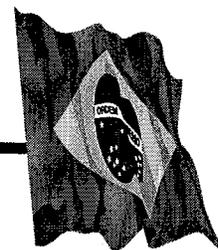


3.0	Economic and Financial Analysis	Principal-Chief ITS Program Manager	2	685	\$1,370
		Project Director Development-ITS Program Manager	5	580	\$2,900
		Senior –ITS Systems Engineer	-	-	-
		ITS Systems Integrator	-	-	-
		Economic, Financial, and Environmental Personnel	15	410	\$6,150
		Secretarial Assistance	5	110	\$550
		T O T A L S:	27		\$10,420
4.0	Review Institutional, Legal and Regulatory Issues	Principal-Chief ITS Program Manager	1	685	\$685
		Project Director Development-ITS Program Manager	5	580	\$2,900
		Senior –ITS Systems Engineer	-	-	-
		ITS Systems Integrator	-	-	-
		Economic, Financial, and Environmental Personnel	-	-	-
		Secretarial Assistance	-	-	-
		T O T A L S:	6		\$3,585
5.0	Environmental Impact and Benefits	Principal-Chief ITS Program Manager	-	-	-
		Project Director Development-ITS Program Manager	1	580	\$580
		Senior –ITS Systems Engineer	-	-	-
		ITS Systems Integrator	-	-	-
		Economic, Financial, and Environmental Personnel	5	410	\$2,050
		Secretarial Assistance	-	-	-
		T O T A L S:	6		\$2,630
6.0	Systems Specifications and Standards	Principal-Chief ITS Program Manager	15	685	\$10,275
		Project Director Development-ITS Program Manager	35	580	\$20,300
		Senior –ITS Systems Engineer	20	480	\$9,600
		ITS Systems Integrator	17	480	\$8,160
		Economic, Financial, and Environmental Personnel	-	-	-
		Secretarial Assistance	30	110	\$3,300
		T O T A L S:	117		\$51,635
70	Proposed Systems and Services	Principal-Chief ITS Program Manager	-	-	-
		Project Director Development-ITS Program Manager	10	580	\$5,800
		Senior –ITS Systems Engineer	5	480	\$2,400
		ITS Systems Integrator	5	480	\$2,400
		Economic, Financial, and Environmental Personnel	-	-	-
		Secretarial Assistance	5	110	\$550
		T O T A L S:	25		\$11,150



8.0	Developmental Impact	Principal-Chief ITS Program Manager	-	-	-
		Project Director Development-ITS Program Manager	2	580	\$1,160
		Senior –ITS Systems Engineer	-	-	-
		ITS Systems Integrator	-	-	-
		Economic, Financial, and Environmental Personnel	5	410	\$2,050
		Secretarial Assistance	2	110	\$220
		TOTALS:	9		\$3,430
9.0	Development of an “Action Plan” for ITS Implementation	Principal-Chief ITS Program Manager	10	685	\$6,850
		Project Director Development-ITS Program Manager	30	580	\$17,400
		Senior –ITS Systems Engineer	10	480	\$4,800
		ITS Systems Integrator	10	480	\$4,800
		Economic, Financial, and Environmental Personnel	2	410	\$820
		Secretarial Assistance	10	110	\$1,100
		TOTALS:	70		\$35,770
11.0	Final Report	Principal-Chief ITS Program Manager	5	685	\$3,425
		Project Director Development-ITS Program Manager	15	580	\$12,750
		Senior –ITS Systems Engineer	10	480	\$4,800
		ITS Systems Integrator	10	480	\$4,800
		Economic, Financial, and Environmental Personnel	5	410	\$2,050
		Secretarial Assistance	20	110	\$2,200
		TOTALS:	65		\$30,025
	TOTAL DIRECT LABOR COSTS:		418		\$195,375

OTHER DIRECT COSTS:				
Purchased Services/Contracts	Tasks	N° Pages	Cost	TOTAL COST
Translation	8, 10	500	\$30.00/page	\$15,000
Services English and Portuguese				
Travel	Trips	Trip Cost		TOTAL COST
International Air Travel	16	\$2,000		\$32,000
Ground Transportation (Car Rental)	69 days	\$45/day		\$3,105
	Trip Days	Per Diem Rate		TOTAL COST
Per Diem	148 days	\$213/day		\$31,524
Interpreters	60 days	\$185/day		\$11,100
Other				TOTAL COST
Reproduction and				\$1,000



binding				
Courier Services				\$1,200
Visa Services				\$1,350
Communications				\$2,240
TOTAL OTHER DIRECT COSTS:				\$98,519
TOTAL COST (DIRECT LABOR COSTS + OTHER DIRECT COSTS):				\$293,874
PROPOSED U.S. TDA GRANT:				\$294,000

PERSONNEL REQUIREMENTS

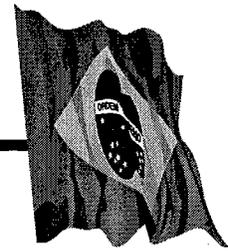
Principal - Chief ITS Program Manager

The individual in the capacity of Chief ITS Program manager will be responsible for overseeing the entire study and will provide the necessary leadership and support to insure a successful completion of the study according to the specified terms of reference. The individual in this capacity will have at a minimum, 20 years experience in the development and implementation of ITS Systems. Particular experience and substantial knowledge in traffic control and management systems as well as ITS standards and technical specifications development is very important. In addition, a person in this capacity should have ample experience in the development of ITS strategic plans.

It is estimated that 58 days will be required for the conduct of the work at a daily rate of \$685.00. The rate was calculated utilizing a base salary of \$378.00 per day and includes a fringe benefit rate of 25% and an overhead rate of 45%.

Project Director – ITS Program Development Manager

The individual in the capacity of Project Director (ITS Program Development Manager) will be responsible for directing and managing the study in its entirety. The Project Director will be responsible for establishing the study's strategies as well as defining the study's goals and objectives together with the Chief ITS Program Manager and Stakeholders. The individual in this capacity will be responsible for directing and supervising the work according to the specified terms of reference including schedules, meeting coordination, and quality control of all deliverables. The person in this capacity will have significant experience in the evaluation of institutional, legal and regulatory issues associated with ITS projects. The Project Director will be responsible for developing the new ITS technical specifications for the ITS systems recommended by the feasibility



study. In addition, a person in this capacity should have ample experience in the development of ITS strategic plans.

The proposed individual will have at a minimum, 20 years experience in the direction and managing ITS projects/studies with particular emphasis in ITS program development including ITS standard and technical specification development and project implementation of ITS systems.

It is estimated that 133 days will be required for the conduct of the work at a daily rate of \$580.00. The rate was calculated utilizing a base salary of \$320.00 per day and includes a fringe benefit rate of 25% and an overhead rate of 45%.

Senior - ITS Systems Engineer

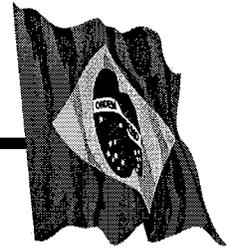
The individual in the capacity of Senior – ITS Systems Engineer will be responsible for evaluating existing systems, determining the needs for future systems that the study may recommend as well as the development of functional design for the recommended systems. The individual in this capacity will be primarily responsible for identifying the needs, proposing solutions and developing the system functional design and technical specifications for the ITS project that may be recommended by the feasibility study.

The individual proposed will have at a minimum 15 years experience in the area of ITS Systems Engineering including knowledge and experience in CCTV, VMS, ATMS, and traffic control management systems.

It is estimated that 70 days will be required for the conduct of the work at a daily rate of \$480.00. The rate was calculated utilizing a base salary of \$365.00 per day and includes a fringe benefit rate of 25% and an overhead rate of 45%.

ITS Systems Integrator

An individual in the capacity of ITS Systems Integrator will oversee all aspects of system integration including the possibility of integration of existing systems, future systems, as well as the requirements and integration capabilities needed to integrate existing and new CCTV and VMS systems. The individual in this capacity will be responsible for reviewing and developing the



system integration aspects for the ITS project that may be recommended by the study, in addition to participating in the development of ITS technical specifications.

The individual proposed for this position will have at a minimum 10 years of experience in the area of ITS Systems Integration as well as experience in ITS specifications development, and traffic control management systems.

It is estimated that 62 days will be required for the conduct of the work at a daily rate of \$480.00. The rate was calculated utilizing a base salary of \$365.00 per day and includes a fringe benefit rate of 25% and an overhead rate of 45%.

Economic, Financial and Environmental Personnel

The individuals that work in the economic, financial and environmental aspects of the feasibility study will be responsible for the successful completion of Tasks 3.0 and 8.0 in the terms of reference. Individuals in the various capacities (economic, financial, and environmental) will have (each in his/her individual area of expertise) a minimum of 10 years experience.

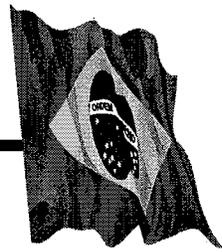
It is estimated that the combined effort will take 32 days at a daily rate of \$410.00. The rate was calculated utilizing a base salary of \$226.00 per day and includes a fringe benefit rate of 25% and an overhead rate of 45%.

Secretarial Assistance

An individual or individuals in this capacity will be responsible for all secretarial work in connection with the study including typing of all reports, correspondence, documentation, and all other aspects of secretarial service needed to support the members of the consulting team. The individual in this capacity will have experience in secretarial service with a strong background in technical report preparation, graphics, tables, etc.

It is estimated that throughout the entire study period, 80 days will be required at a daily rate of \$110.00. The rate was calculated utilizing a base salary of \$61.00 per day and includes a fringe benefit rate of 25% and an overhead rate of 45%.

Other Direct Costs



Translation Services

Translation services will be needed to translate the interim technical report under Task 8.0 as well as the final report under Task 10.0. It is estimated that the interim technical report will consist of some 200 pages and the final report of some 300 pages. Therefore, it is estimated that some 500 pages will need to be translated (English/Portuguese) at a cost of \$30.00 per page which represents a cost estimate of \$15,000 for translation services.

Travel

The estimated number of total trips to Belo Horizonte is 16 for the various consulting team members. The trips and the purpose are identified below.

Trip N°1 –

The Principal on the Project, Project Director, Systems Engineer and Systems Integrator will travel to Belo Horizonte for the initial kick-off meeting with BHTRANS officials, review and evaluation of existing conditions and definition of goals and objectives for the studies.

Trip N°1 Expenses –

Principal (5 days), Project Director (10 days), Systems Engineer (10 days), and Systems Integrator (5 days).

Roundtrip airfare (Economy Class): \$2,000.00/per trip x 4 people = \$8,000.00

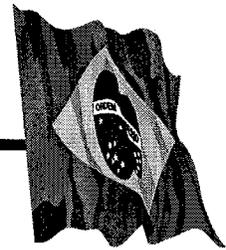
Per Diem: \$213/day x 30 days (4 people)= \$ 6,390.00

Local Transportation: \$45/day x 10 days = \$450.00

Total Trip N°1 Expenses = \$14,840

Trip N°2 –

The Principal on the Project, Project Director, Systems Engineer and Systems Integrator will travel to Belo Horizonte for follow up meetings in connection with the technical analysis part of the study and the identification of all needs, ITS functions, improvements and projects to be recommended.



Trip N°2 Expenses –

Principal (5 days), Project Director (20 days), Systems Engineer (15 days), and Systems Integrator (15 days).

Roundtrip airfare (Economy Class): \$2,000.00/per trip x 4 people = \$8,000.00

Per Diem: \$213/day x 55 days (4 people)= \$11,715

Local Transportation: \$45/day x 20 days = \$900.00

Total Trip N° 2 Expenses = \$20,615.00

Trip N°3 –

The Project Director and Systems Engineer will travel to Belo Horizonte for 10 days each to review with BHTRANS officials the development of system's requirements for the ITS systems identified under Task 2.0. During this trip the Project Director will also work on collecting the information through meetings and investigations for the review of institutional, legal and regulatory issues (Task 4.0).

Trip N° 3 – Expenses

Project Director (10 days), Systems Engineer (10 days).

Roundtrip airfare (Economy Class): \$2,000.00/per trip x 2 people = \$4,000.00

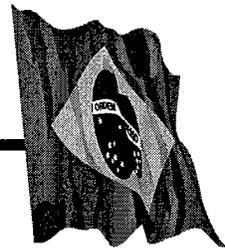
Per Diem: \$213/day x 20 days (2 people)= \$4,260.00

Local Transportation: \$45/day x 10 days = \$450.00

Total Trip N° 3 Expenses = \$8,710.00

Trip N° 4 –

Financial and environmental personnel will travel to Belo Horizonte to evaluate financial and environmental issues and collect the necessary information for the conduct of the financial analysis and environmental impact review. Two people will travel to Belo Horizonte for 5 days each.



Trip N° 4 – Expenses

Financial and environmental personnel.

Roundtrip airfare (Economy Class): \$2,000.00/per trip x 2 people = \$4,000.00

Per Diem: \$213/day x 5 days (2 people) = \$1,065.00

Local Transportation: \$45/day x 5 days = \$225.00

Total Trip N° 4 Expenses = \$5,290.00

Trip N° 5 –

The Principal and Project Director will travel to Belo Horizonte to hold meetings with representatives from BHTRANS officials in connection with the development of the ITS strategic plan and standards and technical specifications for the ITS systems for Belo Horizonte. The consultants will present the recommended ITS strategic plan along with the ITS standards and specifications based on all of the information obtained and evaluations performed in Task 1.0 through Task 9.0.

Trip N° 5 – Expenses

Principal (10 days), Project Director (20 days).

Roundtrip airfare (Economy Class): \$2,000.00/per trip x 2 people = \$4,000.00

Per Diem: \$213/day x 30 days (2 people)= \$6,390.00

Local Transportation: \$45/day x 20days = \$900.00

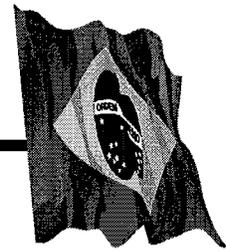
Total Trip N°5 Expenses = \$11,290.00

Trip N° 6 –

The Principal and Project Director will travel to Belo Horizonte to make presentations of the Final Report. A 4-day trip is estimated for this purpose.

Trip N° 6 – Expenses

Principal (4 days), Project Director (4 days).



Roundtrip airfare (Economy Class):	\$2,000.00/per trip x 2 people	= \$4,000.00
Per Diem:	\$213/day x 8 days (2 people)	= \$1,704.00
Local Transportation:	\$45/day x 4days	= \$180.00
Total Trip N° 6 Expenses		= \$5,884.00

Interpreter Services

It is expected that English/Portuguese interpreting services will be needed for the conduct of the work in Belo Horizonte. It is estimated that 60 days of interpreter services will be required at a daily rate of \$185/day for a total of (60 days x \$185/day) \$11,100.00

Reproduction and Binding

Copies of the Interim Technical Report (3 copies in Portuguese and 1 in English) will be reproduced and bound in accordance with Task 8.0 of the Terms of Reference. In addition, 9 copies of the Final Report (6 in Portuguese and 3 in English) will be reproduced and bound in accordance with Task 10.0 of the Terms of Reference.

Interim report reproduction: 200 pages x 0.10/copy x 4 = \$80.00

Final report reproduction: 300 pages x 0.10/copy x 9 = \$270.00

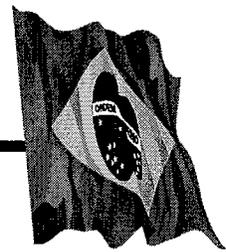
Binding and final

Report standards, specifications, etc. \$50.00 x 13 = \$650.00

Total = \$1,000.00

Courier Services

While a significant amount of information and documents will be sent to and from Belo Horizonte by electronic mail, there is still the need for courier services in order to mail large documents, plans, design drawings and other materials that at time is difficult to sent via electronic mail. It is expected that some 15 packages will be sent via courier service at a cost of \$80.00 per package for a total of \$1,200.00.

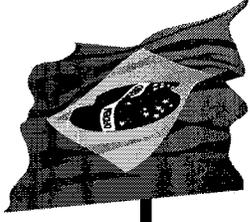


Visa Services

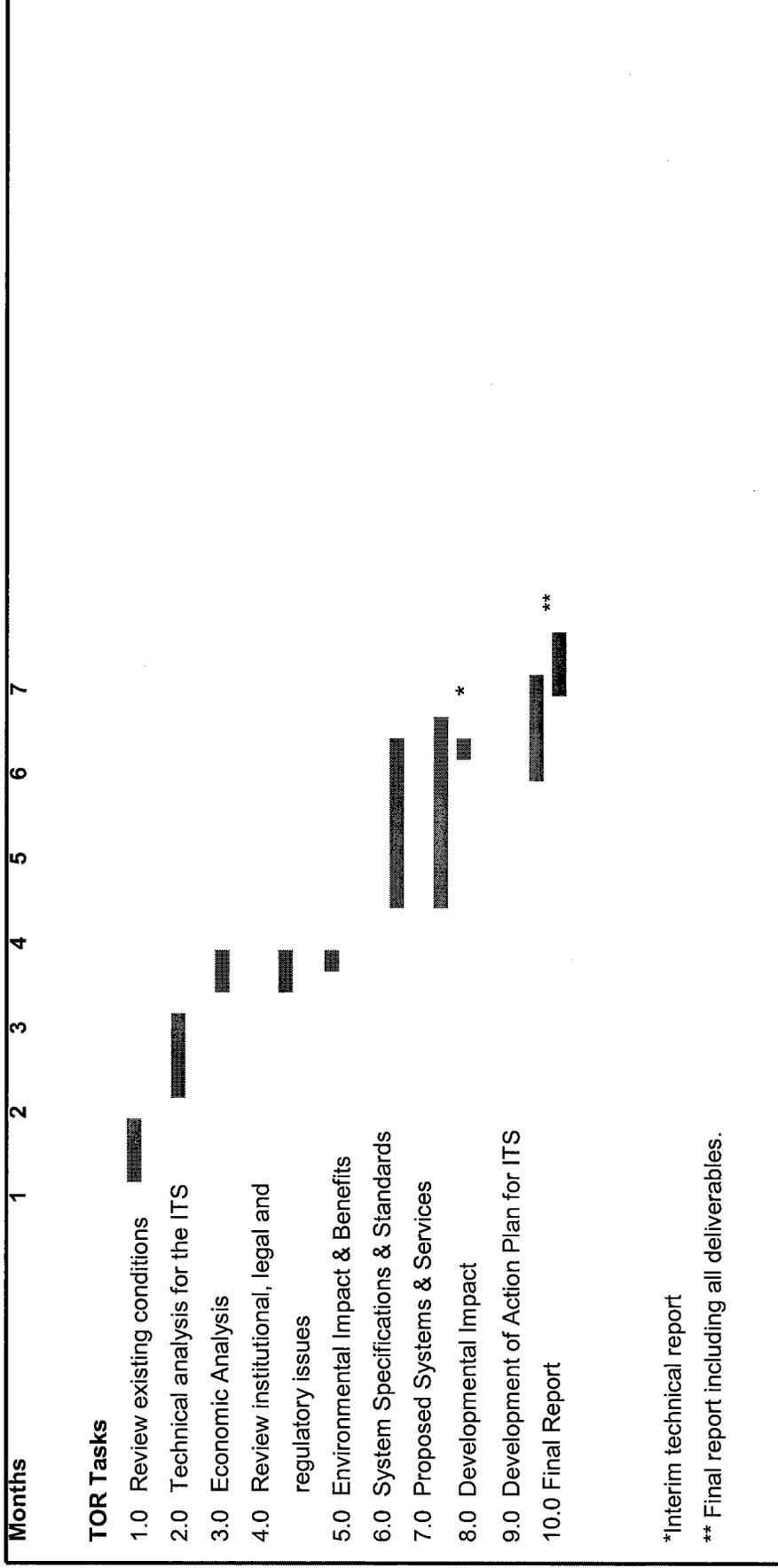
U.S. consulting team members will be required to obtain business visas for the conduct of the work in Belo Horizonte. The total estimated for visa services is \$1,350.00 (6 people x \$225.00/business visa).

Communications

While a significant amount of communications will take place by electronic mail, a study of this magnitude will require voice and facsimile communications at certain intervals of the study. Eight (8) hours of long distance a month is estimated for the entire study period at a cost of \$2,240.00 (8 hours/month x \$40.00/hour x 7 months).

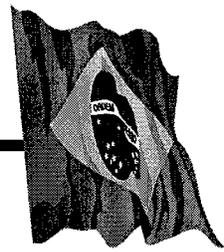


ITS FEASIBILITY STUDY PROPOSED SCHEDULE



*Interim technical report

** Final report including all deliverables.

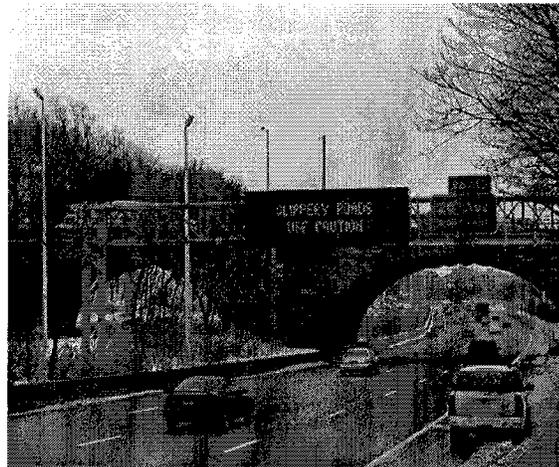


M. RECOMMENDATIONS

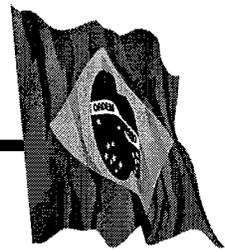
The final section of the report outlines the Desk Study recommendations, which are specifically addressed in the subsections below.

1. Why should USTDA fund this Feasibility Study?

USTDA should fund this feasibility study because the proposed project meets the necessary USTDA criteria as reviewed by this Desk Study. A review of the information obtained as part of the Desk Study indicates that the project is economically, financially and technically feasible. Export potential of U.S. goods and services is considered good for this project. The technologies most likely to be required for the ITS project are available and ready for exporting from U.S. companies to Belo Horizonte. U.S. manufactures have demonstrated a positive interest in the Belo Horizonte project.



A review of the financial capabilities of the Municipality of Belo Horizonte and BHTRANS indicate go that the municipality and BHTRANS are in od financial standings and as such, financially capable of funding the proposed ITS project. Both the Municipality of Belo Horizonte and BHTRANS are credit worthy organizations in Brazil as evidenced by their annual financial reports. The Revista de Transporte Moderno presented the results of the financial analysis in its November 2006 edition, after a private firm evaluated all transportation entities in Brazil. The results placed BHTRANS in third place when all the financial elements were evaluated. It is worth mentioning that the financial analysis of all the Brazilian transportation agencies was an independent process conducted by a private firm and published by a private magazine, which gives credibility to the results obtained.

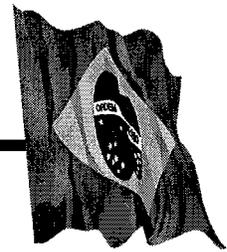


The results from this independent financial analysis is perhaps the better method of evaluating BHTRAN's financial stability, because the analysis not only speaks as to the good financial standing of BHTRANS, but also it compares the agency with others in Brazil. This increases the credibility of BHTRANS which further improves the agency's ability of receiving loans from Brazilian and international financial institutions. The various financial institutions contacted as part of the Desk Study all presented a positive response concerning the possibilities of financing the ITS project in Belo Horizonte.

Furthermore, the project is not estimated to have a negative impact neither on the environment nor on U.S. labor. All of these issues collectively meet the criteria for a viable USTDA project. The developmental impacts associated with the BHTRANS ITS project are expected to be positive for the Municipality of Belo Horizonte and its citizens.

As mentioned in the report, there is already a strong European interest in the ITS market in Belo Horizonte, and USTDA by funding this project, could assist U.S. companies to establish a presence in that country. It is important to point out that the three largest geographical areas in the world where ITS has emerged as a viable technology, are North America, Europe and parts of Asia. The fourth largest area which has a tremendous market potential for ITS is Latin America. If the United States does not promote the proliferation of Intelligent Transportation Systems in Latin America, there is no doubt that others will, as evidenced by what has occurred in the past. The funding of this feasibility study would play a vital role in the U.S. companies' involvement and participation in the ITS market. The fact that this project in essence will define the ITS standards and technical specifications for Belo Horizonte, should create an even greater interest by U.S. firms in this project, because the strategic ITS plan along with standards and technical specifications will serve as the frame and foundation from which other future ITS systems can be developed. If the ITS strategic plan (along with standards and technical specifications) was developed using other foreign countries' structures, then U.S. equipment and systems could be prevented from competing on future projects and U.S. equipment and systems could even be deemed "non compatible" based on the ITS standards selected.

It appears that the Municipality of Belo Horizonte and BHTRANS have the governmental structure and experience necessary to proceed and manage a project of this magnitude. There is adequate supporting infrastructure to allow for the deployment of Intelligent Transportation Systems in Belo Horizonte. The Municipality of Belo Horizonte and BHTRANS through its years



of operation has gained adequate experience to undertake the new challenge of further developing ITS systems in the future. The procurement of ITS systems in Belo Horizonte is most likely to be conducted through an international bid process that would allow local as well as international firms to participate. Appendix B includes letters from the Mayor of the Municipality of Belo Horizonte and president of BHTRANS expressing the commitment to allow U.S. companies to participate in the future ITS project, as well as the commitment from the Municipality to proceed with the ITS project.

2. TOR for the Project

A new TOR for the ITS feasibility study has been developed to meet the USTDA's TOR requirements. The study shall include the technical, economic, and financial analysis along with the legal, institutional and regulatory reviews. Also, the identification of proposed systems, equipment, and services for the project should be included along with and implementation plan and final report. It is estimated that the study will take 7 months to complete.

3. Recommended Budget

The recommended budget for the study is U.S.\$ 294,000.

N. CONTACTS

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Alexandre A. C. Meirelles

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E-mail: racioli@finep.gov.br

ANNEX 3



**U.S. TRADE AND DEVELOPMENT AGENCY
Arlington, VA 22209-2131**

NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS

The purpose of USTDA's nationality, source, and origin requirements is to assure the maximum practicable participation of American contractors, technology, equipment and materials in the prefeasibility, feasibility, and implementation stages of a project.

USTDA STANDARD RULE (GRANT AGREEMENT STANDARD LANGUAGE):

Except as USTDA may otherwise agree, each of the following provisions shall apply to the delivery of goods and services funded by USTDA under this Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from host country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for implementation of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in host country are not subject to the above restrictions. USTDA will make available further details concerning these standards of eligibility upon request.

NATIONALITY:

1) Rule

Except as USTDA may otherwise agree, the Contractor for USTDA funded activities must be either a U.S. firm or a U.S. individual. Prime contractors may utilize U.S.

subcontractors without limitation, but the use of host country subcontractors is limited to 20% of the USTDA grant amount.

2) Application

Accordingly, only a U.S. firm or U.S. individual may submit proposals on USTDA funded activities. Although those proposals may include subcontracting arrangements with host country firms or individuals for up to 20% of the USTDA grant amount, they may not include subcontracts with third country entities. U.S. firms submitting proposals must ensure that the professional services funded by the USTDA grant, to the extent not subcontracted to host country entities, are supplied by employees of the firm or employees of U.S. subcontractor firms who are U.S. individuals.

Interested U.S. firms and consultants who submit proposals must meet USTDA nationality requirements as of the due date for the submission of proposals and, if selected, must continue to meet such requirements throughout the duration of the USTDA-financed activity. These nationality provisions apply to whatever portion of the Terms of Reference is funded with the USTDA grant.

3) Definitions

A "U.S. individual" is (a) a U.S. citizen, or (b) a non-U.S. citizen lawfully admitted for permanent residence in the U.S. (a green card holder).

A "U.S. firm" is a privately owned firm which is incorporated in the U.S., with its principal place of business in the U.S., and which is either (a) more than 50% owned by U.S. individuals, or (b) has been incorporated in the U.S. for more than three (3) years prior to the issuance date of the request for proposals; has performed similar services in the U.S. for that three (3) year period; employs U.S. citizens in more than half of its permanent full-time positions in the U.S.; and has the existing capability in the U.S. to perform the work in question.

A partnership, organized in the U.S. with its principal place of business in the U.S., may also qualify as a "U.S. firm" as would a joint venture organized or incorporated in the United States consisting entirely of U.S. firms and/or U.S. individuals.

A nonprofit organization, such as an educational institution, foundation, or association may also qualify as a "U.S. firm" if it is incorporated in the United States and managed by a governing body, a majority of whose members are U.S. individuals.

SOURCE AND ORIGIN:

1) Rule

In addition to the nationality requirement stated above, any goods (e.g., equipment and materials) and services related to their shipment (e.g., international transportation and insurance) funded under the USTDA Grant Agreement must have their source and origin in the United States, unless USTDA otherwise agrees. However, necessary purchases of goods and project support services which are unavailable from a U.S. source (e.g., local food, housing and transportation) are eligible without specific USTDA approval.

2) Application

Accordingly, the prime contractor must be able to demonstrate that all goods and services purchased in the host country to carry out the Terms of Reference for a USTDA Grant Agreement that were not of U.S. source and origin were unavailable in the United States.

3) Definitions

“Source” means the country from which shipment is made.

“Origin” means the place of production, through manufacturing, assembly or otherwise.

Questions regarding these nationality, source and origin requirements may be addressed to the USTDA Office of General Counsel.

ANNEX 4

USD 7-51013B

BRA

GRANT AGREEMENT

OCT - 1 2007

GM, AM JE DWIEK

This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA") and Belo Horizonte Traffic and Transportation Company (BHTRANS, "Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$294,000 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed Belo Horizonte Intelligent Transportation System project ("Project") in Brazil ("Host Country").

1. USTDA Funding

I - Enforce + Spun of Engr

The funding to be provided under this Grant Agreement shall be used to fund the costs of a contract between the Grantee and the U.S. firm selected by the Grantee ("Contractor") under which the Contractor will perform the Study ("Contract"). Payment to the Contractor will be made directly by USTDA on behalf of the Grantee with the USTDA Grant funds provided under this Grant Agreement.

2. Terms of Reference

The Terms of Reference for the Study ("Terms of Reference") are attached as Annex I and are hereby made a part of this Grant Agreement. The Study will examine the technical, financial, environmental, and other critical aspects of the proposed Project. The Terms of Reference for the Study shall also be included in the Contract.

3. Standards of Conduct

USTDA and the Grantee recognize the existence of standards of conduct for public officials, and commercial entities, in their respective countries. The parties to this Grant Agreement and the Contractor shall observe these standards, which include not accepting payment of money or anything of value, directly or indirectly, from any person for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Study.

4. Grantee Responsibilities

The Grantee shall undertake its best efforts to provide reasonable support for the Contractor, such as local transportation, office space, and secretarial support.

Handwritten marks and signatures at the bottom right of the page.

5. USTDA as Financier

(A) USTDA Approval of Competitive Selection Procedures

Selection of the U.S. Contractor shall be carried out by the Grantee according to its established procedures for the competitive selection of contractors with advance notice of the procurement published online through *Federal Business Opportunities* (www.fedbizopps.gov). Upon request, the Grantee will submit these contracting procedures and related documents to USTDA for information and/or approval.

(B) USTDA Approval of Contractor Selection

The Grantee shall notify USTDA at the address of record set forth in Article 17 below upon selection of the Contractor to perform the Study. Upon approval of this selection by USTDA, the Grantee and the Contractor shall then enter into a contract for performance of the Study. The Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the Study that they were not selected.

(C) USTDA Approval of Contract Between Grantee and Contractor

The Grantee and the Contractor shall enter into a contract for performance of the Study. This contract, and any amendments thereto, including assignments and changes in the Terms of Reference, must be approved by USTDA in writing. To expedite this approval, the Grantee (or the Contractor on the Grantee's behalf) shall transmit to USTDA, at the address set forth in Article 17 below, a photocopy of an English language version of the signed contract or a final negotiated draft version of the contract.

(D) USTDA Not a Party to the Contract

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of the contract and any amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of funding the Study and shall not be construed as making USTDA a party to the contract. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the contract or any subcontract, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Grantee or USTDA from asserting any right they might have against the Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Grantee or USTDA.

(E) Grant Agreement Controlling

Regardless of USTDA approval, the rights and obligations of any party to the contract or subcontract thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and any contract or subcontract funded by the Grant Agreement, the Grant Agreement shall be controlling.

6. Disbursement Procedures

(A) USTDA Approval of Contract Required

USTDA will make disbursements of Grant funds directly to the Contractor only after USTDA approves the Grantee's contract with the Contractor.

(B) Contractor Invoice Requirements

The Grantee should request disbursement of funds by USTDA to the Contractor for performance of the Study by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory Clauses in Annex II.

7. Effective Date

The effective date of this Grant Agreement ("Effective Date") shall be the date of signature by both parties or, if the parties sign on different dates, the date of the last signature.

8. Study Schedule

(A) Study Completion Date

The completion date for the Study, which is January 15, 2009, is the date by which the parties estimate that the Study will have been completed.

(B) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this Grant Agreement for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

9. USTDA Mandatory Clauses

All contracts funded under this Grant Agreement shall include the USTDA mandatory clauses set forth in Annex II to this Grant Agreement. All subcontracts funded or partially funded with USTDA Grant funds shall include the USTDA mandatory clauses, except for clauses B(1), G, H, I, and J.

10. Use of U.S. Carriers

(A) Air

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(B) Marine

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

11. Nationality, Source and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and services funded by USTDA under the Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for performance of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions. USTDA will make available further details concerning these provisions upon request.

12. Taxes

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in Host Country. Neither the Grantee nor the Contractor will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.

13. Cooperation Between Parties and Follow-Up

The parties will cooperate to assure that the purposes of the Grant Agreement are accomplished. For five (5) years following receipt by USTDA of the Final Report (as defined in Clause I of Annex II), the Grantee agrees to respond to any reasonable inquiries from USTDA about the status of the Project.

14. Implementation Letters

To assist the Grantee in the implementation of the Study, USTDA may, from time to time, issue implementation letters that will provide additional information about matters covered by the Grant Agreement. The parties may also use jointly agreed upon implementation letters to confirm and record their mutual understanding of matters covered by the Grant Agreement.

15. Recordkeeping and Audit

The Grantee agrees to maintain books, records, and other documents relating to the Study and the Grant Agreement adequate to demonstrate implementation of its responsibilities under the Grant Agreement, including the selection of contractors, receipt and approval of contract deliverables, and approval or disapproval of contractor invoices for payment by USTDA. Such books, records, and other documents shall be separately maintained for three (3) years after the date of the final disbursement by USTDA. The Grantee shall afford USTDA or its authorized representatives the opportunity at reasonable times to review books, records, and other documents relating to the Study and the Grant Agreement.

16. Representation of Parties

For all purposes relevant to the Grant Agreement, the Government of the United States of America will be represented by the U. S. Ambassador to Host Country or USTDA and Grantee will be represented by the President of BHTRANS. The parties hereto may, by written notice, designate additional representatives for all purposes under the Grant Agreement.

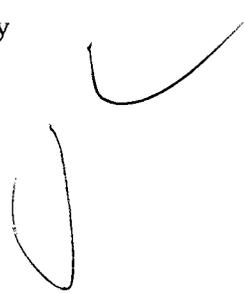
17. Addresses of Record for Parties

Any notice, request, document, or other communication submitted by either party to the other under the Grant Agreement shall be in writing or through a wire or electronic medium which produces a tangible record of the transmission, such as a telegram, cable or facsimile, and will be deemed duly given or sent when delivered to such party at the following:

To: BHTRANS
Av. Eng. Carlos Goulart, 900-Buritis
Belo Horizonte, MG Brazil
CEP 30.455-902

Phone: +55(31) 3379-5743
Fax: +55(31) 3379-5660

To: U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA



5 

Phone: (703) 875-4357
Fax: (703) 875-4009

All such communications shall be in English, unless the parties otherwise agree in writing. In addition, the Grantee shall provide the Commercial Section of the U.S. Embassy in Host Country with a copy of each communication sent to USTDA.

Any communication relating to this Grant Agreement shall include the following fiscal data:

Appropriation No.: 117/81001
Activity No.: 2007-51013B
Reservation No.: 2007510033
Grant No.: GH2007510009

18. Termination Clause

Either party may terminate the Grant Agreement by giving the other party thirty (30) days advance written notice. The termination of the Grant Agreement will end any obligations of the parties to provide financial or other resources for the Study, except for payments which they are committed to make pursuant to noncancellable commitments entered into with third parties prior to the written notice of termination.

19. Non-waiver of Rights and Remedies

No delay in exercising any right or remedy accruing to either party in connection with the Grant Agreement shall be construed as a waiver of such right or remedy.

20. U.S. Technology and Equipment

By funding this Study, USTDA seeks to promote the Project objectives of the Host Country through the use of U.S. technology, goods, and services. In recognition of this purpose, the Grantee agrees that it will allow U.S. suppliers to compete in the procurement of technology, goods and services needed for Project implementation.

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6


IN WITNESS WHEREOF, the Government of the United States of America and the Belo Horizonte Traffic and Transportation Company, each acting through its duly authorized representative, have caused this Agreement to be signed in the English language in their names and delivered as of the day and year written below. In the event that this Grant Agreement is signed in more than one language, the English language version shall govern.

For the Government of the
United States of America

By: [Signature]
Date: September 24, 2007

For the Belo Horizonte Traffic and
Transportation Company

By: [Signature]
Date: 24/09/2007

Witnessed:
By: [Signature]

Witnessed:
By: [Signature]

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

7
[Signature]

Annex I

Terms of Reference

This Terms of Reference identifies the specific tasks and deliverables associated with the feasibility study on the proposed Belo Horizonte Intelligent Transportation Systems (ITS) project. The Study will recommend specific ITS standards such as the National Transportation Communications for ITS Protocol (NTCIP) and others to assist the Belo Horizonte Traffic and Transportation Company (BHTRANS) with the adoption of new standards that could be used for future ITS applications in Belo Horizonte. The new standards should take into consideration the future applications of other ITS systems that BHTRANS may wish to implement in the future.

The Terms of Reference is comprised of ten major tasks as identified below:

Task 1 – Review existing conditions and define goals and objectives

The Contractor shall review existing conditions in connection with the implementation of the ITS systems [(Closed-Circuit-Television System (CCTV), Variable Message Sign System (VMS), and Integrated Traffic Information Management System (ITIMS System)] for Belo Horizonte. The information included as part of the Desk Study report provides a good general overview of existing conditions; however the Contractor shall undertake a more in-depth approach in this review.

- 1.1. The Contractor shall identify stakeholders for the Project for participation in the Study.
- 1.2. The Contractor, in consultation with representatives from BHTRANS and the Municipality of Belo Horizonte, shall define the Study goals and objectives.
- 1.3. The Contractor, in conjunction with representatives from BHTRANS, shall develop a Project timeline to be used as a guide in the development of the Study.
- 1.4. The Contractor shall conduct a Study kickoff meeting. The purpose of the kick-off meeting will be to familiarize and acquaint BHTRANS and the Municipality's staff with the goals and responsibilities and to gather the necessary information including materials, documentation, previous technical studies, and other relevant information.
- 1.5. The Contractor shall review all previous studies that have been conducted in connection with the BHTRANS Intelligent Traffic Control Center.
- 1.6. The Contractor shall meet with key representatives from companies that supplied the existing CCTV and VMS systems that currently operate in Belo Horizonte in order to obtain in depth information regarding the operation, communications protocol, and other technical matters, as it relates to the expansion of the systems. The Contractor shall pay particular attention to the issue of being able to integrate other brands of CCTV systems and VMS systems to the existing systems.

- 1.7. The Contractor shall evaluate existing CCTV and VMS systems control software and firmware located in the Intelligent Traffic Control Center.

Task 2 – Technical Analysis for the ITS Applications

The Contractor shall evaluate the communications network being utilized for the Intelligent Traffic Control Center in Belo Horizonte and determine if the existing communications network should be upgraded and/or replaced. In the event the Contractor determines the network should be upgraded and/or replaced, the Contractor shall identify the most feasible method for upgrading and/or replacing the communications systems.

The Contractor shall identify the specific needs for the implementation of an Integrated Traffic Information Management System.

The Contractor shall conduct the following technical analysis:

- 2.1 The Contractor shall conduct a technical analysis of BHTRANS existing information systems to determine its potential upgrade and/or potential use with an ITIMS system.
- 2.2 The Contractor shall evaluate the feasibility of adopting a communications protocol standard similar to NTCIP to facilitate the integration of ITS systems in the future that would allow the integration of different manufacturers' components and systems.
- 2.3 The Contractor shall identify all the technical functions and needs for the ITS systems to be implemented.
- 2.4 The Contractor shall identify the ITS systems functional requirements for the CCTV, VMS, and the ITIMS systems.
- 2.5 The Contractor shall provide detailed information as to the system requirements including operation, implementation, maintenance and personnel needed.
- 2.6 The Contractor shall define personnel needs for operation and maintenance, as well as training requirements.
- 2.7 The Contractor shall identify all other system requirements that may be necessary for the successful implementation of the Project.

Task 3 – Economic and Financial Analysis

The Contractor shall perform an economic and financial analysis. Task 3 shall consist of the following activities:

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- 3.1 The Contractor shall conduct a review of the financing alternatives for the implementation of ITS systems in Belo Horizonte.
- 3.2 The Contractor shall investigate all sources of funding from potential financial institutions, including, but not limited to, multilateral financial lending institutions, private and commercial sources, such as the Export-Import Bank of the United States, Overseas Private Investment Corporation, International Finance Corporation, The World Bank, Inter-American Development Bank, Brazilian Development Bank (BNDES); as well as the potential financing participation from the Brazilian Federal Government, the State of Minas Gerais, the Municipality of Belo Horizonte, and BHTRANS, and the local Urban Transportation Fund (FTU).
- 3.3 The Contractor shall review the cost, including operation and maintenance, method of procurement, as well as the benefit-cost analysis for the implementation of the Project.
- 3.4 The Contractor shall identify cost savings and social benefits that may be achieved by implementing the ITS systems in Belo Horizonte including potential positive impacts to the environment.
- 3.5 The Contractor shall evaluate all eligible potential sources of financing for the implementation and operation of the Project. This includes the identification of a financial structure and illustrated financial plan to include possible sources of capital and operating funds.
- 3.6 The Contractor shall include a review of a potential financial model that could allow BHTRANS to market and sell the traffic information to the public.
- 3.7 The Study recommendations and Project development strategies shall be designed to meet the requirements of the most likely sources of financing the Project.

Task 4 – Review Institutional Legal and Regulatory Issues

The Contractor shall review the institutional, legal, and regulatory issues pertaining to the implementation of the Project to determine what, if any, issues exist that could become a barrier to the implementation of the ITS system in Belo Horizonte. The Contractor shall document any existing issues and recommend potential solution(s).

Task 5 – Environmental Impact and Benefits

The Contractor shall review the Project's environmental impact with reference to local requirements and those of multi-lateral lending agencies (such as the World Bank.) The Contractor shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for full environmental impact assessment in anticipation of the Project moving forward to the implementation stage.

Task 6 – Development of Systems Specifications and Standards Recommendations

The Contractor shall develop specifications and recommend standards that would be adopted by BHTRANS and the Municipality of Belo Horizonte for the use of the CCTV and VMS systems as well as for the ITIMS system. Task 6 shall consist of the following activities:

- 6.1 The Contractor shall develop the technical specifications for the expansion of the CCTV system for BHTRANS and recommend ITS standards for CCTV systems.
- 6.2 The Contractor shall develop the technical specifications for the expansion of the VMS sign system and recommend the necessary ITS standards for VMS systems.
- 6.3 The Contractor shall develop the technical specifications for an ITIMS system as well as the ITS architecture necessary for this system.
- 6.4 The Contractor shall develop a comprehensive list of U.S. manufacturers and suppliers of the ITS systems to be implemented, specifically for CCTV systems, VMS systems and ITIMS system. Business name, point of contact, address, telephone, fax, and email shall be included for each commercial source.
- 6.5 In the event it is feasible for BHTRANS to replace its existing CCTV and VMS systems, the Contractor shall develop a replacement plan and process to assist BHTRANS in the replacement and transition.

Task 7 – Proposed Systems and Services

The Contractor shall be responsible for developing a list of the proposed systems and services to be required for the Project and shall develop a list of U.S. sources for equipment, systems, and services including business name, point of contact, address, telephone, fax, and email. The Contractor shall develop a cost estimate for the overall potential market of the Project in Belo Horizonte.

Task 8 – Developmental Impact

For the benefit of those interested in the Project, the Contractor shall identify and assess the developmental impacts that would be expected if the Project is implemented in accordance with the recommendations of the Study. The Contractor shall conduct an analysis of key developmental impacts including, but not limited to, infrastructure, human capacity building, technology transfer and productivity improvements, and market oriented reforms. The Contractor shall assess of each of the following categories in connection with the Project:

Infrastructure – The Contractor shall provide a statement describing how the implementation of the ITS system would supplement the existing transportation infrastructure in Belo Horizonte and how this could affect the developmental impact in that city.

Market-Oriented Reforms – The Contractor shall provide a description of any regulation, laws or institutional changes that would be recommended and the effect they would have if the systems were implemented.

Human Capacity Building – The Contractor shall assess the number and type of local positions that would most likely be needed for the implementation of the Project, as well as the number of people who would most likely receive training. The potential training program shall be described.

Technology Transfer and Productivity Enhancement – The Contractor shall provide a description of advanced technologies that will most likely be utilized in association with the Project. This will include mention of any efficiency factors that would be derived from the Project.

Other Issues – The Contractor shall identify and document any other developmental impact and/or benefits that are likely to result from the Project.

Deliverable: An interim report shall be developed and submitted at the end of Task 8.

Task 9 – Development of an Action Plan for ITS Implementation

The Contractor shall develop an Action plan which shall include specific activities necessary for the implementation of the CCTV, VMS, and ITIMS System in Belo Horizonte. The Contractor shall define the necessary actions to be taken in connection with the various requirements such as institutional, legal, financial and technical aspects. The Action Plan shall be very specific, and shall detail step by step the actions necessary to be taken by BHTRANS in order to implement the ITS systems and possible adoption of new ITS standards. The purpose of the Action Plan is to develop a practical approach that defines the actions needed to be taken by BHTRANS to effectively and efficiently implement the ITS systems. The Contractor is not responsible for developing an overall ITS architecture covering all possible ITS applications. Under this task, the Contractor shall be responsible for the following:

- 9.1 The Contractor shall develop a timeline, schedule, and process for BHTRANS to adopt the recommended ITS standards.
- 9.2 The Contractor shall develop the basic facts and information for an orientation visit to the United States where officials from BHTRANS could tour at least two facilities in the United States where the systems and equipment identified as part of the Study are currently being used and operated effectively and efficiently. This could also include a visit to various U.S. manufacturers and suppliers of the systems and equipment that have

been identified to be used for the CCTV, VMS, and ITIMS systems. The funding, organization, and participation by the Contractor for the orientation visit is beyond the scope of these Terms of Reference.

- 9.3 The Contractor shall develop a systematic action plan that details the actions necessary for the implementation of the ITS systems in Belo Horizonte. This systematic plan will form part of the strategic ITS plan that shall be developed by the Contractor.
- 9.4 The Contractor shall provide a complete list of local companies (with all available contact information and background data) that may possibly be able to partner with U.S. firms in order to facilitate the export of the ITS systems, equipment, and services to Belo Horizonte, Brazil. The Contractor shall contact the local U.S. Commercial Service office at the U.S. Embassy in Brazil. Business name, point of contact, address, telephone, fax, and email shall be included for each commercial source.
- 9.5 The Contractor shall become familiar with and document Brazilian trade laws in market entry barriers that present obstacles to foreign companies. In doing so, the Contractor shall make recommendations as to how U.S. suppliers may best enter the local market.
- 9.6 The Contractor shall develop the Terms of References (TOR) along with all related specifications for the various systems (CCTV, VMS, and ITIMS system) in a format suitable for bidding the Project, as well as a complete set of bid documents necessary for the procurement of the specified ITS systems. The bid documents shall comply with the procurement requirements of BHTRANS and the most likely source of financing the Project implementation. The Grantee is responsible for all procurement-related final decisions.

Task 10 – Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference (“Final Report”). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement.

A CD-Rom version of the Final Report shall be provided to the Grantee and USTDA and shall include:

- Adobe Acrobat readable copies of all documents
- Source files for all drawings in AutoCAD or Visio format, and
- Source files for all documents in MS Office 2000 or later format.

Notes:

- (1) **The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.**
- (2) **The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.**
- (3) **The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.**

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Annex II

USTDA Mandatory Contract Clauses

A. USTDA Mandatory Clauses Controlling

The parties to this contract acknowledge that this contract is funded in whole or in part by the U.S. Trade and Development Agency ("USTDA") under the Grant Agreement between the Government of the United States of America acting through USTDA and the Belo Horizonte Traffic and Transportation Company ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("Contractor") to perform the feasibility study ("Study") for the Belo Horizonte Intelligent Transportation System project ("Project") in Brazil ("Host Country"). Notwithstanding any other provisions of this contract, the following USTDA mandatory contract clauses shall govern. All subcontracts entered into by Contractor funded or partially funded with USTDA Grant funds shall include these USTDA mandatory contract clauses, except for clauses B(1), G, H, I, and J. In addition, in the event of any inconsistency between the Grant Agreement and any contract or subcontract thereunder, the Grant Agreement shall be controlling.

B. USTDA as Financier

(1) USTDA Approval of Contract

All contracts funded under the Grant Agreement, and any amendments thereto, including assignments and changes in the Terms of Reference, must be approved by USTDA in writing in order to be effective with respect to the expenditure of USTDA Grant funds. USTDA will not authorize the disbursement of USTDA Grant funds until the contract has been formally approved by USTDA or until the contract conforms to modifications required by USTDA during the contract review process.

(2) USTDA Not a Party to the Contract

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of this contract and amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of financing the Study and shall not be construed as making USTDA a party to the contract. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the contract or any subcontract, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Client or USTDA from asserting any right they might have against the

Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Client or USTDA.

C. Nationality, Source and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and services funded by USTDA under the Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for performance of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions. USTDA will make available further details concerning these provisions upon request.

D. Recordkeeping and Audit

The Contractor and subcontractors funded under the Grant Agreement shall maintain, in accordance with generally accepted accounting procedures, books, records, and other documents, sufficient to reflect properly all transactions under or in connection with the contract. These books, records, and other documents shall clearly identify and track the use and expenditure of USTDA funds, separately from other funding sources. Such books, records, and documents shall be maintained during the contract term and for a period of three (3) years after final disbursement by USTDA. The Contractor and subcontractors shall afford USTDA, or its authorized representatives, the opportunity at reasonable times for inspection and audit of such books, records, and other documentation.

E. U.S. Carriers

(1) Air

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(2) Marine

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

F. Workman's Compensation Insurance

The Contractor shall provide adequate Workman's Compensation Insurance coverage for work performed under this Contract.

G. Reporting Requirements

The Contractor shall advise USTDA by letter as to the status of the Project on March 1st annually for a period of two (2) years after completion of the Study. In addition, if at any time the Contractor receives follow-on work from the Client, the Contractor shall so notify USTDA and designate the Contractor's contact point including name, telephone, and fax number. Since this information may be made publicly available by USTDA, any information which is confidential shall be designated as such by the Contractor and provided separately to USTDA. USTDA will maintain the confidentiality of such information in accordance with applicable law.

H. Disbursement Procedures

(1) USTDA Approval of Contract

Disbursement of Grant funds will be made only after USTDA approval of this contract. To make this review in a timely fashion, USTDA must receive from either the Client or the Contractor a photocopy of an English language version of a signed contract or a final negotiated draft version to the attention of the General Counsel's office at USTDA's address listed in Clause M below.

(2) Payment Schedule Requirements

A payment schedule for disbursement of Grant funds to the Contractor shall be included in this Contract. Such payment schedule must conform to the following USTDA requirements: (1) up to twenty percent (20%) of the total USTDA Grant amount may be used as an advance payment; (2) all other payments, with the exception of the final payment, shall be based upon contract performance milestones; and (3) the final payment may be no less than fifteen percent (15%) of the total USTDA Grant amount, payable upon receipt by USTDA of an approved Final Report in accordance with the specifications and quantities set forth in Clause I below. Invoicing procedures for all payments are described below.

(3) Contractor Invoice Requirements

USTDA will make all disbursements of USTDA Grant funds directly to the Contractor. The Contractor must provide USTDA with an ACH Vendor Enrollment Form (available from USTDA) with the first invoice. The Client shall request disbursement of funds by USTDA to the Contractor for performance of the contract by submitting the following to USTDA:

(a) Contractor's Invoice

The Contractor's invoice shall include reference to an item listed in the Contract payment schedule, the requested payment amount, and an appropriate certification by the Contractor, as follows:

(i) For an advance payment (if any):

"As a condition for this advance payment, which is an advance against future Study costs, the Contractor certifies that it will perform all work in accordance with the terms of its Contract with the Client. To the extent that the Contractor does not comply with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA. "

(ii) For contract performance milestone payments:

"The Contractor has performed the work described in this invoice in accordance with the terms of its contract with the Client and is entitled to payment thereunder. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(iii) For final payment:

"The Contractor has performed the work described in this invoice in accordance with the terms of its contract with the Client and is entitled to payment thereunder. Specifically, the Contractor has submitted the Final Report to the Client, as required by the Contract, and received the Client's approval of the Final Report. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(b) Client's Approval of the Contractor's Invoice

(i) The invoice for an advance payment must be approved in writing by the Client.

(ii) For contract performance milestone payments, the following certification by the Client must be provided on the invoice or separately:

"The services for which disbursement is requested by the Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and the terms and conditions of the USTDA Grant Agreement."

(iii) For final payment, the following certification by the Client must be provided on the invoice or separately:

"The services for which disbursement is requested by the Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and terms and

A handwritten signature in black ink, consisting of a stylized, cursive script that appears to be the initials 'JL' or similar, followed by a large, sweeping flourish.

conditions of the USTDA Grant Agreement. The Final Report submitted by the Contractor has been reviewed and approved by the Client. "

(c) USTDA Address for Disbursement Requests

Requests for disbursement shall be submitted by courier or mail to the attention of the Finance Department at USTDA's address listed in Clause M below.

(4) Termination

In the event that the Contract is terminated prior to completion, the Contractor will be eligible, subject to USTDA approval, for reasonable and documented costs which have been incurred in performing the Terms of Reference prior to termination, as well as reasonable wind down expenses. Reimbursement for such costs shall not exceed the total amount of undisbursed Grant funds. Likewise, in the event of such termination, USTDA is entitled to receive from the Contractor all USTDA Grant funds previously disbursed to the Contractor (including but not limited to advance payments) which exceed the reasonable and documented costs incurred in performing the Terms of Reference prior to termination.

I. USTDA Final Report

(1) Definition

"Final Report" shall mean the Final Report described in the attached Annex I Terms of Reference or, if no such "Final Report" is described therein, "Final Report" shall mean a substantive and comprehensive report of work performed in accordance with the attached Annex I Terms of Reference, including any documents delivered to the Client.

(2) Final Report Submission Requirements

The Contractor shall provide the following to USTDA:

(a) One (1) complete version of the Final Report for USTDA's records. This version shall have been approved by the Client in writing and must be in the English language. It is the responsibility of the Contractor to ensure that confidential information, if any, contained in this version be clearly marked. USTDA will maintain the confidentiality of such information in accordance with applicable law.

and

(b) Three (3) copies of the Final Report suitable for public distribution ("Public Version"). The Public Version shall have been approved by the Client in writing and must be in the English language. As this version will be available for public distribution, it must not contain any confidential information. If the report in (a) above contains no confidential information, it may be used as the Public Version (provided USTDA receives a total of four (4) copies). In any event, the Public Version must be informative

and contain sufficient Project detail to be useful to prospective equipment and service providers.

The Contractor shall also provide one (1) copy of the Public Version of the Final Report to the Foreign Commercial Service Officer or the Economic Section of the U.S. Embassy in Host Country for informational purposes.

(3) Final Report Presentation

All Final Reports submitted to USTDA must be paginated and include the following:

(a) The front cover of every Final Report shall contain the name of the Client, the name of the Contractor who prepared the report, a report title, USTDA's logo, USTDA's mailing and delivery addresses, and the following disclaimer:

"This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U. S. Government. The opinions, findings, conclusions or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report."

(b) The inside front cover of every Final Report shall contain USTDA's logo, USTDA's mailing and delivery addresses, and USTDA's mission statement. Camera-ready copy of USTDA Final Report specifications will be available from USTDA upon request.

(c) The Contractor and any subcontractor that performs work pursuant to the Grant Agreement must be clearly identified in the Final Report. Business name, point of contact, address, telephone and fax numbers shall be included for Contractor and each subcontractor.

(d) The Final Report, while aiming at optimum specifications and characteristics for the Project, shall identify the availability of prospective U.S. sources of supply. Business name, point of contact, address, telephone and fax numbers shall be included for each commercial source.

(e) The Final Report shall be accompanied by a letter or other notation by the Client which states that the Client approves the Final Report. A certification by the Client to this effect provided on or with the invoice for final payment will meet this requirement.

J. Modifications

All changes, modifications, assignments or amendments to this contract, including the appendices, shall be made only by written agreement by the parties hereto, subject to written USTDA approval.

K. Study Schedule

(1) Study Completion Date

The completion date for the Study, which is January 15, 2009, is the date by which the parties estimate that the Study will have been completed.

(2) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this contract for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

L. Business Practices

The Contractor agrees not to pay, promise to pay, or authorize the payment of any money or anything of value, directly or indirectly, to any person (whether a governmental official or private individual) for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Study. The Client agrees not to receive any such payment. The Contractor and the Client agree that each will require that any agent or representative hired to represent them in connection with the Study will comply with this paragraph and all laws which apply to activities and obligations of each party under this Contract, including but not limited to those laws and obligations dealing with improper payments as described above.

M. USTDA Address and Fiscal Data

Any communication with USTDA regarding this Contract shall be sent to the following address and include the fiscal data listed below:

U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA

Phone: (703) 875-4357
Fax: (703) 875-4009

Fiscal Data:

Appropriation No.: 117/81001
Activity No.: 2007-51013B
Reservation No.: 2007510033
Grant No.: GH2007510009



N. Definitions

All capitalized terms not otherwise defined herein shall have the meaning set forth in the Grant Agreement.

O. Taxes

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in Host Country. Neither the Client nor the Contractor will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.



ANNEX 5

Annex I

Terms of Reference

This Terms of Reference identifies the specific tasks and deliverables associated with the feasibility study on the proposed Belo Horizonte Intelligent Transportation Systems (ITS) project. The Study will recommend specific ITS standards such as the National Transportation Communications for ITS Protocol (NTCIP) and others to assist the Belo Horizonte Traffic and Transportation Company (BHTRANS) with the adoption of new standards that could be used for future ITS applications in Belo Horizonte. The new standards should take into consideration the future applications of other ITS systems that BHTRANS may wish to implement in the future.

The Terms of Reference is comprised of ten major tasks as identified below:

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The Contractor shall review existing conditions in connection with the implementation of the ITS systems [(Closed-Circuit-Television System (CCTV), Variable Message Sign System (VMS), and Integrated Traffic Information Management System (ITIMS System)] for Belo Horizonte. The information included as part of the Desk Study report provides a good general overview of existing conditions; however the Contractor shall undertake a more in-depth approach in this review.

- 1.1. The Contractor shall identify stakeholders for the Project for participation in the Study.
- 1.2. The Contractor, in consultation with representatives from BHTRANS and the Municipality of Belo Horizonte, shall define the Study goals and objectives.
- 1.3. The Contractor, in conjunction with representatives from BHTRANS, shall develop a Project timeline to be used as a guide in the development of the Study.
- 1.4. The Contractor shall conduct a Study kickoff meeting. The purpose of the kick-off meeting will be to familiarize and acquaint BHTRANS and the Municipality's staff with the goals and responsibilities and to gather the necessary information including materials, documentation, previous technical studies, and other relevant information.
- 1.5. The Contractor shall review all previous studies that have been conducted in connection with the BHTRANS Intelligent Traffic Control Center.
- 1.6. The Contractor shall meet with key representatives from companies that supplied the existing CCTV and VMS systems that currently operate in Belo Horizonte in order to obtain in depth information regarding the operation, communications protocol, and other technical matters, as it relates to the expansion of the systems. The Contractor shall pay particular attention to the issue of being able to integrate other brands of CCTV systems and VMS systems to the existing systems.

- 1.7. The Contractor shall evaluate existing CCTV and VMS systems control software and firmware located in the Intelligent Traffic Control Center.

Task 2 – Technical Analysis for the ITS Applications

The Contractor shall evaluate the communications network being utilized for the Intelligent Traffic Control Center in Belo Horizonte and determine if the existing communications network should be upgraded and/or replaced. In the event the Contractor determines the network should be upgraded and/or replaced, the Contractor shall identify the most feasible method for upgrading and/or replacing the communications systems.

The Contractor shall identify the specific needs for the implementation of an Integrated Traffic Information Management System.

The Contractor shall conduct the following technical analysis:

- 2.1 The Contractor shall conduct a technical analysis of BHTRANS existing information systems to determine its potential upgrade and/or potential use with an ITIMS system.
- 2.2 The Contractor shall evaluate the feasibility of adopting a communications protocol standard similar to NTCIP to facilitate the integration of ITS systems in the future that would allow the integration of different manufacturers' components and systems.
- 2.3 The Contractor shall identify all the technical functions and needs for the ITS systems to be implemented.
- 2.4 The Contractor shall identify the ITS systems functional requirements for the CCTV, VMS, and the ITIMS systems.
- 2.5 The Contractor shall provide detailed information as to the system requirements including operation, implementation, maintenance and personnel needed.
- 2.6 The Contractor shall define personnel needs for operation and maintenance, as well as training requirements.
- 2.7 The Contractor shall identify all other system requirements that may be necessary for the successful implementation of the Project.

Task 3 – Economic and Financial Analysis

The Contractor shall perform an economic and financial analysis. Task 3 shall consist of the following activities:

- 3.1 The Contractor shall conduct a review of the financing alternatives for the implementation of ITS systems in Belo Horizonte.
- 3.2 The Contractor shall investigate all sources of funding from potential financial institutions, including, but not limited to, multilateral financial lending institutions, private and commercial sources, such as the Export-Import Bank of the United States, Overseas Private Investment Corporation, International Finance Corporation, The World Bank, Inter-American Development Bank, Brazilian Development Bank (BNDES); as well as the potential financing participation from the Brazilian Federal Government, the State of Minas Gerais, the Municipality of Belo Horizonte, and BHTRANS, and the local Urban Transportation Fund (FTU).
- 3.3 The Contractor shall review the cost, including operation and maintenance, method of procurement, as well as the benefit-cost analysis for the implementation of the Project.
- 3.4 The Contractor shall identify cost savings and social benefits that may be achieved by implementing the ITS systems in Belo Horizonte including potential positive impacts to the environment.
- 3.5 The Contractor shall evaluate all eligible potential sources of financing for the implementation and operation of the Project. This includes the identification of a financial structure and illustrated financial plan to include possible sources of capital and operating funds.
- 3.6 The Contractor shall include a review of a potential financial model that could allow BHTRANS to market and sell the traffic information to the public.
- 3.7 The Study recommendations and Project development strategies shall be designed to meet the requirements of the most likely sources of financing the Project.

Task 4 – Review Institutional Legal and Regulatory Issues

The Contractor shall review the institutional, legal, and regulatory issues pertaining to the implementation of the Project to determine what, if any, issues exist that could become a barrier to the implementation of the ITS system in Belo Horizonte. The Contractor shall document any existing issues and recommend potential solution(s).

Task 5 – Environmental Impact and Benefits

The Contractor shall review the Project's environmental impact with reference to local requirements and those of multi-lateral lending agencies (such as the World Bank.) The Contractor shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for full environmental impact assessment in anticipation of the Project moving forward to the implementation stage.

Task 6 – Development of Systems Specifications and Standards Recommendations

The Contractor shall develop specifications and recommend standards that would be adopted by BHTRANS and the Municipality of Belo Horizonte for the use of the CCTV and VMS systems as well as for the ITIMS system. Task 6 shall consist of the following activities:

- 6.1 The Contractor shall develop the technical specifications for the expansion of the CCTV system for BHTRANS and recommend ITS standards for CCTV systems.
- 6.2 The Contractor shall develop the technical specifications for the expansion of the VMS sign system and recommend the necessary ITS standards for VMS systems.
- 6.3 The Contractor shall develop the technical specifications for an ITIMS system as well as the ITS architecture necessary for this system.
- 6.4 The Contractor shall develop a comprehensive list of U.S. manufacturers and suppliers of the ITS systems to be implemented, specifically for CCTV systems, VMS systems and ITIMS system. Business name, point of contact, address, telephone, fax, and email shall be included for each commercial source.
- 6.5 In the event it is feasible for BHTRANS to replace its existing CCTV and VMS systems, the Contractor shall develop a replacement plan and process to assist BHTRANS in the replacement and transition.

Task 7 – Proposed Systems and Services

The Contractor shall be responsible for developing a list of the proposed systems and services to be required for the Project and shall develop a list of U.S. sources for equipment, systems, and services including business name, point of contact, address, telephone, fax, and email. The Contractor shall develop a cost estimate for the overall potential market of the Project in Belo Horizonte.

Task 8 – Developmental Impact

For the benefit of those interested in the Project, the Contractor shall identify and assess the developmental impacts that would be expected if the Project is implemented in accordance with the recommendations of the Study. The Contractor shall conduct an analysis of key developmental impacts including, but not limited to, infrastructure, human capacity building, technology transfer and productivity improvements, and market oriented reforms. The Contractor shall assess of each of the following categories in connection with the Project:

Infrastructure – The Contractor shall provide a statement describing how the implementation of the ITS system would supplement the existing transportation infrastructure in Belo Horizonte and how this could affect the developmental impact in that city.

Market-Oriented Reforms – The Contractor shall provide a description of any regulation, laws or institutional changes that would be recommended and the effect they would have if the systems were implemented.

Human Capacity Building – The Contractor shall assess the number and type of local positions that would most likely be needed for the implementation of the Project, as well as the number of people who would most likely receive training. The potential training program shall be described.

Technology Transfer and Productivity Enhancement – The Contractor shall provide a description of advanced technologies that will most likely be utilized in association with the Project. This will include mention of any efficiency factors that would be derived from the Project.

Other Issues – The Contractor shall identify and document any other developmental impact and/or benefits that are likely to result from the Project.

Deliverable: An interim report shall be developed and submitted at the end of Task 8.

Task 9 – Development of an Action Plan for ITS Implementation

The Contractor shall develop an Action plan which shall include specific activities necessary for the implementation of the CCTV, VMS, and ITIMS System in Belo Horizonte. The Contractor shall define the necessary actions to be taken in connection with the various requirements such as institutional, legal, financial and technical aspects. The Action Plan shall be very specific, and shall detail step by step the actions necessary to be taken by BHTRANS in order to implement the ITS systems and possible adoption of new ITS standards. The purpose of the Action Plan is to develop a practical approach that defines the actions needed to be taken by BHTRANS to effectively and efficiently implement the ITS systems. The Contractor is not responsible for developing an overall ITS architecture covering all possible ITS applications. Under this task, the Contractor shall be responsible for the following:

- 9.1 The Contractor shall develop a timeline, schedule, and process for BHTRANS to adopt the recommended ITS standards.
- 9.2 The Contractor shall develop the basic facts and information for an orientation visit to the United States where officials from BHTRANS could tour at least two facilities in the United States where the systems and equipment identified as part of the Study are currently being used and operated effectively and efficiently. This could also include a visit to various U.S. manufacturers and suppliers of the systems and equipment that have

been identified to be used for the CCTV, VMS, and ITIMS systems. The funding, organization, and participation by the Contractor for the orientation visit is beyond the scope of these Terms of Reference.

- 9.3 The Contractor shall develop a systematic action plan that details the actions necessary for the implementation of the ITS systems in Belo Horizonte. This systematic plan will form part of the strategic ITS plan that shall be developed by the Contractor.
- 9.4 The Contractor shall provide a complete list of local companies (with all available contact information and background data) that may possibly be able to partner with U.S. firms in order to facilitate the export of the ITS systems, equipment, and services to Belo Horizonte, Brazil. The Contractor shall contact the local U.S. Commercial Service office at the U.S. Embassy in Brazil. Business name, point of contact, address, telephone, fax, and email shall be included for each commercial source.
- 9.5 The Contractor shall become familiar with and document Brazilian trade laws in market entry barriers that present obstacles to foreign companies. In doing so, the Contractor shall make recommendations as to how U.S. suppliers may best enter the local market.
- 9.6 The Contractor shall develop the Terms of References (TOR) along with all related specifications for the various systems (CCTV, VMS, and ITIMS system) in a format suitable for bidding the Project, as well as a complete set of bid documents necessary for the procurement of the specified ITS systems. The bid documents shall comply with the procurement requirements of BHTRANS and the most likely source of financing the Project implementation. The Grantee is responsible for all procurement-related final decisions.

Task 10 – Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference (“Final Report”). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement.

A CD-Rom version of the Final Report shall be provided to the Grantee and USTDA and shall include:

- Adobe Acrobat readable copies of all documents
- Source files for all drawings in AutoCAD or Visio format, and
- Source files for all documents in MS Office 2000 or later format.

Notes:

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.**
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.**
- (3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.**