

REQUEST FOR PROPOSALS

TECHNICAL ASSISTANCE FOR THE

SPECIALTY FREIGHT RAILCARS PROJECT IN MEXICO

Submission Deadline: 4:00 PM

LOCAL TIME (MEXICO CITY, MEXICO)

JULY 24, 2014

Submission Place:

Dr. Iker de Luisa Plazas

Director General

Asociación Mexicana de Ferrocarriles, A.C.

Alfonso Esparza Oteo 144, Oficina 702

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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.

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Section 1: INTRODUCTION

The U.S. Trade and Development Agency (USTDA) has provided a grant in the amount of US\$559,041 to the Asociación Mexicana de Ferrocarriles, A.C. (“AMF”) (the “Grantee”) of Mexico in accordance with a grant agreement dated May 29, 2014 (the “Grant Agreement”) to fund technical assistance (“Technical Assistance”) for the Specialty Freight Railcars Project (the “Project”). This Technical Assistance will allow the Grantee to examine institutional and operational improvements that could optimize Mexico’s fleet of freight railcars, as well as to identify specific investments in specialty freight railcars, rail systems, rail services, and rail terminal facilities to meet the projected growth in freight rail transportation. 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 perform the Technical Assistance.

1.1 BACKGROUND SUMMARY

Founded in 2005, the Asociación Mexicana de Ferrocarriles, A.C. is the national industry association of freight and passenger railroad stakeholders. As the Grantee for this Technical Assistance, the AMF will work closely with its member companies during the Technical Assistance and will lead Project implementation in collaboration with its stakeholders.

Examples of specialty freight railcars designed to transport specific types of cargo include the following:

- Covered and Uncovered Hoppers: Utilized for a wide range of dry, loose commodities, ranging from grain products to minerals, with specialty designs for the different freight types.
- Tank Cars: Fully sealed cylindrical railcars that are used to carry liquids and gases, ranging from food-grade oils to petroleum products and chemicals.
- Boxcars and Refrigerator Cars: Plain or equipped railcars that have fully enclosed bodies, usually accessed through side doors or hatches. They are used for a wide range of general freight and may be equipped with a range of modifications, such as internal frames and shelves, insulation, and cooling equipment.

The Technical Assistance will identify rail freight demand opportunities in Mexico to support the increased use of specialty freight railcars and the development of related facilities, such as rail terminals. The Technical Assistance will examine the Mexican market for specialty freight railcars at two levels. First, it will identify any systemic issues on a national level that could be addressed to improve the availability and timeliness of railcars to meet customer needs. Second, it will examine railcar supply and traffic demand associated with four specific railcar types: covered hopper cars (for bulk agricultural products); uncovered hopper cars (for aggregate products); tank cars (for liquid petroleum products); and boxcars (both high-cube and refrigerated boxcars for fresh and frozen agricultural products).

Portions of a background Definitional Mission report are provided for reference in Annex 2.

1.2 OBJECTIVE

The objective of the Specialty Freight Railcars Technical Assistance is to identify freight railroad demand opportunities that would improve the availability of specialized freight railcars and related facilities and equipment in Mexico.

The Terms of Reference (“TOR”) for this Technical Assistance are 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.

The amount for the contract has been established by a USTDA grant of US\$559,041. **The USTDA grant of \$US559,041 is a fixed amount. Accordingly, COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted.** Upon detailed evaluation of technical proposals, the Grantee shall select one firm for contract negotiations.

1.4 CONTRACT FUNDED BY USTDA

In accordance with the terms and conditions of the Grant Agreement, USTDA has provided a grant in the amount of US\$559,041 to the Grantee. The funding provided under the Grant Agreement shall be used to fund the costs of the contract between the Grantee and the U.S. firm selected by the Grantee to perform the TOR. The contract must include certain USTDA Mandatory Contract Clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA Mandatory Contract Clauses are attached at Annexes 3 and 4, respectively, for reference.

Section 2: INSTRUCTIONS TO OFFERORS

2.1 PROJECT TITLE

The Project is called the “Specialty Freight Railcars Project.”

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. 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 DEFINITIONAL MISSION REPORT

USTDA sponsored a Definitional Mission to address technical, financial, sociopolitical, environmental, and other aspects of the proposed Project. Portions of the report are attached at Annex 2 for background information only. Please note that the TOR referenced in the report are included in this RFP as Annex 5.

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 Technical Assistance.

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 Technical Assistance.

2.5 PROJECT FUNDING SOURCE

The Technical Assistance will be funded under a grant from USTDA. The total amount of the grant is not to exceed US\$559,041.

2.6 RESPONSIBILITY FOR COSTS

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

2.7 TAXES

Offerors should submit proposals that note that in accordance with the USTDA Mandatory Contract Clauses, USTDA grant funds shall not be used to pay any taxes, tariffs, duties, fees, or other levies imposed under laws in effect in the Host Country.

2.8 CONFIDENTIALITY

The Grantee will preserve the confidentiality of any business proprietary or confidential information submitted by the Offeror, which is clearly designated as such by the Offeror, to the extent permitted by the laws of the Host Country.

2.9 ECONOMY OF PROPOSALS

Proposal documents should be prepared simply and economically, providing a comprehensive yet concise description of the Offeror's capabilities to satisfy the requirements of the RFP. Emphasis should be placed on completeness and clarity of content.

2.10 OFFEROR CERTIFICATIONS

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on 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 itself 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 the Host Country for up to 20 percent of the amount of the USTDA grant for specific services from the TOR identified in the subcontract. USTDA's nationality requirements, including definitions, are detailed in Annex 3.

2.12 LANGUAGE OF PROPOSAL

All proposal documents shall be prepared and submitted in English.

2.13 PROPOSAL SUBMISSION REQUIREMENTS

The Cover Letter in the proposal must be addressed to:

Dr. Iker de Luisa Plazas
Director General
Asociación Mexicana de Ferrocarriles, A.C.
Alfonso Esparza Oteo 144, Oficina 702
Col. Guadalupe Inn, Deleg. Alvaro Obregón
México, D.F. C.P. 01020
MEXICO
Phone: + (52-55) 5661-0325

An original printed copy, three (3) hard copies, and an electronic copy (PDF file preferred) of your proposal must be received at the above address no later than 4:00 PM (local time in Mexico City, Mexico), on July 24, 2014.

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. The Grantee will promptly notify any Offeror if its proposal was received late.

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

2.14 PACKAGING

The original and each copy of the proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content including the name of the project and designation of "original" or "copy number x." The original printed copy, three (3) hard copies, and the electronic copy should be collectively wrapped and sealed, and clearly labeled, including the contact name and the name of the project.

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

2.15 OFFEROR'S AUTHORIZED NEGOTIATOR

The Offeror must provide the name, title, address, telephone number, e-mail address, 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.

2.16 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.

2.17 EFFECTIVE PERIOD OF PROPOSAL

The proposal shall be binding upon the Offeror for ninety (90) days after the proposal due date, and the 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.

2.18 EXCEPTIONS

All Offerors agree by their response to this RFP announcement to abide by the procedures set forth herein. No exceptions shall be permitted.

2.19 OFFEROR QUALIFICATIONS

As provided in Section 3, Offerors shall submit evidence that they have relevant past experience and have previously delivered advisory, feasibility study, technical assistance, and/or other services similar to those required in the TOR, as applicable.

2.20 RIGHT TO REJECT PROPOSALS

The Grantee reserves the right to reject any and all proposals.

2.21 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 any subcontractors. USTDA nationality provisions apply to the use of subcontractors and are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all of the applicable USTDA Mandatory Contract Clauses, to be inserted in any subcontract funded or partially funded by USTDA grant funds.

2.22 AWARD

The Grantee shall make an award resulting from this RFP to the best qualified Offeror, on the basis of the evaluation factors set forth herein. The Grantee reserves the right to reject any and all proposals received.

2.23 COMPLETE SERVICES

The successful Offeror shall be required to (a) provide local transportation, office space, and secretarial support required to perform the TOR if such support is not provided by the Grantee; (b) provide and perform all necessary labor, supervision, and services; and (c) in accordance with best technical and business practice, and in accordance with the requirements, stipulations, provisions, and conditions of this RFP and the resultant contract, execute and complete the TOR to the satisfaction of the Grantee and USTDA.

2.24 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. After the Grantee's approval of each invoice, the Grantee will forward the invoice to USTDA. If all of the requirements of USTDA's Mandatory Contract Clauses are met, USTDA shall make its respective disbursement of the grant funds directly to the U.S. firm in the United States. All payments by USTDA under the Grant Agreement will be made in U.S. currency. Detailed provisions with respect to invoicing and disbursement of grant funds are set forth in the USTDA Mandatory Contract Clauses attached in Annex 4.

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. A cost proposal is NOT required because the amount for the contract has been established by a USTDA grant of US\$559,041, which is a fixed amount.

Offerors shall submit one (1) original printed copy, three (3) hard copies, and one (1) electronic copy of the proposal. Proposals received by fax cannot be accepted.

Each proposal must include the following:

- Transmittal Letter,
- Cover/Title Page,
- Table of Contents,
- Executive Summary,
- Firm Background Information,
- Completed U.S. Firm Information Form,
- Organizational Structure, Management Plan, and Key Personnel,
- Technical Approach and Work Plan, and
- Experience and Qualifications.

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

3.1 EXECUTIVE SUMMARY

An Executive Summary should be prepared describing the major elements of the proposal, including any conclusions, assumptions, and general 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 U.S. FIRM INFORMATION

A U.S. Firm Information Form in .pdf fillable format is attached at the end of this RFP in Annex 6. The Offeror must complete the U.S. Firm Information Form and include the completed U.S. Firm Information Form with its proposal.

3.3 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 Technical Assistance. Identify the Project Manager who will be the individual responsible for this project. The Project Manager shall have the responsibility and authority to act on behalf of the Offeror in all matters related to the Technical Assistance.

Provide a listing of personnel (including subcontractors) to be engaged in the project, including both U.S. and local subcontractors, 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 Offeror shall describe the organizational relationship, if any, between the Offeror and the subcontractor.

A manpower schedule and the level of effort for the project period, by activities and tasks, as detailed under the Technical Approach and 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 TECHNICAL APPROACH AND WORK PLAN

Describe in detail the proposed Technical Approach and Work Plan (the "Work Plan"). Discuss the Offeror's methodology for completing the project requirements. Include a brief narrative of the Offeror's methodology for completing the 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 Work Plan, including periodic reporting or review points, incremental delivery dates, and other project milestones.

Based on the Work Plan, and previous project experience, describe any support that the Offeror will require from the Grantee. Detail the amount of staff time required by the Grantee or other participating agencies and any work space or facilities needed to complete the Technical Assistance.

3.5 EXPERIENCE AND QUALIFICATIONS

Provide a discussion of the Offeror's experience and qualifications that are relevant to the objectives and TOR for the Technical Assistance. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project. The Offeror shall provide information with respect to relevant experience and qualifications of key staff proposed. The Offeror shall include letters of commitment from the individuals proposed confirming their availability for contract performance.

As many as possible but not more than six (6) relevant and verifiable project references must be provided for each of the Offeror and any subcontractor, 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 the Technical Assistance 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. The Grantee will notify USTDA of the best qualified Offeror, and upon receipt of USTDA's no-objection letter, the Grantee shall promptly notify all Offerors of the award and 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 may then be undertaken with the second-most qualified Offeror, and so forth.

The selection of the Contractor will be based on the following criteria and their corresponding assigned weights:

1. Technical Experience (50 points): Offeror's experience in conducting technical assistance or feasibility studies on, or experience in managing the implementation of, similar projects involving the analysis of freight railcar fleets and commercial and economic dynamics. Offeror's understanding of the latest technologies in this field, particularly of state-of-the-art systems and practices for equipment monitoring, tracing, and tracking. Offeror's direct management experience in railroad mechanical and commercial departments. Offeror's experience in economic and demand analysis of multimodal freight flows. Offeror's experience with the legal aspects of car hire, interchange, and equipment leasing arrangements in North America.
2. Technical Approach and Work Plan (25 points): Adequacy, soundness, and thoroughness of the Offeror's proposed Technical Approach and Work Plan.
3. Regional Experience (20 points): Offeror's familiarity with the freight rail transportation sector in Mexico, local and international conditions, regulations, and requirements. Offeror's familiarity with Mexican and U.S. regulations, requirements, and standards for freight rail and cross-border operations. Offeror's relevant and recent experience in project work in Mexico on freight rail or the freight sector.
4. Spanish Language Capabilities (5 points): Offeror's experience and ability to work in the Spanish language.

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

Price will not be a factor in Contractor selection.

A N N E X 1

FEDBIZOPPS ANNOUNCEMENT

Dr. Iker de Luisa Plazas
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B – Mexico: Specialty Freight Railcars Technical Assistance

POC: Jennifer Van Renterghem, USTDA, 1000 Wilson Boulevard, Suite 1600,
Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. Mexico:
Specialty Freight Railcars Technical Assistance.

The Grantee (the Asociación Mexicana de Ferrocarriles, A.C.) invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms that are qualified on the basis of experience and capability to develop a Technical Assistance for the Specialty Freight Railcars Project in Mexico.

The objective of the Technical Assistance is to identify freight railroad demand opportunities that would improve the availability of specialized freight railcars and related facilities and equipment in Mexico. The Technical Assistance will allow the Grantee to examine institutional and operational improvements that could optimize Mexico's fleet of freight railcars, as well as to identify specific investments in specialty freight railcars, rail systems, rail services, and rail terminal facilities to meet the projected growth in freight rail transportation.

The Technical Assistance will examine the Mexican market for specialty freight railcars at two levels. First, it will identify any systemic issues on a national level that could be addressed to improve the availability and timeliness of railcars to meet customer needs. Second, it will examine railcar supply and traffic demand associated with four specific railcar types: covered hopper cars (for bulk agricultural products); uncovered hopper cars (for aggregate products); tank cars (for liquid petroleum products); and boxcars (both high-cube and refrigerated boxcars for fresh and frozen agricultural products).

The U.S. firm selected will be paid in U.S. dollars from a \$559,041 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 portions of a background Definitional Mission 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/businessopps/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 directly to the Grantee by **4:00 PM (local time in Mexico City, Mexico) on July 24, 2014** 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.

A N N E X 2

PORTIONS OF BACKGROUND DEFINITIONAL MISSION REPORT

CONFIDENTIAL VERSION

**CONTRACTOR'S FINAL REPORT
DEFINITIONAL MISSION (DM): FOR MÉXICO
RAIL SECTOR PROJECT**

Contract Number: CO201351207

Submitted May 19, 2014 by



SENECA

The Seneca Group LLC

500 New Jersey Avenue, NW, Fourth Floor • Washington, DC 20001

Phone: 202-783-5861 • Fax: 202-783-6096 • Web site: www.seneca-llc.com



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The U.S. Trade and Development Agency

The U.S. Trade and Development Agency (USTDA) helps companies create U.S. jobs through the export of U.S. goods and services for priority development projects in emerging economies. USTDA links U.S. businesses to export opportunities by funding project planning activities, pilot projects, and reverse trade missions while creating sustainable infrastructure and economic growth in partner countries.

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INTRODUCTION

In June of 2013 the Seneca Group LLC (Seneca) was awarded contract order number TDA-CO201351207 “Definitional Mission (DM): for México - Rail Sector Projects.” The project kick-off meeting with Country Manager Keith Eischeid was held on Monday August 26th and Seneca personnel traveled to México October 18th through the 27th to meet in person with local officials and executives to develop project concepts. These meetings resulted in development of two draft project proposals. Dr. Iker de Luisa Plazas, General Director of the Asociación Mexicana de Ferrocarriles (AMF) served as the host for the DM team and accompanying U.S. government officials during the field visit to México.

PROJECT PORTFOLIO ASSESSMENT

The project concepts presented to the Contractor for potential development in the contract Terms of Reference and during the kick-off meeting for this Definitional Mission were general in scope and were as follows:

Proposed Project	Status	Estimated U.S. Origin Export Potential
1. Railroad equipment in México. Potential for growth and efficiencies.	Supported by Host Country officials for USTDA grant request. Budget, terms of reference and schedule drafted.	Potentially Significant
2. Energy sector and railroads in México.	Success of a project and subsequent U.S.-origin exports highly dependent upon elaboration and implementation of energy sector reforms.	Potentially Significant but Premature
3. Environmental economics and railroads in México.	Supported by Host Country officials for USTDA grant request. Budget, terms of reference and schedule drafted.	Potentially Significant
4. National railroad training center.	Supported by Host Country officials for USTDA grant request but a lower priority than other concepts. Budget, terms of reference and schedule not drafted.	Very Limited

During the field visit topics of security for railroad personnel, cargo and equipment and cross-border railroad operations were brought up by several interviewees. While project profiles were not developed to address these items, they may serve as areas for future exploration with potential host country project sponsors. These topics are described in some more detail in the DM narrative section.

MÉXICO: COUNTRY BACKGROUND

México is a country covering more than 1.96 million square kilometers with a population of more than 116.2 million. Located in North America it is bordered on the north by the United States of America (3,141 kilometers) and in the south by Belize (250 kilometers) and Guatemala (962 kilometers). México has both Pacific and Atlantic coastlines totaling 9,330 kilometers.



Figure 1: Map of México¹

MÉXICO'S FREIGHT RAILROAD SYSTEM

The Mexican railway sector plays a significant role in the nation's economy. It is a critical mode of transport particularly for freight traffic, notably in the sectors that require bulk cargoes to be moved with the most efficiency possible over great distances internally, and to and from the country as exports and imports.

México's rail system construction began in the 1860's. By the early 20th century, over 15,000 kilometers had been built and were operated under various concession and operation arrangements, mostly with foreign investors. In 1909, Mexican president Porfirio Diaz nationalized several main lines through creation of Ferrocarriles Nacionales de México (FNM). Following the Mexican Revolution, the remaining lines were absorbed into FNM. México embarked on decades of significant investment in FNM, paralleled with growing operational losses which became unsustainable. In the mid-1990's the railroad sector was restructured,

¹ (United States Central Intelligence Agency, 2013)

accumulated debt absorbed by the state, and the national constitution modified to enable commercialization of the railroad system.

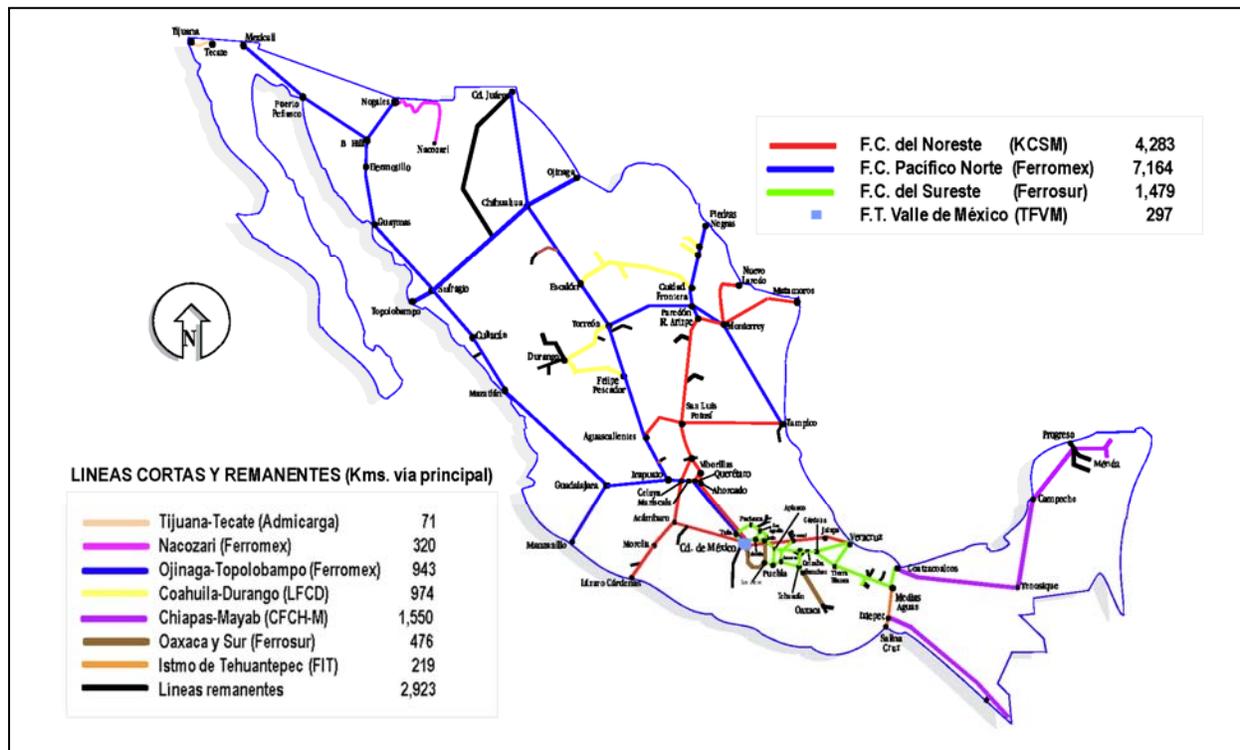


Figure 2: The Railroad Network of México in 2012

The government chose to partially privatize the system in 1996 by opening a competition for long-term concessions of regional, vertically-integrated networks. In 1997, intercity rail passenger services were largely suspended. Following some shifts and consolidation among concessionaires, two dominant railroad operators emerged: Grupo México’s Ferromex/Ferrosur (FM) and Kansas City Southern de México (KCSM). The short-line Ferrocarril del Istmo de Tehuantepec (FIT) remained in government hands for strategic reasons. The southern network of the Ferrocarril Chiapas-Mayab (FCCM) was concessioned in 1999 to U.S. firm Genesee & Wyoming, Inc. (G&W). After severe hurricane damage in 2005, which damaged some 287 kilometers of line, G&W terminated its operation in 2007 and sold FCC to a Mexican company in 2009. Currently, FIT is administering this network to perform a recapitalization and in anticipation of completion of government negotiations with a new concessionaire. The terminal railroad in México City, Ferrocarril y Terminal del Valle de México (Ferrovalle), is commonly operated through a joint company held by the two major concessionaires FM and KCSM. Two U.S. freight railroad companies are significant shareholders in these companies, Union Pacific Railroad (26%) and Kansas City Southern (100%), respectively.

The restructuring and privatization of the sector has largely achieved the Mexican government's policy goals. With the exception of the southern network, the freight railroad concessions have been commercially successful. Freight rail volume has grown steadily and significantly since privatization. The concessionaires have improved customer service significantly and continue to invest steadily in the infrastructure and rolling stock of the system. Freight activity has increased from 52 million tons transported to 111 million in 2012, and from 41 billion ton-kilometers transported to 79 billion in the same period. The locomotive fleet dropped from a peak of 1,400 units prior to privatization, to 1,160 in 2009, rising again to 1,238 in 2012. The average horsepower per unit of the fleet has risen from 2,696 to 3,354 over the same period as the concessionaires have invested in new, more powerful locomotives.

In its five-year investment plan through 2018, the Mexican government has proposed several significant federally-funded projects in the railroad sector for both passenger and freight, as follows:

Intercity passenger rail: 3 Projects

- CG-094: Construction of the High-Speed Train from Querétaro to Ciudad México
- CG-243: Stage 1 of the Construction of the Trans-Peninsular Train from Mérida, Yucatán to Punta Venado, Quintana Roo
- CG-263: Stage 1 of the Construction of the Intercity Train from Ciudad México to Toluca

Freight rail: 8 Projects

- CG-029: Freight Rail Branch, Aguascalientes - Guadalajara
- CG-073: Tunnel to Enable the Freight Rail Route Change to Colima
- CG-159: Construction of the Railway Bypass (Libramiento) in Coatzacoalcos, Veracruz
- CG-195: Construction of the Railway Bypass (Libramiento) in Celaya, Guanajuato
- PEF 2013: Urban Freight Rail Line Improvements (Convivencia) in Ciudad Juárez, Chihuahua
- PEF 2013: Urban Freight Rail Line Improvements (Convivencia) in Juan Palomar, Jalisco
- PEF 2013: Construction of the Railway Bypass (Libramiento) in Matamoros and Border Crossing at Tamaulipas
- P.E: Relocation of the Durango Rail Station and its Connections with the Durango Intermodal Terminal

Signaling & Communication: 1 Project

- P.E: Urban Rail Signal Improvements (National Scope)

There will also be a range of multimodal connectivity and port projects that will positively impact the freight rail system by improving its interchange with other modes of transportation and presenting new opportunities for increasing rail traffic.

UNITED STATES – MÉXICO TRADE AND RAILROAD SECTOR MERCHANDISE

Over the past two decades, the value of merchandise trade between the United States and México has increased substantially in nominal figures. While overall net exports have trended negatively in the aggregate, this masks a wide range of discrete product sectors where the U.S. has demonstrated strong competitiveness and growth in net exports.

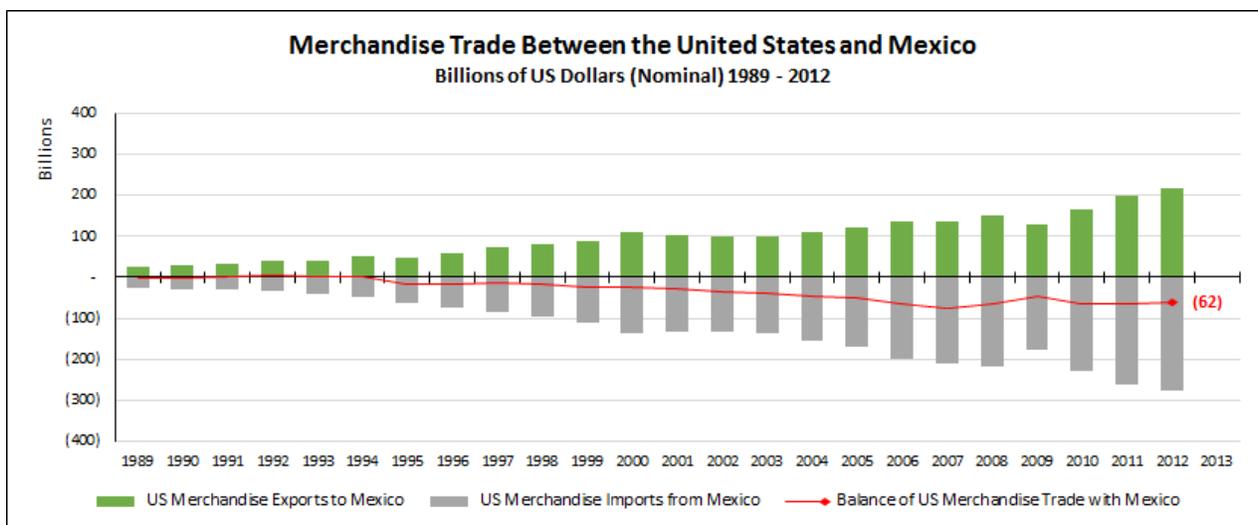


Figure 3: Merchandise Trade between the United States and México 1989 – 2012

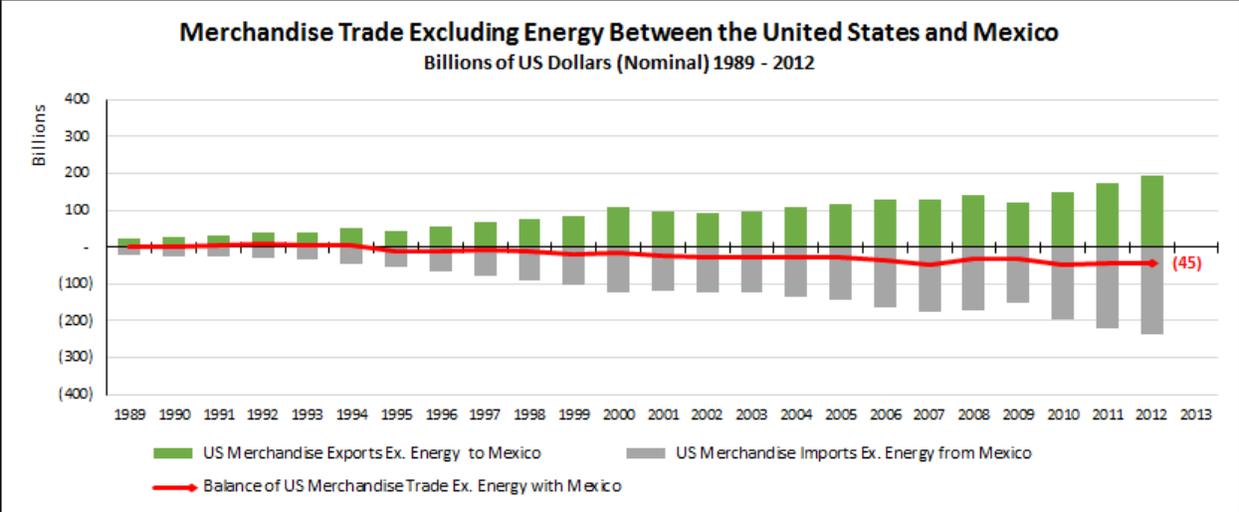


Figure 4: U.S. Merchandise Trade with México Ex. Energy 1989-2012

In terms of merchandise related to railroad transportation, the perspective is different from the aggregate. While the value is a relatively small percentage of total trade, the United States has maintained a growing and positive balance of trade with México in this sector. Since 2002, net exports have risen to nearly \$1 billion by 2012. The basket of merchandise analyzed includes rolling stock such as railcars, locomotives, and track maintenance machinery; signaling and communications equipment; and infrastructure components such as cross-ties and railway track components. México is an important market for major U.S. suppliers and the major freight railroads in México both have shareholdings and active management participation by U.S. railroads. GE, EMD/Progress Rail, Trackmobile, Union Tank Car, Greenbrier, and Trinity Railcar all have permanent and robust operations in México.

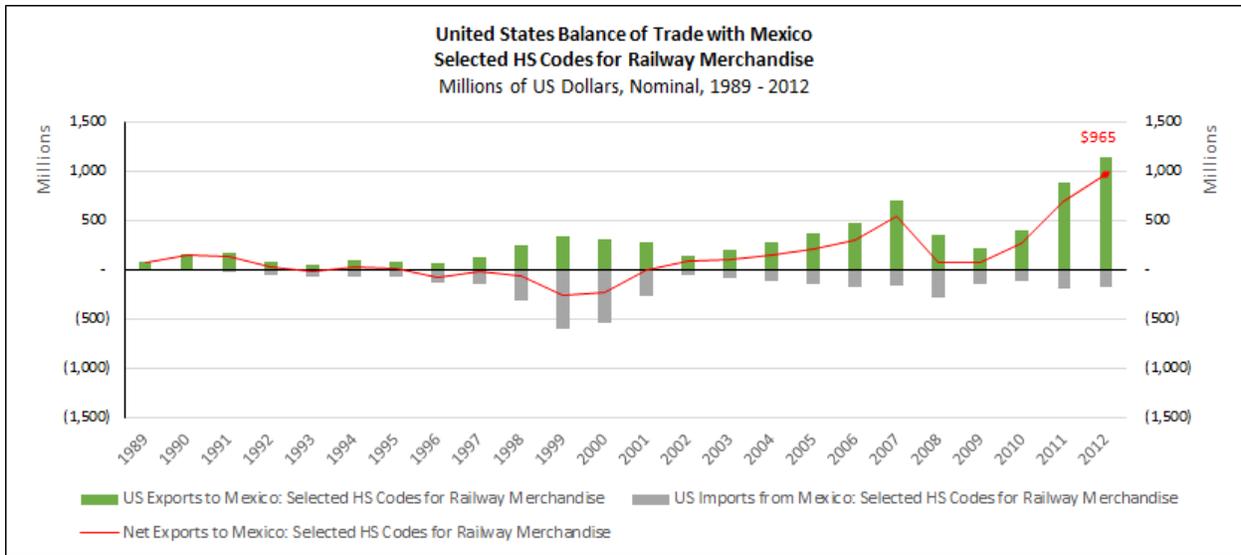


Figure 5: U.S. Trade with México for Railway Merchandise 1989 - 2012

Finally, this Definitional Mission considered certain railway cargoes carried in hopper, tank, and boxcars as potential export beneficiaries from the proposed projects, such as energy, food and agricultural products, and chemicals.

The volume of trade for food and agricultural products is substantially larger than for transportation products and nearly twice as beneficial to the United States as compared to rail transportation products, with a steady and positive trade balance reaching \$1.6 billion in 2012.



Figure 6: U.S. Trade with México for Food and Agricultural Merchandise 1989 - 2012

The export markets for energy products are negative but improving for the United States, with a steady increase in U.S. exports. Much of this consists of refined products shipped south from México, often derived from Mexican crude oil brought into the Gulf Coast region by ship. This dynamic has the potential to change significantly as shale oil and gas production continues to rise

in the U.S. and may be paralleled by outcomes of the energy reform activity in México that could impact their production scale and geography.

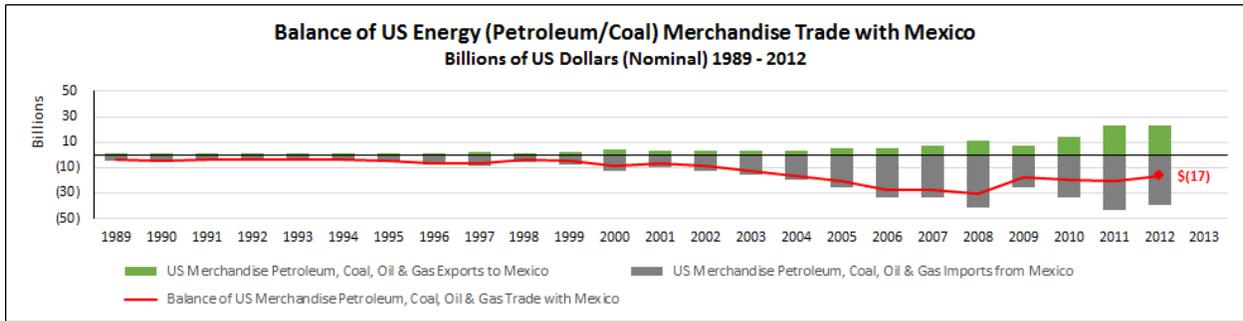


Figure 7: U.S. Energy Merchandise Trade with México 1989 - 2012

Finally, the trade in chemicals is a positive export scenario for the United States. Chemicals merchandise has grown strongly and steadily over two decades and reached net exports of \$18 billion in 2013.

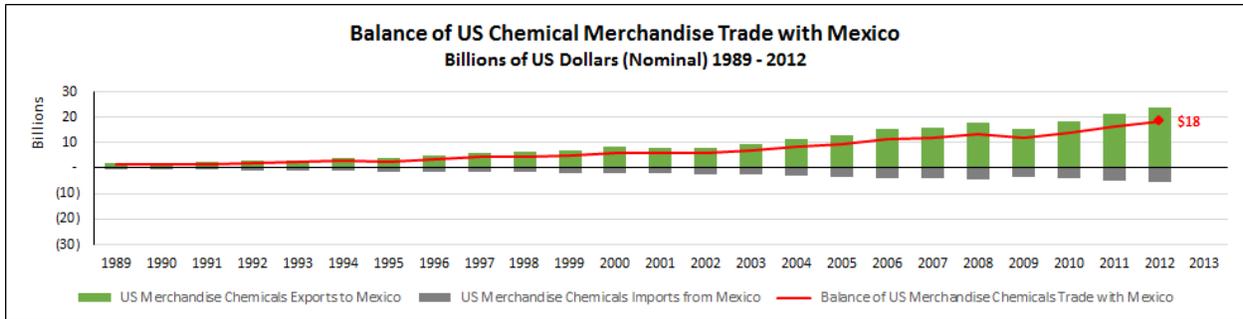


Figure 8: U.S. Chemical Merchandise Trade with México 1989 - 2012

PROJECT 2 – FREIGHT RAILCARS

ABOUT RAILCARS

Freight railcars are simply the vehicles used to transport cargo in freight railroading. Typically highly standardized and non-powered, they come in a range of types specialized to transport different types of freight. The general types are described below. The fleet numbers and percentages for North America (including México) from the Association of American Railroads are provided for each category as of 2011.

- **Covered and Uncovered Hoppers:** These are used for a wide range of dry, loose commodities, ranging from grain products to ore, with specialty designs for the different freight types. They typically load from the top and unload from the bottom. For some products, such as ore or coal, they may be designed to be unloaded through automated rotary dumping. **632,754 (42%)**
- **Tank Cars:** These are fully sealed cylindrical railcars that are used to carry liquids and gases ranging from food grade oils to petroleum products and chemicals. There are tank cars specialized for a wide range of cargos including those requiring pressurization and those that are highly acidic or basic, flammable or toxic, or that need to be transported at a different temperature than ambient. **302,810 (20%)**
- **Gondolas:** These are boxlike, open top cars optimized usually for heavy commodities such as steel, scrap and ores. **234,769 (16%)**
- **Flatcars/Intermodal Cars:** At their core a flat platform, these come in a range of types specialized to carry containers and trailers, as well as more general cargo. Container flatcars are often designed as multi-well cars designed to enable double stacking of containers. Center-beam flatcars have a center spine enabling easy loading and stacking of forest products. **186,727 (12%)**
- **Boxcars and Reefers:** Plain or equipped, these have fully enclosed bodies usually accessed through side doors or hatches. They are used for a wide range of general freight and may be equipped with a range of modifications such as internal frames and shelves, insulation, and cooling equipment. **142,202 (9%)**

Various specialized railcar types exist, accounting for another 4,820 units or less than 1% of the fleet. Among these are auto racks (dedicated to moving automobiles) and railcars designed to transport very heavy loads.

Railcars should be seen as a component of a system of which many facets must mesh to enable increases in transportation capacity.



Figure 18: México Railroad Lines Weight Restriction Map

Capacity cannot typically be increased by investments in railcars alone. One major capacity constraint of a railcar is the maximum gross vehicle weight as distributed across the axles since this is limited by the capacity of the track and structure, particularly bridges. The most common weights for railcars in the United States and Canada are 263-, 286-, and (increasingly) 315,000 pounds, resulting in per axle loads from 32 – 39 short tons. Generally, the higher the weight the better the economics of the railcar. Raising axle load capacities of track and structure typically requires significant investments. Accordingly the continental network capacity has over time been increased by improvements on prioritized corridors. The economics are maximized for cargoes when other capacity constraints are removed, such as for rolling stock height and width, enabling double stacking of containers or high-cube box cars. Constraints on train length (such as sidings and terminal and yard track lengths) are also important as cost-effective shipments by very long unit trains further leverage higher capacity railcars to maximize tonnage transported per train. Grades are another restriction, as are coupler technology and motive power capacity to handle heavier trains. Finally, at a certain level of traffic volume, infrastructure enhancements (such as signaling systems and passing sidings) are necessary to increase capacity. The provided

map from BNSF illustrates that México still has significant stretches of track that can only handle railcars weighing 263,000 lbs. or less, much of that in the west and south of the country.

Freight railcars are owned by operating railroads, freight shippers, or third-party lessors. In North America, ownership split between these varies by country, with Canadian and Mexican railroads owning roughly 80% of national interchange fleets, while in the United States freight railroads own less than 40% of the railcar fleet. The ability of these different parties to establish agreements known as **carpooling** for sharing specific types of cars as a resource improves the industry wide efficiency. Third-parties and pooling arrangements enable fleet wide management of cars as a resource by parties more interested in owning assets with sometimes very cyclical revenue behaviors, notably in the case of grain cars.

Railcars move over railroads as originating, terminating, local (both origin and destination) or overhead (neither origin nor destination) traffic. Many railcar moves involve the unit being transported across the infrastructure of a railroad that does not own the car, in many cases as part of a train operated by a completely different railroad. The North American freight railroads have developed a system of shared services to manage these interchanges of railcars, facilitated by a technology infrastructure provided by the Association of American Railroads. AAR manages a database known as the **UMLER**, which contains all rolling stock that is offered for interchange between railroads. Combined with other systems, including databases of freight stations and repair and maintenance facilities, and interchange tracking (**TRAIN II**), AAR supports the operational management of and financial accounting, known as **interline accounting**, for these movements and the handling of cars. **Car service and distribution rules** are developed and enforced by industry rather than government, and a network of agreements establish the fees per car per day/hour and per mile for transportation, known as **car hire** rates. AAR also provides information services enabling equipment tracking and tracing.

A major concern in the commercial management of railcars are in **cycle times** and **backhauls**. Cycle time is the amount of time necessary for a railcar to be dispatched to pick up a load at its origin, to travel to unload at its destination, and be positioned to pick up its next load. Terminal dwell time at loading and unloading and at any intermediate stations for switching is a component of this. Two of the tools used by railroads to optimize railcar utilization are **storage fees** and **demurrage charges**. Demurrage charges are fees assessed when a railroad-controlled car is held for loading or unloading. Storage charges are assessed when a privately owned car is held awaiting disposition or stored on railroad property. Disciplined and coordinated application of these charges incentivizes all parties to minimize their activities that either cause congestion or remove railcars from service availability. Backhaul is the ability to fill a railcar that can be returned from a destination with another load, minimizing the amount of time the railcar travels empty. México faces challenges in this area with traffic originating in the United States and Canada where car owners must tolerate long cycle times and empty backhauls. This can result in a reluctance to offer railcars for these services when business with more attractive characteristics in these respects is available.

The railroads engage in ongoing efforts to optimize railcar fleet management and customer service, including econometric and logistical studies and models, in collaboration with shippers and fleet owners and managers.

PROJECT DESCRIPTION

This USTDA-grant financed activity would be a technical study of demand for freight railcars in México. This study will examine the market at two levels. First will be nationally, to identify any systemic problem areas that could be addressed improve the availability and timeliness of railcars to meet customer needs. Second will be at a detail level for railcar supply and traffic demand associated with the four car types: covered hopper cars (bulk agricultural products); tank cars (liquid petroleum products); uncovered hopper cars (aggregate products such as frac sand); and boxcars, both high-cube and refrigerated boxcars (fresh and frozen merchandise).

The envisioned timeframe for this study and subsequent implementation is as follows:

TIME 

Phase 1: USTDA	Phase 2: Railroad Companies, Shippers and Lessors
Feasibility Study	Implementation
2014	2015 - 2025

PROJECT SPONSOR CAPABILITIES AND COMMITMENT

The project sponsor would be the same as for the prior project, the AMF. The capabilities and commitment of AMF are described in the previous [project sponsor section](#) of this report.

IMPLEMENTATION FINANCING

The primary buyers of U.S. exports in an implementation scenario would include the major Mexican freight concessionaires. Presently in México, the concessionaires own 80% of the railcar fleet. Their general funding and financing capacity are described in the [implementation financing section](#) for the previous project. The freight concessionaires both have significant freight car investment programs and conduct regular purchases. In 2012, KCSR as an enterprise across all its properties, U.S. and México, reported leasing 16,242 freight railcars and owning 3,394. Ferromex in 2012 reported owning 8,156 railcars and leasing another 6,461.

For freight railcar rolling stock there are two additional categories of buyers, shippers and third parties. Shippers may choose to own and operate individual fleets or to participate in carpooling arrangements where an outside entity manages the fleets and leases units to individual shippers to use. Railroad concessionaires may choose to create commonly held car management companies to perform this function or entities completely unrelated to the railroads or shippers may do so, such as railcar manufacturers or financing companies. Among the non-concessionaire

entities in México reported in 2012 in the Official Railway Equipment Register (ORER) as owning railcars were the following:

Entity	Railcars Registered In ORER
Arrendadora Nacional de Carros de Ferrocarril SA de CV	2,863
GATX de México Inc.	728

A number of non-concessionaire companies in México are assigned reporting marks in UMLER but do not have reported fleet statistics:

- Ingeniería y Desarrollo en Equipo Ferroviario SA de CV
- Asociación Nacional de la Industria Química AC
- Cementos Apasco SA de CV
- Autocom Rail Servicios S. de RL de CV
- Cemex México SA de CV
- Mexichem Derivados SA de CV
- Endasa SA de CV
- Industrial Minera México SA
- Industria Química del Istmo SA de CV
- Tlaxcalteca de Industrias, SA de CV
- Mexicana de Cobre SA de CV
- México Meridian Rail Services SA de CV
- Polímeros Nacionales SA de CV
- Harinas SA de CV
- Arrendadora Sipco SA de CV
- Thor Químicos de México SA de CV

These companies may fall into different categories: railcar owners, railcar and motive power owners, and motive power-only owners. They may not have equipment counts listed because they lease their equipment to another entity, their equipment is not interchanged, or there may be inactive marks still in the system but they presently have no rolling stock. These buyers can be expected to use internal resources and private bank credit to purchase railcars, augmented with export financing, guarantees, and insurance provided by entities such as the U.S. Export-Import Bank and OPIC.

U.S. EXPORT POTENTIAL

We prepared pro-forma U.S.-origin export potential estimates for the following scenarios.

1. Purchases of new rail tank cars used for outbound crude oil movements from projected new development of unconventional resources (shale oil) in eastern México.
2. Purchases of new open-top hopper railcars to be used for the movement of proppant material (hydraulic fracturing sand) to shale oil field locations in eastern México.

3. Purchases of new refrigerated rail box cars to support the development of point-to-point unit train services between industrial centers in the U.S. and México.
4. Purchases of new high-cube rail box cars from development of point-to-point unit train services between industrial centers in the U.S. and México.
5. Purchases of covered hopper railcars to improve supply of cars to smaller grain product shippers and those located in the southern part of the country.
6. Purchases associated with the building of rail transload terminals serving development of unconventional resources (shale oil) in eastern México.

The potential for exports from the analysis of general railcar supply efficiencies across the country was deemed to be too difficult to accurately forecast an export projection. Improvements in fleet operating efficiencies may attract more customers from truck to rail (diversions) creating demand for new equipment. However, this could be offset by improved utilization of the railcars enabling more traffic volume to be moved with the same or fewer railcars. Depending on the findings, the overall analysis could potentially recommend a wide range of investments in systems, in rolling stock and in infrastructure to improve timely provision of railcars. To understand this dynamic fully and the associated export potential requires the execution of the scoped study.

1. Crude Oil Tank Car Projection

The core of this projection is assuming that México's energy reform law is successfully implemented in 2014 and that aggressive unconventional oil and gas exploration and production (E&P) activity begins in 2015 in the land-based shale fields of eastern México. Under this scenario, México achieves a production rate of approximately 0.85% of recoverable reserves per year from unconventional E&P, roughly half of what the U.S. has achieved in the Eagle Ford shale formation (roughly 10 billion barrels of oil reserves, an approximation of the EIA's estimate for México of 13.1 billion barrels recoverable). In this scenario, México experiences a rapid rise in production though not at the 100% rates per year that are seen in U.S. fields exploited using unconventional methods. Other assumptions include:

- Projection period is 2015 – 2024 (10 years) and orders begin in 2015.
- Crude moves from the fields to Mexican and Gulf Coast refineries and back with an average car cycle time of 10 days.
- Oil prices remain relatively stable.
- Development of oil production from Mexican unconventional formations is roughly half of the rate of the U.S. Eagle Ford formation.
- Rail capture of these crude movements rises to 65% by 2024. Pipeline and truck move the rest.

- Crude moves in unit trains with an average of 75 tank cars carrying 660 barrels each.
- New rail tank cars cost \$130,000 each.
- U.S.-origin content of each rail car is estimated to be 75%.
- The discount rate is 7%.
- Because the market for tank cars in North America is continental, we assume that 25% of purchases are to Mexican entities and the balance to U.S. buyers, although 100% of this demand is driven by exploitation of the Mexican formations.
- Buyers of these cars are expected not to be the railroads but rather mostly shippers or specialized fleet managers or lessors. This has been the trend in the United States.
- This market is being heavily studied by railroads, oil and gas companies, financiers, investors, car manufacturers, fleet managers, and lessors. Accordingly we account for the USTDA study as responsible for only a fraction of the investment decisions at 15%

Over a ten-year projection period we would estimate this study has the potential to support U.S.-origin exports of new rail tank cars for crude oil transportation valued at **\$9.6 million** discounted to present value.

2. Frac Sand Hopper Cars Projection

Unconventional oil and gas production is hydraulic fracturing. This process requires inputs in the form of drilling equipment, chemicals, and substantial amounts of water and proppant or frac sand. Of these items, water is typically sourced locally, chemicals often move by truck. Equipment, specifically rig components and drilling pipe, will often move some portion of their journey by rail on flat cars or in gondola cars. Frac sand, due to its weight and value, is commonly moved as much as possible by rail. Accordingly development of unconventional oil and gas should create demand for new aggregate hopper cars. Assumptions for this calculation include:

- For each well drilled 6,000 short tons of frac sand are transported into the fields from quarries.
- Aggregate hoppers carry 98 short tons of sand and move in unit trains of 75 cars with a cycle time of 15 days (A significant portion of the frac sand is assumed to be high quality quartz silica, coated sand, or ceramic sourced in the U.S.)
- New sand hoppers cost \$80,000. Mexican purchased cars have a 50% U.S. origin content and U.S. purchased cars have an 80% U.S. origin content.
- This market is being heavily studied by railroads, oil and gas companies, financiers, investors, car manufacturers, fleet managers, and lessors. Accordingly we account for the USTDA study as responsible for a fraction of the investment decisions at 15%.

Over a ten-year projection period, we estimate this study has the potential to support U.S.-origin exports of new hopper cars for frac sand transportation valued at **\$10.6 million**, discounted to present value.

The physical characteristics of proppant sand are key to its effectiveness, meaning that not just any sand will work as well as another. The best proppant is a high-grade quartz sand with a specific uniform particle size, rounded shape, hardness and other characteristics. Proppant mined in the U.S. upper Midwest has these characteristics combined with a fortunate geology (close to the surface) that makes the cost to mine it relatively cheap. Accordingly, beyond export potential for the railcars to transport the sand, there is a potential market in México for the U.S. for the sand itself. Frac sand prices have risen from the mid-\$30's to peaks of nearly \$50/ton in past years due to high demand.

3. Refrigerated Boxcars Projection

This estimate is based on the following assumptions:

- Reefer service begins with one customer operating a pilot point-to-point service for one year.
- Two permanent “lanes” are established in subsequent years. These might be, for example, Monterrey – Chicago weekly service.
- Service growth is slow because of the requirement for balanced lanes and disciplined operations and maintenance.
- Cost of a new reefer car is \$250,000 and the U.S.-origin content is 70%.
- We don't believe that any significant effort is underway in México to study this opportunity, so we credit the USTDA study with the full amount of potential exports.

Over a ten-year projection period we estimate this study has the potential to support U.S.-origin exports of new refrigerated box cars for transportation of fresh and frozen goods valued at **\$40.6 million** discounted to present value.

4. High-Cube Boxcar Projection

This estimate is based on the following assumptions:

- New high-cube service begins with one customer operating a pilot point-to-point service for one year.
- Two permanent “lanes” are established in subsequent years.
- Cost of a new high-cube box car is \$129,000 and the U.S.-origin content is 50%.
- We credit the USTDA study with the full amount of projected exports.

Over a ten-year projection period we estimate this study has the potential to support U.S.-origin exports of new high-cube box cars for transportation of industrial products valued at **\$18.4 million** discounted to present value.

5. Covered Grain Hopper Car Projection

The buyers in this case we believe would be Mexican-domiciled pools created by (or financed by) some combination of the most impacted parties in terms of grain hopper cars: small shippers and shippers and railroads in the southern part of the country. These hoppers are used to accommodate some amount of demand during seasonal peaks. They primarily serve to divert product movements from water and road onto rail. Among the key assumptions made are the following:

- Hopper cars sufficient to operate four unit trains are purchased between 2015 and 2020.
- The U.S. origin export value is 50%.

Over a ten-year projection period, we estimate this study has the potential to support U.S.-origin exports of new covered grain hopper cars valued at **\$13.1 million** discounted to present value.

6. Transload Terminals

The movement of the sand and crude by rail assumes construction of transload terminals in eastern México to enable the transfer of the product between railhead and oilfield. These facilities can range in size. A minimal facility would include one or more rail sidings, access roads, and parking lots. Transloading would be accomplished with portable pumps and conveyors. These are common across U.S. shale developments and can be established in a few months and cost only a few million dollars to build. However, they quickly encounter a range of bottlenecks in storage and throughput when faced with the rapid increase in volumes that are typical of unconventional field development. Large transload facilities take more than a year to bring from concept to operations. They will include such features as loop tracks to handle efficient loading and unloading of large unit trains, railcar pullers, movers or switching locomotives, storage tracks for large numbers of railcars, fixed, high-volume loading racks for oil products and sand, oil storage tanks, sand silos, as well as ample parking, access roads, and infrastructure to support truck activity. In the U.S. these range between \$40 and \$80 million in cost per facility, depending upon throughput and storage capacity. Construction of these facilities in México can be expected to include U.S. content in areas such as design and engineering, loading and unloading equipment (rolling stock [such as front end loaders], pumps, loading racks, and conveyors), security, lighting, environmental, control, and communications systems. In the course of the development of México's unconventional oil and gas deposits we expect perhaps as many as four large rail transload facilities to ultimately be built, accompanied by numerous small facilities. Investors will be reluctant to build large facilities until clear trends are established in terms of proven reserves, field development rates, pipeline competition, and the geographic areas of production. Typically, a number of smaller facilities will be built first, face capacity challenges, followed by the establishment of the large facility. By identifying origins and destinations for predicted freight volumes of sand and oil, this study will support Mexican

decision makers in potentially selecting sites and initiating project specific feasibility and planning activities leading to investment. Assumptions for the export estimate are:

- U.S.-origin content is estimated at 20% of the total value of a representative large sand/oil terminal, \$13 million. Cost of those imported components are not altered by the differences in price levels between the two countries, which should be primarily reflected in local land and labor costs.
- U.S.-origin content of a small terminal is 30% of the total value of the facility, estimated at \$900,000.
- The USTDA study may be considered as supporting development of four small transloads in 2015 through 2017 and one large facility in 2017.

Over a ten-year projection period, we estimate this study has the potential to help lead to U.S.-origin exports of equipment, systems, and services for transload terminals worth **\$12.8 million** discounted to present value.

7. Summary of Export Potential Attributable to this Study

Summing all these estimates together arrives at a U.S. origin export potential of **\$105 million** discounted to the present value.

Export Value Estimate: Refrigerated Boxcars	\$ 40,587,904
Export Value Estimate: High-Cube Boxcars	18,430,375
Export Value Estimate: Open-Top Frac Sand Hoppers	10,595,584
Export Value Estimate: Covered Grain Hoppers	13,125,308
Export Value Estimate: Petroleum Product Tank Cars	9,558,093
Export Value Estimate: Rail Transload Terminals	12,749,061
Total	\$ 105,046,325

Our estimate for the exports resulting from tight oil and gas development could be considered very conservative based on investment levels seen in the U.S. in recent years. We prepared an alternative estimate accounting for higher field production rates, higher car cycle times, more terminals, and greater impact attributed to the USTDA study.

Export Value Estimate: Refrigerated Boxcars	\$ 40,587,904
Export Value Estimate: High-Cube Boxcars	18,430,375
Export Value Estimate: Open-Top Frac Sand Hoppers	24,835,203
Export Value Estimate: Covered Grain Hoppers	13,125,308
Export Value Estimate: Petroleum Product Tank Cars	26,251,825
Export Value Estimate: Rail Transload Terminals	22,553,409
Total	\$ 145,784,024

In terms of units, these estimates reflect construction of between 4 and 7 crude oil/proppant transload terminals, and additions to the Mexican railcar fleet of between 3,499 and 4,448 new tank cars and between 1,842 and 2,008 open top hopper cars.

FOREIGN COMPETITION AND MARKET ENTRY ISSUES

Three (Greenbrier, Trinity and Union Tank) of the five major U.S. freight car builders have established presences or significant reported sales to México.

The Greenbrier Companies: Greenbrier has established operations in México employing over 3,800 personnel between its major manufacturing facilities in Sahagún and Frontera. They also perform wheel maintenance (grinding), repair and refurbishment services and provide parts from México locations. Greenbrier is partnered with Grupo Industrial Monclova SA (GIMSA) for its México manufacturing activities.

Trinity Industries, Inc: Trinity Industries de México (TATSA) is a leading manufacturer of tank containers in México as part of its energy equipment group and also manufactures railcars, parts, and components. Trinity has more than 5,900 employees in México with plants located in Cd. Frontera, Sabinas, and Castaños in Coahuila, and Huehuetoca in the state of México. Mexican production includes tank cars, gondolas, intermodal cars, hoppers, and boxcars.

Union Tank (UTLX): Union Tank built a new tank car repair facility in Celaya, México in 2005. Through its subsidiary (Carrotanques Unidos) it provides both repair and tank car leasing services.

American Railcar Industries: ARI is a designer and manufacturer of freight railcars that also provides parts and repair services, fleet management, and engineering services. ARI does not have facilities in México, but is active in Australia, India, Saudi Arabia, and Russia.

FreightCar America: FreightCar America is a manufacturer of railcars including hoppers, autoracks, intermodal cars, and gondolas. They do not have any facilities outside of the United States.

Competition through provision of foreign manufactured freight railcars does not appear to be significant in the México market.

DEVELOPMENTAL IMPACT

Primary Developmental Benefits

Infrastructure: An implementation resulting from this proposed activity has the potential to support more efficient use of infrastructure in México. An implementation of this project would involve acquisition of new rail freight cars to capture modal diversion of existing freight flows from truck or completely new freight flows that would otherwise travel by truck. Trucks' heavier weight causes greater damage to roads, creating another significant benefit in terms of infrastructure maintenance costs whenever modal diversion is enabled.

Human Capacity Building: Implementation is expected to build human capacity, particularly in areas including railway operations and commercial functions and management and operations at rail bulk terminals (areas where workers require significant technical training). In particular, the management and transport of petroleum products requires training in HAZMAT procedures. Implementation that develops or expands new reefer services requires training in cold chain storage and management techniques, as well as disciplined procedures for maintenance and monitoring of railcars in transit. Human capacity will be built specifically in the management area of economic and operations analysis and forecasting using modern software tools.

Technology Transfer: An implementation would introduce the newest models of railcars, potentially higher capacity railcars than the average of the fleet. As noted previously, implementation is likely to involve application of technology systems to enhance interchange, car hire, and the monitoring, maintenance, and tracking of railcars.

Productivity Improvements: An implementation would improve productivity in terms of equipment and personnel. Any modal diversions created by these efficiency improvements and railcar investments will take many trucks and their crews off their road per each additional train operated. The newer railcars also can create substantial savings in maintenance with longer intervals between overhauls and monitoring systems that reduce breakdowns, thus improving railcar utilization.

Market-Oriented Reforms: This activity and an associated implementation are not expected to have a significant effect in terms of market-oriented reforms.

Alternatives

The alternative scenario to this activity and a subsequent implementation is that the railroads and other owners of freight railcars will continue with their current investment trends. They will continue to invest regularly in railcars and steadily upgrade their fleets over time, but not at the rate of investment that would occur if the activity identifies efficiencies and new opportunities for traffic. Companies will seek to utilize some portion of their oldest rolling stock as long as they can in order to extract as much revenue out of fully depreciated equipment as possible.

IMPACT ON THE ENVIRONMENT

Performance of this activity and a subsequent implementation would have a direct and positive impact on the environment by diversion of freight traffic that would otherwise move on roads by trucks. The primary benefit is a reduction in harmful emissions per ton-kilometer of freight transported.

IMPACT ON U.S. LABOR

Neither the proposed technical assistance project nor an implementation is expected to:

- a. Incentivize any company currently located in the U.S. to relocate outside of the U.S. or to incentivize any such firm to reduce employment because U.S. production is being replaced by production outside the United States.
- b. Violate internationally recognized workers' rights.
- c. Directly assist establishing or expanding production of any commodity for export by any country other than the United States, if the commodity is likely to be in surplus on world markets at the time the resulting productive capacity is expected to become operative and if the assistance will cause substantial injury to United States producers of the same, similar, or competing commodity.

Two of the major U.S. freight car manufacturers have major facilities in México and a third, UTLX, has a major repair facility in Mexico. While this project is not expected to incentivize companies to relocate jobs to México there is a high probability that export sales of railcars to México will have a significant amount of the value added in México. From a LCCA perspective a very high proportion of value added for maintenance and repair services will come from México, excepting some portion of parts which may be produced in the United States.

QUALIFICATIONS

The recommended team to conduct this Feasibility Study is as follows:

<u>No.</u>	<u>Position</u>	<u>Minimum Years of Experience</u>
01.	Team Leader	15
02.	Mechanical/Fleet Expert	15
03.	Transport Economist	10
04.	Local Railways Analyst	5

We suggest the following weighting values for consideration as a framework for proposal evaluation criteria when the study is taken to bid:

- 1. Technical Experience (50 points):** Firm and team experience in feasibility studies on, or management of implementation of, similar projects involving analysis of freight railcar fleets and commercial and economic dynamics. Demonstrable understanding of the newest technologies in this field, particularly state-of-the-art systems and practices for equipment monitoring, tracing, and tracking. Inclusion of senior individuals with direct management experience in railroad mechanical and commercial departments would be valuable offerings. Experience with economic and demand analysis of multimodal freight flows is important. Finally, demonstrated experience with the legal aspects of car hire, interchange, and equipment leasing arrangements in the NAFTA region is important.
- 2. Work Plan and Methodology (25 points):** Adequacy of the proposed work plan and suggested overall approach in responding to the Terms of Reference. Soundness and thoroughness of the technical approach and work plan detailed in the proposal and the overall quality of the presentation should be evaluated. The proposal should provide an organization chart of key personnel with their qualifications and a staffing schedule for each key activity.
- 3. Regional Experience (20 points):** Firm and team's familiarity with the freight rail transportation sector in México, local and international conditions, regulations, and requirements. The firm and team should demonstrate familiarity with both Mexican and U.S. regulations, requirements and standards for freight rail and cross-border operations. The firm experience, or the experience of individual consultants, should ideally include some relevant Mexican project work in freight rail or the freight sector, successfully carried out within the past ten years.
- 4. Language Skills (5 points):** Individual team consultant bilingual capability to read, write and speak Spanish at some functional level should be considered as adding measurable value

to the proposal. This capability should be documented through a formal certification process such as testing in accordance with standards of the Inter-Agency Language Roundtable or the Diploma de Español Como Lengua Extranjera (DELE).

RECOMMENDATIONS

We recommend that USTDA provide grant funding for this study for the budget estimate amount of \$559,040.60. The potential export multiplier for every \$1 of federal grant funds spent by USTDA on this activity is estimated to fall between \$188 and \$261.

There are potential export benefits in two areas. First, the study should help business identify rail freight demand opportunities that will justify purchase of rail freightcars and associated systems. México is an established market for major suppliers of major railcars and related goods with significant U.S.-origin content. Second, by improving the efficiency of rail freight flows and increasing diversion of freight to rail, implementation of study recommendations has the potential to support growing trade to México of rail-transported goods themselves where the U.S. has a positive trade balance and comparative advantage.

The analysis of the regimes involved in car hire, carpooling, leasing, interchange, and equipment tracking and monitoring can only serve to in general enhance the NAFTA-wide industry-managed system for movement of rail freight, helping to advance harmonization and integration between the U.S. and Mexican economies, and further facilitating improved cross border movements of goods. The examination of the specific freight type flows is likely to identify areas for modal diversion or creation of new rail traffic, which could lead to significant investment opportunities for operations and terminals in México that U.S. firms could potentially participate in.

The passage of the energy reform law in late 2013 creates great promise in the area of U.S. trade and investment related to oil and gas extraction, transportation, refining and associated facilities and logistics. However, remaining uncertainty as to the full impact and potential will probably not be resolved until two actions occur. First, the secondary laws for energy reform must be elaborated by the Mexican government. This will probably occur in the first half of 2014. Subsequent to that, the elaboration of the institutional and regulatory structure to implement the reforms must occur. This will likely extend through some part of the second half of 2014. Given this, the scope and scale of opportunities may not be clear until the second half of the year, with implementations (transactions, partnerships, etc.) not beginning until 2015. A USTDA grant-financed study fully dedicated to opportunities related to energy reform in 2014 could face challenges attempting to identify specific opportunities before these uncertainties are resolved.

Given this, the study segment examining potential for petroleum and related product flows by rail is one means by which to enable USTDA to begin initial exploration of opportunities in this sector through freight commercial analyses immediately with lower risk. While it is only a

component of a larger USTDA study, it will put a team on the ground in the near-term to start working with stakeholders examining some aspects of energy sector opportunities, while not risking significant wasted effort if the information is not yet available from México.

Alternatives

USTDA may wish to place more emphasis on the rail transportation opportunities related to the energy reform. In such case, we would suggest adjusting the budget and terms of reference so that the current allocation of effort to examining specific opportunities in the refrigerated car, box car, and agricultural product hopper car markets be shifted to focus instead on the petroleum and related product flow opportunities. Accordingly, the consultant team would, after examining the global market for railcars, then focus solely on the discrete categories of railcars most likely to directly benefit from development of unconventional oil and gas resources: tank cars and aggregate hopper cars.

TERMS OF REFERENCE (TOR)

Purpose and Objective of the Activity

Background

The freight railway networks of North America have steadily increased their integration in past years. Following the privatization of the Mexican railway system in 1996, the U.S. freight railroad companies Union Pacific, Kansas City Southern and Genesee & Wyoming all became equity participants in the major operating concessions of the prior state-owned railway. These concessions were in Ferromex/Ferrosur, Kansas City Southern de México (KCSM), and the Ferrocarril Chiapas-Mayab (FCCM), respectively. FM and KCSM share ownership with the government in an important terminal railroad serving the area around México City called Ferrocarril y Terminal del Valle de México (Ferrovalle). The Ferrocarril Coahuila Durango, owned by mining concern Grupo Bal, is México's major "short line" operating a number of non-contiguous, low-density segments in the north-central region of the country. G&W withdrew from its investment in FCCM because of the devastating impact of a hurricane in 2005 and that operation was taken over by the government company Ferrocarril del Istmo de Tehuantepec (FIT) in 2007. In recent years, concessionaires FM and KCSM have managed successful and profitable businesses enabling significant and steady capital investment and relatively steady growth.

Significant differences exist in terms of the size, makeup and ownership of freight car fleets between the México and the United States. Part of this is explained by fundamental differences in market conditions between the two countries. But some part may reflect anomalies and opportunities for improvements that can benefit shippers, railroads and providers of goods and services to both industries.

Equipo de Carga (Propio y Rentado)	2012	2011	2010	2009	2008	2007	Net +/-	Trends
Furgones (Box Car)	5,778	5,871	6,274	6,341	7,320	7,741	(1,963)	■■■■■■■■■■
Góndolas (Gondola)	10,140	10,311	9,779	9,820	10,586	10,520	(380)	■■■■■■■■■■
Tolvas (Hopper Car)	8,967	8,119	6,453	6,656	7,448	8,267	700	■■■■■■■■■■
Plataformas y Piggy Back (Flat and Spine Cars)	1,128	1,284	1,056	794	1,649	1,775	(647)	■■■■■■■■■■
Tanques (Tank Car)	1,508	1,288	1,267	577	755	986	522	■■■■■■■■■■
Autoracks	1,373	1,621	1,493	1,518	1,607	1,629	(256)	■■■■■■■■■■
Otros (Other)	424	404	607	561	542	309	115	■■■■■■■■■■
Flota Operable (Operational Fleet)	29,318	28,898	26,929	26,267	29,907	31,227	(1,909)	■■■■■■■■■■
Equipo en reparación (Under Repair)	456	550	570	653	991	824	(368)	■■■■■■■■■■
Equipo en condenación (To be Scrapped)	1,306	1,210	1,066	1,004	947	711	595	■■■■■■■■■■
Total	31,080	30,658	28,565	27,924	31,845	32,762	(1,682)	■■■■■■■■■■

Figure 19: Evolution of México's Railcar Fleet 2007-12 (SCT)

Owners	Railcars			As % of National Fleet		
	Canada	USA	Mexico	Canada	USA	Mexico
Railroads	123,187	499,485	28,337	77%	38%	80%
Private Owners	36,243	809,544	7,286	23%	62%	20%
Total	159,430	1,309,029	35,623	100%	100%	100%
<i>As % of Continental Fleet</i>	<i>11%</i>	<i>87%</i>	<i>2%</i>			

Figure 20: Non-Railroad Ownership of Railcars by Country (AAR)

Equipo de Carga (Propio y Rentado)	Railcars			As % by National Fleet		
	Canada	Mexico	USA	Canada	Mexico	USA
Furgones (Box Car)	22,757	8,446	95,514	14%	24%	7%
Góndolas (Gondola)	21,683	8,761	204,325	14%	25%	16%
Tolvas (Hopper Car)	62,631	10,706	559,417	39%	30%	43%
Plataformas y Piggy Back (Flat and Spine Cars)	27,939	5,076	153,712	18%	14%	12%
Tanques (Tank Car)	23,791	2,458	276,561	15%	7%	21%
Reefers	332	6	15,147	0%	0%	1%
Otros (Other)	297	170	4,353	0%	0%	0%
Flota Operable (Operational Fleet)	159,430	35,623	1,309,029	100%	100%	100%
<i>As % of Continental Fleet</i>	<i>11%</i>	<i>2%</i>	<i>87%</i>			

Figure 21: Comparison of National Fleet Composition (AAR)

In principle, México is a full participant in the Association of American Railroads framework for equipment tracking and monitoring, interchange, car hire, and interline accounting. Exchange of cars across railroads within México and internationally should be accomplished with the same efficiency as for interchange within the United States or Canada, and on the same commercial terms. In the U.S. and Canada, a charging regime for car storage and demurrage helps maximize productivity of railcars by reducing dwell times and congestion. The implementation of these regimes in México may not be as disciplined. An important consideration in understanding the dynamics of any railcar market is the program of investment in rail infrastructure weight capacity. In the U.S. and Canada, the railroads continue to invest aggressively in this area and have established substantial routes that can handle the heaviest standard railcars at 315,000 lbs. In México, the highest capacity significant segments are rated for 286,000 lbs. and there are significant portions of the network that have much lower weight capacities, including some major terminals and ports.

Stakeholders in the freight rail sector in México have expressed an interest in an examination of the general dynamics of freight railcar supply and demand to identify opportunities for optimization. The markets for open-top and covered hopper cars, tank cars, and boxcars – including refrigerated service – were identified as worthy of particular study. For these segments an examination is desired of the potential for improvements of railcar supply to customers and also to identify opportunities for traffic development through diversion from trucks or brand new freight flows.

Activity Objective

The objective of this activity is to work with stakeholders in México to evaluate the supply and demand dynamics of the freight railcar fleet from a national perspective and recommend steps for optimization. This analysis will examine the national market for freight railcars, historical and projected traffic patterns (including interchange traffic) and evaluate specific market features and dynamics that might be altered to improve generally the supply of cars to meet projected shipper demands. Opportunities for completely new traffic creation and diversion of existing and projected traffic from trucks will be evaluated. Following the market-wide analysis, the study will specifically evaluate the supply and demand dynamics for the following specific railcar types commonly used for U.S. merchandise exports with positive trade dynamics: tank cars, open-top and covered hopper cars, and boxcars (to include high-cube and refrigerated boxcars). The study will evaluate institutional and operational improvements that could optimize wagon supply generally, as well as recommend specific investments in systems, services, terminal facilities, and new railcars necessary to meet projected growth of existing traffic and new opportunities for the railcar types being studied.

Task Flow

The diagram below illustrates the precedent relationships and expected general flow of data between the study tasks.

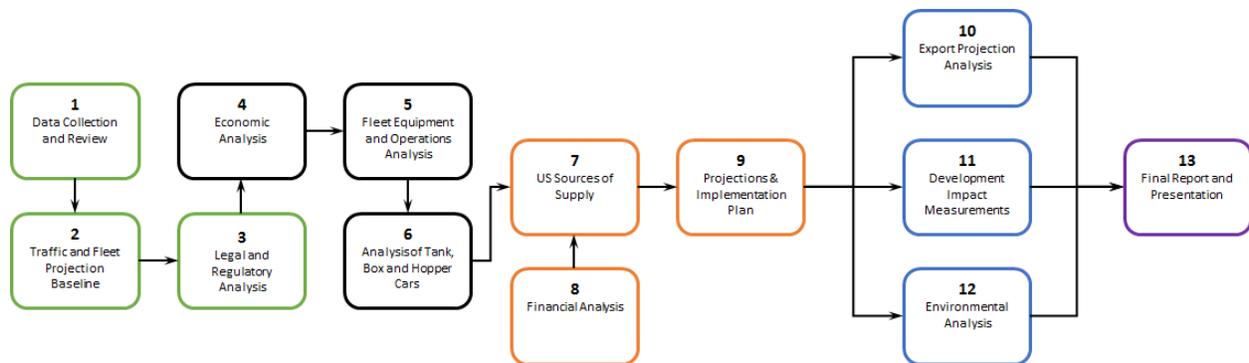


Figure 22: Project 2 Anticipated Task Data Flow

No.	Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33		
1.1	Data Collection and Review: Equipment	█	█	█	█	○																														
1.2	Data Collection and Review: Traffic and Infrastructure	█	█	█	█	○																														
2.	Traffic and Fleet Projection Baseline			█	█	█	○																													
3.	Legal and Regulatory Analysis			█	█	○																														
4.	Economic Analysis of the Project					█	█	█	█	█	█	█	█	█	█	█	○																			
5.	Fleet Equipment and Operations Analysis					█	█	█	█	█	█	█	█	█	█	█	○																			
6.	Analysis of Tank, Box and Hopper Cars									█	█	█	█	█	█	█	○																			
7.	US Sources of Supply																█	█	█	█	█	█	○													
8.	Financial Analysis of the Project																█	█	█	█	█	█	○													
9.	Projections and Implementation Plan																					█	█	█	○											
10.	Development Impact Measurements																						█	█	█	○										
11.	Export Projection Analysis																							█	█	█	○									
12.	Environmental Analysis																							█	█	█	○									
13.	Final Report and Presentation																																	█	○	

○ = Project deliverables

Figure 23: Project 2 Anticipated Task Schedule (Weeks)

1. Data Collection and Review

Through a combination of research, interviews, and field visits the Contractor shall gather initial data necessary to support execution of the Study. As part of this task, the Contractor shall meet with representatives of various entities to brief them on the scope and objective of the study, to identify counterparts as necessary to assist or participate in study activities, and to present initial data requests. These entities may include, but not be limited to:

- México’s major operating freight railroad companies: Ferromex and Ferrosur; Kansas City Southern de México; Ferrocarril del Istmo de Tehuantepec; Ferrovial, and; Línea Coahuila-Durango.
- U.S. freight railroads interchanging freight cars with México.
- Secretaría de Comunicaciones y Transportes (SCT).
- The Association of American Railroads and AMF (Grantee).
- Representatives of Confederación de Cámaras Industriales (CONCAMIN) to include the member bodies representing shippers relevant to the railcar markets being studied.
- Selected individual shippers (freight rail customers) as appropriate to include third-party logistics providers and Petróleos Mexicanos (PEMEX).
- Private railcar lessors, financiers, and fleet managers to include GATX and TTX.
- Manufacturers of freight railcars.

1.1 Data Collection and Review: Equipment

The Contractor shall collect comprehensive data on the fleet of freight railcars owned by Mexican entities including freight rail operators, lessors, and shippers. The information collected shall include car type, owner, manufacture year, capacity, interchange, and operational status. Historical data on the composition of the Mexican railcar fleet shall be collected for at least five years. Corresponding United States and Canadian railcar fleet data shall be collected to enable

benchmarking of Mexican fleet characteristics against the other participants in the North American context (as it is an integrated market for rail transportation but with different national domiciled fleet characteristics).

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

1.2 Data Collection and Review: Traffic and Infrastructure

The contractor shall collect comprehensive data on the historical modal freight flows within México and between the U.S. and México, measured by both value and weight. Detailed information shall be collected on freight rail flows. Origins and destinations by commodity type will be collected and correlated with categories of railcars. System-wide operational metrics shall be collected to include train and railcar velocity and terminal dwell times. Data on infrastructure capacity constraints shall be collected to include weight, speed, and clearance restrictions on the freight rail lines in México and main U.S. rail corridors carrying traffic to and from México. Key macroeconomic and industry drivers for the major rail freight commodity classes shall be identified and correlations and relationships described. The domestic procedures for car hire, inspection, demurrage, storage, reloading, damage compensation, and interchange when conducted between railroads within México shall be examined to understand any significant differences from practices in international interchange.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

2. Traffic and Fleet Projection Baseline

Based upon the data gathered, historical trends and, current assumptions of the freight railroad operating companies, the Contractor shall prepare the following: 1.) Projected freight railroad traffic levels in México by commodity type and volume to include interchange traffic with the United States, and 2.) The evolution of the freight railcar fleet by car type, age, capacity and ownership. These projections shall be for an eleven-year period with the year of the Study as the base year.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

3. Legal and Regulatory Analysis

The Contractor shall collect and review: México's national government laws, regulations, and standards; international treaties and agreements, and; industry standards and agreements in the following areas:

- The operations of freight railroads and freight rail concessions.
- The leasing and ownership of railcars, including the treatment of financial aspects to include taxation and depreciation.
- The applicable conventions and agreements related to compensation for railcar use (car hire), loss and damage, and demurrage.
- The movement of freight between the United States and México including customs and border crossings requirements and procedures for both rail and truck.
- Truck sizes and weights and driver hours of service and enforcement, to the degree that such requirements have a material impact on demand for rail traffic.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

4. Economic Analysis of the Project

The Contractor shall evaluate the economic drivers supporting the decisions by different types of railcar owners in México to own, rebuild, retire, and replace freight railcars and from where to source the goods and services. The Contractor will analyze cash flow considerations, life cycle costing, market conditions, impact of car hire compensation system, and typical supply agreements, order scale, and timelines for purchases of freight railcars. The ownership of freight railcars in México will be evaluated from a life cycle cost perspective considering maintenance, refurbishment, and disposal costs. Dynamics that differentiate the different categories of owners (freight rail operators, shippers, and lessors) will be analyzed as will those that differentiate ownership considerations between México and the United States. This will include evaluation of the constraints of weight restrictions on the Mexican network on the economics of investments in railcars.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

5. Fleet Equipment and Operations Analysis

The Contractor shall conduct an analysis of the dynamics of the railcar fleet and operations from a national and systemic perspective as impacting supply and demand for freight railcars in México. The objective of this analysis shall be to identify significant problems or weaknesses that adversely impact the supply of cars to meet demand and their root causes. The Contractor shall recommend concrete steps for identified problem areas that would improve system-wide customer service, car availability, fleet utilization and enable freight rail traffic growth within México. The areas to be investigated shall include, but not be limited to:

- Railcar age and condition;
- Railcar type mix and capacity;
- The balance of interchange versus non-interchange equipment;
- Trends and opportunities in average lengths of haul;
- Fleet utilization characteristics (lane balance and backhaul optimization);
- Domestic and international interchange practices;
- Balance of ownership of railcars between railroads and private owners;
- Role of third-party logistics providers;
- Carpooling practices;
- Car hire procedures, practices and costs;
- Demurrage practices and fees;
- Terminal congestion and dwell times;
- System railcar and train velocity;
- Monitoring, tracing and tracking of railcars including participation in industry systems and databases and railcar visibility to stakeholders;
- Shrinkage and damage of cargoes and vandalism of railcars;
- Major infrastructure bottlenecks in the areas of weight, speed, clearance and capacity;
- Customs and border crossing procedures;
- Railcar storage practices by different stakeholders.

Class I freight railroad operations in the United States and Canada shall be used as the benchmark for performance assessment.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

6. Analysis of Tank, Box, and Hopper Cars

The Consultant shall undertake a more detailed analysis of the supply and demand of the specific markets for freight rail traffic, generally oriented around car types. The areas investigated systemically in the previous task shall be examined in detail as applied to these specific railcar markets. The Consultant shall evaluate the modal split for each market diversion to rail and creation of new traffic. The specific dynamics of major customers, origins, and destinations will be examined, including incentives and disincentives for car owners to provide higher levels of service to shippers and railroads. The availability and price of new railcars for these services shall be examined, production sources, and the backlog of orders. This analysis shall occur for the following types of wagons:

6.1 Tank Car Demand and Oil, Refined Oil Products and Petrochemical Traffic

The Contractor shall evaluate railcar supply and demand from two perspectives:

1. The potential for exploitation of unconventional petroleum reserves in México shall be examined to assess potential new demand for tank cars to transport crude oil outbound from production fields to customer destinations. The production potential and patterns and the dynamics of truck and pipeline competition and their role in a rail logistics chain shall be considered. Inbound logistics for production consumables to include water, frac sand and oilfield equipment shall also be examined for rail traffic potential. The probable capacity, location, and type of rail terminals shall be evaluated.
2. The international trade in refined products/petrochemicals versus crude oil between the United States and México shall be examined. The current tank car traffic patterns and volumes for these products will be evaluated for shifts that will impact demand for tank cars.

The Contractor shall identify opportunities and threats to freight rail traffic in this sector and recommend courses of action. The potential impact on the fleet and operations of new more stringent petroleum product tank car safety requirements, particularly for international interchange service, shall be evaluated, such as regulations requiring retrofits or retirements of tank cars deemed as unsafe. A forecast for rail traffic potential and associated railcar demand shall be developed based on findings and assumptions of implementation of selected recommendations.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

6.2 Box Car Demand and Refrigerated Goods Traffic

The Contractor shall evaluate the market for box cars based on traffic trends, car supply and technology. Opportunities for expanding existing or developing new box car traffic service shall be examined, specifically new high-cube box car designs. The potential for further development of transportation of fresh and frozen products in dedicated refrigerated boxcars shall be examined specifically. The Contractor shall evaluate existing refrigerated freight rail services between the U.S. and México and identify challenges and opportunities to creation of expanded or completely new services. Specific aspects to be analyzed shall include: reliability of transit times; maintenance of refrigeration equipment; equipment and cargo monitoring and tracking technologies; sophistication and availability of cold chain logistics facilities in México; ability of shippers and transport providers to secure viable backhauls of refrigerated or non-refrigerated cargos from México; and security requirements for refrigeration equipment and the related cargo. The Contractor shall develop a forecast for selected “lanes” traffic potential and railcar demand based on findings.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

6.3 Covered Hopper Car Demand and Agricultural Traffic

The market for agricultural products transported in covered hopper cars shall be examined for any growth potential. The provision of railcars to customers for seasonal flows of different products will be examined for optimization. Both flows between México and Canada and the United States shall be examined, as well as traffic originating and terminating within México. Challenges to railcar owners and operators associated with backhaul traffic and cycle times for these types of cars shall be analyzed. Alternative railcar ownership, compensation for use, management and operating structures shall be evaluated. The Contractor shall describe findings and develop a forecast for traffic potential and railcar demand based on an implementation scenario.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

6.4 Open-Top Hopper Car Demand and Aggregate Traffic

Building upon findings in task 6.1, the contractor shall assess the potential demand for new aggregate cars to transport sand inbound to Mexican fields to support hydraulic fracturing of oil and gas wells. The production potential, probable field development patterns over time and the dynamics of rail, truck and maritime modes and their role in the sand logistics chain shall be considered. The probable capacity, location, and type of rail terminals for intermodal transload of the product shall be evaluated, including potential for co-location with oil product transload terminals. The contractor shall assess the potential of sourcing of proppant material from U.S. origins versus potential Mexican sources. A forecast for rail traffic potential, sand origins and destinations, and the associated railcar acquisition demand shall be developed based on findings.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

7. U.S. Sources of Supply

The Contractor shall evaluate U.S. sources of supply to include manufacturers of freight railcars, railcar lessors, carpooling services providers, providers of railcar maintenance and rehabilitation services, and providers of systems and services for management, monitoring and tracking of freight railcars. For the major suppliers the Contractor shall evaluate the approximate national origin of materials, goods and services from the U.S. to México. Freight car sales shall be evaluated from a life cycle perspective including parts and services for maintenance and periodic rehabilitation. Historical trends and projections for backlogs for orders of the different types of railcars shall be analyzed. The major competitors to U.S. firms in the Mexican market shall be identified and profiled to include market share and strengths and weaknesses vis-à-vis their U.S. peers.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

8. Financial Analysis of the Project

The Consultant shall identify and evaluate the availability of the different sources of debt and equity financing presently available to support acquisition of freight railcars by freight railroad operators, shippers, and third parties (such as lessors). This activity shall include discussions with the operators, equity investors, private and public providers of equipment financing in the

U.S. and México, the U.S. Export-Import Bank, OPIC, the North American Development Bank, USAID, the Inter-American Development Bank, and relevant Mexican public entities. The Contractor shall seek to identify gaps in financing types or scale for the different customer types. The impact of car hire systems and tax regimes on domestic and cross-border sales and leasing of freight railcars shall be evaluated. The Contractor shall make an assessment or recommendations if state provision of any type of funding, financing or tax incentives into the freight railcar industry or institutions would be beneficial, and if so, the potential scale, structures, and methods.

Task Deliverable

Upon completion of the task the Contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

9. Projections and Implementation Plan

Based on findings and demand scenarios elaborated in previous tasks, the Contractor shall update the baseline projections of rail freight traffic and railcar fleet evolution to create an implementation case projection. The railcar fleet evolution projection shall consider constraints such as supply industry capacity, railroad operational considerations in terms of fleet and capital investment management, application of car hire conventions, and financial considerations. This alternative railcar fleet scenario shall match the eleven-year term of the fleet base case projection. The Contractor shall make specific note of the key assumptions affecting the change in demand from the baseline projections.

Task Deliverable

Upon completion of the task the contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

10. Development Impact Measurements

The Contractor shall compare the two fleet evolution scenarios, quantify the difference between them, and measure the potential development impact over the projection period.

The Contractor shall organize and address the potential benefits that accrue based on the following development categories. For each relevant metric the Contractor shall recommend measurement or assessment methodologies and data that can be collected over the defined projection period to enable USTDA and the host country project sponsor to validate that development occurred. An implementation does not need to result in benefits in all or even more than one category, but all significant benefits shall be identified.

- **Infrastructure:** The Contractor shall list all hard and/or soft infrastructure that may be created/improved given a successful implementation, explaining how the USTDA activity could directly lead to the infrastructure development. This may include investments in tracks and terminals associated with new or different traffic patterns and potential. Provide expected timeline and reason the new/improved infrastructure is needed. The Contractor shall quantify the potential benefit in terms of reductions in road maintenance costs based on diversions of potential truck traffic to rail.
- **Market-Oriented Reform:** The Contractor shall identify if implementation is expected to lead to a host country liberating its economic market such as, privatizing state-owned entities or outsourcing of services they provide such as private operation of loading/unloading terminals, promoting market competition, improved car hire procedures, improving intellectual property rights or industry standards, or changing regulations that lead to market liberalization. It must be regulatory change that leads to market changes.
- **Human Capacity Building:** The Contractor shall identify if the implementation is expected to create 10 or more new jobs in the host country or help retain jobs that would otherwise be lost. Or, an activity that provides training to 10 or more people in the host country. It is not an assumption that new jobs/training will be provided because infrastructure/technology transfer is occurring. Specify how many people are currently employed, how many people will need to be hired/trained, and expected timeline for the employment decisions. If training, explain how the activity will directly enhance the value of labor.
- **Technology Transfer and Productivity Enhancement:** The Contractor shall identify if the implementation is expected to introduce a new product/technology that will improve operations of a host country's current system/ process/ operation. It is not a project that has technology transfer without measurable efficiency gains. Specify the technology/ system/ operation that will be transferred and productivity improvement that will be gained. Provide the measurable ways in which productivity will be improved, the estimated improvement(s) and expected timeline.
- **Environment:** The Contractor shall identify if the implementation is expected to lead to measurable environmental benefits, such as mitigating environmental impact resulting from infrastructure development, rehabilitating environmental damage, mitigating impacts to ecosystems, replacing equipment with greener technologies. Environmental mitigation/ benefits must be a significant feature of the activity and project and the Contractor must specify how the activity will improve the host country environment, providing measureable data or specific gains and expected timeline during which they will be achieved. The Contractor shall evaluate the potential benefits in emissions reductions and energy efficiency gains between the two scenarios.
- **Other:** The Contractor shall identify other potential achievements of implementation, such as:

- Government Transparency or Revenue Generation: An activity that improves the public’s ability to understand government actions or improve government tax/revenue collection.
- Health Benefits: An activity that has noticeable and measurable health gains for the community surrounding or impacted by the project.
- Replication or Spin-off Projects: An activity that is likely to be duplicated or stimulate related projects, magnifying the initial benefits and impact.
- Safety and/or Security: An activity leading to improved safety and/or security for the host country or population affected by the project. This is not safety/security of the project itself, rather an impact beyond the implementation of the project that could lead to additional safety/security.

11. Export Projection Analysis

The Contractor shall compare the two railcar fleet evolution scenarios and quantify the expenditure difference between them to project the potential U.S.-origin export gain. This analysis shall consider both merchandise and services associated with railcar and associated systems purchases. The analysis shall be based on interviews with U.S. suppliers and operators and shall consider the likely sourcing of materials and labor in the United States versus México and other nations. A discounted net present value of the projected difference shall be calculated. The analysis shall incorporate the projected value of the goods and services associated with the investments from a life-cycle cost analysis perspective, not simply the initial up-front cost of the railcars and associated systems. To provide context and scale, this task shall incorporate an analysis of the relevant historical and projected exports under the appropriate categories for trade between México and the United States. The analysis shall identify major competitors to U.S. firms in the provision of relevant goods and services and factor in an appropriate discount to the export projections. The Contractor shall also attempt to evaluate potential increases in U.S.-México flows of rail transported freight attributable to implementation, quantify the discounted value, and identify any significant positive impacts on the terms of trade between the two countries for the selected merchandise.

Task Deliverable

Upon completion of the task the contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

12. Environmental Analysis

The Contractor shall evaluate the anticipated impact on the environment of an implementation. Potential significant negative environmental impacts of the project shall be identified, and if found, mitigation strategies suggested. This analysis shall conform to impact analysis

requirements of the Host Country, the U.S. government, and multilateral lending agencies. The Contractor shall outline a high-level plan for any formal environmental impact analysis that would be required to bring the project through the implementation stage, and identify work that would be required by the project sponsor following the completion of the USTDA study but prior to implementation. This task is not execution of a full impact analysis. It is rather to identify the potential requirement for such, identify potential major impacts, and identify the general scope, scale, and schedule that would be required for fulfillment of the identified legal obligations and potential major mitigation steps required prior to implementation.

Task Deliverable

Upon completion of the task the contractor shall provide a detailed written report describing the work performed and findings. This report shall be presented to the Grantee for review and comment.

13. Final Report and Presentation

The Contractor shall prepare a comprehensive final report integrating together the prior deliverables into a coherent, integrated set of documents. The findings shall be presented to selected stakeholders to include representatives of the operating railroads and relevant Host Country public agencies.

Task Deliverable

The Contractor shall prepare and provide to the Grantee and to USTDA a Final Report in accordance with Clause ___ of Annex II of the Grant Agreement. Each of the above tasks in this Terms of Reference must be distinctly set forth in the Final Report in a substantive and comprehensive manner, and shall include all corresponding deliverables. The Final Report shall contain an executive summary. In addition to any other required deliverables in accordance with Clause ___ of Annex II of the Grant Agreement, the Contractor shall provide both the grantee and USTDA with a Public Version of the Final Report on CD-ROM. The CD-ROM version of the Final Report shall include:

- Adobe Acrobat readable copies of all documents;*
- Source files for all drawings in AutoCAD or Visio format,*
- Source files for all geospatial products in ArcGIS format and;*
- Source files for all documents in MS Office 2007 or later formats (note: these files may be provided in equivalent readable formats.)*

Included as part of the deliverable shall be any Microsoft PowerPoint or other presentation files, to include notes and exhibits, used to present the Study conclusions to stakeholders. All deliverables for all tasks shall be provided in both the English and Spanish language.

STUDY BUDGET, SCHEDULE & CONTACTS

Attached as Appendix 2:

- Annex III: Required Budget Format
- Annex IV: Task Completion Schedule
- Annex V: Budget Narrative

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APPENDICES (PROJECT BUDGETS, SCHEDULES AND CONTACTS)

1. PROJECT 1 – MOTIVE POWER

Annex III: Proposed Project Budget²

Annex IV: Proposed Project Schedule

Annex V: Budget Narrative

2. PROJECT 2 – FREIGHT RAILCARS

Annex I: Impact on U.S. Labor Statement*

Annex II: USTDA Nationality Requirements for the DM Contractor*

Annex III: Proposed Project Budget

Annex IV: Proposed Project Schedule

Annex V: Budget Narrative

3. MASTER LIST OF ALL DM CONTACTS

² The annex numbering accounts for the following mandatory legal attachments from USTDA for the contract.

Annex I: Impact on U.S. Labor Statement

Annex II: USTDA Nationality Requirements for the DM Contractor

DIRECT LABOR COSTS

TOR Task	TOR Task Name	Primary Contractor (Employee) Labor			
		Position	Total Person Days	X Daily Rate*	= TOTAL COST
1.1 Data Collection and Review: Equipment		01. Team Leader	6.00	\$ 1,500.00	\$ 9,000.00
		02. Mechanical/Fleet Expert	6.00	\$ 1,400.00	\$ 8,400.00
		03. Transport Economist	2.00	\$ 1,300.00	\$ 2,600.00
1.2 Data Collection and Review: Traffic and Infrastructure		01. Team Leader	7.00	\$ 1,500.00	\$ 10,500.00
		02. Mechanical/Fleet Expert	6.00	\$ 1,400.00	\$ 8,400.00
		03. Transport Economist	6.00	\$ 1,300.00	\$ 7,800.00
2. Traffic and Fleet Projection Baseline		01. Team Leader	10.00	\$ 1,500.00	\$ 15,000.00
		02. Mechanical/Fleet Expert	8.00	\$ 1,400.00	\$ 11,200.00
		03. Transport Economist	10.00	\$ 1,300.00	\$ 13,000.00
3. Legal and Regulatory Analysis		01. Team Leader	5.00	\$ 1,500.00	\$ 7,500.00
		02. Mechanical/Fleet Expert	5.00	\$ 1,400.00	\$ 7,000.00
		03. Transport Economist	3.00	\$ 1,300.00	\$ 3,900.00
4. Economic Analysis of the Project		01. Team Leader	5.00	\$ 1,500.00	\$ 7,500.00
		02. Mechanical/Fleet Expert	5.00	\$ 1,400.00	\$ 7,000.00
		03. Transport Economist	8.00	\$ 1,300.00	\$ 10,400.00
5. Fleet Equipment and Operations Analysis		01. Team Leader	15.00	\$ 1,500.00	\$ 22,500.00
		02. Mechanical/Fleet Expert	15.00	\$ 1,400.00	\$ 21,000.00
		03. Transport Economist	15.00	\$ 1,300.00	\$ 19,500.00
6. Analysis of Tank, Box and Hopper Cars		01. Team Leader	16.00	\$ 1,500.00	\$ 24,000.00
		02. Mechanical/Fleet Expert	16.00	\$ 1,400.00	\$ 22,400.00
		03. Transport Economist	16.00	\$ 1,300.00	\$ 20,800.00
7. US Sources of Supply		01. Team Leader	3.00	\$ 1,500.00	\$ 4,500.00
		02. Mechanical/Fleet Expert	3.00	\$ 1,400.00	\$ 4,200.00
		03. Transport Economist	4.00	\$ 1,300.00	\$ 5,200.00
8. Financial Analysis of the Project		01. Team Leader	4.00	\$ 1,500.00	\$ 6,000.00
		02. Mechanical/Fleet Expert	0.00	\$ 1,400.00	\$ -
		03. Transport Economist	10.00	\$ 1,300.00	\$ 13,000.00
9. Projections and Implementation Plan		01. Team Leader	10.00	\$ 1,500.00	\$ 15,000.00
		02. Mechanical/Fleet Expert	10.00	\$ 1,400.00	\$ 14,000.00
		03. Transport Economist	10.00	\$ 1,300.00	\$ 13,000.00
10. Development Impact Measurements		01. Team Leader	2.00	\$ 1,500.00	\$ 3,000.00
		02. Mechanical/Fleet Expert	2.00	\$ 1,400.00	\$ 2,800.00
		03. Transport Economist	6.00	\$ 1,300.00	\$ 7,800.00
11. Export Projection Analysis		01. Team Leader	4.00	\$ 1,500.00	\$ 6,000.00
		02. Mechanical/Fleet Expert	4.00	\$ 1,400.00	\$ 5,600.00
		03. Transport Economist	5.00	\$ 1,300.00	\$ 6,500.00
12. Environmental Analysis		01. Team Leader	2.00	\$ 1,500.00	\$ 3,000.00
		02. Mechanical/Fleet Expert	0.00	\$ 1,400.00	\$ -
		03. Transport Economist	6.00	\$ 1,300.00	\$ 7,800.00
13. Final Report and Presentation		01. Team Leader	11.00	\$ 1,500.00	\$ 16,500.00
		02. Mechanical/Fleet Expert	10.00	\$ 1,400.00	\$ 14,000.00
		03. Transport Economist	10.00	\$ 1,300.00	\$ 13,000.00
TOTALS:			301.00		\$ 420,300.00

TOR Task	TOR Task Name	Non-Employee Labor			
		Position	Total Person Days	X Daily Rate**	= TOTAL COST
1a. Data Collection and Review: Equipment		L1. Local Railways Analyst	8.00	\$ 350.00	\$ 2,800.00
1b. Data Collection and Review: Traffic and Infrastructure		L1. Local Railways Analyst	8.00	\$ 350.00	\$ 2,800.00
2. Traffic and Fleet Projection Baseline		L1. Local Railways Analyst	6.00	\$ 350.00	\$ 2,100.00
3. Legal and Regulatory Analysis		L1. Local Railways Analyst	8.00	\$ 350.00	\$ 2,800.00
4. Economic Analysis of the Project		L1. Local Railways Analyst	6.00	\$ 350.00	\$ 2,100.00
5. Fleet Equipment and Operations Analysis		L1. Local Railways Analyst	15.00	\$ 350.00	\$ 5,250.00
6. Analysis of Tank, Box and Hopper Cars		L1. Local Railways Analyst	16.00	\$ 350.00	\$ 5,600.00
7. US Sources of Supply		L1. Local Railways Analyst	6.00	\$ 350.00	\$ 2,100.00
8. Financial Analysis of the Project		L1. Local Railways Analyst	6.00	\$ 350.00	\$ 2,100.00
9. Projections and Implementation Plan		L1. Local Railways Analyst	8.00	\$ 350.00	\$ 2,800.00
10. Development Impact Measurements		L1. Local Railways Analyst	2.00	\$ 350.00	\$ 700.00
11. Export Projection Analysis		L1. Local Railways Analyst	2.00	\$ 350.00	\$ 700.00
12. Environmental Analysis		L1. Local Railways Analyst	4.00	\$ 350.00	\$ 1,400.00
13. Final Report and Presentation		L1. Local Railways Analyst	10.00	\$ 350.00	\$ 3,500.00
TOTALS:			105.00		\$ 36,750.00
TOTAL DIRECT LABOR COSTS:					\$ 457,050.00

OTHER DIRECT COSTS:

Tasks	TOTAL COST
Purchased Services/Contracts*** Technical Interpreter (Simultaneous) at \$250/day for 32 days	\$ 8,000.00
Legal Analysis Services Task 3 support	\$ 7,200.00
Translation services: Field Support Supporting translation of Spanish to English documents for field visits	\$ 2,000.00
Translation services: Deliverables Supporting Translation of Deliverables into English/Translation of other Research into English	\$ 12,000.00
Travel	
International Coach Flight One-Way Mexico - USA or VV	\$ 1,200.00
International Coach Flight R/T USA - Mexico - USA	\$ 5,100.00
International Coach Flight, Laredo, TX to Guadalajara	\$ 1,500.00
International Coach Flight, USA - to Tuxtla Gutierrez	\$ 1,500.00
Domestic Coach Flight Chicago - Laredo	\$ 1,050.00
Domestic Coach Flights within Mexico	\$ 3,000.00
Airport Transfers per International R/T	\$ 1,200.00
Airport Transfers Per International 1-Way	\$ 600.00
Airport transfers per flight within Mexico	\$ 1,050.00
Trip Days	
Per diem in Mexico, D.F.	\$ 33,666.00
Per diem in Monterrey	\$ 2,313.00
Per diem in Guadalajara	\$ 2,160.00
Per diem in Other Mexico Locations	\$ 3,006.00
Per diem in Laredo, TX	\$ 912.00
Travel Telecommunications per day per person	\$ 2,268.00
Van + driver for local transport per Day	\$ 3,875.00
Other	
Black & White Copies	\$ 142.80
Color Copies	\$ 244.80
Domestic Telecommunications (Days Worked Less Field Per Diem @ \$3/day)	\$ 843.00
Databases and Reports (Market Analyses/Fleet Statistics)	\$ 7,000.00
Courier Fees	\$ 160.00
TOTAL OTHER DIRECT COSTS:	\$ 101,990.60
TOTAL COSTS (DIRECT LABOR COSTS + OTHER DIRECT COSTS):	\$ 559,040.60
TOTAL HOST COMPANY COST SHARE:	0% (If applicable) \$ -
PROPOSED USTDA GRANT:	\$ 559,040.60

* Primary Contractor (Employee) Labor Costs = Salary + Overhead + Benefits (no fee or profit)
** Non-Employee Labor Cost = Salary + Overhead + Reasonable Fee or Profit
*** Purchased Services/Contracts may include engineering drawings, lab work, surveys, translation, etc., which would not be included in Non-Employee Labor Cost above.

Annex IV: Task Completion Schedule (Weeks)
Technical Assistance to Analyze the Market for Freight Railcars in Mexico
Host Country: México Project Sponsor: Asociación Mexicana de Ferrocarriles A. C.

No.	Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33		
1.1	Data Collection and Review: Equipment	█	█	█	█	◊																														
1.2	Data Collection and Review: Traffic and Infrastructure	█	█	█	█	◊																														
2.	Traffic and Fleet Projection Baseline			█	█	█	█	◊																												
3.	Legal and Regulatory Analysis			█	█	█	█	◊																												
4.	Economic Analysis of the Project						█	█	█	█	█	█	█	█	█	█	█	◊																		
5.	Fleet Equipment and Operations Analysis						█	█	█	█	█	█	█	█	█	█	█	█	◊																	
6.	Analysis of Tank, Box and Hopper Cars									█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
7.	US Sources of Supply																█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	◊
8.	Financial Analysis of the Project																█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	◊
9.	Projections and Implementation Plan																				█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	◊
10.	Development Impact Measurements																								█	█	█	█	█	█	█	█	█	█	█	◊
11.	Export Projection Analysis																								█	█	█	█	█	█	█	█	█	█	█	◊
12.	Environmental Analysis																									█	█	█	█	█	█	█	█	█	█	◊
13.	Final Report and Presentation																																	█	█	◊

◊ = Project deliverables

Annex V: Budget Narrative
Technical Assistance to Analyze the Market for Freight Railcars in Mexico
Host Country: México Project Sponsor: Asociación Mexicana de Ferrocarriles A. C.

Item	Sources/Assumptions/Basis	Unit	Unit Cost
Per diem in Mexico, D.F.	U.S. Department of State Foreign Per Diem Rate effective as of 04/01/2013	Calendar Day	\$ 362.00
Per diem in Monterrey	U.S. Department of State Foreign Per Diem Rate effective as of 01/01/2009	Calendar Day	\$ 257.00
Per diem in Guadalajara	U.S. Department of State Foreign Per Diem Rate effective as of 06/01/2011	Calendar Day	\$ 240.00
Per diem in Other Mexico Locations	U.S. Department of State Foreign Per Diem Rate effective as of 12/01/2000	Calendar Day	\$ 167.00
Per diem in Laredo, TX	GSA 2014 Per Diem Rates for Texas	Calendar Day	\$ 152.00
Rental car in Laredo, TX	Average of quotes on www.expedia.com accessed on 11/21/13	Calendar Day	\$ 120.00
International Coach Flight One-Way Mexico - USA or VV	Average of quotes on www.expedia.com accessed on 11/21/13	Flight	\$ 400.00
International Coach Flight R/T USA - Mexico - USA	Average of flight quotes on www.expedia.com accessed on 11/8/13	R/T	\$ 850.00
International Coach Flight, Laredo, TX to Guadalajara	Average of flight quotes on www.expedia.com accessed on 11/21/13	Flight	\$ 500.00
International Coach Flight, USA - to Tuxtla Gutierrez	Average of flight quotes on www.expedia.com accessed on 11/21/13	Flight	\$ 500.00
Domestic Coach Flight Chicago - Laredo	Average of flight quotes on www.expedia.com accessed on 11/21/13	Flight	\$ 350.00
Airport Transfers per International R/T	Contractor experience	Per R/T	\$ 200.00
Airport Transfers Per International 1-Way	Contractor experience	Per Flight	\$ 100.00
Domestic Coach Flights within Mexico	Average of flight quotes on www.expedia.com accessed on 11/8/13	Flight	\$ 250.00
Airport transfers per flight within Mexico	Contractor experience \$35 x 2	Per Flight	\$ 70.00
Van + driver for local transport per Day	Contractor estimate	Per Day	\$ 125.00
Black & White Copies	Contractor experience	Page	\$ 0.05
Color Copies	Contractor experience	Page	\$ 0.20
Travel Telecommunications per day per person	Estimated average hotel internet, mobile voice and data costs per field day.	Per Diem	\$ 18.00
Courier Fees	Contractor experience	Each	\$ 40.00
01. Team Leader	Contractor estimate (See Worksheet: Rates Analysis)	Workday	\$ 1,500.00
02. Mechanical/Fleet Expert	Contractor estimate (See Worksheet: Rates Analysis)	Workday	\$ 1,400.00
03. Transport Economist	Contractor estimate (See Worksheet: Rates Analysis)	Workday	\$ 1,300.00
L1. Local Railways Analyst	Contractor estimate (See Worksheet: Rates Analysis)	Workday	\$ 350.00
L2. Technical Interpreter (Simultaneous)	USCS Estimate @ \$35/hour	Workday	\$ 280.00
Technical Translation (Cost per page)	USCS Estimate per page	Per Page	\$ 20.00

United States Trade & Development Agency Definitional Mission: Mexico Rail Sector Project
Host Country: México Project Sponsor: Asociación Mexicana de Ferrocarriles A. C.
DM Report Annex: Contacts

Category	Title	First Name	Last Name	Company/Organization	Professional Title	Address 1	Address 2	City	State/Province	Postal Code	Country	Fax	Telephone	Telephone 2	E-mail Address	Web Page	
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Contractor Personnel	Mr.	Richard	Sherman	The Seneca Group LLC	Senior Associate	500 New Jersey Avenue NW	Fourth Floor	Washington	DC	20001	United States of America	(202) 783-5861	(202) 783-6096		rsherman@seneca-llc.com	http://www.seneca-llc.com	
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US Exporter/Supplier	Mr.	Miguel	Viveros	Union Tank Car Company (UTLX)	Sales Representative	Lote F 19-A Parq. Ind. Ferropuerto		Celaya	Guanajuato	CP 38158	México		+52 (01) 442-242-3208	+52 (442) 215-1292	viveros@utlx.com	http://www.utlx.com	
US Exporter/Supplier	Mr.	Ralph	Przybyszewski	Trackmobile LLC	Senior Project Engineer	1602 Executive Drive		LaGrange	GA	30240	United States of America		(706) 884-6651 ext. 235		ralphski@trackmobile.com	http://www.trackmobile.com	
US Exporter/Supplier	Mr.	Howard	Bush	Progress Rail Services	Senior Vice President for International Sales	1600 Progress Drive P.O. Box 1037		Albertville	AL	35950	United States of America		(800) 476-8769		hbush@PROGRESSRAIL.com	http://www.progressrail.com/	
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US Exporter/Supplier	Mr.	Kirby	Roseveare	National Railway Equipment Co.	Director of International Sales	908 Shawnee	PO Box 1416	Mt. Vernon	IL	62864	United States of America	(618) 241-9274	(618) 241-9270		k.roseveare@nationalrailway.com	http://www.nationalrailway.com	
US Exporter/Supplier	Mr.	Chad	Gibson	Railsolve, Inc.	Operations Lead	1691 Phoenix Blvd. Suite 250		Atlanta	GA	30349	United States of America		770-996-6838		chadgibson@railsolve.biz	http://www.railsolve.biz/	
US Exporter/Supplier	Mr.	T.	Mahoney	Railsolve, Inc.	LEAF Program Manager	1691 Phoenix Blvd. Suite 250		Atlanta	GA	30349	United States of America		(404) 661-8390		tmahoney@railsolve.biz	http://www.railsolve.biz/	
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US Exporter/Supplier	Mr.	Lorenzo	Reffreger	Servicios Corporativos GATX, S.C.	Vice President, Mexico Regional Sales	Ruben Dario #281-18		Colonia Bosques de Chapultepec	Ciudad México	DF	CP 11580	México		+52 (55) 5283-1233		lorenzo.refreger@gatx.com	http://www.gatx.com
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Host Country Government Official	Sr.	Fidencio	Diaz Mendez	San Juan del Rio Universidad Tecnologica	Director de la Division Mecatronica y Tecnologias de la Informacion y Comunicacion	Av. La Palma No. 125	Col. Vista Hermosa	San Juan del Rio	Queretero	CP 76802	México		+52 (427) 129-2000 ext. 254		fdiaz@utsjr.edu.mx	http://www.utsjr.edu.mx	
Host Country Government Official	Sr.	Marcelo	Antonio	San Juan del Rio Universidad Tecnologica	Secretario Academico	Av. La Palma No. 125	Col. Vista Hermosa	San Juan del Rio	Queretero	CP 76803	México		+52 (427) 129-2000 ext. 259		avelazquez@utsjr.edu.mx	http://www.utsjr.edu.mx	

United States Trade & Development Agency Definitional Mission: Mexico Rail Sector Project
Host Country: México Project Sponsor: Asociación Mexicana de Ferrocarriles A. C.
DM Report Annex: Contacts

Category	Title	First Name	Last Name	Company/Organization	Professional Title	Address 1	Address 2	City	State/Province	Postal Code	Country	Fax	Telephone	Telephone 2	E-mail Address	Web Page
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US Exporter/Supplier	Mr.	Al	Lullman	American Railcar Industries	Sr. Vice President Sales	100 Clark Street		St. Charles	MO	63301	United States of America		(636) 940-6160		alullman@americanrailcar.com	http://www.americanrailcar.com/
US Exporter/Supplier	Mr.	Les	Wood	FreightCar America	Managing Director - International Sales	Two North Riverside Plaza	Suite 1300	Chicago	IL	60606	United States of America	(312) 928-0890	(312) 928-1053		lwood@freightcar.net	http://freightcaramerica.com/
US Exporter/Supplier				Wabtec MotivePower		4600 Apple Street		Boise	ID	83716	United States of America	(208) 947-4800	(412) 825-1872		motivepowerinc@wabtec.com	http://www.motivepower-wabtec.com/
US Exporter/Supplier	Mr.	George	Mavungu	Coldtrain	Manager - Director of Marketing	6600 College Boulevard	Suite 310	Overland Park	KS	66211	United States of America		(913) 491-0050		george@rrlx.com	http://www.icoldtrain.com/

A N N E X 3

USTDA NATIONALITY REQUIREMENTS



U.S. TRADE AND DEVELOPMENT AGENCY
Arlington, VA 22209-3901

NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS
[As of January 17, 2014]

The purpose of USTDA's nationality, source, and origin requirements is to ensure 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, the following provisions shall govern the delivery of goods and professional services funded by USTDA under the Grant Agreement:

- (a) the Contractor must be a U.S. firm;
- (b) the Contractor may use U.S. subcontractors without limitation;
- (c) employees of U.S. Contractor or U.S. subcontractor firms shall be U.S. citizens, non-U.S. citizens lawfully admitted for permanent residence in the United States or non-U.S. citizens lawfully admitted to work in the United States, except as provided pursuant to subpart (d) below;
- (d) up to twenty percent (20%) of the USTDA Grant amount may be used to pay for services performed by (i) Host Country subcontractors, and/or (ii) Host Country nationals who are employees of the Contractor;
- (e) a Host Country subcontractor may only be used for specific services from the Terms of Reference identified in the subcontract;
- (f) subcontractors from countries other than the United States or Host Country may not be used;
- (g) 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

(h) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions.

NATIONALITY:

1) Application

A U.S. firm that submits a proposal must meet USTDA's nationality requirements as of the date of submission of the proposal and, if selected, must continue to meet such requirements throughout the duration of the USTDA-funded activity. These nationality provisions apply to all portions of the Terms of Reference that are funded with the USTDA grant.

2) Definitions

A "U.S. firm" is a privately owned firm that 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. citizens and/or non-U.S. citizens lawfully admitted for permanent residence in the United States, 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 that is organized in the U.S., has its principal place of business in the U.S., and is more than 50% owned by U.S. citizens and/or permanent residents, qualifies as a "U.S. firm".

A nonprofit organization, such as an educational institution, foundation, or association, also qualifies as a "U.S. firm" if it is incorporated in the U.S. and managed by a governing body, a majority of whose members are U.S. citizens and/or permanent residents.

SOURCE AND ORIGIN:

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.

Version 01.17.2014

A N N E X 4

**USTDA GRANT AGREEMENT,
INCLUDING MANDATORY CONTRACT CLAUSES**

dir
(LZ)

MEX 2014-51024A

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RegDir (NY)
Chf Hng (KE)
Reg Anl (LC)
Dep CFO (MB)
Fin Spc (EB)
Proc Spc (AA JV)
Grant Spc (SW)
Grant Adm (PD)
Ex. Asst (SU)
EC (EE)
COS (CJ)

GRANT AGREEMENT

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 the Asociación Mexicana de Ferrocarriles, A.C. (“Grantee”). USTDA agrees to provide the Grantee under the terms of this Grant Agreement US\$559,041 (“USTDA Grant”) to fund the cost of goods and services required for technical assistance (“TA”) on the proposed Specialty Freight Railcars project (“Project”) in Mexico (“Host Country”).

1. USTDA Funding

The USTDA Grant 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 TA (“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 TA (“Terms of Reference”) are attached as Annex I and are hereby incorporated by reference into this Grant Agreement. The TA will examine the technical, financial, environmental, and other critical aspects of the proposed Project. The Terms of Reference for the TA 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. Therefore, USTDA, the Grantee, and the Contractor shall not directly or indirectly provide, offer or promise to provide money or anything of value to any public official in violation of any United States or Host Country laws relating to corruption or bribery.

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.

5. Contract Matters and USTDA’s Rights as Financier

(A) Grantee 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's Right to Approve Contractor Selection

The Grantee shall notify USTDA at the address of record set forth in Article 16 below upon selection of the Contractor to perform the TA. USTDA then shall notify the Grantee whether or not USTDA approves the Grantee's Contractor selection. Upon USTDA approval of the Grantee's Contractor selection, the Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the TA that they were not selected. The Grantee and the Contractor then shall enter into a Contract for performance of the TA.

(C) USTDA's Right to Approve Contract Between Grantee and Contractor

(1) Contract

The Grantee and the Contractor shall enter into a Contract for performance of the TA. The Grantee (or the Contractor on the Grantee's behalf) shall transmit to USTDA, at the address set forth in Article 16 below, photocopy of an English language version of the signed Contract or a final negotiated draft version of the Contract. USTDA then shall notify the Grantee and the Contractor whether or not USTDA approves the Contract.

(2) Amendments and Assignments

The Grantee or the Contractor may submit any proposed amendment to the Contract, including any proposed amendment to any annex thereto, or any proposed assignment of the Contract, to USTDA at the address set forth in Article 16 below. USTDA then shall notify the Grantee and the Contractor whether or not USTDA approves the proposed amendment or assignment.

(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 U.S. 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 TA 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 any subcontract thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and the Contract or any subcontract funded by the Grant Agreement, the Grant Agreement shall control.

6. Disbursement Procedures

(A) USTDA Approval of Contract Required

USTDA will make disbursements of USTDA 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 TA by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory Contract 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. In the event that only one signature is dated, such date shall constitute the Effective Date.

8. TA Schedule

(A) TA Completion Date

The completion date for the TA, which is March 31, 2015, is the date by which the parties estimate that the TA will have been completed.

(B) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (i) 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 (ii) no USTDA funds may be disbursed more than four (4) years after the Effective Date of the Grant Agreement.

9. USTDA Mandatory Contract Clauses

All contracts funded under this Grant Agreement shall include the USTDA Mandatory Contract 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 Contract Clauses, except for Clauses B(1), G, H, I, and S.

10. Use of U.S. Carriers

(A) Air

Transportation by air of persons or property funded under this 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 this 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 professional services funded by USTDA under the Grant Agreement:

- (a) the Contractor must be a U.S. firm;
- (b) the Contractor may use U.S. subcontractors without limitation;
- (c) employees of U.S. Contractor or U.S. subcontractor firms shall be U.S. citizens, non-U.S. citizens lawfully admitted for permanent residence in the United States or non-U.S. citizens lawfully admitted to work in the United States, except as provided pursuant to subpart (d) below;
- (d) up to twenty percent (20%) of the USTDA Grant amount may be used to pay for services performed by (i) Host Country subcontractors, and/or (ii) Host Country nationals who are employees of the Contractor;
- (e) a Host Country subcontractor may only be used for specific services from the Terms of Reference identified in the subcontract;
- (f) subcontractors from countries other than the United States or Host Country may not be used;
- (g) goods purchased for performance of the TA and associated delivery services (e.g., international transportation and insurance) must have their nationality, source, and origin in the United States; and

(h) goods and services incidental to TA 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 this Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees, or other levies imposed under laws in effect in Host Country, except for taxes of a de minimis nature imposed on local lodging, food, transportation, or airport arrivals or departures. Neither the Grantee nor the Contractor will seek reimbursement from USTDA for taxes, tariffs, duties, fees, or other levies, except for taxes of a de minimis nature referenced above.

13. USTDA Project Evaluation

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, the Grantee agrees to respond to any reasonable inquiries from USTDA about the status of the Project. Inquiries will include, but not be limited to, whether the Final Report recommendations have been or will be used to implement the Project, anticipated Project implementation timeline, and likely source of financing. In addition, the Grantee agrees to notify USTDA any time the Grantee selects a new primary contact person for this Project during the five-year period referenced above.

14. Recordkeeping and Audit

The Grantee agrees to maintain books, records, and other documents relating to the TA and this Grant Agreement adequate to demonstrate implementation of its responsibilities under this 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 TA and the Grant Agreement.

15. Representation of Parties

For all purposes relevant to this 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 its Director General. The parties hereto may, by written notice, designate additional representatives for all purposes under this Grant Agreement.

16. 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 an electronic medium that produces a tangible record of the transmission, such as a facsimile or e-mail message, and will be deemed duly given or sent when delivered to such party at the following:

To: Asociación Mexicana de Ferrocarriles, A.C.
Alfonso Esparza Oteo 144, Oficina 702
Col. Guadalupe Inn, Deleg. A. Obregón
México, D.F. 01020
MEXICO

Phone: +(52-55) 5661-0325
Fax: +(52-55) 5662-5852
E-Mail: ikerdeluisa@amf.org.mx

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

Phone: (703) 875-4357
Fax: (703) 875-4009
E-Mail: LAC@ustda.gov

All such communications shall be in English, unless the parties otherwise agree in writing. In addition, the Grantee shall provide the Commercial or Economic 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.: 11 14/15 1001
Activity No.: 2014-51024A
Reservation No.: 2014205
Grant No.: GH201451205

17. Implementation Letters

To assist the Grantee in the implementation of the TA, USTDA may, from time to time, issue implementation letters that will provide additional information about matters covered by this Grant Agreement. USTDA may also issue implementation letters to (i) extend the estimated completion date set forth in Article 8(A) above, or (ii) change the fiscal data set forth in Article 16 above. The parties may also use jointly agreed upon implementation letters to confirm and record their mutual understanding of matters covered by this Grant Agreement.

18. Grant Agreement Amendments

Either party may submit to the other party at any time a proposed amendment to the Grant Agreement. A Grant Agreement amendment shall be effective only if it has been signed by both parties.

19. Termination Clause

Either party may terminate this Grant Agreement by giving the other party written notice thereof. The termination of the Grant Agreement will end any obligations of the parties to provide financial or other resources for the TA, except for payments that may be made pursuant to Clause H of the USTDA Mandatory Contract Clauses set forth in Annex II to this Grant Agreement. This article and Articles 5, 12, 13, 14, and 21 of the Grant Agreement shall survive termination of the Grant Agreement.

20. 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.

21. U.S. Technology and Equipment

By funding this TA, 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.

22. Governing Law

This Grant Agreement shall be governed by, and construed in accordance with, the applicable laws of the United States of America. In the absence of federal law, the laws of the State of New York shall apply.

23. Counterparts

This Grant Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same agreement. Counterparts may be delivered via electronic mail or other transmission method and any counterpart so delivered shall be deemed to be valid and effective for all purposes.

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the Government of the United States of America and the Asociación Mexicana de Ferrocarriles, A.C., each acting through its duly authorized representative, have caused this Grant 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**

**For the
Asociación Mexicana de Ferrocarriles, A.C.**

By: 
Leocadia I. Zak
Director
U.S. Trade and Development Agency

By: 
José Guillermo Zozaya Delano
President
Asociación Mexicana de Ferrocarriles, A.C.

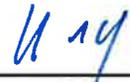
Date: May 29, 2014

Date: May 29, 2014

Witnessed:

Witnessed:

By: 
Nathan D. Younge
Regional Director
U.S. Trade and Development Agency

By: 
Iker de Luisa Plazas
Executive Director
Asociación Mexicana de Ferrocarriles, A.C.

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Contract Clauses

Annex I

Terms of Reference

Objective

The objective of the technical assistance (“TA”) for the Specialty Freight Railcars Project (“Project”) is to identify freight railroad demand opportunities that would improve the availability of specialized freight railcars and related equipment. The TA will allow the Asociación Mexicana de Ferrocarriles, A.C. (“Grantee”) to examine institutional and operational improvements that could optimize Mexico’s fleet of freight railcars, as well as to identify specific investments in new systems, services, terminal facilities, and specialty freight railcars to meet the projected growth in freight rail transportation.

General Considerations for Deliverables and Documents

The U.S. firm selected by the Grantee to perform the TA (“Contractor”) shall undertake a quality control review process, including a technical and editorial review, of all deliverables and documents submitted to the Grantee to ensure readability, accuracy, and consistency. All deliverables and documents shall be submitted in draft form to the Grantee for review and comment prior to finalization. The interim deliverables specified in these Terms of Reference shall serve to keep the Grantee informed about the Contractor’s work on the TA and to ensure that the Contractor’s work is performed satisfactorily, in accordance with applicable Contract provisions and the terms and conditions of the USTDA Grant Agreement (per Clause G of Annex II of the Grant Agreement). The Contractor shall submit monthly progress reports to the Grantee.

Activities

Task 1: Data Collection and Review

Through a combination of research, interviews, and field visits, the Contractor shall gather initial data necessary to support execution of the TA. As part of this task, the Contractor shall meet with representatives of various entities to brief them on the scope and objective of the TA, to identify counterparts as necessary to assist or participate in study activities, and to present initial data requests. These entities may include, but not be limited to:

- Mexico’s major operating freight railroad companies: Ferromex and Ferrosur; Kansas City Southern de México; Ferrocarril del Istmo de Tehuantepec; Ferrovial; and Línea Coahuila-Durango;
- U.S. freight railroads interchanging freight cars with Mexico;
- Secretaría de Comunicaciones y Transportes (“SCT”);
- The Association of American Railroads and the Grantee;
- Representatives of Confederación de Cámaras Industriales (“CONCAMIN”) to include the member bodies representing shippers relevant to the railcar markets being studied;

- Selected individual shippers (freight rail customers) as appropriate to include third-party logistics providers and Petróleos Mexicanos (“PEMEX”);
- Private railcar lessors, financiers, and fleet managers to include General American Transportation Corporation (“GATX”) and TTX Company; and
- Manufacturers of freight railcars.

Subtask 1.1: Data Collection and Review: Equipment

The Contractor shall collect comprehensive data on the fleet of freight railcars owned by Mexican entities, including freight rail operators, lessors, and shippers. The information collected shall include car type, owner, manufacture year, capacity, interchange, and operational status. Historical data on the composition of the Mexican railcar fleet shall be collected, covering at least the last five years. Corresponding United States and Canadian railcar fleet data shall be collected to enable benchmarking of Mexican fleet characteristics against the other participants in the North American context.

Subtask 1.2: Data Collection and Review: Traffic and Infrastructure

The Contractor shall collect comprehensive data on the historical modal freight flows within Mexico and between the United States and Mexico, measured by both value and weight. Detailed information shall be collected on freight rail flows. Origins and destinations by commodity type shall be collected and correlated with categories of railcars. System-wide operational metrics shall be collected to include train and railcar velocity and terminal dwell times. Data on infrastructure capacity constraints shall be collected to include weight, speed, and clearance restrictions on the freight rail lines in Mexico and main U.S. rail corridors carrying traffic to and from Mexico. Key macroeconomic and industry drivers for the major rail freight commodity classes shall be identified and correlations and relationships described. The domestic procedures for car hire, inspection, demurrage, storage, reloading, damage compensation, and interchange when conducted between railroads within Mexico shall be examined to understand any significant differences from practices in international interchange.

Interim Deliverable #1 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 1. This report shall be submitted to the Grantee for review and comment.

Task 2: Traffic and Fleet Projection Baseline

Based upon the data gathered, historical trends, and current assumptions of the freight railroad operating companies, the Contractor shall prepare the following: 1) projected freight railroad traffic levels in Mexico by commodity type and volume to include interchange traffic with the United States; and 2) the evolution of the freight railcar fleet by car type, age, capacity, and ownership. These projections shall be for an eleven-year period with the year of the TA as the base year.

Interim Deliverable #2 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 2. This report shall be submitted to the Grantee for review and comment.

Task 3: Legal and Regulatory Analysis

The Contractor shall collect and review Mexico's national government laws, regulations, and standards; international treaties and agreements; and industry standards and agreements in the following areas:

- The operations of freight railroads and freight rail concessions;
- The leasing and ownership of railcars, including the treatment of financial aspects to include taxation and depreciation;
- The applicable conventions and agreements related to compensation for railcar use (car hire), loss and damage, and demurrage;
- The movement of freight between the United States and Mexico, including customs and border crossings requirements and procedures for both rail and truck; and
- Truck sizes and weights and driver hours of service and enforcement, to the degree that such requirements have a material impact on demand for rail traffic.

Interim Deliverable #3 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 3. This report shall be submitted to the Grantee for review and comment.

Task 4: Economic Analysis

The Contractor shall evaluate the economic drivers supporting the decisions by different types of railcar owners in Mexico to own, rebuild, retire, and replace freight railcars and from where to source the goods and services. The Contractor shall analyze cash flow considerations, life-cycle costing, market conditions, and impact of a car hire compensation system, as well as typical supply agreements, order scale, and timelines for purchases of freight railcars. The ownership of freight railcars in Mexico shall be evaluated from a life-cycle cost perspective considering maintenance, refurbishment, and disposal costs. Dynamics that differentiate the different categories of owners (freight rail operators, shippers, and lessors) shall be analyzed, as shall those that differentiate ownership considerations between Mexico and the United States. This shall include evaluation of the constraints of weight restrictions on the Mexican network on the economics of investments in railcars.

Interim Deliverable #4 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 4. This report shall be submitted to the Grantee for review and comment.

Task 5: Fleet Equipment and Operations Analysis

The Contractor shall conduct an analysis of the dynamics of the railcar fleet and operations from a national and systemic perspective as impacting supply and demand for freight railcars in Mexico. The objective of this analysis shall be to identify significant problems or weaknesses that adversely impact the supply of cars to meet demand and their root causes. The Contractor shall recommend concrete steps for identified problem

areas that would improve system-wide customer service, car availability, fleet utilization, and enable freight rail traffic growth within Mexico. The areas to be investigated shall include, but not be limited to:

- Railcar age and condition;
- Railcar type mix and capacity;
- The balance of interchange versus non-interchange equipment;
- Trends and opportunities in average lengths of haul;
- Fleet utilization characteristics (lane balance and backhaul optimization);
- Domestic and international interchange practices;
- Balance of ownership of railcars between railroads and private owners;
- Role of third-party logistics providers;
- Carpooling practices;
- Car hire procedures, practices, and costs;
- Demurrage practices and fees;
- Terminal congestion and dwell times;
- System railcar and train velocity;
- Monitoring, tracing, and tracking of railcars, including participation in industry systems and databases and railcar visibility to stakeholders;
- Shrinkage and damage of cargoes and vandalism of railcars;
- Major infrastructure bottlenecks in the areas of weight, speed, clearance, and capacity;
- Customs and border crossing procedures; and
- Railcar storage practices by different stakeholders.

Class I freight railroad operations in the United States and Canada shall be used as the benchmark for performance assessment.

Interim Deliverable #5 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 5. This report shall be submitted to the Grantee for review and comment.

Task 6: Analysis of Tank, Box, and Hopper Railcars

The Contractor shall undertake a more detailed analysis of the supply and demand of the specific markets for freight rail traffic, generally oriented around car types. The areas investigated systemically in Task 5 shall be examined in detail as applied to these specific railcar markets. The Contractor shall evaluate the modal split for each market diversion to rail and creation of new traffic. The specific dynamics of major customers, origins, and destinations shall be examined, including incentives and disincentives for car owners to provide higher levels of service to shippers and railroads. The availability and price of new railcars for these services shall be examined, as shall the production sources and the backlog of orders. This analysis shall occur for the following types of wagons:

Subtak 6.1: Tank Car Demand and Oil, Refined Oil Products, and Petrochemical Traffic
The Contractor shall evaluate railcar supply and demand from two perspectives:

1. The potential for exploitation of unconventional petroleum reserves in Mexico shall be examined to assess potential new demand for tank cars to transport crude oil outbound from production fields to customer destinations. The production potential and patterns and the dynamics of truck and pipeline competition and their role in a rail logistics chain shall be considered. Inbound logistics for production consumables to include water, frac sand, and oilfield equipment shall also be examined for rail traffic potential. The probable capacity, location, and type of rail terminals shall be evaluated; and
2. The international trade in refined products/petrochemicals versus crude oil between the United States and Mexico shall be examined. The current tank car traffic patterns and volumes for these products shall be evaluated for shifts that will impact demand for tank cars.

The Contractor shall identify opportunities and threats to freight rail traffic in this sector and recommend courses of action. The potential impact on the fleet and operations of new more stringent petroleum product tank car safety requirements, particularly for international interchange service, shall be evaluated, such as regulations requiring retrofits or retirements of tank cars deemed as unsafe. A forecast for rail traffic potential and associated railcar demand shall be developed based on findings and assumptions of implementation of selected recommendations.

Subtask 6.2: Box Car Demand and Refrigerated Goods Traffic

The Contractor shall evaluate the market for box cars based on traffic trends, car supply, and technology. Opportunities for expanding existing or developing new box car traffic service shall be examined, specifically new high-cube box car designs. The potential for further development of transportation of fresh and frozen products in dedicated refrigerated boxcars shall be examined specifically. The Contractor shall evaluate existing refrigerated freight rail services between the United States and Mexico and shall identify challenges and opportunities to creation of expanded or completely new services. Specific aspects to be analyzed shall include: reliability of transit times; maintenance of refrigeration equipment; equipment and cargo monitoring and tracking technologies; sophistication and availability of cold chain logistics facilities in Mexico; ability of shippers and transport providers to secure viable backhauls of refrigerated or non-refrigerated cargos from Mexico; and security requirements for refrigeration equipment and the related cargo. The Contractor shall develop a forecast for selected “lanes” traffic potential and railcar demand based on these findings.

Subtask 6.3: Covered Hopper Car Demand and Agricultural Traffic

The market for agricultural products transported in covered hopper cars shall be examined for any growth potential. The provision of railcars to customers for seasonal flows of different products shall be examined for optimization. Both flows between Mexico and Canada and the United States shall be examined, as well as traffic originating and terminating within Mexico. Challenges to railcar owners and operators associated with backhaul traffic and cycle times for these types of cars shall be analyzed. Alternative railcar ownership, compensation for use, and management and operating structures shall

be evaluated. The Contractor shall describe its findings and develop a forecast for traffic potential and railcar demand based on an implementation scenario.

Subtask 6.4: Open-Top Hopper Car Demand and Aggregate Traffic

Building upon the findings of Subtask 6.1, the Contractor shall assess the potential demand for new aggregate cars to transport sand inbound to Mexican fields to support hydraulic fracturing of oil and gas wells. The production potential, probable field development patterns over time, and the dynamics of rail, truck, and maritime modes and their role in the sand logistics chain shall be considered. The probable capacity, location, and type of rail terminals for intermodal transload of the product shall be evaluated, including potential for co-location with oil product transload terminals. The Contractor shall assess the potential of sourcing of proppant material from U.S. origins versus potential Mexican sources. A forecast for rail traffic potential, sand origins and destinations, and the associated railcar acquisition demand shall be developed based on these findings.

Interim Deliverable #6 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 6. This report shall be submitted to the Grantee for review and comment.

Task 7: U.S. Sources of Supply

The Contractor shall evaluate U.S. sources of supply to include manufacturers of freight railcars, railcar lessors, carpooling services providers, providers of railcar maintenance and rehabilitation services, and providers of systems and services for the management, monitoring, and tracking of freight railcars. For the major suppliers, the Contractor shall evaluate the approximate national origin of materials, goods, and services from the United States to Mexico. Freight car sales shall be evaluated from a life-cycle perspective, including parts and services for maintenance and periodic rehabilitation. Historical trends and projections for backlogs for orders of the different types of railcars shall be analyzed. The major competitors to U.S. firms in the Mexican market shall be identified and profiled to include market share and strengths and weaknesses vis-à-vis their U.S. peers.

Interim Deliverable #7 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 7. This report shall be submitted to the Grantee for review and comment.

Task 8: Financial Analysis

The Contractor shall identify and evaluate the availability of the different sources of debt and equity financing presently available to support acquisition of freight railcars by freight railroad operators, shippers, and third parties (such as lessors). This activity shall include discussions with the operators, equity investors, private and public providers of equipment financing in the United States and Mexico, Export-Import Bank of the United States, Overseas Private Investment Corporation, North American Development Bank,

Inter-American Development Bank, and relevant Mexican public entities. The Contractor shall seek to identify gaps in financing types or scale for the different customer types. The impact of car hire systems and tax regimes on domestic and cross-border sales and leasing of freight railcars shall be evaluated. The Contractor shall make an assessment or recommendations if government provision of any type of funding, financing, or tax incentives into the freight railcar industry or institutions would be beneficial, and if so, the potential scale, structures, and methods.

Interim Deliverable #8 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 8. This report shall be submitted to the Grantee for review and comment.

Task 9: Implementation Plan

Based on findings and demand scenarios elaborated in previous tasks, the Contractor shall update the baseline projections of rail freight traffic and railcar fleet evolution to create an implementation case projection. The railcar fleet evolution projection shall consider constraints such as supply industry capacity, railroad operational considerations in terms of fleet and capital investment management, application of car hire conventions, and financial considerations. This alternative railcar fleet scenario shall match the eleven-year term of the fleet base case projection. The Contractor shall make specific note of the key assumptions affecting the change in demand from the baseline projections.

Interim Deliverable #9 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 9. This report shall be submitted to the Grantee for review and comment.

Task 10: Development Impact Assessment

The Contractor shall assess the developmental impacts associated with the Project and explain its methodology for measuring those impacts. The Contractor shall compare the two fleet evolution scenarios, quantify the difference between them, and measure the potential development impact over the projection period. The impacts considered must be relevant to the Project, *i.e.*, reasonably expected to flow from its implementation as outlined in the Study. Such impacts may include impacts in the following categories:

- *Infrastructure*: Potential developmental impacts in this category may include investments in rail tracks and rail terminals associated with new or different freight rail traffic patterns, and may also include reductions in road maintenance costs from the potential diversion of truck traffic to rail;
- *Market-Oriented Reform*: Potential developmental impacts in this category may include privatizing state-owned entities or outsourcing of services they provide, such as private operation of loading/unloading terminals, promoting market competition, improved car hire procedures, improving intellectual property rights or industry standards, or new regulations that lead to market liberalization;

- *Human Capacity Building*: Potential developmental impacts in this category may include the number and type of local positions that would be created to implement, operate, and maintain the Project, as well as any specialized training that would be required;
- *Technology Transfer and Productivity Improvement*: Potential developmental impacts in this category may include the introduction of a new product or technology that will improve operations of the Host Country's current system, process, or operation;
- *Environment*: Potential developmental impacts in this category may include measureable environmental benefits that may be derived from the Project, based on the findings from Task 12; and
- *Other*: Additional potential developmental impacts that may result from the Project, such as enhanced government revenue generation, replication or spin-off projects, or improved safety and security.

Interim Deliverable #10 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 10. This report shall be submitted to the Grantee for review and comment.

Task 11: Projection of U.S. Exports Transported by Freight Rail

The Contractor shall compare the two railcar fleet evolution scenarios and quantify the expenditure difference between them to project the potential U.S.-origin export gain. This analysis shall consider both merchandise and services associated with railcar and related systems purchases. The analysis shall be based on interviews with U.S. suppliers and operators and shall consider the likely sourcing of materials and labor in the United States versus Mexico and other nations. A discounted net present value of the projected difference shall be calculated. The analysis shall incorporate the projected value of the goods and services associated with the investments from a life-cycle cost analysis perspective, not simply the initial up-front cost of the railcars and associated systems. To provide context and scale, this task shall incorporate an analysis of the relevant historical and projected exports under the appropriate categories for trade between Mexico and the United States. The analysis shall identify major competitors to U.S. firms in the provision of relevant goods and services and factor in an appropriate discount to the export projections. The Contractor shall also attempt to evaluate potential increases in U.S.-Mexico trade flows of rail-transported freight attributable to Project implementation, quantify the discounted value, and identify any significant positive impacts on the terms of trade between the two countries for the selected merchandise.

Interim Deliverable #11 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 11. This report shall be submitted to the Grantee for review and comment.

Task 12: Preliminary Environmental Impact Assessment

The Contractor shall conduct a preliminary review of the Project's environmental impact and environmental compliance with reference to local requirements and those of multilateral development banks (such as the World Bank and Inter-American Development Bank). This review shall identify potential positive and negative impacts, discuss the extent to which negative impacts can be mitigated, and develop plans for a full environmental impact assessment in anticipation of the Project moving forward to the implementation stage.

Interim Deliverable #12 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 12. This report shall be submitted to the Grantee for review and comment.

Task 13: 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.

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 Asociación Mexicana de Ferrocarriles, A.C. (“Client”), dated _____ (“Grant Agreement”). The Client has selected _____ (“Contractor”) to perform technical assistance (“TA”) for the Specialty Freight Railcars project (“Project”) in Mexico (“Host Country”). The Client and the Contractor are the parties to this Contract, and they hereinafter are referred to collectively as the “Contract Parties.” 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 S. In addition, in the event of any inconsistency between the Grant Agreement and the Contract or any subcontract thereunder, the Grant Agreement shall be controlling.

B. USTDA as Financier

(1) USTDA Approval of Contract

This Contract, and any amendment thereto, including any amendment to any annex thereto, and any proposed assignment of this Contract, 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 conforms to modifications required by USTDA during the Contract review process and the Contract has been formally approved by USTDA. To make this review in a timely fashion, USTDA must receive from either the Client or the Contractor an English language version of a final negotiated draft Contract or a signed Contract to the attention of the General Counsel's office at USTDA's address listed in Clause M below.

(2) USTDA Not a Party to the Contract

It is understood by the Contract 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 Contract 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 TA and shall not be construed as making USTDA a party to the Contract. The Contract 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 Contract Parties or the parties to any subcontract, jointly or separately; and in consideration of USTDA's role as financier, the Contract Parties further agree that USTDA's rights may be exercised without thereby incurring any responsibility or liability, in contract, tort, or otherwise, to the Contract Parties or the parties to any subcontract. 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 professional services funded by USTDA under the Grant Agreement:

- (a) the Contractor must be a U.S. firm;
- (b) the Contractor may use U.S. subcontractors without limitation;
- (c) employees of U.S. Contractor or U.S. subcontractor firms shall be U.S. citizens, non-U.S. citizens lawfully admitted for permanent residence in the United States or non-U.S. citizens lawfully admitted to work in the United States, except as provided pursuant to subpart (d) below;
- (d) up to twenty percent (20%) of the USTDA Grant amount may be used to pay for services performed by (i) Host Country subcontractors, and/or (ii) Host Country nationals who are employees of the Contractor;
- (e) a Host Country subcontractor may only be used for specific services from the Terms of Reference identified in the subcontract;
- (f) subcontractors from countries other than the United States or Host Country may not be used;
- (g) goods purchased for performance of the TA and associated delivery services (e.g., international transportation and insurance) must have their nationality, source, and origin in the United States; and
- (h) goods and services incidental to TA 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 period of performance of work provided for by this Contract, 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. Disbursement Procedures

(1) USTDA Approval of Contract

Disbursement of Grant funds will be made only after USTDA approval of this Contract.

(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 a mobilization 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 approval by USTDA of a Final Report that has been (i) prepared and submitted in accordance with the requirements set forth in Clause I below, and (ii) approved in writing by the Client in the manner provided for by Clause G(3)(b)(iii) 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 a mobilization payment (if any):

“As a condition for this mobilization payment, 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 Contract Clauses 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 Contract Clauses 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 Contract Clauses

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 a mobilization 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 the terms and 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 to the attention of the Finance Department at USTDA's address listed in Clause M below, or by e-mail to invoices@ustda.gov.

H. Termination

(1) Method of Termination

Either Contract Party may terminate this Contract upon giving written notice to the other party and USTDA. This notice shall be effective after either 30 days, or any other period set forth elsewhere in this Contract. Furthermore, this Contract shall terminate immediately upon notification of USTDA's termination of the Grant Agreement or the term of availability of any funds thereunder.

(2) Ramifications of Termination

In the event that this Contract is terminated prior to completion, the Contractor will be eligible, subject to USTDA approval, for payment for the value of the work performed pursuant to the terms of this Contract. 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

mobilization payments) which exceed the value of the work performed pursuant to the terms of this Contract.

(3) Survivability

Clauses B, D, G, H, N, and S of the USTDA Mandatory Contract Clauses shall survive the termination of this Contract.

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 hard copy 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) One (1) hard copy 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. In any event, the Public Version must be informative and contain sufficient Project detail to be useful to prospective equipment and service providers.

and

(c) Two (2) CD-ROMs, each containing a complete copy of the Public Version of the Final Report. The electronic files on the CD-ROMs shall be submitted in a commonly accessible read-only format. As these CD-ROMs will be available for public distribution, they must not contain any confidential information. It is the

responsibility of the Contractor to ensure that no confidential information is contained on the CD-ROMs.

The Contractor shall also provide one (1) hard copy of the Public Version of the Final Report to the Commercial or 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, and USTDA's address. If the complete version of the Final Report contains confidential information, the Contractor shall be responsible for labeling the front cover of that version of the Final Report with the term "Confidential Version". The Contractor shall be responsible for labeling the front cover of the Public Version of the Final Report with the term "Public Version". The front cover of every Final Report shall also contain 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 address, and USTDA's mission statement. Camera-ready copy of USTDA Final Report specifications will be available from USTDA upon request.

(c) The Contractor shall affix to the front of the CD-ROM a label identifying the Host Country, USTDA Activity Number, the name of the Client, the name of the Contractor who prepared the report, a report title, and the following language:

"The Contractor certifies that this CD-ROM contains the Public Version of the Final Report and that all contents are suitable for public distribution."

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

(e) 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, and e-mail address shall be included for each commercial source.

(f) 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.

(g) The Client, USTDA, and the Commercial and/or Economic Section(s) of the U.S. Embassy in Host Country shall have irrevocable, worldwide, royalty-free, non-exclusive rights to use and distribute the Final Report.

J. Modifications

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

K. TA Schedule

(1) TA Completion Date

The completion date for the TA, which is March 31, 2015, is the date by which the Contract Parties estimate that the TA 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) no USTDA funds may be disbursed more than four (4) years after the Effective Date of the Grant Agreement.

L. Business Practices

The Contract Parties recognize the existence of standards of conduct for public officials and commercial entities in their respective countries. Therefore, the Contract Parties shall fully comply with all United States and Host Country laws relating to corruption or bribery. For example, the Contractor and its subcontractors shall fully comply with the requirements of the Foreign Corrupt Practices Act, as amended (15 U.S.C. §§ 78dd-1 et seq.). Each Contract Party agrees that it shall require that any agent or representative hired to represent it in connection with the TA will comply with this paragraph and all laws which apply to activities and obligations of that Contract Party, including, but not limited to, those laws and obligations referenced 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.:	11 14/15 1001
Activity No.:	2014-51024A
Reservation No.:	2014205
Grant No.:	GH201451205

N. 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, except for taxes of a de minimis nature imposed on local lodging, food, transportation, or airport arrivals or departures. Neither the Client nor the Contractor will seek reimbursement from USTDA for taxes, tariffs, duties, fees, or other levies, except for taxes of a de minimis nature referenced above.

O. Export Licensing

The Contractor and all subcontractors are responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.

P. Contact Persons

The Client designates the following person as the contact person for matters concerning this Contract:

Name:	Dr. Iker de Luisa
Title:	Director General
Phone:	+(52-55) 5661-0325
Fax:	+(52-55) 5662-5852
E-Mail:	ikerdeluisa@amf.org.mx

The Contractor designates the following person as the contact person for matters concerning this Contract:

Name:
Title:
Phone:
Fax:
E-Mail:

If anyone designated by a Contract Party as a contact person ceases service as a contact person at any point during the ten-year period following the date of signing of this Contract, the Contract Party that had designated that contact person shall provide USTDA and the other Contract Party with the name and contact information of a replacement contact person.

Q. Liability

This Contract may include a clause that limits the liability of the Contract Parties, provided that such a clause does not (i) disclaim liability for special, incidental, general, or punitive damages, or (ii) limit the total amount of damages recoverable to an amount less than the total amount disbursed to the Contractor pursuant to this Contract.

R. Arbitration

If the Contract Parties submit any dispute arising under this Contract for arbitration, the scope of any such arbitration shall be limited to the Contract Parties' rights and/or obligations under this Contract and may not extend to any right or obligation of USTDA. The arbitrator(s) shall not arbitrate issues directly affecting the rights or obligations of USTDA.

S. 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 TA. 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, fax number, and e-mail address. 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.

A N N E X 5

**TERMS OF REFERENCE
(FROM USTDA GRANT AGREEMENT)**

Annex I

Terms of Reference

Objective

The objective of the technical assistance (“TA”) for the Specialty Freight Railcars Project (“Project”) is to identify freight railroad demand opportunities that would improve the availability of specialized freight railcars and related equipment. The TA will allow the Asociación Mexicana de Ferrocarriles, A.C. (“Grantee”) to examine institutional and operational improvements that could optimize Mexico’s fleet of freight railcars, as well as to identify specific investments in new systems, services, terminal facilities, and specialty freight railcars to meet the projected growth in freight rail transportation.

General Considerations for Deliverables and Documents

The U.S. firm selected by the Grantee to perform the TA (“Contractor”) shall undertake a quality control review process, including a technical and editorial review, of all deliverables and documents submitted to the Grantee to ensure readability, accuracy, and consistency. All deliverables and documents shall be submitted in draft form to the Grantee for review and comment prior to finalization. The interim deliverables specified in these Terms of Reference shall serve to keep the Grantee informed about the Contractor’s work on the TA and to ensure that the Contractor’s work is performed satisfactorily, in accordance with applicable Contract provisions and the terms and conditions of the USTDA Grant Agreement (per Clause G of Annex II of the Grant Agreement). The Contractor shall submit monthly progress reports to the Grantee.

Activities

Task 1: Data Collection and Review

Through a combination of research, interviews, and field visits, the Contractor shall gather initial data necessary to support execution of the TA. As part of this task, the Contractor shall meet with representatives of various entities to brief them on the scope and objective of the TA, to identify counterparts as necessary to assist or participate in study activities, and to present initial data requests. These entities may include, but not be limited to:

- Mexico’s major operating freight railroad companies: Ferromex and Ferrosur; Kansas City Southern de México; Ferrocarril del Istmo de Tehuantepec; Ferrovial; and Línea Coahuila-Durango;
- U.S. freight railroads interchanging freight cars with Mexico;
- Secretaría de Comunicaciones y Transportes (“SCT”);
- The Association of American Railroads and the Grantee;
- Representatives of Confederación de Cámaras Industriales (“CONCAMIN”) to include the member bodies representing shippers relevant to the railcar markets being studied;

- Selected individual shippers (freight rail customers) as appropriate to include third-party logistics providers and Petróleos Mexicanos (“PEMEX”);
- Private railcar lessors, financiers, and fleet managers to include General American Transportation Corporation (“GATX”) and TTX Company; and
- Manufacturers of freight railcars.

Subtask 1.1: Data Collection and Review: Equipment

The Contractor shall collect comprehensive data on the fleet of freight railcars owned by Mexican entities, including freight rail operators, lessors, and shippers. The information collected shall include car type, owner, manufacture year, capacity, interchange, and operational status. Historical data on the composition of the Mexican railcar fleet shall be collected, covering at least the last five years. Corresponding United States and Canadian railcar fleet data shall be collected to enable benchmarking of Mexican fleet characteristics against the other participants in the North American context.

Subtask 1.2: Data Collection and Review: Traffic and Infrastructure

The Contractor shall collect comprehensive data on the historical modal freight flows within Mexico and between the United States and Mexico, measured by both value and weight. Detailed information shall be collected on freight rail flows. Origins and destinations by commodity type shall be collected and correlated with categories of railcars. System-wide operational metrics shall be collected to include train and railcar velocity and terminal dwell times. Data on infrastructure capacity constraints shall be collected to include weight, speed, and clearance restrictions on the freight rail lines in Mexico and main U.S. rail corridors carrying traffic to and from Mexico. Key macroeconomic and industry drivers for the major rail freight commodity classes shall be identified and correlations and relationships described. The domestic procedures for car hire, inspection, demurrage, storage, reloading, damage compensation, and interchange when conducted between railroads within Mexico shall be examined to understand any significant differences from practices in international interchange.

Interim Deliverable #1 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 1. This report shall be submitted to the Grantee for review and comment.

Task 2: Traffic and Fleet Projection Baseline

Based upon the data gathered, historical trends, and current assumptions of the freight railroad operating companies, the Contractor shall prepare the following: 1) projected freight railroad traffic levels in Mexico by commodity type and volume to include interchange traffic with the United States; and 2) the evolution of the freight railcar fleet by car type, age, capacity, and ownership. These projections shall be for an eleven-year period with the year of the TA as the base year.

Interim Deliverable #2 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 2. This report shall be submitted to the Grantee for review and comment.

Task 3: Legal and Regulatory Analysis

The Contractor shall collect and review Mexico's national government laws, regulations, and standards; international treaties and agreements; and industry standards and agreements in the following areas:

- The operations of freight railroads and freight rail concessions;
- The leasing and ownership of railcars, including the treatment of financial aspects to include taxation and depreciation;
- The applicable conventions and agreements related to compensation for railcar use (car hire), loss and damage, and demurrage;
- The movement of freight between the United States and Mexico, including customs and border crossings requirements and procedures for both rail and truck; and
- Truck sizes and weights and driver hours of service and enforcement, to the degree that such requirements have a material impact on demand for rail traffic.

Interim Deliverable #3 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 3. This report shall be submitted to the Grantee for review and comment.

Task 4: Economic Analysis

The Contractor shall evaluate the economic drivers supporting the decisions by different types of railcar owners in Mexico to own, rebuild, retire, and replace freight railcars and from where to source the goods and services. The Contractor shall analyze cash flow considerations, life-cycle costing, market conditions, and impact of a car hire compensation system, as well as typical supply agreements, order scale, and timelines for purchases of freight railcars. The ownership of freight railcars in Mexico shall be evaluated from a life-cycle cost perspective considering maintenance, refurbishment, and disposal costs. Dynamics that differentiate the different categories of owners (freight rail operators, shippers, and lessors) shall be analyzed, as shall those that differentiate ownership considerations between Mexico and the United States. This shall include evaluation of the constraints of weight restrictions on the Mexican network on the economics of investments in railcars.

Interim Deliverable #4 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 4. This report shall be submitted to the Grantee for review and comment.

Task 5: Fleet Equipment and Operations Analysis

The Contractor shall conduct an analysis of the dynamics of the railcar fleet and operations from a national and systemic perspective as impacting supply and demand for freight railcars in Mexico. The objective of this analysis shall be to identify significant problems or weaknesses that adversely impact the supply of cars to meet demand and their root causes. The Contractor shall recommend concrete steps for identified problem

areas that would improve system-wide customer service, car availability, fleet utilization, and enable freight rail traffic growth within Mexico. The areas to be investigated shall include, but not be limited to:

- Railcar age and condition;
- Railcar type mix and capacity;
- The balance of interchange versus non-interchange equipment;
- Trends and opportunities in average lengths of haul;
- Fleet utilization characteristics (lane balance and backhaul optimization);
- Domestic and international interchange practices;
- Balance of ownership of railcars between railroads and private owners;
- Role of third-party logistics providers;
- Carpooling practices;
- Car hire procedures, practices, and costs;
- Demurrage practices and fees;
- Terminal congestion and dwell times;
- System railcar and train velocity;
- Monitoring, tracing, and tracking of railcars, including participation in industry systems and databases and railcar visibility to stakeholders;
- Shrinkage and damage of cargoes and vandalism of railcars;
- Major infrastructure bottlenecks in the areas of weight, speed, clearance, and capacity;
- Customs and border crossing procedures; and
- Railcar storage practices by different stakeholders.

Class I freight railroad operations in the United States and Canada shall be used as the benchmark for performance assessment.

Interim Deliverable #5 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 5. This report shall be submitted to the Grantee for review and comment.

Task 6: Analysis of Tank, Box, and Hopper Railcars

The Contractor shall undertake a more detailed analysis of the supply and demand of the specific markets for freight rail traffic, generally oriented around car types. The areas investigated systemically in Task 5 shall be examined in detail as applied to these specific railcar markets. The Contractor shall evaluate the modal split for each market diversion to rail and creation of new traffic. The specific dynamics of major customers, origins, and destinations shall be examined, including incentives and disincentives for car owners to provide higher levels of service to shippers and railroads. The availability and price of new railcars for these services shall be examined, as shall the production sources and the backlog of orders. This analysis shall occur for the following types of wagons:

Subtak 6.1: Tank Car Demand and Oil, Refined Oil Products, and Petrochemical Traffic
The Contractor shall evaluate railcar supply and demand from two perspectives:

1. The potential for exploitation of unconventional petroleum reserves in Mexico shall be examined to assess potential new demand for tank cars to transport crude oil outbound from production fields to customer destinations. The production potential and patterns and the dynamics of truck and pipeline competition and their role in a rail logistics chain shall be considered. Inbound logistics for production consumables to include water, frac sand, and oilfield equipment shall also be examined for rail traffic potential. The probable capacity, location, and type of rail terminals shall be evaluated; and
2. The international trade in refined products/petrochemicals versus crude oil between the United States and Mexico shall be examined. The current tank car traffic patterns and volumes for these products shall be evaluated for shifts that will impact demand for tank cars.

The Contractor shall identify opportunities and threats to freight rail traffic in this sector and recommend courses of action. The potential impact on the fleet and operations of new more stringent petroleum product tank car safety requirements, particularly for international interchange service, shall be evaluated, such as regulations requiring retrofits or retirements of tank cars deemed as unsafe. A forecast for rail traffic potential and associated railcar demand shall be developed based on findings and assumptions of implementation of selected recommendations.

Subtask 6.2: Box Car Demand and Refrigerated Goods Traffic

The Contractor shall evaluate the market for box cars based on traffic trends, car supply, and technology. Opportunities for expanding existing or developing new box car traffic service shall be examined, specifically new high-cube box car designs. The potential for further development of transportation of fresh and frozen products in dedicated refrigerated boxcars shall be examined specifically. The Contractor shall evaluate existing refrigerated freight rail services between the United States and Mexico and shall identify challenges and opportunities to creation of expanded or completely new services. Specific aspects to be analyzed shall include: reliability of transit times; maintenance of refrigeration equipment; equipment and cargo monitoring and tracking technologies; sophistication and availability of cold chain logistics facilities in Mexico; ability of shippers and transport providers to secure viable backhauls of refrigerated or non-refrigerated cargos from Mexico; and security requirements for refrigeration equipment and the related cargo. The Contractor shall develop a forecast for selected “lanes” traffic potential and railcar demand based on these findings.

Subtask 6.3: Covered Hopper Car Demand and Agricultural Traffic

The market for agricultural products transported in covered hopper cars shall be examined for any growth potential. The provision of railcars to customers for seasonal flows of different products shall be examined for optimization. Both flows between Mexico and Canada and the United States shall be examined, as well as traffic originating and terminating within Mexico. Challenges to railcar owners and operators associated with backhaul traffic and cycle times for these types of cars shall be analyzed. Alternative railcar ownership, compensation for use, and management and operating structures shall

be evaluated. The Contractor shall describe its findings and develop a forecast for traffic potential and railcar demand based on an implementation scenario.

Subtask 6.4: Open-Top Hopper Car Demand and Aggregate Traffic

Building upon the findings of Subtask 6.1, the Contractor shall assess the potential demand for new aggregate cars to transport sand inbound to Mexican fields to support hydraulic fracturing of oil and gas wells. The production potential, probable field development patterns over time, and the dynamics of rail, truck, and maritime modes and their role in the sand logistics chain shall be considered. The probable capacity, location, and type of rail terminals for intermodal transload of the product shall be evaluated, including potential for co-location with oil product transload terminals. The Contractor shall assess the potential of sourcing of proppant material from U.S. origins versus potential Mexican sources. A forecast for rail traffic potential, sand origins and destinations, and the associated railcar acquisition demand shall be developed based on these findings.

Interim Deliverable #6 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 6. This report shall be submitted to the Grantee for review and comment.

Task 7: U.S. Sources of Supply

The Contractor shall evaluate U.S. sources of supply to include manufacturers of freight railcars, railcar lessors, carpooling services providers, providers of railcar maintenance and rehabilitation services, and providers of systems and services for the management, monitoring, and tracking of freight railcars. For the major suppliers, the Contractor shall evaluate the approximate national origin of materials, goods, and services from the United States to Mexico. Freight car sales shall be evaluated from a life-cycle perspective, including parts and services for maintenance and periodic rehabilitation. Historical trends and projections for backlogs for orders of the different types of railcars shall be analyzed. The major competitors to U.S. firms in the Mexican market shall be identified and profiled to include market share and strengths and weaknesses vis-à-vis their U.S. peers.

Interim Deliverable #7 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 7. This report shall be submitted to the Grantee for review and comment.

Task 8: Financial Analysis

The Contractor shall identify and evaluate the availability of the different sources of debt and equity financing presently available to support acquisition of freight railcars by freight railroad operators, shippers, and third parties (such as lessors). This activity shall include discussions with the operators, equity investors, private and public providers of equipment financing in the United States and Mexico, Export-Import Bank of the United States, Overseas Private Investment Corporation, North American Development Bank,

Inter-American Development Bank, and relevant Mexican public entities. The Contractor shall seek to identify gaps in financing types or scale for the different customer types. The impact of car hire systems and tax regimes on domestic and cross-border sales and leasing of freight railcars shall be evaluated. The Contractor shall make an assessment or recommendations if government provision of any type of funding, financing, or tax incentives into the freight railcar industry or institutions would be beneficial, and if so, the potential scale, structures, and methods.

Interim Deliverable #8 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 8. This report shall be submitted to the Grantee for review and comment.

Task 9: Implementation Plan

Based on findings and demand scenarios elaborated in previous tasks, the Contractor shall update the baseline projections of rail freight traffic and railcar fleet evolution to create an implementation case projection. The railcar fleet evolution projection shall consider constraints such as supply industry capacity, railroad operational considerations in terms of fleet and capital investment management, application of car hire conventions, and financial considerations. This alternative railcar fleet scenario shall match the eleven-year term of the fleet base case projection. The Contractor shall make specific note of the key assumptions affecting the change in demand from the baseline projections.

Interim Deliverable #9 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 9. This report shall be submitted to the Grantee for review and comment.

Task 10: Development Impact Assessment

The Contractor shall assess the developmental impacts associated with the Project and explain its methodology for measuring those impacts. The Contractor shall compare the two fleet evolution scenarios, quantify the difference between them, and measure the potential development impact over the projection period. The impacts considered must be relevant to the Project, *i.e.*, reasonably expected to flow from its implementation as outlined in the Study. Such impacts may include impacts in the following categories:

- *Infrastructure*: Potential developmental impacts in this category may include investments in rail tracks and rail terminals associated with new or different freight rail traffic patterns, and may also include reductions in road maintenance costs from the potential diversion of truck traffic to rail;
- *Market-Oriented Reform*: Potential developmental impacts in this category may include privatizing state-owned entities or outsourcing of services they provide, such as private operation of loading/unloading terminals, promoting market competition, improved car hire procedures, improving intellectual property rights or industry standards, or new regulations that lead to market liberalization;

- *Human Capacity Building*: Potential developmental impacts in this category may include the number and type of local positions that would be created to implement, operate, and maintain the Project, as well as any specialized training that would be required;
- *Technology Transfer and Productivity Improvement*: Potential developmental impacts in this category may include the introduction of a new product or technology that will improve operations of the Host Country's current system, process, or operation;
- *Environment*: Potential developmental impacts in this category may include measureable environmental benefits that may be derived from the Project, based on the findings from Task 12; and
- *Other*: Additional potential developmental impacts that may result from the Project, such as enhanced government revenue generation, replication or spin-off projects, or improved safety and security.

Interim Deliverable #10 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 10. This report shall be submitted to the Grantee for review and comment.

Task 11: Projection of U.S. Exports Transported by Freight Rail

The Contractor shall compare the two railcar fleet evolution scenarios and quantify the expenditure difference between them to project the potential U.S.-origin export gain. This analysis shall consider both merchandise and services associated with railcar and related systems purchases. The analysis shall be based on interviews with U.S. suppliers and operators and shall consider the likely sourcing of materials and labor in the United States versus Mexico and other nations. A discounted net present value of the projected difference shall be calculated. The analysis shall incorporate the projected value of the goods and services associated with the investments from a life-cycle cost analysis perspective, not simply the initial up-front cost of the railcars and associated systems. To provide context and scale, this task shall incorporate an analysis of the relevant historical and projected exports under the appropriate categories for trade between Mexico and the United States. The analysis shall identify major competitors to U.S. firms in the provision of relevant goods and services and factor in an appropriate discount to the export projections. The Contractor shall also attempt to evaluate potential increases in U.S.-Mexico trade flows of rail-transported freight attributable to Project implementation, quantify the discounted value, and identify any significant positive impacts on the terms of trade between the two countries for the selected merchandise.

Interim Deliverable #11 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 11. This report shall be submitted to the Grantee for review and comment.

Task 12: Preliminary Environmental Impact Assessment

The Contractor shall conduct a preliminary review of the Project's environmental impact and environmental compliance with reference to local requirements and those of multilateral development banks (such as the World Bank and Inter-American Development Bank). This review shall identify potential positive and negative impacts, discuss the extent to which negative impacts can be mitigated, and develop plans for a full environmental impact assessment in anticipation of the Project moving forward to the implementation stage.

Interim Deliverable #12 — The Contractor shall prepare a detailed written report describing the work performed and findings from Task 12. This report shall be submitted to the Grantee for review and comment.

Task 13: 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 N N E X 6

U.S. FIRM INFORMATION FORM



USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

U.S. Firm Information Form

This form is designed to enable the U.S. Trade and Development Agency ("USTDA") to obtain information about entities and individuals proposed for participation in USTDA-funded activities. Information in this form is used to conduct screening of entities and individuals to ensure compliance with legislative and executive branch prohibitions on providing support or resources to, or engaging in transactions with, certain individuals or entities with which USTDA must comply.

USTDA Activity Number [To be completed by USTDA]

Activity Type [To be completed by USTDA]	Feasibility Study	Technical Assistance	Other (specify)
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Activity Title [To be completed by USTDA]

Full Legal Name of U.S. Firm

Business Address (street address only)

Telephone		Fax		Website	
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Year Established (include any predecessor company(s) and year(s) established, if appropriate).
Please attach additional pages as necessary.

Type of Ownership	Publicly Traded Company
	Private Company
	Other (please specify)

Please provide a list of directors and principal officers as detailed in Attachment A. Attached? (Not Applicable for U.S. Publicly Traded Company)	Yes
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If Private Company or Other (if applicable), provide a list of shareholders and the percentage of their ownership. In addition, for each shareholder that owns 15% or more shares in U.S. Firm, please complete Attachment B.

Is the U.S. Firm a wholly-owned or partially owned subsidiary?	Yes
	No

If so, please provide the name of the U.S. Firm's parent company(ies). In addition, for any parent identified, please complete Attachment B.

Is the U.S. Firm proposing to subcontract some of the proposed work to another firm?	Yes
	No

If yes, U.S. Firm shall complete Attachment C for each subcontractor. Attached?	Yes
	Not applicable

Project Manager

Name	Surname	
	Given Name	

Address

Telephone

Fax

Email

Negotiation Prerequisites

Discuss any current or anticipated commitments which may impact the ability of the U.S. Firm or its subcontractors to complete the Activity as proposed and reflect such impact within the project schedule.

Identify any specific information which is needed from the Grantee before commencing negotiations.

U.S. Firm may attach additional sheets, as necessary.

U.S. Firm's Representations

U.S. Firm shall certify to the following (or provide an explanation as to why any representation cannot be made):

1. U.S. Firm is a [check one] Corporation LLC Partnership Sole Proprietor Other:

duly organized, validly existing and in good standing under the laws of the State of: .

The U.S. Firm has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the USTDA Activity. The U.S. Firm is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment or ineligible for the award of contracts by any federal or state governmental agency or authority.
2. The U.S. Firm has included herewith, a copy of its Articles of Incorporation (or equivalent charter or document issued by a designated authority in accordance with applicable laws that provides information and authentication regarding the legal status of an entity) and a Certificate of Good Standing (or equivalent document) issued within 1 month of the date of signature below by the State of: .

The U.S. Firm commits to notify USTDA and the Grantee if it becomes aware of any change in its status in the state in which it is incorporated. USTDA retains the right to request an updated certificate of good standing. **(U.S. publicly traded companies need not include Articles of Incorporation or Good Standing Certificate)**
3. Neither the U.S. Firm nor any of its directors and principal officers have, within the ten-year period preceding the submission of this proposal, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.
4. Neither the U.S. Firm, nor any of its directors and principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 3 above.
5. There are no federal or state tax liens pending against the assets, property or business of the U.S. Firm. The U.S. Firm, has not, within the three-year period preceding the submission of this proposal, been notified of any delinquent federal or state taxes in an amount that exceeds US\$3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.
6. The U.S. Firm has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself of its debts under any bankruptcy, insolvency or other similar law. The U.S. Firm has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.
7. The U.S. Firm certifies that it complies with USTDA Nationality, Source, and Origin Requirements and shall continue to comply with such requirements throughout the duration of the USTDA-funded activity. The U.S. Firm commits to notify USTDA and the Grantee if it becomes aware of any change which might affect U.S. Firm's ability to meet the USTDA Nationality, Source, and Origin Requirements.

The U.S. Firm shall notify USTDA if any of the representations are no longer true and correct.

U.S. Firm certifies that the information provided in this form is true and correct. U.S. Firm understands and agrees that the U.S. Government may rely on the accuracy of this information in processing a request to participate in a USTDA-funded activity. If at any time USTDA has reason to believe that any person or entity has willfully and knowingly provided incorrect information or made false statements, USTDA may take action under applicable law. The undersigned represents and warrants that he/she has the requisite power and authority to sign on behalf of the U.S. Firm.

Name		Signature	
Title		Date	
Full Legal Name of U.S. Firm			



ATTACHMENT B

USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

U.S. Firm Information Form – Shareholder(s) and Parent Company(ies)

If applicable, U.S. Firm provided a list of shareholders and the percentage of their ownership. This form shall be completed for each shareholder that owns 15% or more shares in U.S. Firm, as well as any parent corporation of the U.S. Firm (“Shareholder”). In addition, this form shall be completed for each shareholder identified in Attachment B that owns 15% or more shares in any Shareholder, as well as any parent identified in Attachment B.

USTDA Activity Number [To be completed by USTDA]	
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Activity Title [To be completed by USTDA]	
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Full Legal Name of U.S. Firm	
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Full Legal Name of Shareholder	
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Business Address of Shareholder (street address only)	
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Telephone number		Fax Number	
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Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.	
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Country of Shareholder’s Principal Place of Business	
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Please provide a list of directors and principal officers as detailed in Attachment A. Attached?	Yes
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Type of Ownership	Publicly Traded Company
	Private Company
	Other

If applicable, provide a list of shareholders and the percentage of their ownership. In addition, for each shareholder that owns 15% or more shares in Shareholder, please complete Attachment B.	
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Is the Shareholder a wholly-owned or partially owned subsidiary?	Yes
	No

If so, please provide the name of the Shareholder’s parent(s). In addition, for any parent identified, please complete Attachment B.	
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Shareholder may attach additional sheets, as necessary.



ATTACHMENT C

USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

Subcontractor Information Form

This form is designed to enable the U.S. Trade and Development Agency ("USTDA") to obtain information about entities and individuals proposed for participation in USTDA-funded activities. Information in this form is used to conduct screening of entities and individuals to ensure compliance with legislative and executive branch prohibitions on providing support or resources to, or engaging in transactions with, certain individuals or entities with which USTDA must comply.

USTDA Activity Number [*To be completed by USTDA*]

Activity Title [*To be completed by USTDA*]

Full Legal Name of Prime Contractor U.S. Firm ("U.S. Firm")

Full Legal Name of Subcontractor

Business Address of Subcontractor (street address only)

Telephone Number

Fax Number

Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.

Subcontractor Point of Contact

Name	Surname	
	Given Name	

Address

Telephone

Fax

Email

Subcontractor's Representations

Subcontractor shall provide the following (or any explanation as to why any representation cannot be made), made as of the date of the proposal:

1. Subcontractor is a <i>[check one]</i>	<input type="checkbox"/> Corporation	<input type="checkbox"/> LLC	<input type="checkbox"/> Partnership	<input type="checkbox"/> Sole Proprietor	<input type="checkbox"/> Other
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duly organized, validly existing and in good standing under the laws of: .

2. The subcontractor has all the requisite corporate power and authority to conduct its business as presently conducted, to participate in this proposal, and if the U.S. Firm is selected, to execute and deliver a subcontract to the U.S. Firm for the performance of the USTDA Activity and to perform the USTDA Activity. The subcontractor is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment or ineligible for the award of contracts by any federal or state governmental agency or authority.
3. Neither the subcontractor nor any of its directors and principal officers have, within the ten-year period preceding the submission of the Offeror's proposal, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.
4. Neither the subcontractor, nor any of its directors and principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.
5. There are no federal or state tax liens pending against the assets, property or business of the subcontractor. The subcontractor, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds \$3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.
6. The subcontractor has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The subcontractor has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.
7. The Subcontractor certifies that it complies with the USTDA Nationality, Source, and Origin Requirements and shall continue to comply with such requirements throughout the duration of the USTDA-funded activity. The Subcontractor commits to notify USTDA, the Contractor, and the Grantee if it becomes aware of any change which might affect U.S. Firm's ability to meet the USTDA Nationality, Source, and Origin Requirements.

The selected Subcontractor shall notify the U.S. Firm, Grantee and USTDA if any of the representations included in its proposal are no longer true and correct.

Subcontractor certifies that the information provided in this form is true and correct. Subcontractor understands and agrees that the U.S. Government may rely on the accuracy of this information in processing a request to participate in a USTDA-funded activity. If at any time USTDA has reason to believe that any person or entity has willfully and knowingly provided incorrect information or made false statements, USTDA may take action under applicable law. The undersigned represents and warrants that he/she has the requisite power and authority to sign on behalf of the Subcontractor.

Name	<input type="text"/>	Signature	<input type="text"/>
Title	<input type="text"/>		
Full Legal Name of Subcontractor	<input type="text"/>	Date	<input type="text"/>