The U.S.-China Aviation Cooperation Program

FY2005 Proposals for
TDA Funding Application

EXECUTIVE SUMMARY

The Wright Brothers Partnership U.S.-China Aviation Cooperation Program (ACP) is created to promote aviation industry-wide cooperation between the U.S. and China, so as to encounter the severe competition from EU, and finally promote U.S exports to China in aviation field.

The Wright Brothers Partnership U.S.-China Aviation Cooperation Program (ACP) has been successfully launched on China-U.S Aviation Forum on April 6th, Beijing, with the signing of a Memorandum of Understanding between U.S TDA and CAAC.

ACP implemented three programs on FY2004 by June 2005, including: CAAC Executive Management Training; ARJ21 Transport Aircraft Certification Study, and Integrated Traffic Flow Management Seminar. All the above programs are well received by CAAC.

A fourth program: CAAC Flight Standards Training at FAA Academy will start this September.

In FY2005, ACP plans to provide following technical assistance:

Task I: CAAC Transport Aircraft Certification System Enhancement Working Group

The Chinese aviation industry is currently in the development of two Part 25 Transport Aircraft. One of the two, the ARJ21, is a completely new aircraft design and is the first aircraft that will begin CAAC certification with highly integrated modern system. The signal from the Chinese government is clear: they will keep on investing in this project and provide strong support to ensure the success of this project.

On the ARJ21, it is estimated that the U.S content in terms of dollar value is close to 45%. Examples of aircraft systems provided by U.S. companies include the engines, flight control, hydraulic, auxiliary power unit, fuel, avionics and electric power systems, etc.

Recognizing the criticality of the CAAC to the future of this industry, ACP has conducted a survey of the Transport Aircraft Certification System of CAAC by using FY2004 TDA grant, plus strong support from CAAC AAD. The study was completed on 7 June 05 and the final report pointed out the strengths and weaknesses of the CAAC certification system.

Upon the completion of this survey, the ACP realized the need to help CAAC develop detailed implementation plans based on the recommendations of the survey. The ACP would also provide on-the-job training and workshops (e.g. Aircraft System Safety Analysis). This would be accomplished by hiring consultants with appropriate backgrounds to hold training sessions in Beijing, Shanghai and Xian. The training would, for instance, consist of certification considerations for highly integrated and complex aircraft systems, and workshops to apply the principles to validate the design aspects of the ARJ21 safety-critical systems with respect to CCAR requirements. ACP member companies will also help conduct the workshops.

The CAAC Transport Aircraft Certification System Enhancement Working Group is a follow-on package of the previous survey, there are several parts in this package, emphasizing on:

- Helping the CAAC develop implementation plans based on the recommendations of the previous survey;
- Providing on-the-job training to CAAC certification staff;
- Workshops using the ARJ21 as the case study;
- Flight Test training;
- Providing further recommendations.

The project is scheduled to be completed in 13 months (excluding the time required for grant application). ACP members including GE, Honeywell, Parker, Rockwell Collins, Hamilton Sundstrand (UTC) and Eaton would be the major carriers of this training.

ACP is applying $600,000 TDA grant to support this project package, ACP member companies will provide in-kind contributions totaling $1,177,000 to ensure the successful implementation of this program.

Task II: CAAC Management Development Training

The General Administration of Civil Aviation of China (CAAC) Personnel and Education Department requested ACP to provide Executive Management Development Training (EMDT) courses for management staff within the CAAC for:
1) Air Traffic Management Bureau (ATMB) Executive Development,
and
2) Civil Aviation Public Servants Management Training.

CAAC public servants come from different departments all over the country and ATMB

management staff will participate each of the two programs. The FAA, Boeing company, FedEx, GE, Honeywell, Lockheed Martin, Metron Aviation, MITRE, Parker, Raytheon, Rockwell Collins, Pratt & Whitney, United Airlines and UTC will cooperate and provide the training to improve management skills for CAAC public servants and also new concepts and practice for Air Traffic Management.

The ATMB group will participate the Management Theory training together with other CAAC public servants, this part of training will address the following areas:

- Introduction to FAA organization management
- Civil Aviation Evolution, ICAO introduction
- Human Resource Management Training;
- Human Factor and Strategic Management Training;
- Program Management;
- Leadership foundation and leadership skills

Duration of training: 7 weeks.

The ATMB management training will be a combination of classroom training and On-the-Job Training. Training will cover:

- Safe, secure and efficient Transportation;
- Air Traffic Management Theory Training;
- New technology application;
- ATO specific training;
- On the Job Training and Familiarization (Optional)

Duration of this part of training: about 18 weeks.

ACP is applying $599,938 TDA grant for this training, in the mean time, ACP members will allocate more than $1.1 million in-kind contribution to ensure the implementation of this program. CAAC will provide Air Transportation and lodging for trainees.

Task III: Program Management & Final Report

The American Chamber of Commerce, People's Republic of China, will be the sole source prime contractor to oversee program operation, provide legal documents necessary for the projects, monitor through out the program implementation, and submit final report. AmCham will also emphasize on enhancing program visibility through all kinds of activities/events it will host.

AmCham is applying $75,000 TDA grant to support the program management, ACP member companies are contributing $75,500 on this part.

The U.S.-China Aviation Cooperation Program

TASK I: CAAC Transport Aircraft Certification System Enhancement

Proposal for

TDA Funding Application

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[1] A member of the ACP. Other ACP members who are proponents of the proposal include GE, Hamilton Sundstrand of the United Technologies, Honeywell, Rockwell Collins and Eaton.

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A Executive Summary

In 2004, the U.S.-China Aviation Cooperation Program (ACP) initiated a study of the Transport Aircraft Certification System of the Civil Aviation Administration of China (CAAC). The study was partially funded by the U.S. Trade Development Agency (TDA), and the objective was to conduct an independent review of the CAAC's Part 25 aircraft certification capabilities and to provide recommendations on improvement areas.

This proposal takes advantage of the momentum generated by the study and aims at strengthening the certification capabilities of the CAAC by:

1. Helping the CAAC develop implementation plans.
2. Providing on-the-job training.
3. Providing expert resources to the CAAC-AAD.
4. Helping the CAAC set up specific infrastructure and tools that are necessary for the management and execution of a Part 25 Type Certification program.
5. Further identifying areas of improvement and providing recommendations.

The proposed PROJECT is sponsored by six (6) ACP member companies. These six U.S. S&P 500 companies include GE, Hamilton Sundstrand of the United Technologies Corporation (UTC), Parker Hannifin, Honeywell, Rockwell Collins and Eaton, and they supply advanced aircraft systems to the ARJ21, which is a 78- to 105-seat Part 25 civilian regional aircraft that China is currently designing. It is estimated that the U.S. content on the aircraft is about 45%. The U.S. export potential of the ARJ21 program most likely exceeds US$8 Billion[2], which is equivalent to about 208 jobs per year over 20 years. The total development cost of the ARJ21 is forecasted to be around US$1 Billion to US$1.2 Billion, and the U.S. companies involved will be spending about US$200 Million in non-recurring engineering costs, in test fixtures and instrumentations, as well as several shipsets of prototype hardware before Type Certification (TC). It is paramount, therefore, that not only the TC applicant possesses the skills and capabilities to design, manufacture and support the aircraft, the certification agency (i.e. the CAAC) should also be capable to certifying a modern, complex aircraft such as the ARJ21. This PROJECT is designed to enhance the certification capabilities of the CAAC. It should be noted that the timing of this PROJECT is critical since most of the design decisions would have been made by the end of 2006. First flight of the ARJ21 is expected in August 2007.

There are five (5) TASKS under this PROJECT:

TASK1. Implementation Plan Development

TASK2. On-The-Job Training

TASK3. Workshops Using ARJ21 as the Case Study

TASK4. Flight Test Training

TASK5. Further Recommendations

The five TASKS are expected to be completed within 13 months from an expected PROJECT start date of 3 Jan 2006 (because of the time-critical nature of the ARJ21 program). Many consultants will be hired to complete the TASKS, and the total funding

[2] Excluding future variants of the ARJ21 (such as the freighter and business jet versions) and export potential of future Chinese civil aircraft program.

required is estimated to be US$1,777,000. The ACP member companies will contribute US$1,177,000 “in-kind”. The balance, US$600,000, is expected to be raised from a TDA grant. The CAAC and the TC applicant (i.e. ACAC) will fund/cover the airfare, accommodation, ground transportation and other logistics costs for their own staff, and will organize and provide training facilities.

B PROJECT Description

B.1 Definitions

The following terms shall have the meanings described below:

- The tem “ACAC” shall mean the AVIC I Commercial Aircraft Company Ltd., who is the Type Certification (TC) applicant of the ARJ21 aircraft.
- The term “ACP” shall mean the U.S.-China Aviation Cooperation Program, also known as the Wright Brothers’ Partnership.
- The term “CAAC” shall mean the Civil Aviation Administration of China.
- The term “CAAC SURVEY” shall mean the review of the CAAC Part 25 Aircraft Certification System conducted by three independent consultants hired under the TDA grant agreement awarded to the CAAC in the last fiscal year.
- The term “CONTRACTOR” shall mean the entity that will perform one of more of the TASKS defined in this proposal.
- The term “DAYS” shall mean calendar days unless otherwise specified.
- The term “PROJECT” shall mean all the TASKS defined in this proposal unless otherwise stated.
- The term “SUB-GROUP” shall mean the ACP members who are system and equipment suppliers for the ARJ21 program.
- The term “TASK” shall mean one of the five (5) work packages defined in Section B.4.
- The term “TDA” shall mean the United States Trade Development Agency.

B.2 Background

The Chinese Aviation industry is currently in the development of two Part 25 Transport Aircraft. One of the two, the ARJ21, is a completely new aircraft design and is the first aircraft that will begin CAAC certification with highly integrated modern systems (such as the fly-by-wire control system) and using the Partnership for Safety Plan (PSP). This aircraft program represents a giant leap in the Chinese Aviation Industry.

The aircraft utilizes many state-of-the-art systems from U.S. suppliers. It is estimated that the U.S. content on the ARJ21, in terms of dollar value, is close to 45%. Examples of aircraft systems provided by U.S. companies include the engine, flight control, hydraulic, auxiliary power unit, fuel, avionics and electric power systems etc. These systems, while improving the quality of the aircraft, present increased requirements and new challenges in terms of aircraft certification. It is imperative, therefore, that:

1. The CAAC has sufficient resources to certify these Chinese-made aircraft safely and, at the same time, ensure the continued airworthiness of the existing fleet of domestic and foreign aircraft.
2. The staff of the CAAC (particularly at the working level) is adequately trained and understands the key certification issues to assure the safety of this growing aircraft fleet. After all, safety begins with the design.

Recognizing the criticality of the CAAC to the future of the industry, the ACP initiated and sponsored a survey of the Transport Aircraft Certification System of the CAAC. The survey was made possible by a generous grant from the USTDA. In the survey, the ACP hired three

airworthiness experts to conduct a 3-week intensive and independent review of the CAAC's Aircraft Airworthiness Certification Department (CAAC-AAD). During the 3-week review, the CAAC provided tremendous visibility into their operations, and ACP members helped in logistics and language support. The final report was delivered in June 05. It highlighted the areas of abilities and deficiencies of the CAAC in relation to Part 25 aircraft certification. The report was also submitted to the FAA in order to provide an independent assessment of CAAC's capabilities. The ultimate goal is to bring the CAAC closer to the threshold of shadow certification as part of a Bilateral Aviation Safety Agreement (BASA) with the U.S. to cover Part 25 Transport Category Aircraft Certification. The CAAC SURVEY was a success: in a recent letter to the FAA, the Minister of the CAAC stated that the CAAC-AAD "…will make major personnel adjustment…Through such a change we plan to further strengthen the department's work both in terms of manpower and organization". This survey will be hereafter referred to as "CAAC SURVEY" for short.

The CAAC SURVEY has created many opportunities for the ACP to provide further support the CAAC. The purpose of this proposal is to introduce a PROJECT that will benefit from the momentum of the CAAC SURVEY. The proposal is to hire a series of consultants to work in and with the CAAC to create and implement a strategy of evolving the CAAC based on the results of the Survey. This PROJECT will thus meet 5 of the 6 objectives of the ACP Framework, viz.:

- Promote close cooperation in aviation safety regulatory activities;
- Provide training and technical cooperation towards excellence in aviation operation;
- Increase awareness of U.S. technology & application to assist China 's aviation growth;
- Enhance safe operations and excellence in management;
- Seek grant funding from U.S government agencies for program activities.

The "injection" of the consultants into the CAAC with the ARJ21 as a case study represents a contribution that the ACP and many of its companies have never been able to provide: experience. It goes beyond the theoretical "classroom" training provided in the past and emphasizes on application and "hands-on" experience.

In the January 2005 ACP meeting, it was noted that Minister Yang of the CAAC did express his desire to hire ex-FAA or industry consultants/specialists for a longer term during the FAA Administrator's visit in 2004.

B.3 Objectives

The objectives of the proposal are as follows:

1. To help the CAAC turn the recommendations of the CAAC SURVEY report into realistic implementation plans with agenda, method and schedule, especially in the areas of resources, organization, communication and training.
2. To provide on-the-job training to help advance CAAC's Part 25 aircraft certification capabilities, taking advantage of the ongoing Part 25 ARJ21 certification program.
3. To provide expert resources to the CAAC-AAD.
4. To help the CAAC-AAD set up specific infrastructure and tools that are necessary for the management and execution of a Part 25 Type Certification program.
5. To further identify areas of improvement and provide recommendations.

The ultimate goal is for the CAAC to have an enhanced BASA with the FAA to cover Part 25 Transport Category Aircraft Certification. At that point, the safety standard of the civil aircraft certification system of the CAAC will at least be equivalent to similar countries with a similar agreement with the FAA.

It should be noted that proficiencies in Part 25 Certification will have additional side benefits in terms of validation, monitoring and corrective actions for foreign imported aircraft, such as the Boeing fleet, and should help raise the safety standard in China.

B.4 TASKS

The format of the PROJECT is to place consultants into the CAAC to help the AAD make progress on the recommendations of the CAAC SURVEY and to strengthen the certification capabilities of the AAD. The consultants will be chosen with (i) abilities that the CAAC-AAD needs in order to proceed with implementing the changes and/or (ii) abilities to be able to help the CAAC-AAD in certain key technical areas. There are four major segments of the PROJECT. They are:

- Assisting the CAAC in developing implementation plans;
- Providing on-the-job-training;
- Providing flight test training;
- Providing final recommendations.

To do this, several consultants/specialists will be hired within the timeframe of a year; some will be located at CAAC for an extended period of time (up to 1 month each). These consultants/specialists will perform the following tasks:

TASK 1. Help CAAC develop implementation plans based on the recommendations of the CAAC SURVEY

The independent report published in June 05 under the CAAC SURVEY contains some general recommendations in certain areas, e.g. addition of manpower to the various offices of CAAC-AAD. The idea of this proposal is for the consultants/specialists to help CAAC develop these broad recommendations into several detailed implementation plans/reports. CAAC will then be able to make use of these detailed plans to (i) obtain the necessary funding/resources, and (ii) improve their organization and processes in a step-by-step manner.

In summary, while the previous CAAC SURVEY focused on discovering more about the CAAC and ***what*** needs to be done to bring them up to the international standard of safety in terms of Part 25 Transport Category Aircraft Certification, this task will focus on ***how*** to get there.

TASK 2. Provide on-the-job training

The intention here is to take advantage of the ongoing ARJ21 Part 25 Certification Program to provide on-the-job training to the CAAC staff at the working level, in particular the Type Certification Team (TCT) leaders and members.

The ARJ21 represents the first modern, jet-powered Part 25 aircraft to be certified from scratch by the CAAC. The aircraft features many complex and highly integrated modern systems (such as the fly-by-wire control system). Many of the CAAC staff lack “hands-on” experience in several key technical areas, e.g. system safety, software certification etc. Additionally, they need help in the interpretation and application of new regulations (such as 25.981, 25.1309 etc.) – particularly since the regulations did not originate from the CAAC.

The consultants/specialists will either be (i) co-located with the ARJ21 TCT, or (ii) traveling with the TCT, or (iii) attending key certification meetings, or (iv) delivering formal training depending on the needs, or a combination of the (i) to (iv) above.

It is understood that no consultants/specialists can cover all aspects of Part 25 certification. The proposal takes into account CAAC’s needs following extensive

consultations with the CAAC-AAD staff. Additionally, by working with the consultants/specialists on a daily basis, the staff at CAAC should be able to discover where help can be found. Creating a "dependency" and establishing a long-term relationship between the CAAC and U.S. experts should be beneficial to U.S. industry in the long run.

It should be noted that ACP member companies will provide specialists to augment the consultants, especially at TCT meetings when certification issues regarding the ARJ21 are discussed.

TASK 3. Workshops using the ARJ21 as the case study

Apart from attending meetings and/or traveling with the TCT team, the consultants/specialists will supplement TASK 2 by conducting workshops in, but not limited to, the following areas:

I. Aircraft Safety Analysis and Integration Workshop

The objective is to increase CAAC's aircraft system safety capability for modern, highly integrated aircraft.

The first part would consist of seminars on certification considerations for highly integrated and complex aircraft systems. The second part would consist of a workshop to apply the principles of SAE ARP4754[3] to validate design aspects of ARJ21 safety critical systems with respect to CCAR requirements.

ACP member companies will help conduct the seminars and workshop and prepare the necessary material. It will be beneficial for AVIC I[4] (particularly ACAC[5] and FAI[6]) to be part of the workshop.

II. Program Management Workshop

The purpose of this workshop is to help CAAC develop and apply program management tools to plan, direct, manage, monitor and track the status of a certification program, again taking advantage of the ARJ21 certification to maximize the relevance and practicality.

Again, ACP member companies will help conduct a part of the workshop and in material preparation. It will be beneficial for AVIC I (particularly ACAC, FAI and SAMF[7]) to be part of the workshop.

III. Conformity Inspection Workshop

This workshop helps CAAC and ACAC establish a Conformity Inspection Plan (CIP) in a "structural" manner using a Test Integration Plan (TIP).

In order to ensure that the aircraft used for Type Certification testing represent the Type Design, CAAC has to conduct Conformity Inspections on enough parts and assemblies on the aircraft. This presents an enormous challenge for a Part 25 aircraft with millions of parts. The CAAC could accomplish this by creating a Matrix, the TIP sheet that will embody all of the tests to be conducted. Conformity inspection priority is then given to all of the parts and assemblies within the Matrix.

[3] SAE ARP4754 Certification Considerations for Highly-Integrated or Complex Aircraft Systems
[4] AVIC I stands for China Aviation Industry Corporation I.
[5] AVIC I Commercial Aircraft Company Ltd.
[6] First Aircraft Institute – it was formed by merging the Xian Aircraft Research Institute with the Shanghai Aircraft Research Institute.
[7] Shanghai Aircraft Manufacturing Factory – it is responsible for the ARJ21 aircraft final assembly.

TASK 4. CAAC flight test training

Nearly all of CAAC's flight test experience had been with Part 23 aircraft, which can be very different from the Part 25 requirements in terms of certification flight testing. Under this TASK, a flight test pilot and a flight test engineer will be hired to provide training on certification flight testing of Part 25 Transport Category aircraft, with special emphasis on the FAA Part 25 flight test guidelines and on lessons learned on other flight test programs.

TASK 5. Provide further recommendations

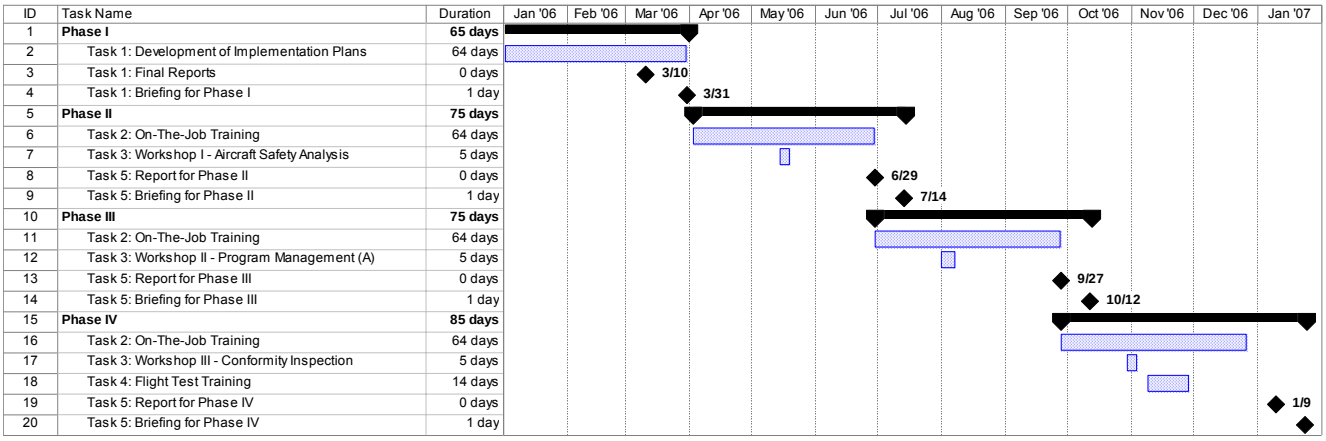
The consultants/specialists will also be tasked to record their observation and findings during their stay in China, and provide further recommendations at the end of the PROJECT to CAAC.

B.5 PROJECT Phases

The PROJECT will be completed in 4 Phases, and the total duration is expected to be 13 months (excluding the time required for the TDA grant application). The anticipated PROJECT timeline is shown in Figure 1.

It should be noted that since the ARJ21 is scheduled to make its first flight in August 2007, the timing of this PROJECT is critical – most of the design decisions would have been made by the end of 2006.

Figure 1 Proposed PROJECT Phases



B.6 Target Consultant/Specialist Candidates

Consultants with experience in the following specialist areas will be hired:

- 1 to 2 of the consultants who participated in the CAAC SURVEY
- Ex-FAA, retired FAA and/or industry specialists in the following areas:
  - Complex system certification (FAR 25 Subpart F, D and E)
  - Structures certification (FAR 25 Subpart C), esp. structural integrity, flutter and fatigue
  - Airborne software certification
  - Manufacturing inspection
  - Information services and database setup/management
- Ex-FAA or retired FAA ACO managers
- Ex-FAA or retired FAA MIDO managers
- Ex-FAA or retired FAA program managers

- Ex-FAA, retired FAA and/or industry flight test pilots and engineers.

These consultants will be augmented by senior specialists and experienced program managers of ACP member companies.

Deliverables

Phase I

TASK 1. Develop implementation plans based on the recommendations of the CAAC SURVEY

- ♦ TASK plan detailing the approach, methodology and agenda.
- ♦ Up to three "Implementation Reports" detailing the plan for CAAC to improve their organization, resources and processes, to bring them up to international standards in terms of Part 25 Transport Category Aircraft Certification.

Phase II

TASK 2. Provide on-the-job training

- ♦ TASK plan detailing the approach, methodology and agenda.
- ♦ Concise bi-weekly report and/or briefing from the consultants/specialists.
- ♦ The staff at the CAAC-AAD should have a better understanding on the key issues pertaining to Part 25 aircraft certification, and should have on-the-job support, training and assistance as they certify the ARJ21 aircraft. Areas for improvement could be identified and turned into additional workshop topics.

TASK 3. Workshop I

- ♦ TASK plan detailing the approach, methodology and agenda.
- ♦ Workshop seminar material.

TASK 5. Provide further recommendations

- ♦ At the end of this PROJECT phase, the consultants/specialist will compile a report listing their observations and findings, summarizing their recommendations for improvement and identifying areas requiring further training/support.

Phase III

TASK 2. Provide on-the-job training

- ♦ TASK plan detailing the approach, methodology and agenda.
- ♦ Concise bi-weekly report and/or briefing from the consultants/specialists.
- ♦ The staff at the CAAC-AAD should have a better understanding on the key issues pertaining to Part 25 aircraft certification, and should have on-the-job support, training and assistance as they certify the ARJ21 aircraft. Areas for improvement could be identified and turned into additional workshop topics.

TASK 3. Workshop II

- ♦ TASK plan detailing the approach, methodology and agenda.
- ♦ Workshop seminar material.
- ♦ Program Management tools tailored specifically for CAAC.

TASK 5. Provide further recommendations

- ♦ At the end of this PROJECT phase, the consultants/specialist will compile a report listing their observations and findings, summarizing their

recommendations for improvement and identifying areas requiring further training/support.

Phase IV

TASK 2. Provide on-the-job training

- TASK plan detailing the approach, methodology and agenda.
- Concise bi-weekly report and/or briefing from the consultants/specialists.
- The staff at the CAAC-AAD should have a better understanding on the key issues pertaining to Part 25 aircraft certification, and should have on-the-job support, training and assistance as they certify the ARJ21 aircraft. Areas for improvement could be identified and turned into additional workshop topics.

TASK 3. Workshop III

- TASK plan detailing the approach, methodology and agenda.
- Workshop seminar material.
- Preliminary TIP sheet for the ARJ21.

TASK 4. CAAC flight test training

- TASK plan detailing the approach, methodology and agenda.
- Training material.

TASK 5. Provide further recommendations

- At the end of this PROJECT phase, the consultants/specialists will compile a report listing their observations and findings, summarizing their recommendations for improvement and identifying areas requiring further training/support.

Table 1 summarizes the deliverables that will be submitted by the consultant/specialist CONTRACTORS and the timing of the submittals.

Table 1 Deliverables to be Submitted Formally by the CONTRACTORS

TASK	Description	Ref.	Deliverables	Date
1	Develop Implementation Plans	1a 1b	TASK Plan Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 60 DAYS after trip to CHINA
2	On-the-Job Training	2a	TASK Plan Training Material Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 7 working days before training 45 DAYS after trip to CHINA
		2b	TASK Plan Training Material Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 7 working days before training 45 DAYS after trip to CHINA
		2c	TASK Plan Training Material Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 7 working days before training 45 DAYS after trip to CHINA
		2d	TASK Plan Training Material Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 7 working days before training 45 DAYS after trip to CHINA
		2e	TASK Plan Training Material Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 7 working days before training 45 DAYS after trip to CHINA
		2f	TASK Plan Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 60 DAYS after trip to CHINA
3	Workshop 1: Aircraft Safety Analysis and Integration	3a	TASK Plan Training Material Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 7 working days before training 45 DAYS after trip to CHINA
	Workshop 2: Program Management	3b	TASK Plan Training Material Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 7 working days before training 45 DAYS after trip to CHINA
	Workshop 3: Conformity Inspection	3c	TASK Plan Training Material Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 7 working days before training 45 DAYS after trip to CHINA
4	Flight Test Training	4a 4b	TASK Plan Training Material Final Report	30 DAYS after contract signature and 30 DAYS before trip to China 7 working days before training 45 DAYS after trip to CHINA
5	Observations/Recommendations	5	Final Report	As described above

B.7 PROJECT Management

The PROJECT will be managed by the ACP ARJ21 SUB-GROUP for the following reasons:

- Different groups of consultants will be involved. SUB-GROUP member companies will be involved in identifying, “interviewing” and coordinating with the consultants.
- The total duration of the PROJECT is long: over a year. SUB-GROUP member companies will help in supporting and tracking the performance of the consultants.
- SUB-GROUP member companies will help conduct some of the workshops.
- It is expected that a single grant application will be filed, and the disposition of the funding will be managed jointly by the grant applicant and the ARJ21 SUB-GROUP.

A detailed Statement of Work (SOW) has been written for this PROJECT and is available on request.

C PROJECT Sponsors – Capabilities and Commitment

This PROJECT is proposed by the ACP ARJ21 SUB-GROUP consisting of the following companies:

- **GE Aircraft Engines**
- **Eaton Aerospace**
- **Hamilton Sundstrand of the UTC**
- **Honeywell International**
- **Parker Aerospace**
- **Rockwell Collins**

The capabilities of some of the key sponsors are summarized in Table 2 to Table 5.

The SUB-GROUP companies are responsible for the design, manufacture and aftermarket support of the following systems/equipment on the aircraft:

- Auxiliary Power Unit (APU) System
- Avionics System
- Electrical Power System
- Emergency Power System
- Fire Protection System
- Fuel system
- Hydraulic System
- Primary Flight Control System
- Powerplant Systems (including the engines)
- Secondary Flight Control System: High Lift
- Secondary Flight Control System: Horizontal Stabilizer Trim
- Control Panel Assemblies
- Lighting Controller

Other U.S. companies who are involved in the ARJ21 program but are not members of the ACP include:

- B/E Aerospace
- EVAC (part of Zodiac Monogram Systems)
- Goodrich
- MPC Products Corporation

These companies provide the oxygen system, water and waste system, lighting, windshield heater controller and wiper, APU inlet door actuation assembly etc. for the ARJ21 aircraft.

Table 2 GE Company Profile and ARJ21 Involvement

US Company Name	GE Transportation – General Electric Company	
Company Website	http://www.ge.com	
Company Description	GE Transportation comprises aircraft engines and rail, two industry-leading business units whose products and services span the aviation, rail, marine and off-highway industries with jet engines for military and civil aircraft, freight and passenger locomotives, motorized systems for mining trucks and drills, and gas turbines for marine and industrial applications. GE's other business units are GE advanced material, GE commercial finance, GE consumer finance, GE consumer & industrial, GE energy, GE equipment service, GE healthcare, GE infrastructure, GE insurance solution, NBC universal	
Corporate Headquarters Address	General Electric Company Fairfield. Connecticut 06828	
Equipment / Systems Supplied on the ARJ21	Powerplant Systems	
Main Plants / Facilities for ARJ21 Activities	GE Aircraft Engine Business 1 Neumann Way, Cincinnati Ohio, 45215 USA	Middle River Aircraft Systems – A Subsidiary of GE 103 Chesapeake Park Plaza Baltimore, MD 21220
Estimated Net Value of ARJ21 Program Content	3 Billion USD	
China Based Point of Contact	Ruijun Tong Onsite Manager Cell: +86 13817810275 Fax: +86 21 6289 8980 Email: Ruijun.tong@ge.com	
US Based Point of Contact	Jim Stoker Program Manager Tel: +001 513 552 2864 Fax: +001 513 552 2591 Email: jim.stoker@ge.com	
Business Activities in China	GE started doing business in China as early as 1906 and was considered one of the most active foreign companies in the country at the time. In 1908, the first GE light plant was built in Shenyang. GE acquired Anderson, Meyer & Co. in 1934 and started to provide installation and repair services of imported electric equipment in China. GE resumed trade with the People's Republic of China in 1979. It opened GE Hangwei Medical Systems Co. Ltd. in Beijing, its first joint venture in China in 1991. All the eight GE industrial businesses have set up operations in China with more than 12,000 employees. GE has established over 36 legal entities in China with total investment over US$1.5 Billion.	

Table 3 Hamilton Sundstrand Company Profile and ARJ21 Involvement

US Company Name	Hamilton Sundstrand Corporation – A United Technologies Company	
Company Website	http://www.hamiltonsundstrand.com	
Company Description	Hamilton Sundstrand, a subsidiary of United Technologies Corporation, is among the largest global suppliers of technologically advanced aerospace and industrial products. Hamilton Sundstrand designs and manufactures aerospace systems for commercial, regional, corporate and military aircraft, and is a major supplier for international space programs. Industrial products serve industries ranging from hydrocarbon, chemical and food processing to construction and mining. Hamilton Sundstrand's Aerospace business units provide technologically advanced system, components and services for the commercial and military aerospace, and related industries. Hamilton Sundstrand Industrial consists of four separate companies. United Technologies, based in Hartford, Connecticut, provides a broad range of high-technology products and support services to the building systems and aerospace industries. UTC's other business units are Pratt & Whitney, Sikorsky Aircraft, Otis Elevator Company and Carrier Corporation.	
Corporate Headquarters Address	Hamilton Sundstrand Corporation One Hamilton Road Windsor Locks, Connecticut 06096-1010 (860) 654-6000	
Equipment / Systems Supplied on the ARJ21	Auxiliary Power Unit (APU) System Electrical Power System Emergency Power System	Fire Protection System High Lift Actuation System
Main Plants / Facilities for ARJ21 Activities	Auxiliary Power Unit (APU) System Hamilton Sundstrand Power Systems 4400 Ruffin Road PO BOX 85757 San Diego, California 92186 –5757 Fire Protection System Kidde Aerospace 4200 Airport Drive NW Wilson, NC 27896	Electrical Power, Emergency Power and High Lift Actuation Systems 4747 Harrison Ave PO BOX 7002 Rockford, IL 61125-7002
Estimated Net Value of ARJ21 Program Content	> 1 Billion USD	
China Based Point of Contact	Stan Kottke Onsite Manager Cell: +86 13801998554 Fax: +86 21 64385284 Email: stan.kottke@hs.utc.com	Steven Wang Technical & On-Site Manager, Fire Protection System Cell: +86 1360 1636828 Email: steven.wang@kiddeaerospace.com
US Based Point of Contact	Gary Hill Program Manager Tel: +001 815-226-5294 Fax: +001 860-660-5665 Email: gary.hill@hs.utc.com	Tadd Herron Program Manager, Fire Protection System Tel: +001 252-246-7049 Fax:+001 252-246-7182 Email: tadd.herron@kiddeaerospace.com
Business Activities in China	ARJ21 and other Chinese commercial aircraft programs Customer Service and Support Manufacturing – for both Aerospace and Industrial	

Table 4 Parker Company Profile and ARJ21 Involvement

US Company Name	Parker Aerospace Group of Parker Hannifin Corporation	
Company Website	http://www.parker.com or http://www.phstock.com	
Company Description	Parker Aerospace is a business group of Parker Hannifin Corporation. Parker Aerospace designs, manufactures, and services hydraulic, fuel, and pneumatic components, systems, and related electronic controls for aerospace and other high-technology markets. Based in Irvine, California, its product lines include flight control actuation systems and components, thrust-reverser actuation systems, electrohydraulic servovalves, utility hydraulic systems and components, DC motor pumps, fuel pumps, lubrication and scavenge pumps, fuel measurement and management systems, cockpit instrumentation, flight inspection systems, pneumatic subsystems and components, fluid metering delivery and atomization devices, and wheels and brakes. Parker Aerospace has provided joint engineering and development for complete systems on numerous commercial aircraft platforms, including the Embraer 170/190, Airbus A340-500/600 and A380, Global Express, Global 5000, Q400, Challenger 300, CRJ 700/900, Dassault Falcon 7X. It is unique in its ability to provide proven experience in the three primary motion-control systems for regional aircraft, including fuel, hydraulic, and flight control systems. With annual sales exceeding $8 Billion, Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of commercial, mobile, industrial and aerospace markets. The company employs more than 50,000 people in 46 countries around the world. Parker has increased its annual dividends paid to shareholders for 49 consecutive years, among the top five longest-running dividend-increase records in the S&P 500 index.	
Corporate Headquarters Address	Parker Aerospace 14300 Alton Parkway California 92618-1898 Tel: +1 949-833-3000 Fax: +1 949-851-3277	Parker Hannifin Corporation 30240 Lakeland Blvd Wickliffe Irvine, Cleveland, Ohio 44092 Tel: +1 440-516-3298 Fax: +1 440-943-3129
Equipment / Systems Supplied on the ARJ21	Fuel System Hydraulic System Primary Flight Control Actuation System Horizontal Stabilizer Trim System	
Main Plants / Facilities for ARJ21 Activities	Hydraulic Systems Division 2220 Palmer Avenue Kalamazoo, MI 49001-4165 USA Tel: +1 269-384-3400 Fax: +1 269-384-38 Control Systems Division 14300 Alton Parkway Irvine, CA 92618-1898 USA Tel: +1 949-833-3000 Fax: +1 949-586-8456 Email:csd@parker.com	Air & Fuel Division 16666 Von Karman Avenue Irvine, CA 92606-4917 USA Tel: +1 949-833-3000 Fax: +1 949-851-3341 Customer Support Commercial Division 14300 Alton Parkway Irvine, CA 92618-1898 USA Tel: +1 949-809-8000 Fax: +1 949-809-8390 Email:pwehr@parker.com
Estimated Net Value of ARJ21 Program Content	500 Million USD	

US Company Name	Parker Aerospace Group of Parker Hannifin Corporation
China Based Point of Contact	Dr. Pui Ho Program/Technical Manager Cell: +86 13816509058 Fax: +86 21 64385244 Email: pho@parker.com
US Based Point of Contact	Mr. Bill Stone ARJ21 Program Director Tel: +1 949-465-4010 Fax: +1 949-465-4889 Email: bstone@parker.com
Business Activities in China	ARJ21 Program Other Chinese Commercial Aircraft Programs (e.g. ERJ145 Production) Customer Service and Support Manufacturing – Industrial Outsourcing – Aerospace & Industrial

Table 5 Rockwell-Collins Company Profile and ARJ21 Involvement

US Company Name	Rockwell Collins, Inc.	
Company Website	http://www.rockwellcollins.com	
Company Description	Rockwell Collins (NYSE: COL) is a leader in aviation electronics and communications for government and commercial applications. Rockwell Collins is a global company providing aviation electronics for the world's aircraft manufacturers and more than 400 airline customers, as well as a major share of the world's military forces. The company maintains headquarters and manufacturing operations in the United States in addition to locations in Europe, Australia and Mexico. Rockwell Collins is organized into two business units: Commercial Systems and Government Systems, and also provides world-class customer support through Collins Aviation Services, which offers training, technical support and total customer service solutions through a network of more than 60 service centers and service bases. Rockwell Collins, with headquarters in Cedar Rapids, Iowa, employs approximately 14,500 people worldwide.	
Corporate Headquarters Address	Rockwell Collins 350 Collins Road NE Cedar Rapids, IA 52498 (319) 295-1000	
Equipment / Systems Supplied on the ARJ21	Pro Line 21 Avionics System Avionics system integration	
Main Plants / Facilities for ARJ21 Activities	Rockwell Collins Headquarters 350 Collins Road NE Cedar Rapids, IA 52498 (319) 295-1000	Airshow Systems, a subsidiary of Rockwell Collins 2747 Dow Avenue Tustin, CA 92780 (714) 669-1300
Estimated Net Value of ARJ21 Program Content	---	
China Based Point of Contact	Martin M Lin Cell: +86 13901053980 Tel.: +86 10 8453 4434 Fax: +86 10 8453 4076 Email: mlin@rockwellcollins.com	

US Company Name	**Rockwell Collins, Inc.**	
US Based Point of Contact	Patrick O'Brien Program Manager Tel: +001 319-295-5539 Fax: +001 319-295-5597 Email: pobrien@rockwellcollins.com	Jennie Holladay Contract Manager Tel: +001 319-295-1858 Fax: +001 319-295-2929 Email: jlhollad@rockwellcollins.com
Business Activities in China	Programs – equipment sales to airlines and commercial aircraft built in China such as ARJ21, ground communications programs for Chinese government customers. Customer Service and Support – Field Service Engineer and JV operated in Shanghai for equipment repair, software development and verification programs for avionics.	

D Implementation Financing

The total development costs of the ARJ21 program will be around US$1.0 Billion to 1.2 Billion. The U.S. companies (including ACP member companies) involved in the program will be spending about US$200 Million in non-recurring engineering costs, in test fixtures and instrumentations as well as several shipsets of prototype hardware (see Section K).

This particular PROJECT (CAAC Transport Aircraft Certification System Enhancement) is estimated to require US$1,777,000. ACP members will contribute US$1,177,000 (see Section L). The balance, US$600,000, is expected to be raised from a TDA grant. In addition, the CAAC will fund/cover airfare, accommodation, ground transportation and other logistics costs for their own staff, and will organize and provide training facilities. AVIC I Commercial Aircraft Company (ACAC) will also provide facilities and will cover the travel expenses of their staff members attending the training and workshops provided under this PROJECT.

E U.S. Export Potential

It is estimated that the U.S. content on the ARJ21 is about 45%. In other words, 45% of the Bill of Material (BOM) of each of the ARJ21 aircraft belongs to the U.S. Further, it has been forecasted that 340 ARJ21 aircraft will be needed in China alone. Each of these aircraft will sell for US$24 – 28 Million. There is therefore a significant financial benefit to the U.S. companies involved in the program.

The financial model of the U.S. companies will be further enhanced if the aircraft can be sold outside of China to other Asian and African countries. However, in order to export the aircraft out of China, a bilateral agreement would have to be established between the CAAC and the importing country for Part 25 Transport Category aircraft. The ultimate goal of this proposal is to bring the CAAC's ability to a level that would be recognized by other civil aviation authorities of the world. It should be noted that ACAC (AVIC I Commercial Aircraft Company) forecasted the export potential of the ARJ21 to be 160 aircraft over 20 years (in addition to the 340 domestic sales described above).

In addition, the success of the program will provide addition revenue to the U.S. suppliers from follow-on projects, such as the freighter and business jet versions of the ARJ21, and will help ensure that U.S. companies win future Chinese aircraft development programs because of the long-term relationships established and the help offered by the ACP/TDA to the Chinese aviation industry.

The total estimated U.S. export value including aftermarket sales probably exceeds US$8 Billion, excluding future variants of the ARJ21 (such as the freighter and business jet versions) and export potential of future Chinese civil aircraft programs.

F Foreign Competition

European companies represent the strongest competition to the U.S. aerospace system suppliers, such as the companies listed in Section C. The European companies that could offer competitive equipment on an ARJ21-type aircraft include British Aerospace (BAe) Systems, Lucas, Rolls Royce, Thales, Liebherr, Intertechnique, Triumph etc.

The competitiveness of these European companies has been further enhanced by the involvement of the European Union (EU) Commission. According to recent statistics, the EU has just surpassed the U.S. to become China’s largest trading partner (and China is the second largest trading partner of the EU).

In recent years, the EU-China relations have strengthened considerably, particularly since the adoption of a new Commission strategy document on China and China’s first ever policy

paper on the EU in 2003. In 2004 both sides agreed to broaden the relationship into a strategic partnership. It was also agreed to progress toward negotiations on a new EU-China framework agreement to replace and update the 1985 Trade and Economic Cooperation Agreement. As an example, the first EU-China Aviation Summit was held in Beijing on 30 June to 1 July, and the European Commission President José Manuel Barroso visited Beijing, Shanghai, Hong Kong and Macao from 14 to 18 July at the invitation of Chinese Prime Minister Wen Jiabao China to "deepen the strategic partnership". During the EU-China Aviation Summit, Minster Yang of the CAAC and Vice President of the EU Commission, Jacques Barrot, signed a joint declaration to set up a steering group to monitor the progress of a wide range of civil aviation cooperation programs.

In terms of dollar value, the EU/China Civil Aviation Cooperation Project is a 4 year project (July 99 - July 03) valued at 24 Million € (US$26M) with 50% of the money coming from EU governments, 25% from AECMA (a French acronym for the Association of European Aerospace Manufacturers, i.e. Airbus, Rolls Royce etc.), and 25% from China. The Chinese contribution is not cash, but "in kind". In the period from January 2005 to June 2006, the EU will provide 5 Million € (US$6.65M) to the program. The funding is broken down as follows:

- EU Government: about one third, i.e. 1.6M € (US$2.1M) cash.
- EU industry: in-kind contribution (i.e. no cash), and will include instructors labor costs, training materials, classrooms/facilities, travel, lodging etc.
- China: in-kind contribution (i.e. no cash), and will include interpreters, meeting rooms, travel, lodging etc.

G Development Impact

In 2000, the Chinese central government announced a major initiative to develop China's "poor and backward" western regions, and the "vigorous development of trade and tourism" has been reported to be the direction for the economic development of western China. In 2004, the State Council listed ten major infrastructure projects in the region including the construction of two railway lines, several highways, a light rail (in the city of Chonqing), a natural gas pipeline, multi-purpose water conservancy projects, improvement of the region's tertiary education system, construction of fertilizer plants and forestation etc. It also includes an investment for the construction of 20 airports in an attempt "to narrow the gap between the east and the west with aviation". However, due to the mountainous geographic limitations, many airfields in western China are at high attitudes and only a handful of aircraft types are suited to operate in such regions. The ARJ21 is designed specifically to operate at "hot and high" conditions and is often regarded as one of the strategic vehicles for the development of western China. It should help bring economic prosperity and should help provide access to many of China's "poor and backward" western regions.

In order to design, build, sell and support a modern, complex aircraft such as the ARJ21, China is mobilizing many of its design institutes, factories, flight test institute and other support organizations. The First Aircraft Institute (FAI) is responsible for the engineering design effort and approximately 800 engineers are currently working on the program (both in Shanghai and Xian). ACAC is in charge of contract administration, sales and marketing, and customer support and has a staff of about 200. Another 2,000 strong working will soon be joining the program in the four factories as production ramps up. These factories include: the Shanghai Aircraft Manufacturing Factory (SAMF), the Xian Aircraft Company (XAC), the Chengdu Aircraft Company (CAC) and the Shenyang Aircraft Company (SAC), who will be responsible for aircraft final assembly, wing and center fuselage production, cockpit section production and empennage assembly and production respectively. In addition, the Research Institute for Special Structure of Aeronautical Composites (RISAC) will fabricate the radar dome, secondary structures and floors for the ARJ21, and the Chinese Flight Test Establishment (CFTE) will be responsible for the flight test activities. The economic and

employment impact of the program is significant, not to mention the jobs created by lower-level or sub-tier suppliers, who will be providing parts to the four main factories.

The ARJ21 is the first aircraft program in China to adopt a Western style market-driven development model. Its success or failure will have a significant and long-term impact on the Chinese aviation industry (if the program fails, for example, “Western” suppliers will find it hard to justify investing into any other Chinese domestic aircraft in the future). It is vital for both the TC applicant and the CAAC to be brought up to speed to understand the issues involving modern aircraft design, certification and production.

H Impact on Environment

This PROJECT does not have any direct adverse impact on the environment.

The ARJ21 aircraft uses advanced systems similar to other “Western” regional aircraft, such as the Bombardier CRJ 700/900 and the Embraer ERJ 170/190. In fact, many system components are “off the shelf” and have been used on the CRJ and the ERJ including the CF34-10 engine, the Auxiliary Power Unit (APU), the fuel system etc. The ARJ21 will also be designed to meet the latest noise and emission standards. Many of these features are made possible by the involvement of U.S. suppliers on the program.

I Impact on U.S. Labor

As noted in Section E, the estimated export value of the ARJ21 project probably exceeds US$8 Billion. In addition, the estimated non-recurring engineering costs that the U.S. suppliers will be spending on the program will be about US$200 Million (see Section K). Assuming, probably conservatively, that 15% of the recurring and 50% of the non-recurring engineering costs are associated with direct labor, then the total benefit to U.S. labor will be about US$1.3 Billion. This can be translated to US$1.3 Billion / (US$150 per hour * 2,087 man-hours per year) = 4,153 man years, or about 208 jobs per year over 20 years.

It should be noted that no regional aircraft with more than 19 seats are currently being produced in the U.S. The two main competitors to the ARJ21 are: (i) the Bombardier (Canada) CRJ 700/900 and (ii) the Embraer (Brazil) ERJ 170/190. The Russians are also developing a similar regional aircraft, known as the RRJ, which may also become a competitor to the above aircraft.

J Qualification

The qualification of the ACP member companies who proposed this PROJECT has been detailed in Section C and will not be repeated here.

Following the award of the TDA grant, ACP member companies will select individual consultants listed in Table 8.

K Justification

This proposal provides the following benefits to the ACP ARJ21 Sub-group companies:

1. U.S. Content

   It is estimated that the U.S. content on the ARJ21 is about 45%. In other words, 45% of the Bill of Material (BOM) of each of the ARJ21 aircraft belongs to the U.S. Further, it has been forecasted that 340 ARJ21 aircraft will be needed in China alone (the ARJ21 family currently consists of two models: the ARJ21-700 with 78 to 90 seats and the ARJ21-900 with 95 to 105 seats). Each of these aircraft will sell for US$24 – 28 Million. There is therefore a significant financial benefit to the U.S. companies involved in the program.

The financial model of the U.S. companies will be further enhanced if the aircraft can be sold outside of China to other Asian and African countries. However, in order to export the aircraft out of China, a bilateral agreement would have to be established between the CAAC and the importing country for Part 25 Transport Category aircraft. The ultimate goal of this proposal is to bring the CAAC's ability to a level that would be recognized by other civil aviation authorities of the world. It should be noted that ACAC (AVIC I Commercial Aircraft Company) forecasted the export potential of the ARJ21 to be 160 aircraft over 20 years (in addition to the 340 domestic sales described above).

In addition, the success of the program will provide addition revenue to the U.S. suppliers from follow-on projects, such as the freighter and business jet versions of the ARJ21, and will help ensure that U.S. companies win future Chinese aircraft development programs because of the long-term relationships established and the help offered by the ACP/TDA to the Chinese aviation industry.

2. Risk Sharing Partnership

   ACAC (AVIC I Commercial Aircraft Company), who is in charge of coordinating the design and manufacture of the ARJ21, is running the program like a “Western style” risk-sharing aircraft development program. Systems suppliers, such as GE, Parker, Honeywell, Rockwell Collins, Hamilton Sundstrand, Eaton etc. are "risk-sharing partners" and are asked to absorb their up-front engineering costs in exchange for the exclusive right to supply their components for the lifetime of the program (20 years). Until the aircraft receives a Type Certificate (TC) from the CAAC in 2008/9, the U.S. suppliers would have spent millions in non-recurring engineering costs, in test fixtures and instrumentations as well as several shipsets of prototype hardware. This type of risk-sharing partnership is very common in the aviation industry and is being applied to Boeing and Airbus programs (the reason is the huge aircraft development costs involved). It has been estimated that the U.S. companies would have spent close to US$200 Million [8] on the ARJ21 program before the airplane will begin generating revenue (following Type Certification). Thus the ACP ARJ21 SUB-GROUP companies are keen to see that (i) ACAC knows how to design/manufacture/sell/support an aircraft (the companies are spending a lot of time, money and effort training ACAC engineers/managers and providing technical support on site), and (ii) the CAAC knows how to certify a complex aircraft such as the ARJ21, and to ensure continued airworthiness for the next 20 years. A major event or fatal accident will quickly jeopardize the U.S. investment into the program.

3. Influencing the CAAC

   The success of the ARJ21 program relies on both the applicant (ACAC) and the certification authority (CAAC). Both lack hands on experience. U.S. suppliers can help the applicant (ACAC) by providing technical and program support. However, since the U.S. suppliers are considered to be “on the applicant’s side”, they cannot directly influence the CAAC. The TDA grant and the ACP provide the only access and avenue to "influence" the CAAC. This proposal is designed to "influence" the CAAC and to build up its capabilities.

4. Influencing the FAA

   In a similar fashion, it is difficult traditionally for U.S. suppliers to influence the FAA. The CAAC SURVEY has helped raise the profile of the ARJ21 program, and the FAA has

[8] The estimates are for the ARJ21 program only. It does not include indirect costs involved in, for example, pre-contract award sales and marketing effort, training and other indirect activities, such as the ACP.

been responding to CAAC's needs: the FAA agreed to help the CAAC certify the ARJ21 under CAAC's own rules, and agreed recently to take on more responsibilities in terms of using the FAA DERs/DMIRs/DARs to help perform conformity inspection of U.S. suppliers.

In addition, the FAA has indicated that if the CAAC acts on the recommendations of the TDA funded CAAC SURVEY, they would consider establishing a bilateral agreement with the CAAC on Part 25 aircraft. The continual improvement of the CAAC proposed by this PROJECT will continue to improve FAA's confidence on CAAC and on the ARJ21 program.

5. EU Competition

   The EU-China Aviation Cooperation has been quite successful because the commitment of the EU Commission on the program has been demonstrated by high-level visit and significant funding: 29 Million € (US$32.65M) between July 99 and June 06. The Chinese have been very receptive of the EU approach since it is close to their own model in this regard – Chinese regulatory agencies, airlines and aircraft industry are state-owned entities and they are eager to deal directly with government entities. The U.S.-China ACP program and the TDA funding provide the only channel (at least for now) to effectively compete against the EU and the European aerospace companies on this ground.

6. Public Safety

   It is important to ensure that this new fleet of Chinese-made aircraft is safe for the traveling public. Many U.S. citizens may/will be traveling on one of the ARJ21s in the not-too-distant future. It should be noted, however, that safety begins with the design. Commercial considerations aside, it is important to support the CAAC and to help ensure that the aircraft is airworthy and fit for service for the next 20 years.

   Additionally, China has seen phenomenal growth in air traffic. In the period between 1985 and 2004, air traffic has grown from 8.436 to 95.254 Billion RPK[9] (more than 10 times), and is expected to grow to 452.125 Billion RPK[10], which is the same size as the current Europe traffic volume. Improving the certification capabilities of the CAAC-AAD will benefit China's aircraft fleet in general (including Boeing and Airbus aircraft) since the organization is also responsible for the following key functions:

   - Developing airworthiness management policy, airworthiness standards and regulations for civil aviation products and parts, and monitoring the implementation of these policies.
   - Airworthiness certification and inspection of Individual civil aviation products and parts, and the corresponding certificates management.
   - Civil aircraft registration and the corresponding certificates management.
   - Developing the engineering approval policies, standards, regulations and management procedures for major aircraft modification/ alteration and repair.
   - Developing the policies, standards, regulations and management procedures for Airworthiness Directives (ADs), and the management of the ADs.
   - Organizing engineering analysis for major or repetitive failures.
   - Developing the civil aircraft noise and engine emission certification policies, organizing the relevant certification activities and managing the certificates.
   - Developing the civil aviation oil and chemical product certification policies, organizing the relevant certification activities and managing the certificates.

[9] Revenue Passenger Kilometer.
[10] Boeing's "Current Market Outlook 2004".

- Developing the relevant policies and procedures for CAAC representatives/ designees.
- Taking part in accident investigation activities.

L Terms of Reference

L.1 Purpose and Objective of the PROJECT

The objectives of the PROJECT are as follows:

1. To help the CAAC turn the recommendations of the CAAC SURVEY report into realistic implementation plans with agenda, method and schedule, especially in the areas of resources, organization, communication and training.
2. To provide on-the-job training to help advance CAAC's Part 25 aircraft certification capabilities, taking advantage of the ongoing Part 25 ARJ21 certification program.
3. To provide expert resources to the CAAC-AAD.
4. To help the CAAC-AAD set up specific infrastructure and tools that are necessary for the management and execution of a Part 25 Type Certification program.
5. To further identify areas of improvement and provide recommendations.

L.2 Technical Assessment

The technology selected for this training program reflects the best that the U.S. industry and certification agency can offer. Consultant CONTRACTORS in the following specialist areas will be hired under this PROJECT:

- 1 to 2 of the consultants who participated in the CAAC SURVEY
- Ex-FAA, retired FAA and/or industry specialists in the following areas:
  - Complex system certification (FAR 25 Subpart F, D and E)
  - Structures certification (FAR 25 Subpart C), esp. structural integrity, flutter and fatigue
  - Airborne software certification
  - Manufacturing inspection
  - Information services and database setup/management
- Ex-FAA or retired FAA ACO managers
- Ex-FAA or retired FAA MIDO managers
- Ex-FAA or retired FAA program managers
- Ex-FAA, retired FAA and/or industry flight test pilots and engineers.

These consultants will be augmented by senior specialists and experienced program managers of ACP member companies.

The PROJECT will demonstrate that the certification experience and capabilities of the U.S. regulatory agencies and industry are a model for China to follow.

L.3 Economic Analysis of the Project

The ACP determines that the PROJECT as proposed will be the most economical and that alternative methods of delivery will not be as cost effective. For example, many parties – the CAAC, ACAC, the First Aircraft Institute (FAI)[11], Shanghai Aircraft Manufacture Facility, the

[11] FAI is responsible for the engineering design of the aircraft. It was formed in 2003 specifically for the ARJ21 program by merging the Shanghai Aircraft Research Institute (SARI) and the Xian Aircraft Research Institute (XARI).

U.S. suppliers' on-site specialists etc. – will be involved in the PROJECT, and China is the best location for the On-the-Job Training programs (TASK 2) and the workshops (TASK 3).

Considering the competition offered by the EU Commission to invest 1.6M € (US$2.1M) cash on the Chinese aviation sector, the total funding request proposed by the ACP for the next TDA fiscal year does not seem to be unreasonable.

L.4 Financial Analysis of the Project

Not applicable to this PROJECT.

L.5 Environmental Analysis of the Project

This PROJECT does not have any direct adverse impact on the environment.

The ARJ21 aircraft use advanced systems similar to other "Western" regional aircraft, such as the Bombardier CRJ 700/900 and the Embraer ERJ 170/190. In fact, many system components are "off the shelf" and have been used on the CRJ and the ERJ including the CF34-10 engine, the Auxiliary Power Unit (APU), fuel system etc. The ARJ21 will also be designed to meet the latest noise and emission standards. Many of these features are made possible by the involvement of U.S. suppliers on the program.

L.6 Review of Regulatory Issues Related to the Project

No Regulatory Issues should adversely impact the project.

The ARJ21 aircraft is being designed to meet the following certification requirements:

- CCAR 25-R3 Airworthiness Standards, Transport Category Airplanes (dated 14 May 2001), which is equivalent to the FAR 25 Amendment 1-100.
- CCAR 34 Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes.
- CCAR 36 Noise Standards: Aircraft Type and Airworthiness Certification (dated 20 March 2002).
- The CF34-10A engines will be certified under FAR 33 regulations.
- Some Special Conditions may apply to the ARJ21.
- CCAR 21-R2 Certification Procedures for Products and Parts (dated 20 August 1998).

It should be noted that the ultimate goal is to bring the CAAC closer to the threshold of shadow certification as part of a Bilateral Aviation Safety Agreement (BASA) with the U.S. to cover Part 25 Transport Category Aircraft Certification. At which point, the aircraft will be certified to same safety standards as any other "Western" made aircraft.

L.7 An analysis of Key Host Country Development Impacts

In 2000, the Chinese central government announced a major initiative to develop China's "poor and backward" western regions, and the "vigorous development of trade and tourism" has been reported to be the direction for the economic development of western China. In 2004, the State Council listed ten major infrastructure projects in the region including the construction of two railway lines, several highways, a light rail (in the city of Chonqing), a natural gas pipeline, multi-purpose water conservancy projects, improvement of the region's tertiary education system, construction of fertilizer plants and forestation etc. It also includes an investment for the construction of 20 airports in an attempt "to narrow the gap between the east and the west with aviation". However, due to the mountainous geographic limitations, many airfields in western China are at high attitudes and only a handful of aircraft types are suited to operate in such regions. The ARJ21 is designed specifically to operate at "hot and high" conditions and is often regarded as one of the strategic vehicles for the development of

western China. It should help bring economic prosperity and should help provide access to many of China's "poor and backward" western regions.

In order to design, build, sell and support a modern, complex aircraft such as the ARJ21, China is mobilizing many of its design institutes, factories, flight test institute and other support organizations. The First Aircraft Institute (FAI) is responsible for the engineering design effort and approximately 800 engineers are currently working on the program (both in Shanghai and Xian). ACAC is in charge of contract administration, sales and marketing, and customer support and has a staff of about 200. Another 2,000 strong working will soon be joining the program in the four factories as production ramps up. These factories include: the Shanghai Aircraft Manufacturing Factory (SAMF), the Xian Aircraft Company (XAC), the Chengdu Aircraft Company (CAC) and the Shenyang Aircraft Company (SAC), who will be responsible for aircraft final assembly, wing and center fuselage production, cockpit section production and empennage assembly and production respectively. In addition, the Research Institute for Special Structure of Aeronautical Composites (RISAC) will fabricate the radar dome, secondary structures and floors for the ARJ21, and the Chinese Flight Test Establishment (CFTE) will be responsible for the flight test activities. The economic and employment impact of the program is significant, not to mention the jobs created by lower-level or sub-tier suppliers, who will be providing parts to the four main factories.

The ARJ21 is the first aircraft program in China to adopt a Western style market-driven development model. Its success or failure will have a significant and long-term impact on the Chinese aviation industry (if the program fails, for example, "Western" suppliers will find it hard to justify investing into any other Chinese domestic aircraft in the future). It is vital for both the TC applicant and the CAAC to be brought up to speed to understand the issues involving modern aircraft design, certification and production.

L.8 U.S source of supply

Not applicable to this PROJECT.

L.9 Implementation plan

Section B has provided a detailed description of the PROJECT and its approach.

The following activities are planned in the near term before the commencement of the PROJECT:

- Consult with CAAC and ACAC on the training and workshop contents – completed.
- Create a Statement of Work (SOW) for the CONTRACTORS – completed.
- Send SOW to potential CONTRACTORS – target completion date 26 August 05.
- Review CONTRACTORS' proposals, interview and select CONTRACTORS – target completion date 14 October 05.
- Finalize schedule and agenda with CAAC and ACAC – target completion date 16 December 05.
- Commencement of PROJECT – 3 Jan 2006.

It should be noted that the above near-term plan may be adjusted and some items are awaiting TDA's decision regarding grant amount.

L.10 Final Report

All CONTRACTORS hired under this PROJECT will deliver a final report to the TDA and the ACP. The timing of the submittal and the details of all the deliverables are summarized in Table 1.

M Duration and Budget

The following table provides a summary of the no. of consultants/specialists to be hired, the total duration and the estimated costs.

Table 6 Expected Duration and Estimated Budget of the PROJECT Phases

		TDA Grant			ACP Members	
Phase	**TASK**	**No. of Consultants/ Specialists**	**Time Spent in China**	**Estimated Costs**	**Estimated "In-Kind" Contribution**	**Sub-Total**
Pre-project activities		None			US$ 185K	US$ 185K
I	1	2	2 weeks	US$ 100K	US$ 70K	US$ 170K
II	2	2	2 weeks to 1 month	US$ 110K	US$ 140K	US$ 465K
	3	1 – 2	1 week		US$ 180K	
	5	Phase II Consultants	None	US$ 25K	US$ 10K	
III	2	2	2 weeks to 1 month	US$ 140K	US$ 140K	US$ 500K
	3	1 – 2	1 week		US$ 180K	
	5	Phase III Consultants	None	US$ 30K	US$ 10K	
IV	2	2	2 weeks to 1 month	US$ 80K	US$ 35K	US$ 445K
	3	1 – 2	1 week		US$ 95K	
	4	2	2 weeks	US$ 95K	US$ 100K	
	5	Phase IV Consultants	None	US$ 20K	US$ 20K	
Misc. Costs		None			US$ 12K	US$ 12K
Total				US$ 600K	US$ 1,177K	**US$ 1,777K**

M.1 Budget Breakdown for the TDA Grant Portion of the PROJECT

Table 7 lists the detailed breakdown of the costs associated with the TDA grant portion of the PROJECT.

Table 7 Budget Breakdown for the TDA Grant Portion of the PROJECT

Direct Labor Costs

TASK	TASK Name	Consultants	Total Working Days	Daily Rate (US$)	Total Costs (US$)
1	Implementation Plans Development	Senior Manager #1 (ex-ACO/MIDO Manager)*	25 (US) 10.5 (China)	1,360	48,280
		Senior Manager #2 (ex-ACO/MIDO Manager)*	25 (US) 10.5 (China)	1,360	48,280
2	On-the-Job Training	Senior Specialist #1 (Complex Systems) *	25 (US) 22.5 (China)	1,360	64,600
		Senior Specialist #2 (Complex Systems or Structures) *	20 (US) 22.5 (China)	1,360	57,800
		Senior Specialist #3 (Structural Integrity) *	20 (US) 22.5 (China)	1,360	57,800
		Senior Specialist #4 (Airborne Software) *	15 (US) 10.5 (China)	1,360	34,680
		Senior Specialist #5 (Manufacturing Inspection) *	20 (US) 22.5 (China)	1,360	57,800
		Senior Specialist #6 (IT/Database) *	30 (US) 10.5 (China)	1,360	55,080
3	Workshop1: Complex System Certification	Senior Specialist #1 (Complex Systems) *	Covered Above		
	Workshop 2: Program Management	Senior Manager #3 (ex-FAA Program Manager) *	25 (US) 5 (China)	1,360	40,800
	Workshop 3: Conformity Inspection	Senior Specialist #5 (Manufacturing Inspection)*	Covered Above		
4	Flight Test Training	Senior Flight Test Pilot	20 (US) 10.5 (China)	1,360	41,480
		Senior Flight Test Engineer	20 (US) 10.5 (China)	1,580	48,190
5	Further Recommendations	All Above Specialists	Covered Above		
				Total Direct Labor Costs	554,790

Other Direct Costs: Air Travel

TASK	TASK Name	Consultants	Trip (By Air)	No.	Trip Costs (US$)	Total Costs (US$)
1	Implementation Plans Development	Senior Manager #1 (ex-ACO/MIDO Manager)*	International China	1 0	3,000 0	3,000
		Senior Manager #2 (ex-ACO/MIDO Manager)*	International China	1 0	3,000 0	3,000

Other Direct Costs: Air Travel

TASK	TASK Name	Consultants	Trip (By Air)	No.	Trip Costs (US$)	Total Costs (US$)
2	On-the-Job Training	Senior Specialist #1 (Complex Systems) *	International China	1 1	3,000 311	3,311
		Senior Specialist #2 (Complex Systems or Structures) *	International China	1 1	3,000 311	3,311
		Senior Specialist #3 (Structural Integrity) *	International China	1 1	3,000 311	3,311
		Senior Specialist #4 (Airborne Software) *	International China	1 1	3,000 311	3,311
		Senior Specialist #5 (Manufacturing Inspection) *	International China	1 1	3,000 311	3,311
		Senior Specialist #6 (IT/Database) *	International China	1 0	3,000 0	3,000
3	Workshop1: Complex System Certification	Senior Specialist #1 (Complex Systems) *	Covered Above			
	Workshop 2: Program Management	Senior Manager #3 (ex-FAA Program Manager) *	International China	1 0	3,000 0	3,000
	Workshop 3: Conformity Inspection	Senior Specialist #5 (Manufacturing Inspection)*	Covered Above			
4	Flight Test Training	Senior Flight Test Pilot	International China	1 1	3,000 311	3,311
		Senior Flight Test Engineer	International China	1 1	3,000 311	3,311
5	Further Recommendations	All Above Specialists	Covered Above			
					Total Air Travel Costs	35,177

Other Direct Costs: Per Diem

TASK	TASK Name	Consultants	Per Diem Days	Daily Rate (US$)	Total Costs (US$)
1	Implementation Plans Development	Senior Manager #1 (ex-ACO/MIDO Manager)*	14 (China)	150	2,100
		Senior Manager #2 (ex-ACO/MIDO Manager)*	14 (China)	150	2,100
2	On-the-Job Training	Senior Specialist #1 (Complex Systems) *	30 (China)	150	4,500
		Senior Specialist #2 (Complex Systems or Structures) *	30 (China)	150	4,500
		Senior Specialist #3 (Structural Integrity) *	30 (China)	150	4,500
		Senior Specialist #4 (Airborne Software) *	14 (China)	150	2,100
		Senior Specialist #5 (Manufacturing Inspection) *	30 (China)	150	4,500
		Senior Specialist #6 (IT/Database) *	14 (China)	150	2,100

Other Direct Costs: Per Diem

TASK	TASK Name	Consultants	Per Diem Days	Daily Rate (US$)	Total Costs (US$)
3	Workshop1: Complex System Certification	Senior Specialist #1 (Complex Systems) *	Covered Above		
	Workshop 2: Program Management	Senior Manager #3 (ex-FAA Program Manager) *	5 (China)	150	750
	Workshop 3: Conformity Inspection	Senior Specialist #5 (Manufacturing Inspection)*	Covered Above		
4	Flight Test Training	Senior Flight Test Pilot	14 (China)	150	2,100
		Senior Flight Test Engineer	14 (China)	150	2,100
5	Further Recommendations	All Above Specialists	Covered Above		
					31,350

Other Miscellaneous Costs

Ref. No.	Item	Funding Source	Total Costs (US$)
A	Interpretation	Contributed "In-Kind" by ACP Members	0
B	Reproduction and Binding	Part of the CONTRACTOR's Costs	N/A
C	Courier Services	Part of the CONTRACTOR's Costs	N/A
D	Visa Services	Part of the CONTRACTOR's Costs	N/A
E	Communication	Telephone Conference Costs Contributed "In-Kind" by ACP Member Companies; Other Communication Costs shall be borne by the CONTRACTORS	0

It should be noted that:

- 6 consultants will be hired under TASK 2 following consultations with the CAAC-AAD. The specialist skills of the consultants have been discussed with the AAD also but may be adjusted following further discussions.
- Some of the consultants/specialists hired under TASK 2 will also conduct the workshops (TASK 3). ACP member companies will help conduct the seminars/workshops and in material preparation.
- In addition to the above budget, the ACP SUB-GROUP member companies will be contributing "in kind" by providing logistics and language support (to the consultants), helping to conduct seminars/workshops, and in terms of project management, contract support, interviews, travel costs/expenses etc. It is estimated that the ACP members will contribute close to US$1.177 Million to this PROJECT. Details of these estimates are shown in Table 8.
- The costs associated with the TDA grant presented in Table 6 above have been rounded to the low side of the nearest US$5,000. For example, Table 7 shows that the total cost associated with each of the consultants under TASK 1 = Direct Labor Costs + Air Travel Costs + Per Diem = $48,280 + $3,000 + $2,100 = $53,530. This has been rounded to US$50K and presented as US$100K in Table 6 for 2 consultants. The rounded numbers will be the budget that the ACP will provide to the CONTRACTORS to work with.

M.2 Budget Breakdown for the ACP Portion of the PROJECT

Table 8 lists the detailed breakdown of the "In-Kind" Contribution of ACP Member Companies. The "In-Kind" Contribution includes: planning, documentation, meetings (internal within ACP, external with TDA, CAAC, ACAC, consultants etc.), interviews, project management, interpretation, translation of training material and documents, participation in TCT/consultant meetings and workshops, preparation of workshop material and logistics support. It also includes travel and per-diem costs, as well as other miscellaneous charges such as hosting banquets etc.

Table 8 Budget Breakdown for the ACP Member Portion of the PROJECT

Direct Labor Costs

TASK	TASK Name	ACP Members	No. of Persons x Working Days	Daily Rate (US$)	Total Costs (US$)
	TDA Grant Application	U.S. Expatriate Managers	2* x 20 (China)	1,360	54,400
	Interviews to Select Consultants	U.S. Expatriate Managers	2 x 10 (US)	1,360	27,200
	Meetings	U.S. Expatriate Managers + Local Staff	5* x 10 (China)	1,360	68,000
1	Implementation Plans Development	U.S. Expatriate Managers + Local Staff	4* x 12 (China)	1,360	65,280
2	On-the-Job Training	U.S. Expatriate Specialists/ Managers + Local Staff	3* x 22.5 (China)	1,360	91,800
		U.S. Expatriate Specialists/ Managers + Local Staff	1* x 22.5 (China)	1,360	30,600
		U.S. Expatriate Specialists/ Managers + Local Staff	1* x 22.5 (China)	1,360	30,600
		U.S. Expatriate Specialists/ Managers + Local Staff	2* x 10.5 (China)	1,360	28,560
		U.S. Expatriate Specialists/ Managers + Local Staff	2* x 22.5 (China)	1,360	61,200
		U.S. Expatriate Specialists/ Managers + Local Staff	2* x 10.5 (China)	1,360	28,560
3	Workshop1: Complex System Certification	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	6* x 15 (US) 6* x 5 (China)	1,360	163,200
	Workshop 2: Program Management	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	6* x 15 (US) 6* x 5 (China)	1,360	163,200
	Workshop 3: Conformity Inspection	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	3* x 15 (US) 3* x 5 (China)	1,360	81,600
4	Flight Test Training	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	5* x 12 (China)	1,360	81,600
5	Further Recommendations	U.S. Expatriate Specialists/ Managers + Local Staff	3* x 10 (China)	1,360	40,800
				Total Direct Labor Costs	1,016,600

* denotes equivalent headcount at the rate specified in the table.

Other Direct Costs: Air Travel

TASK	TASK Name	Consultants	Trip (By Air)	Person x No.	Trip Costs (US$)	Total Costs (US$)
	TDA Grant Application	U.S. Expatriate Managers	None			
	Interviews to Select Consultants	U.S. Expatriate Managers	International	2 x 2	5,000	20,000
	Meetings	U.S. Expatriate Managers + Local Staff	China	2 x 8	433	6,928
1	Implementation Plans Development	U.S. Expatriate Specialists/ Managers + Local Staff	China	2 x 1	433	866
2	On-the-Job Training	U.S. Expatriate Specialists/ Managers + Local Staff	China	3 x 1	433	1299
		U.S. Expatriate Specialists/ Managers + Local Staff	China	1 x 1	433	433
		U.S. Expatriate Specialists/ Managers + Local Staff	China	1 x 1	433	433
		U.S. Expatriate Specialists/ Managers + Local Staff	China	2 x 1	433	866
		U.S. Expatriate Specialists/ Managers + Local Staff	China	2 x 1	433	866
		U.S. Expatriate Specialists/ Managers + Local Staff	China	2 x 1	433	866
3	Workshop1: Complex System Certification	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	International	3 x 1	5,000	15,000
	Workshop 2: Program Management	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	International	3 x 1	5,000	15,000
	Workshop 3: Conformity Inspection	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	International	2 x 1	5,000	10,000
4	Flight Test Training	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	International China	1 x 1 5 x 1	5,000 433	7,165
5	Further Recommendations	U.S. Expatriate Specialists/ Managers + Local Staff	None			
					Total Air Travel Costs	79,722

Other Direct Costs: Per Diem

TASK	TASK Name	Consultants	No of Persons x Per Diem Days	Daily Rate (US$)	Total Costs (US$)
	TDA Grant Application	U.S. Expatriate Managers	None		
	Interviews to Select Consultants	U.S. Expatriate Managers	2 x 10 (US)	150	3,000
	Meetings	U.S. Expatriate Managers + Local Staff	2 x 10 (China)	150	3,000
1	Implementation Plans Development	Senior Manager #1 (ex-ACO/MIDO Manager)*	2 x 14 (China)	150	4,200

Other Direct Costs: Per Diem

TASK	TASK Name	Consultants	No of Persons x Per Diem Days	Daily Rate (US$)	Total Costs (US$)
2	On-the-Job Training	U.S. Expatriate Specialists/ Managers + Local Staff	3 x 25 (China)	150	11,250
		U.S. Expatriate Specialists/ Managers + Local Staff	1 x 30 (China)	150	4,500
		U.S. Expatriate Specialists/ Managers + Local Staff	1 x 30 (China)	150	4,500
		U.S. Expatriate Specialists/ Managers + Local Staff	2 x 14 (China)	150	4,200
		U.S. Expatriate Specialists/ Managers + Local Staff	2 x 30 (China)	150	9,000
		U.S. Expatriate Specialists/ Managers + Local Staff	2 x 14 (China)	150	4,200
3	Workshop1: Complex System Certification	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	3 x 5 (China)	150	2,250
	Workshop 2: Program Management	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	3 x 5 (China)	150	2,250
	Workshop 3: Conformity Inspection	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	2 x 5 (China)	150	1,500
4	Flight Test Training	U.S. Expatriate Specialist/ Managers + U.S. Specialists + Local Staff	6 x 14 (China)	150	12,600
5	Further Recommendations	U.S. Expatriate Specialists/ Managers + Local Staff			
					66,450

Other Miscellaneous Costs

Ref. No.	Item	Funding Source	Total Costs (US$)
A	Communication	Telephone Conference Costs Contributed "In-Kind" by ACP Member Companies	12,000
B	Others	Banquets	

It should be noted that:

- The above represents a best estimate of the costs contributed "in-kind" by ACP member companies. The six ACP SUB-GROUP companies may have different interests in different subjects, and may adjust their participation pending on the final agenda.
- The costs associated with the ACP "in-kind" contribution presented in Table 6 above have been rounded to the nearest US$5,000 based on the data presented in Table 8.

The U.S.-China Aviation Cooperation Program

TASK II: CAAC Management Development Program

Proposal for

TDA Funding Application

Table of Contents

A. EXECUTIVE SUMMARY

In May 2005, the General Administration of Civil Aviation of China (CAAC) Personnel and Education Department formally requested a series of Executive Management Development Training (EMDT) courses for future leaders within the CAAC. The training request is two-fold: 1) Air Traffic Management Bureau (ATMB) Executive Development, and 2) Civil Aviation Public Servants Management Training.

For each of the two programs, CAAC will select approximately 20 highly qualified future leaders to participate in training classes focusing on the management roles and regulatory affairs applicable to all CAAC Departments, as well as addressing such issues as program management and air traffic management (ATM) theory. CAAC would like the two training programs to occur concurrently over the next 12 months.

Recognizing the long-term value and benefits of influencing CAAC's future leadership through education and training, the U.S. - China Aviation Cooperation Program (ACP) proposes to conduct a series of continuing education courses that reflect U.S. standards and practices in the aviation field. This project will place Federal Aviation Administration (FAA) and U.S. industry standards and practices at the forefront of CAAC's future development strategy as it continues to evolve into a strong, effective aviation regulatory agency. The project meets several objectives of the ACP Framework, to include:

- Provide training and technical cooperation towards excellence in aviation;
- Enhance safe operations and excellence in aviation management;
- Promote close cooperation in aviation safety regulatory activities; and
- Seek grant funding from U.S. government agencies for program activities.

This program will utilize training facilities from both the FAA and U.S. industry members, thereby representing a united effort to train CAAC's leaders of tomorrow and provide strong aviation leadership that can overcome Europe's competing interests in China. The ACP and CAAC will thus share a joint effort to lead the way in creating a safe and seamless aviation system in Asia.

B. PROJECT DESCRIPTION

Project Overview

This program is aimed at providing a wide range of executive, managerial, technical, and operational training to approximately forty (40) CAAC and ATMB managers. CAAC will provide identified candidates with intensive English language training and some management training prior to the start of these two programs. The in-country training will be provided by CAAC and ATMB, followed by this ACP training, and may conclude with further in-country training provided by CAAC. The ACP training program could last up to six (6) months, beginning as early as March 1, 2006. As requested by CAAC, the overall training content will be approximately 70% directly focusing on FAA's process for establishing rules/regulations and

its development and operation of its ATM system, with the remaining 30% devoted to project management and new technologies.

The proposed program is divided into three parts: 1) General Management Theory Training; 2) ATMB ATM Training; and 3) OJT and Mentorship. To save costs, general management training will be provided to both CAAC Civil Servants and ATMB managers concurrently, lasting up to two months, and delivered primarily by ACP member companies.

The second and third parts of the training focused on ATM will be provided only to the ATMB managers. This part of the training will be held immediately after the conclusion of the first part and will last up to four (4) months total (3 months for ATM Theory training and 1 month OJT/mentoring).

ACP member companies have the training facilities and the ability to provide the requested general management training. The ACP member companies and the FAA, along with its Oklahoma City Training Academy and Research and Development Center (MITRE) will have a collective ability to deliver the requested ATM training. The FAA Air Traffic Organization (ATO) is willing to deliver on-the-job training, on a reimbursable basis with ATMB, as may be determined suitable for this program.

The project will:

- Assist CAAC to identify the overall scope of the management training that would best serve their needs and interests;
- Split the training requirements between the FAA and U.S. industry, and carrying out the various aspects of the management training; and
- Identify mentors in the FAA and U.S. industry who will serve as individual contacts for the CAAC selected participants throughout their training;

Project Management

The ACP will empower the FAA/MITRE to manage this project for the following reasons. The FAA/MITRE will work cooperatively with all ACP member companies.

- This training program is both under the umbrella of the U.S. - China Civil Aviation Cooperation Program and a part of the cooperation program to which the FAA Administrator and the CAAC Minister agreed;
- The primary objective of this training program is to familiarize the CAAC Civil Servants and ATMB managers with the FAA rules, regulations and the ATM system implementation and operation;
- The FAA Air Traffic Organization (ATO) does not have the internal resources to independently handle the entire scope of this project, and requires the assistance of its primary R&D Center (MITRE) for a successful outcome;

- FAA has a close working relationship with the CAAC Personnel and Education Department and the ATMB;
- FAA Beijing Senior Representative Joe Tymczyszyn has a close working relationship with CAAC and is a co-chairman of the ACP; and
- FAA Office of International Aviation maintains a complete understanding of all FAA-related training activities that are already being conducted on an FAA-CAAC bilateral basis.

Due to the critical nature of this project, the strong desire by the CAAC to learn more about the actual operation mode of the FAA and the ACP's objective to influence the CAAC towards the U.S. model, a highly qualified project leader with extensive experience in FAA operation as well as international reputation is needed to lead the overall effort. It is proposed that a recently retired FAA senior executive be hired into MITRE as a consultant to serve as the project leader. The senior executive should be at the level of an Associate Administrator to be qualified for the job. An incumbent FAA senior executive would not be possible to serve this kind of role due to his(her) daily duty requirements.

The program will be split into two major phases:

Phase I: Clarify and Define the Overall Scope of the Executive Management Development Training (EMDT)

A. The ACP will work closely with CAAC's Personnel and Education Department to more clearly identify CAAC's needs for the executive management development training, and formulate training courses that will accomplish the longer term goals of all parties involved. The FAA, with MITRE's assistance, will develop an Action Plan and supporting Milestones that clearly delineate the roles and responsibilities of all parties involved in the training program.

B. CAAC will provide intensive English language training and CAAC related management training for approximately six (6) months prior to the start of any training detailed within this program.

Phase II: Provide Classroom and On-The-Job Training (OJT)

A. The FAA/MITRE team will provide overall project management to Phase II, which will include the overall scheduling, facilitation and execution of the program. The effort will also include logistics support and escort service associated with transitioning between courses and training facilities. Furthermore, the FAA/MITRE team will be responsible for the preparation and delivery of interim and final reports for the project. The format of the reports will be in accordance with TDA requirements. To the extent possible, the FAA/MITRE team will disclose the cost of local transportation between classroom and living quarters and support the grocery shopping and local sightseeing trips to the CAAC and other ACP member companies

B. ACP member companies will deliver a variety of courses in general management theory based on each member's specialty and abilities. This training will last up to six weeks.

C. FAA and MITRE, in working with ACP member companies will jointly deliver ATM courses at MITRE facilities, which will reflect ATMB's needs and fit well into its long-term plan for organizational development in ATM. FAA and MITRE will identify points of contact to facilitate the training relevant to their areas as a measure of quality control. Based on CAAC feedback, future courses will be modified to meet CAAC needs.

D. FAA/MITRE will match ten (10) senior managers as mentors with the expected twenty (20) ATMB managers based on: 1) ATMB executive/manager areas of expertise, and 2) OJT needs as provided by the ATMB at the beginning of the training program.

Program Phasing

The project will be completed in two (2) phases, and the total duration is expected to be approximately 12 months (excluding the time required for grant application). The anticipated project timeline is shown in Table 1.

Table 1 – Program Preliminary Timeline*

	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Phase I												
Task 1a: Program Planning												
Task 1b: Action Plan and Program Management Plan												
Task 1c: CAAC internal training												
Phase II												
Task 2 a: Course Conduct, Program Management & Monitoring												
Task 2 b: Logistics Support and Project Interim & Final Report												
Task 2 c: Deliver Part 1 training												
Task 2 d: Deliver Part 2 training												
Task 2 e: Deliver Part 3 OJT												
Task 2 f: Program Wrap-up and Certification												

*Outline for 5.5 months classroom training and two weeks allowed for travel time, holidays, etc.

Program Deliverables

Phase I

Task 1

- Write a Plan of Action and Milestones for carrying out Phase II with a target date for completion on November 30, 2005;
- Refine the existing CAAC request for the executive management training through detailed consultations with CAAC;

- Identify the courses and on-the-job training that will be required and the responsible company/agency;
- Complete program management plan and design
- Assign the delivery of each aspect of the training components to each participant that is party to this proposal

Phase II

Task 2

- Set dates for each specific training course, determine CAAC participants, etc.
- Deliver all the training in two parts: general management and ATM
- Deliver OJT and mentoring (based on future FAA/ATMB technical assistance agreement)
- Deliver interim and final reports for the project

Estimated Duration and Funding

The following tables provide some estimates with regard to the costs of delivering a significant number of leadership management and development courses to a large number of CAAC Civil Servants and ATMB managers. The overall cost from the U. S. side is estimated to be US$1,732,218, of which US$602,368 is expected to be reimbursed by TDA and US$1,129,850 is expected to be contributed by FAA/MITRE and ACP member companies. Table 2 outlines the estimated cost breakdown associated with the TDA reimbursable portion. Table 3 summarizes the estimated in-kind contribution from FAA/MITRE and all ACP member companies. Appendix A describes in detail the course content and the source of funding.

Table 2 – Outline of Total Training Program

Phase	Task	Course/Service – Provider	Duration	Estimated Cost to TDA	Subtotal
I	1a 1b	Program Planning, *FAA/MITRE* Action Plan and Program Management Plan F*AA/MITRE*	Months 1-2 (2 months)	$32,182*	$32,182
II	2a 2b	Course Conduct, Program Management & Monitoring, Logistics Support and Project Interim & Final Report *FAA/MITRE*	Months 3-12 (10 months)	$130,456	$130,456
	2c (Part 1 Training)	Introduction to FAA Organization and Management FAA	1 Day	$6000 (travel only)	$76,400 (excluding the FAA Academy Costs)
		Civil Aviation Evolution, ICAO Introduction, Compliance and Enforcement *FAA Academy*	5 Days (in China)	$46,801**	
		Human Resource Management *GE*	2 Days	$0	
		Human Factors and ACE Training *P & W*	5 Days	$0	
		Program Management Best Practices *Boeing*	10 Days	$0	
		Leadership Foundation *Rockwell Collins*	2 Days	$20,400	
		Leadership and Strategic Management Skills *Parker*	10 Days	$50,000	

Task II: CAAC Management Development Training Program

Phase	Task	Course/Service – Provider	Duration	Estimated Cost to TDA	Subtotal
	2d (Part 2 Training)	Safe, Secure and Efficient Air Transportation *MITRE*	5 Days	$38,000	
		Air Traffic Management Theory ACP ATM subgroup • ATC Management *ACP ATM* • CNS/ATM Theory subgroup • US CNS/ATM • RNP/RNAV • Traffic Flow Management	25 days	$218,065	
		ATO Specific Training *FAA/MITRE* • ATO Structure Reform • Facility Visits • Civil/Military Coordination • ATO Finance & Regulation Management	20 Days	$45,765*	$310,830
	2e (Part 3 Training)	OJT and Mentoring *FAA***/MITRE* • Cultural Briefing • OJT Interaction • Facility Visits	20 Days	$56,500*	
		Closing Ceremony *ACP TEAM*	1 Day	$5,000	$61,500
		TOTAL			**$602,368**

Note:
* MITRE costs.
**Cost not included in request for FY05 funding and is to be requested from FY06TDA grant monies. ***FAA will seek reimbursement from ATMB under a separate bilateral agreement, estimated cost to ATMB: $64,801.

Table 3: Estimated In-Kind Contribution from ACP Team

Task	Duration	Company	In-kind Contribution	Est. $$
1a & 1b	2 months	FAA	Dedicated FAA senior manager and country specialists to support the development and coordination of this training program, Action Plan, and FAA/CAAC interface.	$7,200
2a & 2b	3 months	FAA	Dedicated FAA senior manager and country specialists coordinate the entire training program activities between the FAA and CAAC/ATMB.	$10,800
Intro to FAA organization management	1 Day	MITRE	Course Material Preparation, Training Facility and Equipment	$22,000
		FAA	FAA executives and senior managers dedicating time for a full day of FAA briefings, presentations, and training opening activities.	$5,400
HR Management	2 Days	GE	Course preparation, Course material, Instructor Costs, Training Facility & Equipments	$80,000
Human Factors & ACE	1 Week	P&W	Course preparation, Course material, Instructor cost	$100,000
Program Management	2 weeks	Boeing	Course preparation, Coordination & Support, Course material, Instructor Costs, 2 weeks Training Facility& Equipments	$200,000
Leadership Foundation	2 Days	Rockwell Collins	Coordination & Support, Instructor Costs	$3,200
Leadership and Strategic Mgmt Skills	10 Days	Parker	Coordination & Support, Instructor Costs, 2 week? Training Facility & Equipments	$120,000
Safe Secure and Efficient Air Transportation	5 Days	FAA/ MITRE	Course Material Preparation, Training Facility and Equipment	$55,000
ATM Theory	25 days	FAA	Dedicated FAA senior manager and program manager to represent FAA ATO in these identified ATM Theory courses.	$8,640
		MITRE	Course Material Preparation, Training Facility and Equipment	$148,000
		Metron	Course Material Preparation, instructors' costs	$10,450
		Lockheed Martin	Course Material Preparation, instructors' costs	$25,000
		Honeywell	Course Material Preparation, instructors' costs	$20,000
ATO Specific Training	20 Days	MITRE	Course Material Preparation, Training Facility and Equipment	$102,000
		FAA	Dedicated time for FAA executives, senior managers, subject matter experts in preparing for and presenting 20 days of training material to the ATMB managers.	$50,400

Task	Duration	Company	In-kind Contribution	Est. $$
OJT and Mentoring	20 Days	FAA	Planning OJT and mentoring programs, material development and preparation, actual on-hands time; Training Facility and Equipment, and daily mentoree oversight and guidance.	$41,760
		MITRE	Mentoring Material Preparation, Mentor Labor, Training Facility, Equipment and Project Management	$70,900
			Subtotal	**$1,129,850**

Funding Sources

It is expected that the funding for this training will come jointly from three primary sources: U.S. Trade and Development Agency (USTDA) grant to the CAAC; FAA and U.S. industry partners' in-kind service, and CAAC and ATMB.

Proposed TDA funding for this task will be utilized to cover costs associated with project planning and management, travel and lodging expenses for lecturers, training course tuition and/or labor expenses, and any other related expenses. Some ACP companies have already expressed the willingness to deliver training to CAAC on a gratis basis. Others will be compensated through the TDA-CAAC grant. FAA's role in the program delivery will be on a gratis basis, except for any required FAA travel and the OJT/mentoring program.

CAAC will be expected to pay costs for all participants' international and U.S. domestic travel, lodging, and meals. ATMB will also be required to enter into a reimbursable agreement with the FAA Air Traffic Organization if ATMB selects the option to have the OJT and mentoring program.

C. PROJECT SPONSOR'S CAPABILITY AND COMMITMENT

CAAC/ATMB has shown a strong commitment to developing a modern national aviation system as evidenced by its many air traffic management and airport systems that have already been implemented. The rate of growth of commercial air traffic in China mandates the further development and implementation of modern aviation systems. The CAAC/ATMB recognizes that unless its executives and managers are fully trained for the planning, implementation and operation of modern systems, the investment on equipment and system acquisition would be wasted. As a part of its realization of the importance of training, the CAAC/ATMB has held numerous discussions with the ACP for the need of a CAAC/ATMB management development training program. Furthermore, during the formal discussion between the FAA Administrator and the Minister of the CAAC, the importance of training was discussed and it was agreed to mutually explore possible cooperative programs between CAAC and FAA to improve safety, efficiency, and capacity of China's aviation system. A copy of the FAA/CAAC agreement is attached as Appendix B of this document.

The CAAC has requested that the ACP seek TDA funding for the conduct of such training while committed to select the best team to participate in the training activities. The CAAC further commits its resource to pay for the travel and living expenses for all of its trainees during their stay

in the United States.

D. IMPLEMENTATION FINANCING

There will be a sizeable financial investment needed to implement all the new aviation systems. Furthermore, the annual costs of operating and maintenance of these systems will also be significant for many years. Most of the required investment has been proposed by CAAC to the central government. The State Development Planning Commission recognizes the development of China's aviation infrastructure as a high priority and has allocated over $1 billion for airport and airspace projects in China's Tenth Five Year Plan.

In addition, CAAC has indicated that it will aggressively seek financing from both internal resources as well as external sources including suppliers' credits and commercial equity participation in selected portions of the plan that can be opened up for outside equity. Given the importance of the aviation sector to China's economic development, financing of modern aviation systems is not considered to be a constraint.

AS far as this particular management development training program is concerned, the financing will come from three sources:

1. CAAC/ATMB's own funding to support the initial screening and selection of the trainees, the language training and the in-country indoctrination training, the international travel and the living expenses for the trainees.

2. ACP members' in-kind service to cover the cost for the preparation of the course material, the provision of the training facilities and in some cases the conduct of the training.

3. ACP requests that the TDA funds the cost required for the majority of the conduct of the training in the United Sates and the costs associated with the project planning/management and the logistics support.

E. US EXPORT POTENTIAL

There is no direct export potential in the performance of this particular training program. However, the result of this effort will be a necessary requirement for China to be able to acquire new aviation systems from abroad. These systems include communications, avionics, navigation, surveillance, air traffic management systems, airport systems and airline systems. The US is the world's leading manufacturer of such systems and ACP members are fully qualified to deliver such capabilities and technologies. The estimated budget for development, acquisition, installation, and implementation of these systems for the period 2006 to 2011 is about $1.2 Billion (USD).

The CAAC has a very impressive track record of contracting with US businesses for aviation systems. Over the last decade, the CAAC has acquired radar systems from Northrop Grumman and Raytheon; communication systems from Parker, Motorola, ARINC, Hughes and Litton;

aircraft and avionics systems from Boeing, GE, Pratt & Whitney, Honeywell and Rockwell Collins, and ATC automation systems from Lockheed Martin and Raytheon.

F. FOREIGN COMPETITION

Most recently, there is substantial foreign competition for similar aviation products and services. U.S. firms face stiff competition namely from: Airbus (EU), The United Kingdom GEC-Marconi (UK), Alenia (Italy), DASA and Siemens (Germany), Thales (France). Foreign firms active in recent bidding for contracts in China include Siemens, Thales, Airbus and Rolls Royce.

ACP was established in 2004 for the purpose of consolidating the US effort in China while facing the other foreign competition and for developing a rapport with the CAAC/ATMB. ACP felt that in this critical juncture, a management development training program would be timely to fight against the competition and to truly help the CAAC/ATMB to move forward in its modernization programs. This training program will clearly give an added edge to U.S. exporters as CAAC begins to implement many aviation systems.

China has recently opened modern new Air Route Traffic Control Centers in Beijing, Shanghai, and Guangzhou. All three (separately) selected Thales, a French company, to supply the bulk of the ATC automation.

The strength of the EU competition was shown June 30 - July 1, 2005, in Beijing at the EU-China Aviation Summit. Over 250 people attended, included a "Who's Who" of CAAC. Minister Yang's superior, Vice Premier Huang Ju, made the opening speech.

Dr. John Hamre recently met with Deputy Secretary of State Zoellick to discuss plans for the NGATS, New Generation Air Traffic System. The importance of China in getting support for the US system, as opposed to the EU system, was discussed. The future leaders of ATMB who will be taking this training will be leading ATMB by the time major decisions on NGATS are being made and purchases are being booked.

G. DEVELOPMENTAL IMPACT

The implementation of modern aviation systems will result in improved safety and increased capacity for China's airlines, airports and its airspace. This would enable the nation to accommodate the continued traffic growth. As a result, China will realize greater inter-region and intra-region economic activity. Also, availability of more efficient air transport will generate additional business activity and commerce, thereby creating new jobs. Therefore, the development impacts of the proposed training program will be sizeable.

H. IMPACT ON THE ENVIRONMENT

No adverse or negative environment impact on either China or the U.S. is expected from the proposed project. Most of the training activities will take place in classroom environment. There are no air quality or water quality impacts associated with the proposed training program.

I. IMPACT ON U.S. LABOR

In addition to the potential positive impacts on the manufacture/export sectors in this country, this project would also create significant number of American jobs. The project will not create, or facilitate the creation of any free-trade or duty-free zone or any labor conditions lower than the international safety standard that could lead to any loss of U.S. job opportunity.

J. QUALIFICATIONS

This project is proposed jointly by the FAA and several ACP member companies, including:

- Boeing
- MITRE Corporation
- GE
- United Airlines
- UPS
- Rockwell-Collins
- UTC/Pratt & Whitney
- Lockheed Martin
- Raytheon
- Honeywell
- FedEx
- Metron
- Parker Hannifin

Boeing
With a heritage that mirrors the first 100 years of flight, The Boeing Company provides products and services to customers in 145 countries. Boeing has been the premier manufacturer of commercial jetliners for more than 40 years, and is a global market leader in military aircraft, satellites, missile defense, human space flight, and launch systems and services. Total company revenues for 2003 were $50.5 billion.

GE Aircraft Engines
GE Aircraft Engines (GEAE), part of GE Transportation - a business unit of General Electric Company (GE), is the world's leading producer of large and small jet engines for commercial and military aircraft. GEAE also supplies aircraft-derived engines for marine applications. Its GE Engines Services has operations worldwide for engine overhaul, component repair, accessories, engine testing, and on-wing support.

Honeywell Aerospace
Honeywell Aerospace is comprised of three businesses and two market segments, namely, Aerospace Electronic systems, Aircraft Landing Systems, Engines, Systems & Services, Commercial Market Segment and Defence & Space Market Segment. In addition to manufacturing multiple products – such as auxiliary power units; marine propulsion and ground power systems; commercial avionics; power management and generation systems; and interior and exterior aircraft lighting – it also provides repair and overhaul services; aerospace consumable spare parts, hardware and logistics support; and management and technical services for space and communications facilities.

Lockheed Martin
Lockheed Martin Corporation focuses on engineering design, development, test, delivery and support of integrated information systems to support aviation development worldwide. Our

capabilities include CNS/ATM; airport/terminal management; airlines operations and flight services; satellite and ground weather systems; and air traffic control system engineering, integration and support services. Worldwide, Lockheed Martin is known for its leadership in systems integration, systems engineering, systems development and support.

METRON

Metron Aviation fuses the principles of science and mathematics with unparalleled domain knowledge to provide dynamic and innovative solutions for problems created by increased traffic. Metron Aviation plays a lead role in FAA's Collaborative Decision Making (CDM) program, generating complex algorithms to include in its suite of decision-support tools. Building upon this experience, Metron Aviation has developed a heightened awareness for aviation initiatives and detailed understanding of airspace constraints to address challenges faced by Air Traffic Management. Expertise in the areas of operations research, systems analysis, software development, statistical inference, airspace design, aircraft noise, simulation and surface movement have put Metron Aviation on the map with a proven track record for success.

MITRE

The MITRE Corporation (MITRE) was established in 1958 and is an independent, not-for-profit company that operates three Federally Funded Research and Development Centers (FFRDCs): one for the Department of Defense (DOD), one for the Federal Aviation Administration (FAA) and one for the Internal Revenue Service (IRS). FFRDCs operate within a structure of strict governmental oversight in return for special access to government and contractor information. This structure allows MITRE to provide conflict-free technical advice. MITRE's FFRDCs furnish its customers with objective assessments and creative practical solutions to complex technical problems. MITRE's FAA FFRDC has also been very active in providing advice to international aviation organizations. Its customers have previously included CAAC and ATMB.

Parker Aerospace

Parker Aerospace is a global leader in hydraulic, fuel and pneumatic systems and components for aerospace and other high-technology markets. Its products are used on virtually every aircraft in production in the Western world today, including commercial transports, military fixed-wing planes, regional and business aircraft and helicopters. Based in Irvine, California, Parker Aerospace operates 30 facilities throughout the world, including the Americas, Europe, and Asia.

It is an operating group of Parker Hannifin Corporation, the world's leading manufacturer of motion and control technologies. With sales of more than $8 billion, the company employs more than 50,000 people in 44 countries.

Raytheon Air Traffic Management Systems (ATMS)

Raytheon is the world's leading supplier of Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) solutions used to control over one-third of the world's skies. The ATM Systems business area of Raytheon offers a broad range of automation and surveillance systems, which are in use today in over fifty (50) countries around the world. Raytheon's experience in and understanding of air traffic control requirements is evident by the quality of the products we produce. This well tested background with proven equipment will permit the seamless transition to tomorrow's CNS/ATM environment.

Rockwell Collins
Rockwell Collins has 70-year history in the design, production and support of communications and aviation electronics solutions for government and commercial customers worldwide. The company participates in the growth of China's aviation industry since 1986. Rockwell Collins equipment is installed in many airplanes/helicopters manufactured in China and is on nearly every Western airliner operated by China's airlines. It also cooperates on software verification, license-build and equipment assembly and test programs with Chinese partners. Commercial products are provided for communications needs of national and provincial governments through the Rockwell Collins Government Systems. Besides the sales offices in Beijing and Shanghai, a JV company named Collins Aviation Maintenance Services Shanghai Limited provides convenient and speedy in-country repair services. Rockwell Collins' Student Exchange Program offers sponsorship to the qualified university student to study in China and abroad.

United Technologies
A provider of a broad range of high technology products and support services to the building systems and aerospace industries, United Technologies Corporation (UTC) is a leader in global industry innovation. UTC has been named "most admired" aerospace company by *Fortune Magazine* for four consecutive years since 2000.

Pratt & Whitney's cooperation with China dates back to 1929. In 1973, a Boeing 707 jetliner powered by four PW JT3D-7J engines completed its maiden voyage to China and began commercial operations, helping drive China's aviation industry into the modern era.

K. JUSTIFICATION

The ACP felt that TDA funding is justified for this important undertaking for the following reasons:

1. The proposed project clearly has the priority of both the central and local governments in China and the active support of its sponsor, CAAC/ATMB.
2. The proposed project will generate an export potential in excess of US $1.2 billion over the next several years. U. S. firms are competitive in this area and U.S. involvement in the training part of China's overall aviation modernization program will clearly provide a competitive edge to U.S. manufacturers. Facing the increasing competition from other foreign companies, especially those from Europe, this project will provide an added edge to the U.S. companies.
3. There are no adverse impacts on U.S. jobs. In fact the impact on U.S. jobs will be positive as U.S. manufacturers manufacture most of the required equipment in their facilities in the U.S.
4. No adverse environmental impacts are anticipated as a result of this project.

L. TERMS OF REFERENCE

1. Purpose and Objective of the activity.

The purpose and the objectives of the program are as follows:

1. Train CAAC and ATMB's managers such that they may guide their organizations toward efficient, effective regulatory and air navigation service organizations that will have the confidence to lead what will become the world's largest aviation industry outside the United States within the next 20 years.
2. Deliver several courses in the areas of management theory, ATM and organization training, and pair ATMB participants with FAA and MITRE mentors to help them through the rigorous training program.
3. Provide on-the-job training (OJT) for ATMB managers (based on future FAA/ATMB technical assistance agreement) in order that they may witness first hand the management functions of both the FAA lines of business (LOBs) and the management of large aviation corporations in the United States.
4. Provide a robust learning environment that utilizes both classroom and experiential training to provide an educational mix of 20% management theory, 50% operational techniques and 30% focus on new ATM technology.

2. A technical assessment

The technology selected for this training program reflects the best that the FAA and U.S. industry can offer. It will demonstrate that our collective capability in the planning, implementation, management and operation of the modern aviation systems is unmatchable, and the training will benefit China in the long term.

3. An economic analysis of the Project.

The ACP determines that the project as proposed will be the most economic one as compared to other alternative methods of delivery. For instance, the ACP proposes that the CAAC provides language and indoctrination training to all of the trainees prior to the ACP training. Furthermore, all the ACP training will be conducted in the United States thereby reducing the travel costs for the ACP members.

4. A financial analysis of the project

Not applicable to this training project.

5. An appropriate environmental analysis of the Project

No adverse or negative environment impact on either China or the U.S. is expected from the proposed project. Most of the training activities will take place in classroom environment. There are no air quality or water quality impacts associated with the proposed training program.

6. A review of regulatory issues related to the project

Not applicable to this training project.

7. An analysis of Key host country development impacts

The implementation of modern aviation systems will result in improved safety and increased capacity for China's airlines, airports and its airspace. This would enable the nation to accommodate the continued traffic growth. As a result, China will see greater inter-region and intra-region economic activity. Also, availability of more efficient air transport will generate additional business activity and commerce, thereby creating new jobs. Therefore, the development impacts of the proposed training program will be sizeable.

8. U.S source of supply

Not applicable to this training project.

9. An implementation plan

SEE Annex A.

10. Final Report

The ACP will submit a Final Report in accordance with the Grant Agreement. The Final Report will include the interim reports that are generated at the conclusion of each task. The Final Report will also include an executive summary. The ACP will ensure that the public version of the Final Report contains no security or confidential information.

11. STUDY BUDGET

Proposed TDA Reimbursable Budget

Task 1a and 1b (Month 1 through Month 2 for 2 months)
DIRECT LABOR COSTS:

TOR Task	TOR Task Name	Primary Contractor (Employee) Labor	Total Person Days	x Daily Rate*	= TOTAL COST
1a	**Program Planning**	(Prin Engr)	2	$1,500	$3,000
		(Sr. Training Expert)	2	$1,100	$2,200
		(Sr. Comm Specialist)	2	$ 650	$1,300
		TOTALS: $6,500			

TOR Task	TOR Task Name	Non-Employee Labor	Total Person Days	x Daily Rate **	= TOTAL COST
1b	**Action Plan, Program Mgmt Plan**	(Prin. Engr)	2	$1,500	$3,000
		(Sr. Training Expert)	5	$1,100	$5,500
		(Sr. ATM Engr)	1	$1,300	$1,300
		(Sr. Comm Specialist)	2	$ 650	$1,300
		TOTALS: $11,100			

TOTAL DIRECT LABOR COSTS: $17,600

OTHER DIRECT COSTS:

Travel	Trips	Trip Cost	**TOTAL COST**
In Country Air Travel	1 (OK City)	$550	$550
	Trip Days	Per Diem Rate	**TOTAL COST**
Per Diem	4	$109	$436
Other (local travel, etc.)			$160

Other	**TOTAL COST**
Independent consultant ($1,600/day for 4 days)	$ 6,400
Reproduction and Binding	$ 5,000
Courier Services	$ 450
Communication	$ 200
G&A of Other Direct costs (10.5%)	$ 1,386
TOTAL OTHER DIRECT COSTS:	**$14,582**

TOTAL COSTS (DIRECT LABOR COSTS + OTHER DIRECT COSTS): $32,182

PROPOSED USTDA GRANT: $32,182

Proposed TDA Reimbursable Budget

Task 2a and 2b (Month 3 through Month 12 for 10 Months)
DIRECT LABOR COSTS:

TOR Task	TOR Task Name	Primary Contractor (Employee) Labor			
			Total Person Days x	Daily Rate* =	**TOTAL COST**
2a	**Program Management**	(Prin Engr)	3	$1,500	$ 4,500
		(Sr. Training Expert)	10	$1,100	$11,000
		(Sr. Comm Specialist)	10	$ 650	$ 6,500
		TOTALS: $22,000			

TOR Task	TOR Task Name	Non-Employee Labor			
			Total Person Days x	Daily Rate ** =	**TOTAL COST**
2b	**Logistics Support**	(Prin. Engr)	5	$1,500	$ 7,500
	Project Report	(Sr. Training Expert)	10	$1,100	$11,000
		(Sr. ATM Engr)	20	$1,300	$26,000
		(Sr. Comm Specialist)	10	$ 650	$ 6,500
		TOTALS: $51,000			

TOTAL DIRECT LABOR COSTS: $73,000

OTHER DIRECT COSTS:

Travel	Trips	Trip Cost	**TOTAL COST**
In Country Air Travel	2 (OK City)	$550	$1,100
(Escort)	2 (Seattle)	$750	$1,500
	Trip Days	Per Diem Rate	**TOTAL COST**
Per Diem	8 (OK City)	$109	$ 872
	8 (Seattle)	$178	$1,424
Other (local travel, CAAC local travel, weekend sightseeing/shopping, etc)			$10,000

Other	**TOTAL COST**
Independent consultant ($1,600/day for 19 days)	$30,400
Reproduction and Binding	$ 6,000
Courier Services	$ 500
Communication	$ 200
G&A of Other Direct costs (10.5%)	$ 5,460
TOTAL OTHER DIRECT COSTS:	**$57,456**

TOTAL COSTS (DIRECT LABOR COSTS + OTHER DIRECT COSTS): $130,456

PROPOSED USTDA GRANT: $130,456

Proposed TDA Reimbursable Budget

Task 2c (Month 7 through Month 8 for 2 Months)
DIRECT LABOR COSTS:

None. All in-kind service.

OTHER DIRECT COSTS:

Travel	Trips	Trip Cost	**TOTAL COST**
In country travel by FAA	4 (Seattle)	$1,500	$6,000
Other			**TOTAL COST**
Tuition for Leadership Foundation (Rockwell Collins)			$20,400
Tuition for Leadership and Strategic Management (Parker)			$50,000
TOTAL OTHER DIRECT COSTS:			$76,400
TOTAL COSTS (DIRECT LABOR COSTS + OTHER DIRECT COSTS):			**$76,400**
PROPOSED USTDA GRANT:			**$76,400**

Note: Costs for FAA Academy's training not included. Costs will be $666/person if offered at the Academy, and $46,801 if offered in Beijing.

Proposed TDA Reimbursable Budget

Task 2d (Month 8 through Month 11 for 3 Months)
DIRECT LABOR COSTS:

TOR Task	TOR Task Name	Primary Contractor (Employee) Labor	Total Person Days	x Daily Rate*	= TOTAL COST
2d-1	Safe, Secure & Efficient Air Transportation	(Prin Engr)	6	$1,500	$ 9,000
		(Sr. Training Expert)	10	$1,100	$11,000
		(Sr. ATM Engr)	7	$1,300	$ 9,100
		(Sr. Comm Specialist)	4	$ 650	$ 2,600
		TOTALS: $31,700			

TOR Task	TOR Task Name	Non-Employee Labor	Total Person Days	x Daily Rate **	= TOTAL COST
2d-2	Air Traffic Management Theory	(Prin. Engr)	25	$1,500	$37,500
		(Sr. Training Expert)	20	$1,100	$22,000
		(Sr. ATM Engr)	27	$1,400	$37,800
		(Sr. Comm Specialist)	20	$ 650	$13,000
		TOTALS: $110,300			

TOR Task	TOR Task Name	Non-Employee Labor	Total Person Days	x Daily Rate **	= TOTAL COST
2d-3	ATO Specific Training	(Prin. Engr)	10	$1,500	$15,000
		(Sr. Training Expert)	10	$1,100	$11,000
		(Sr. ATM Engr)	5	$1,400	$ 7,000
		(Sr. Comm Specialist)	6	$ 650	$ 3,900
		TOTALS: $36,900			

TOTAL DIRECT LABOR COSTS: $178,900

OTHER DIRECT COSTS:

2d-1

Travel

Local travel	$500

Other	**TOTAL COST**
Independent Consultant ($1,600/day for 2 days)	$ 3,200
Reproduction and Binding	$ 1,250
Working Lunch	$ 1,250
G&A of Other Direct costs (10.5%)	$ 600
TOTAL OTHER DIRECT COSTS for 2d-1:	**$ 6,300**

2d-2

Travel

Local travel and consultant travel (MITRE only)	$1,600
Local travel (FAA only)	$12,15

Other (MITRE only)	**TOTAL COST**
Independent Consultant ($1,600/day for 12 days)	$19,200
Reproduction and Binding	$ 4,000

Working Lunch	$ 3,750
G&A of Other Direct costs (10.5%)	$ 3,000
Tuition	
Lockheed Martin (CNS/ATM, for 5 days)	$30,000
Honeywell (US CNS, for 2 days)	$0
Metron (Traffic flow Management, for 5 days)	$45,000
TOTAL OTHER DIRECT COSTS for 2d-2:	**$107,765**
2d-3	
Travel	
Local travel (MITRE)	$800
Local travel (FAA)	$1,215
Other (MITRE only)	**TOTAL COST**
Independent Consultant ($1,600/day for 1 day)	$ 1,600
Reproduction and Binding	$ 500
Working Lunch	$ 4,100
G&A of Other Direct costs (10.5%)	$ 650
TOTAL OTHER DIRECT COSTS for 2d-3:	**$ 8,865**
TOTAL OTHER DIRECT COSTS FOR 2D	**$122,930**

Proposed TDA Reimbursable Budget

Task 2e: Phase 3 Training (Month 11 through Month 12 for 1 Month)
DIRECT LABOR COSTS:

TOR Task	TOR Task Name	Primary Contractor (Employee) Labor			
			Total Person Days x	Daily Rate* =	**TOTAL COST**
2e-1	**OJT and Mentoring**	(Prin Engr)	15	$1,500	$22,500
	Air Transportation	(Sr. Training Expert)	4	$1,100	$ 4,400
		(Sr. ATM Engr)	15	$1,400	$21,000
		(Sr. Comm Specialist)	4	$ 650	$ 2,600
	TOTAL DIRECT LABOR COSTS			**$50,500**	
			Total Person Days x	Daily Rate* =	**TOTAL COST**
2e-2	**Closing Ceremony** (Prin Engr)		1	$1,500	$1,500
	TOTAL DIRECT LABOR COSTS			**$ 1,500**	

OTHER DIRECT COSTS:

2e-1

Travel

Local travel	$400

Other	**TOTAL COST**
Reproduction and Binding	$ 1,000
Working Lunch	$ 4,000
G&A of Other Direct costs (10.5%)	$ 600
TOTAL OTHER DIRECT COSTS for 2e-1	**$ 6,000**

2e-2

Other	**TOTAL COST**
Independent consultant ($1,600/day for 1 day)	$ 1,600
Reproduction and Binding	$ 400
Reception	$ 1,150
G&A of Other Direct costs (10.5%)	$ 350
TOTAL OTHER DIRECT COSTS for 2e-2	**$ 3,500**

ANNEX A: CAAC Management Training Statement of Work (SOW)

1. Overview

This Statement of Work (SOW) describes in detail the overall CAAC Executive Management Development Training (EMDT) Program. The Program has a period of performance of 12 months and is divided into two phases, with FAA and MITRE jointly serving as the program manager. Phase I of the program includes program scope definition, program planning, development of a program action plan and the establishment of the program management mechanisms. This phase covers the first six months of the program. During this phase, CAAC will provide intensive English language training and CAAC related management training to prepare the trainees prior to the start of the Phase II training in the United States.

Phase II of the program includes total program training delivery and the On-The-Job Training (OJT) and Mentoring. Phase II starts on the fourth month of the program and lasts through the end of the program. This phase of the program is divided into three parts: Part 1 will be the "General Management Theory Training" to be delivered to both the CAAC Civil Public Servants and the ATMB Managers; Part 2 "ATM Training" and Part 3 OJT and Mentoring, if agreed to by ATMB, will all to be delivered to the ATMB Managers.

2. Phase I Effort

2.1 Program Planning (1a)

Under the coordination of the prime contractor – ACP, AmCham, the FAA – MITRE team will work closely with other ACP member companies and the CAAC to fine-tune the course content and training material to meet the CAAC/ATMB needs and to formulate the program to accomplish the long-term goals of all parties concerned. The FAA – MITRE team will also undertake the responsibility for the overall planning of the execution of the program. The effort will include the identification of key decision dates, success criteria with measurements, the assistance in trainee's visa application, the methodology for multi-party communications, the determination of the location and venue of the U.S. training, etc.

2.2 Development of an Action Plan and Establishment of the Program Management Mechanisms (1b)

The ACP will appoint a Program Manager, who will develop a program action plan for the execution of the program. The Program Manager will work with the FAA – MITRE team and ACP members to determine the roles and responsibilities of all parties involved, the training schedules, location and methodology of the U.S. training, and the evaluation criteria for the effectiveness of the program. In addition, the Program Manager will be responsible for monitoring, quality assurance and logistics support of the program.

2.3 Project Costs

The estimated cost for the performance of this Phase One effort is $32,182.

2.4 Project Funding Summary

It is expected that the TDA will support the funding efforts described in Tasks 1a/1b in Phase I, including the cost for contracting a Program Manager.

3. Phase II Effort

3.1 Project Management

3.1.1 Course Execution and Program Management and Monitoring (2a)

Based on the program action plan developed in Phase I, and feedback from the CAAC and ATMB, details concerning the execution of the overall program will be finalized. All three parts of the training will be delivered: General Management Theory Training, ATMB ATM Theory Training and ATMB OJT/Mentoring. The FAA – MITRE team will be responsible for the managing and monitoring of the course conduct from all participants, and delivering a coherent training program to the CAAC and ATMB. The effort will include the overall scheduling, facilitation and execution of the conduct of the program.

3.1.2 Logistics Support and Interim/final Project Report (2b)

The effort will include logistics support and escort service associated with transitioning between courses and training facilities. The FAA/MITRE team will also be responsible for the preparation and delivery of interim and final reports for the project. The format of the reports will be in accordance with TDA requirements. To the extent possible, the FAA/MITRE team will share the cost of local transportation between classroom and living quarters and support the grocery shopping and local sightseeing trips with the ATMB and other ACP member companies.

3.1.3 Project Costs

The estimated cost for the performance of these two tasks is $130,456.

3.1.4 Project Funding Summary

It is expected that the TDA will support the funding efforts described in Tasks 2a/2b/2c/2d/2e in Phase II.

3.2 Part One Training (2c): General Management Theory Training

Part One "Training" will be provided to both the CAAC Public Servants and the ATMB Executives and Managers, and will include the following nine courses:

Introduction of FAA Organization and Management;
Civil Aviation Evaluation, ICAO Introduction and Compliance & Enforcement;
Human Resource Management;
Human Factors and Achieve Competitive Excellence (ACE) Training;
Program Management Best Practices;
Leadership Foundation;
Leadership and Strategic Management Skills;

3.2.1 Introduction of FAA Organization and Management

3.2.1.1 Course Overview

FAA, together with MITRE will offer a one-day course on the organization and management of the FAA, including its newly structured Air Traffic Organization (ATO) and the Safety Office. This one-day orientation course will familiarize the attendees with these FAA operations.

3.2.1.2 Course Description

The course will include the following topics:

U.S. Laws and Regulations of Civil Aviation;
The Structure and Organizations of FAA;
Roles and Responsibilities of Different Offices;
Strategic Management;
FAA's Headquarters, Regional Administrations, FAA Academy, FAA William J. Hughes Technical Center, and FFRDC
FAA and the Stakeholders (JPDO, NGATS, etc.)

3.2.1.3 Project Costs

The FAA and MITRE will absorb the costs and provide in-kind services for the planning, preparation and conduct of the course. In addition, MITRE will provide its training facilities.

3.2.1.4 Project Funding Summary

- **CAAC:** Transportation to and from all training locations, meals, and lodging for all trainees.
- **USTDA:** FAA/MITRE travel expenses if training is hosted outside the Washington, DC metro area.
- **FAA/MITRE:** FAA/MITRE will provide the training facility and the course materials for this training, as well as all supporting personnel resource expenses.

3.2.2 Civil Aviation Evolution, ICAO Introduction and Compliance & Enforcement (FAA Academy)

3.2.2.1 Course Overview

The FAA Academy will offer this five-day course to both the CAAC Public Servants and the ATMB Mangers. This course will be delivered in China prior to the start of the training program in the United States to provide students with a clear understanding of U.S. civil aviation evolution.

3.2.2.2 Course Description

This course consists of three modules: Evolution of Civil Aviation, Introduction of ICAO and Compliance & Enforcement.

The "Evolution of Civil Aviation" module will last 1.5 days and will cover the following subjects:

Global relationships;
Structure and Organization of Global Civil Aviation Industry;

History and Purpose of ICAO, IATA, etc.
Evolution Process;
U.S. FAA, History and Purpose, Organization Evolution

The "Introduction to ICAO" Module will also last for 1.5 days and will cover the following subjects:

Responsibilities of ICAO Signatories;
ICAO Standards and Recommended Practices;
ICAO Standards that Impact on CAAC;
ICAO Standards Referring to Inter-department Communications;
ICAO Conventions and Input to Regulations Development

The "Compliance & Enforcement" module will last 2 days and will cover the following subjects:

Resolution of Critical Safety Concerns;
ICAO C&E Requirements;
Methods Used to Correct and Resolve Discrepancies

3.2.2.3 Project Costs

The FAA Academy estimates that delivering this course in seminar format for 40 students in China will cost $46,801.

3.2.2.4 Project Funding Summary

- **CAAC:** Training facilities and interpretation as required; Transportation to and from all training locations, meals, and lodging for all trainees.
- **USTDA:** Full FAA Academy costs for labor, material, and services to conduct the program, including international travel costs.
- **FAA Academy:** No in-kind support available.

3.2.3 Human Resources Management: *(GE)*

3.2.3.1 Course Synopsis/Overview

GE is offering to provide a two-day course on human resources training with regard to management personnel. This course places special emphasis on developing the strategic capabilities of the Human Resources function. Participants will examine the GE growth initiatives, and their implications on HR initiatives. The course will provide a framework necessary for a proactive strategist and change-agent to develop and implement HR programs that are linked to the business score-card. The course is intended to encourage exploration of emerging issues facing HR professionals and the external trends taking place within the function.

3.2.3.2 Course Elements

- **Hiring the Right People:** Hiring the Right People is a two-part program on interviewing skills. An e-learning course introduces you to GE's hiring process and interviewing skills. The one-day workshop is a practice lab that applies what you have learned online to real-world work situations.

Course details include:
- Follow a hiring process that results in hiring the best candidates.
- Describe the process to create a job description
- Understand the components in planning the interview
- Describe the characteristics of behavior-based interviewing
- Determine technical and interpersonal skill fit with the job
- Differentiate best candidate that fits the new job description

- **Effective Coaching Skills** introduces managers to coaching through a combined online pre-work and classroom skill-building approach. Participants learn what coaching is, when it's appropriate, (e.g., coaching can be used as part of regular feedback with an employee, the EMS process as well as career discussions) and how to become effective coaches.
  Course details include:
  - Describe the importance and opportunities for coaching
  - Identify appropriate coaching scenarios
  - Demonstrate use of the Communication Process in a coaching situation, including use of inquiry, reflecting and advocacy

3.2.3.3 Projected Course Costs

Implementation of the proposed CAAC Future Leadership training:

- GE will provide this training for free

3.2.3.4 Funding Source Summary

- CAAC: Transportation to and from all training locations, meals, and lodging for all trainees
- ACP member companies: In-kind support for providing training facility, training material preparation, trainer's time and labor costs.

3.2.4 Human Factors Coordinator Training and Achieve Competitive Excellence (ACE) Training *(P&W)*

3.2.4.1 Human Factors Coordinator Training

3.2.4.1.1 Course Synopsis/Overview:

This course consists of Human Factors case studies and discussions combined with classroom activities emphasizing on the importance of Human Factors and the coordinator's working process. The course is intended to help to remove the causes of maintenance related errors, to improve safety, and to advance our professionalism. All reference information provided is intended to assist the coordinator to organize and manage his/her tasks.

3.2.4.1.2 Course Elements:

Upon completion of this course the student will be able to:

Establish a Human Factors committee that meets the committee checklist

Conduct a Human Factors training session for local employees
Analyze collected error data
Conduct a root cause analysis
Determine improvement methods to correct identified errors
Write an action plan for recommended changes
Perform cost-benefit analysis for recommended changes
Establish and develop relationships with local authorities

Training Days: 2 Days

3.2.4.2 Achieve Competitive Excellence (ACE) Training *(P&W)*

3.2.4.2.1 Course Synopsis/Overview:

Gain a working knowledge of ACE elements and strategies - Be able to describe how these elements work, and when to use them to improve the business - Be able to participate in the use of the elements.

3.2.4.2.2 Course Elements:

This is a three-day course focusing on the ACE elements and implementation strategies, with real-world examples and hands-on exercises. Modules included are: Process Management (PM), Market Feedback Analysis (MFA) & Benchmarking, Quality Clinic Process Charting (QCPC), Relentless Root Cause Analysis (RRCA)/Mistake Proofing (MP), 6S/EH&S Visual Workplace, Total Productive Maintenance (TPM), and Passport System (PS). At the conclusion of this course, participants will be able to describe how these tools work, when to use them to improve the business, be able to participate and engage others in the use of these tools. Project work is required at this level.

Training Days: 3 days

3.2.4.3 Projected Course Costs

Implementation of the proposed CAAC Future Leadership training:

- Pratt & Whitney will provide this training for free

3.2.4.4 Funding Source Summary

- CAAC: Transportation to and from training location, lodging and departure tax for all trainees
- USTDA: No cost
- ACP member companies: Providing course materials, classroom time, program simulations, instructor costs, and external materials (text books, case studies summaries, etc.)
- Others: None identified

3.2.5 Program Management Best Practices: *(Boeing)*

3.2.5.1 Course Synopsis/Overview

The Boeing Company has identified the essential elements (designated as Boeing Program Management Best Practices $_{TM}$) that lead to sound program and project management. In order to incorporate these Best Practices into the fiber of the Aviation Sector, Boeing has developed a one-week intensive Program Manager's Workshop targeted for Future Leaders (including Boeing Business leaders, Major Suppliers and Select Customers).

The Program Managers workshop is a ten-day learning experience held in residence at one of Boeing's Leadership Centers – either in St. Louis or Seattle. The goal of the workshop is to increase the ability of program managers to plan, lead, manage and execute successful programs. Included in the workshop is a challenging simulation that requires application of the best practices into real world situations. Other key learning opportunities include lessons learned from Aviation Sector case studies, impact of thinking styles, management expectations, customer perspectives, employee involvement, leadership competencies, balancing work and family life and networking opportunities.

3.2.5.2 Course Elements (summary)

- **Creation & Review of Project Plan:** Development of Strategic Objectives and standardizing the method to develop and review the Project's Business Cycle. Including – Validation of Strategic Objectives, Assessing the Business Environment, Conducting Reviews to Ensure Expected Progress Is Being Made, Managing Business Plan Commitments and Performance, and Operational Measures
- **Development and Management the Organization:** Product Driven Organizations with clear RAA and development and execution of the Program Staffing Plans
- **Supplier/Contractor Integration:** Early Integration of Suppliers and Partners with a strategic emphasis on: Early Supplier and supplier management involvement, Source selection, Supplier management activities, Supplier quality management and Metrics
- **Program/Project Execution and Control:** Including Implementation of the Program's Systems Engineering Methodology (e.g., Affordability, Requirements Management, Technical Performance Measures, Baseline Management and Integrated Planning Activities); Day to Day Supplier Management; Execution of Program Management Meetings/Business Plan Reviews (utilizing standardized execution metrics; development and Use of an Integrated Management Tool Suite (MIS) – e.g., Knowledge and Use of Earned Value Management and Integrated Scheduling metrics; Development of Program Governance (PEPs/TEPs, Linkage to Common Processes); Implementation of Improvement Initiatives (e.g., LEAN, Business Excellence, Quality Management System)
- **Risk Issue & Opportunity Mgmt:** Identification of Risk, Issues and Opportunities and the development of mitigation, corrective action or implementation/capture plans
- **Help Needed & Independent Reviews:** Development of a "Help Needed" Culture - Identification of and tracking of Program Independent Reviews Implementation of Program Independent Analysis Activity

- **Program Communication:** Management of internal (Employee) and external (Suppliers – Industry - Government) Communication Plans

3.2.5.3 Projected Course Costs

Implementation of the proposed CAAC Future Leadership training:

- Costs per CAAC attendee – the Boeing Leadership Centers charges $5,000 for each attendee at this Workshop. In this case, Boeing Commercial Airplane (BCA) will fully fund the participation costs for the CAAC Future leaders. These costs will be vetted through Boeing's Internal Governance processes to insure absence of Conflict of Interest as well as adherence to Foreign Corrupt practices Act (FCPA). In the event of a conflict of interest, Boeing may be required to ask for reimbursement of cost funding for each CAAC member.

3.2.5.4 Funding Source Summary

- CAAC: Transportation to and from all training locations, meals and lodging for all trainees
- USTDA: Course materials ($0K), Instruction ($0K), Classroom rental ($0K), miscellaneous costs ($0K).
- ACP member companies: The Boeing Company will fully fund the Program Management Workshop for the CAAC participants. This includes providing course materials, classroom time, program simulations, instructor costs, and external materials (text books, case studies summaries, etc.)

3.2.6 Leadership Skills:

3.2.6.1 Leadership Foundations (*Rockwell Collins*)

3.2.6.1.1 Course Synopsis/Overview

The training needs assessment and requirements analysis has already been performed for this course. This course is being designed to leverage the work that has already been done on the Rockwell Collins LDP II course. This revised Leadership Fundamentals course will adopt the Next Generation Leadership Model from the LDP II course in order to bridge the "Personal Leadership" and "Next Generation Leadership" courses in the Leadership Development Roadmap- Training & Education Curriculum.

3.2.6.1.2 Course Elements

1. Learn the Next Generation Leadership Model
2. Predict opportunities to display the behaviors 5 times per day (at a minimum).
3. Visualize the leadership imperative within the context of your business unit.
4. Advance your leadership skills by leveraging the feedback that you receive.

3.2.6.1.3 Projected Course Costs

Implementation of the proposed CAAC Future Leadership training:

- At this time is it estimated that the Rockwell portion of this training will be $20,400 for all CAAC students.

3.2.6.1.4 Funding Source Summary

- CAAC: Transportation to and from training location, lodging and departure tax for all trainees
- USTDA: Instruction costs, instructor's travel costs, course materials and miscellaneous fees estimated at $20,400.
- ACP member companies: Class room and equipments, coordination efforts before training, instructor's time and labor costs.

3.2.6.2 Leadership and Strategic Management Skills (Parker)

3.2.6.2.1 Course Synopsis/Overview

This course is designed to equip leaders and/or potential leaders at the heart of their business to meet the challenges in their respective divisions/departments. It will also enable them to take charge of change and to deliver the reality behind the vision set out for their organizations.

Detailed objectives include:

1. To help participants understand the role of individuals, groups, and teams in their organization and in its performance.
2. To help participants develop a clearer and deeper understanding of their role in creating a continuous improvement environment.
3. To assist participants in discovering how to achieve sustained change within their organizations.
4. To stimulate participants to focus on problem solving techniques and how to recommend realistic solutions.
5. To equip the participants with the following leadership skills, tools and mentality:
   - ♦ Leadership capability and tools
   - ♦ A sense of individual clarity and purpose
   - ♦ Alignment and commitment
   - ♦ Understanding and acceptance of personal responsibility
   - ♦ Plans and solutions for business issues
   - ♦ The skills required to take on change and to lead it.

3.2.6.2.2 Course Elements

Leadership and Management

The participants will learn the differences between leadership and management. They will also learn five practices of management and five practices of leadership. These are not about the extraordinary charismatic actions of a special few people. They are practices available to ordinary people, who care enough to accomplish extraordinary things.

Leading Changes and the Change Loop

Stability was once a central management goal. Today's organizations operate in an environment that is continually changing. The ability to adapt to change in this environment has become a fundamental condition of success and, in a growing number of cases, a condition of mere survival. Change is the only constant in business - in a competitive business, if you don't succeed, you can be sure that someone else will! This session will teach participants how to be leaders of change.

The Change Loop is a tool that will help participants develop strategies to plan, direct, and monitor change while continuously improving. The Change Loop has application at all levels – organization, team, individual, and self. It provides a structure and a common language for a team to talk to each other to learn how to implement changes.

Weighted Force Field Analysis

Force Field and Weighted Force Field Analysis provide a simple framework to help people to decide what steps they ought to take, in order to achieve a change/continuous improvement goal. It reduces a problem to a manageable size. It also stimulates new ways of taking action. It can be used in a variety of forms by an individual manager or by a large group.

Strategic Thinking

The need to harness strategic thinking powers and apply them in creating and implementing strategies to profitably grow and sustain the business is the catalyst for this session. Participants will enhance their ability to work <u>on</u> the business rather than <u>in</u> it.

Framework for Influencing

In the world of business, work and productivity, organizations are generally becoming less hierarchical, flatter in structure, and more diverse in the range of skills, knowledge and behaviors expected of their employees at all levels. Because focus is shifting from competition to collaboration, the skills needed to function effectively are shifting from skills of control to skills of influence. Participants will learn about four influencing styles. They will also receive a “360 degree feedback” on their own influencing style(s) and how best to adapt and select the influencing style most appropriate for a given situation.

Teams and Team Effectiveness

The leader’s role is crucial in guiding the team to its true potential. An understanding of “teams” and the problems encountered by a team is therefore essential for the team to grow and mature to deliver a performance that reflects the competence, commitment and capability of the team. During this session, participants will learn about what a team

should be, how it develops, and the problems encountered by a team. They will also learn about the Belbin team roles, their own Belbin team role, and how to lead an effective team.

- Empowerment

  In today's fast moving and increasingly complex world, the big challenge for organizations, teams and individuals is Change – political, economical, sociological, technological, legislative, and environmental. Many organizations are responding by reorganizing, and restructuring their people and re-engineering their key business processes. It becomes a key function of management to release the natural creativity and potential of their people and facilitate their activities as effective, flexible teams. In other words, to "empower" people. The participants will learn about empowerment, training for empowerment, empowerment within a framework, the personal empowerment grid, empowerment and leadership, experimenting and mistakes etc.

  Stress Management

  Everywhere today, managers are experiencing unprecedented changes in their working lives: sudden shifts in economy, career plateau, leaner organization structures, new technology, mergers, take-overs, buy-outs, bankruptcy etc. Not all employers recognize that change and striving for continuous improvement is a significant cause for stress. To effectively manage change and continuous improvement, managers need to understand stress, its impact on themselves, others and how to control it. This session teaches stress management skills, it also provides feedback on participants' stress levels and identifies areas for improvement.

  Other Leadership Tools

  The participants will learn other leadership tools, such as the transition grid, low hanging fruits, networking etc.

3.2.6.2.3 Projected Course Costs

Implementation of the proposed CAAC Future Leadership training:

US$50,000 for 10 days

3.2.6.2.4 Funding Source Summary

- CAAC: Transportation to and from training location, lodging and departure tax for all trainees
- USTDA: Course preparation, course materials and miscellaneous fees total $50,000
- ACP member companies: training facility & equipment, supporting and coordination, trainer's time and labor costs.

3.3 Part 2 Training (2d): ATMB Air Traffic Management Training

3.3.1 Safe, Secure and Efficient Air Transportation *(FAA/MITRE)*

3.3.1.1 Course Synopsis/Overview

The goal of a modern day air transportation system is to maintain or improve safety, security and efficiency of air traffic, while satisfying user preferences to the maximum extent possible. In view of the dramatic traffic growth in China, it is timely that a seminar/workshop be held as part of the Aviation Leadership Training Program to address China's air transportation system development.

The FAA – MITRE team proposes to offer a five-day learning program on the subject of "Safe, Secure and Efficient Air Transportation System". The program, which will consist of seminars, workshops, demonstrations and laboratory tours, will be held in MITRE/CAASD. The program is tailor-made for both CAAC Civil Servants and ATMB Managers who are concerned with the development of the air transportation system in China. It offers knowledge, expertise and resources of FAA and MITRE. In addition to FAA and MITRE's own lecturers, guest speakers will be invited to participate in the program. At the conclusion of the program, the students will be familiar with the concept of developing a modern air transportation system while satisfying safety, security and efficiency requirements.

3.3.1.2 Course Elements

Overview - Safety, security and efficiency requirements for China's air transportation system

Safety Aspects of the Air Transportation System

- Safety Management System (SMS) requirements for the planning, implementation and operation of air transportation system elements
- Safety considerations for CAAC oversight organization
- Safety considerations for airline and general aviation
- Safety considerations for air traffic service
- Safety considerations for aerodromes
- Surveillance systems meeting the safety requirements

Security Aspects of the Air Transportation System

- Aviation security requirements
- Employee and passenger background information tracking
- Surveillance systems meeting the security requirements

Efficiency Aspects of the Air Transportation System

- National air transportation network planning
- Capacity and efficiency
- Airport, airspace, and runway (multiple) utilization
- Traffic flow management considerations

User Requirements of the Air Transportation System

- User (traveling public, airlines, general aviation, military, etc) preference considerations
- Environmental issues
- Collaborative Decision Making (CDM)

3.3.1.3 Projected Course Costs

To develop and deliver this tailor-made training program is a major undertaking. FAA/MITRE will absorb the costs associated with the planning, and preparation of the program, including the development of the courseware. In addition, MITRE will provide its training facilities and laboratories free of charge. FAA/MITRE expects reimbursement to conduct the training program, including the labor costs for the lecturers and the material and services costs (such as printing, food, etc.) associated with the program. The estimated reimbursable costs for up to 40 participants during the 1-week period are U.S. $38,000.

3.3.1.4 Funding Source Summary

- CAAC: Transportation to and from training location, lodging and departure tax for all trainees
- USTDA: MITRE portion of the labor and FAA/MITRE material and services for the conduct of the program ($38,000).
- FAA/MITRE will provide the training facility and absorb the costs for the development of the course materials for this training.
-

3.3.2 Air Traffic Management Theory (ACP ATM subgroup including *FAA, MITRE, Honeywell, Metron, Lockheed Martin*)

The ACP ATM subgroup will collectively deliver a six-week course on air traffic management theory for ATMB managers. The course will consist of five primary subject matters, including ATC Management, CNS/ATM Theory, US CNS/ATM, RNP/RNAV, and Traffic Flow Management. The industry participants will work closely with the FAA to develop all course materials and determine the extent of visits to FAA facilities and participation of personnel in carrying out the program.

3.3.2.1 Course Synopsis/Overview

ATC Management

The ACP ATM subgroup will develop a course providing an overview of the U.S. Air Traffic Control (ATC) Management, providing the system’s origins, current structure and operations. This will help the ATMB managers understand the challenges facing today's ATC system, the initiatives underway to meet these challenges, and the work that is being conducted in analyzing, developing and fielding the current and new technologies and procedures. The course will also examine key emerging concepts, technologies and procedures that are being developed to meet

the need for increased capacity while incorporating increased safety and security. A variety of audio-visual and selected laboratory simulation and analysis tools will be used to supplement briefings and interaction between speakers and the class.

CNS/ATM Theory

The FAA – MITRE team will share their extensive knowledge concerning the next generation Communication, Navigation, Surveillance (CNS)/ Air Traffic Management (ATM) systems as well as their vast knowledge of the worldwide systems implementation. The participants of the upcoming seminar/workshop held as part of the CAAC/ATMB Management Training Program will benefit greatly from the transfer of FAA and MITRE's experience and knowledge.

The FAA – MITRE team proposes to offer a 2-week learning program on the subject of CNS/ATM in the U.S. and throughout the world. The program will consist of seminars, workshops, demonstrations and laboratory tours. The program will be tailor-made for managers within the ATMB who are concerned with worldwide CNS/ATM technologies and procedures. It offers knowledge, expertise and resources of the FAA and MITRE. In addition to FAA and MITRE's own lecturers, guest speakers will be invited to participate in the program. At the conclusion of the program the participants will have a solid overview of the National Airspace and Airborne Systems, an understanding of the current and future CNS/ATM technologies, and the worldwide (ICAO) implementation of the new CNS/ATM systems.

US CNS/ATM

Lockheed Martin will provide a seminar addressing the key challenges that China will face and how they relate to China's future requirements in the area of CNS/ATM in order to support the rapid growth of the aviation industry. The seminar will also provide an overview of efforts related to achieving global harmonization and interoperability as it relates to Air Traffic Management.

Honeywell will provide a two-day intensive training on CNS issues from the perspective of the airspace user. The course will focus on drivers for change in usage of airspace, new technologies of communication navigation and surveillance. The course will also touch on developing a regional plan for efficient airspace usage.

RNP/RNAV

ACP ATMB sub-group , in coordination with the FAA, will develop and provide an intensive one-week course on the theory and implementation requirements for Required Navigation Performance (RNAV) and Area Navigation (RNAV).

Traffic Flow Management

This seminar will familiarize course participants with ATFM theory and practice implemented in the U.S. Metron Aviation will draw on its experience and background providing ATFM

research, tools and concept development, and operational support to the FAA to provide a one-week (five-day) class on ATFM in the U.S. The class will include a discussion of the sub-topic of Collaborative Decision Making (CDM) and how it has been used in the U.S. as an integral and essential element of successful ATFM. The class will cover FAA ATFM processes, procedures, and methods, as well as case studies which illustrate ATFM in practice (e.g., sample scenarios, roles/responsibilities of both FAA and airlines/GA traffic, etc.). Former FAA Traffic Flow Managers will participate in the class to provide "real-world" ATFM experiences and lessons learned.

3.3.2.2 Course Elements

The six-week course will include the following modules:

- History of Air Traffic Control
- Overview of Today's ATC Systems
  - Airspace Challenges and Future Trend
  - Anatomy of Delay – Capacity vs. Demand
  - Airport Operations – Airside Operations
  - Airline Operations
- Air Traffic Management – Basic, Current and Future
  - Quick Glance at Flow Management Systems
  - Air Traffic Management Modeling and Simulation Tools
- Challenges and Opportunities: The Need for Change
- Overview of CNS/ATM
  - Communications – Basic, Current and Future
  - Navigation – Basic, Current and Future
  - Surveillance – Basic, Current and Future
  - Highlights of FAA CNS/ATM Programs
  - Worldwide CNS/ATM Implementation Trends
  - The Future of CNS/ATM – Concepts & Technologies
- Civil/Military Interactions
- Current and Future Trends in Avionics
  - Technologies Demonstrations
- Modernizing US Oceanic Airspace
- Global Interoperability and Harmonization
- Advanced ATC Decision Support Tools and Concepts:
- Global Navigation Satellite Systems

3.3.2.3 Projected Course Costs

The ACP ATM subgroup will absorb the costs associated with the planning, and preparation of the program, including the development of the courseware. Boeing, MITRE, Metron and

Lockheed Martin may provide its training facilities and laboratories free of charge. MITRE, Lockheed Martin and Metron expect reimbursement to conduct the training program, including the labor costs for the lecturers and the material and services costs associated with the program. The estimated reimbursable costs for up to 20 participants during the six-week period is U.S. $216,850.

3.3.2.4 Funding Source Summary

- ATMB: Transportation to and from all training locations, meals, and lodging for all trainees
- USTDA: ACP ATM subgroup labor, material, course development, and services to conduct the program ($216,850).
- ACP ATM Subgroup: Training facility and other costs depending on the company.

3.4 ATO Specific Training (*FAA/MITRE*)

3.4.1 Course Overview

The FAA – MITRE team will provide ATO specific training to the ATMB managers, so that from an organizational viewpoint, the attendees would understand the mission, the functional elements and the operations of the ATO. Rules and regulations governing the operation and management of the organization will be discussed. The external interaction with other FAA organizations and other U.S. government agencies will also be addressed. Special attention will be given to civil-military coordination. The course will take 20 days and be taught by senior FAA and MITRE managers.

3.4.2 Course Elements

The course will include the following elements;

- FAA Structure Reform and the Formation of ATO;
- Mission of ATO;
- Rules and Regulations Governing the Operations of ATO;
- Functional Elements of the ATO and their Roles and Responsibilities;
- CNS Infrastructure and ATM System Operations;
- Strategic Planning Process and JPDO;
- System Acquisition Process;
- Operations Management, Financial Management, Safety Management, HR Management and Quality Assurance;
- Major Plans including Financial Plan, OEP, NAS System Architecture, NGATS, etc.;
- Roles and Responsibilities of WHTC and FFRDC;
- Interaction with Other FAA Organizations and other Government Organizations;
- Civil-Military Coordination;
- ATO Cooperation with Industry, Universities and R&D Organizations
- ATO, WHTC, MITRE, facility visits and lab demonstrations

3.4.3 Projected Course Costs

To develop and deliver this tailor made training program is a major undertaking. The FAA – MITRE team will absorb the costs associated with the planning, and preparation of the program, including the development of the courseware. In addition, MITRE will provide its training facilities and laboratories free of charge. MITRE expects reimbursement to conduct the training program, including the labor costs for the lecturers and the material and services costs (such as printing, food, etc.) associated with the program. The estimated reimbursable costs for up to 20 participants during the 20-days period are U.S. $44,550.

3.4.4 Funding Source Summary

- **CAAC/ATMB:** Transportation to and from training location, meals, lodging for all trainees.
- **USTDA:** MITRE Portion of the labor and material and services for the conduct of the program ($44,550).
- **FAA/MITRE:** FAA will provide speakers for many of the courses on a gratis basis. MITRE will provide the training facility and absorb the cost for the development of the course materials for this training.

3.4 *Part 3 Training: ATMB OJT and Mentoring (*FAA/MITRE*) **to be defined*

3.4.1 Course Overview

The FAA – MITRE team will deliver to the ATMB managers an On-The-Job Training (OJT) and personal mentoring session. All twenty (20) ATMB managers will be paired up with mentors at the beginning of the ATM Theory part of the training program. Mentors will provide intermittent coaching throughout the rest of the Executive Management Development Training (EMDT) program. Mentors will monitor the development and learning activities of the Mentee and develop the OJT program accordingly. The intent of this training is to enable the CAAC/ATMB managers to learn from their FAA counterparts and witness how daily operations at ATO are being carried out. This exercise will also assist the attendees in the understanding of the roles and responsibilities of key personnel, the ways staff interact, and the organizational decision process, priority setting, budget preparation, etc. The total duration of this training will be 20 days.

3.4.2 Course Elements

This training will be divided into three elements; an OJT orientation briefing, a series of OJT/mentoring sessions, and an OJT program as defined by the Mentors.

At the beginning of this training, all attendees will attend an OJT orientation briefing for the purpose of introducing the ATO environment and organizational culture. The objective of the OJT/mentoring will be discussed. The FAA/MITRE senior staff that will participate in the

training as mentors will be introduced. Procedures and etiquette for the conduct of the training will be discussed. The OJT orientation briefings could take place in conjunction with the start of the Part 2 Training (ATM Training), so that the relationships with the mentor could be established at an early stage.

During the OJT/mentoring period, each CAAC/ATMB person will periodically meet with his assigned mentor and hold one on one discussions, followed by participation in some of the activities that the mentor will be attending. These activities may include actual ATC duties, ATO internal meetings, program reviews, strategy sessions, and meetings with external parties. In addition, the CAAC/ATMB attendees my receive assignments from their mentor and work on these assignments during the rest of the time. The attendee will be expected to record what he has learned after each assignment and share this with his colleagues at the weekly review session.

A closing ceremony will be held at the end of the entire training to celebrate the conclusion of the program. A certificate will be issued to all attendees who successfully complete the program.

3.4.3 Projected Course Costs

To develop and deliver this tailor made OJT/mentoring program is a major undertaking. The FAA – MITRE team will absorb the costs associated with the planning, and a significant portion of the actual conduct of the OJT sessions. In addition, the FAA – MITRE team will provide its training facilities and arrange operational facility visits. The FAA expects partial reimbursement from ATMB to conduct the OJT/mentoring and the weekly review session as well as the costs associated with the project management of this training program. The estimated reimbursable costs from TDA for up to 20 participants during the 20 days period are U.S. $56,500. FAA will also seek reimbursement from ATMB to recover OJT/mentoring costs through the Air Traffic US-China Cooperation Program.

3.4.4 Funding Source Summary

- **CAAC/ATMB:** Transportation to and from training location, meals, lodging for all trainees.
- **USTDA:** MITRE portion of the labor and material and services for the conduct of the OJT/mentoring and weekly review session and the associated project management effort ($56,500).
- **FAA/MITRE:** FAA/MITRE will provide the training facility and absorb part of costs for the planning and the actual conduct of the OJT/mentoring sessions.
- **ATMB:** Reimburse part of the FAA OJT/mentoring costs.

ANNEX B:

RECORD OF DISCUSSION

between the

Federal Aviation Administration
Department of Transportation
United States of America

and the

General Administration of Civil Aviation of China

General Administration of Civil Aviation of China (CAAC) Minister Yang YuanYuan and Federal Aviation Administration Administrator Marion Blakey met and held discussions on February 26, 2004, in Beijing to continue a range of cooperative activities to support the safety, efficiency and capacity of air transportation serving the People's Republic of China and the United States. These discussions included:

- *General cooperation:* The CAAC Minister and FAA Administrator expressed their intent to continue and strengthen the cooperation activities between their respective organizations in the following areas:

- *In the field of flight standards*, the CAAC and FAA each affirmed their mutual desire to continue the longstanding, productive and cooperative relationship between the CAAC and FAA Flight Standards organizations. Building upon the work that began in 1994, this cooperation includes technical activities, exchanges and training to support CAAC safety oversight capabilities and activities both in China and the U.S.

- *In the field of air traffic services,* the CAAC and FAA expressed an intent to establish a joint program of cooperation. A joint steering group will plan and manage a three-year program of activities designed to support development of China's ATC system and increase its safety, efficiency, and global interoperability.

- *In the field of aircraft certification,* the CAAC and FAA intend to build upon prior bilateral cooperation and work cooperatively to assist CAAC increase its aircraft certification capability related to transport category airplanes.

- *In the field of airport safety management*, the CAAC and FAA said that it would be useful to continue and strengthen cooperation, including technical exchanges and training to improve the safety and management of China's airport operations.

Task II: CAAC Management Development Training Program

- *In the field of training*, the CAAC and FAA will explore possible cooperative programs between the CAAC training institutes and the FAA Academy to improve safety, efficiency, and capacity of China's aviation system.

- *In the field of safety data*, the CAAC and FAA recognized that both organizations will explore an exchange of safety data and methods of collecting, analyzing, and utilizing safety data.

- *In the field of planning and finance*, the CAAC and FAA will explore cooperative programs such as a seminar in China on financing a Civil Aviation Authority.

- In order to further promote the *bilateral cooperation* in civil aviation safety and technology, the CAAC and FAA will take appropriate steps for an early initiation of negotiations on a Bilateral Aviation Safety Agreement (BASA).

This Record of Discussion has been prepared in both English and Chinese languages, both of which are equally authentic. It was signed on the 26th day of February 2004, in Beijing, People's Republic of China.

Federal Aviation Administration Department of Transportation United State of America	General Administration of Civil Aviation of China People's Republic of China
BY: _____	BY: _____
Marion C. Blakey Administrator	Yang YuanYuan Minister

The U.S.-China Aviation Cooperation Program

TASK III: AmCham Program Management for ACP

Proposal for

TDA Funding Application

Task III: AmCham Program Management for ACP

Description of ACP Program Administration

The American Chamber of Commerce, People's Republic of China, will be the sole source prime contractor to oversee program operation and increase program exposure. The following is an outline of the working areas of AmCham:

Hire necessary ACP staff (including a program director) report to ACP board to manage ACP programs and coordinate implementation among ACP members and with CAAC. Publish ACP magazine, launch and maintain ACP website and organize/sponsor various activities to promote U.S aviation industry and win credit from Chinese side.

The activities are further defined and outlined as follows:

- AmCham will hire a director to assist ACP board to formulate program strategy, recruit new members, and communicate with CAAC senior officers;
- ACP manager (in place since last year) will be responsible to oversight day to day ACP activities, including: schedule training programs, coordinate with ACP members and CAAC to ensure the smooth implementation of each task, and monitor deliverables through out the implementation of projects;
- AmCham will also hire a part time PR staff to issue ACP magazine, update ACP website, arrange various ACP activities, so as to promote the program;
- ACP programs with or without TDA funding are evidences of a united front of U.S government and industry, which also emphasizes on long term commitment of U.S government and aviation industry to China market. The implementation of these programs will strengthen the cooperation and relationship among U.S partners and with Chinese counterparts;
- ACP magazine will report progress of the program, and also provide valuable information to CAAC and Chinese aviation experts about rules and regulations of U.S aviation infrastructure, which will result in mutual benefit from both U.S and Chinese sides;
- ACP website will serve as a convenient channel to broad audience, where we could broadcast on-time program progress, up-coming events, and also feature stories of ACP program. ACP website will also provide links to all ACP members and related aviation organizations, and easy access to e-version ACP magazine;
- ACP together with member companies will sponsor/organize all kinds of events, activities to increase program exposure and promote relationship with CAAC.

Budget for Administration

- Salary for ACP Director = $40K
- Salary for ACP Staff = $35K
- Legal cost = $15K
- PR Cost = $20K
- Office rental = $15K
- ACP magazine = $15K
- ACP website = $1K
- Administrative support (travel, operation,…) = $9.5K
- **Total = $150,500**

Funding Sources:

- ACP members will contribute $75.5K in total which will cover the routine operation cost of this program, including salary of ACP director and ACP staff.
- TDA: $75K
- Others: ACP members will contribute/sponsor ACP activities which are not included in this budget estimation.