Mississippi State University

April 19,2002

Assistant Secretary for Aviation and
International Affairs
Docket Operations and Media Management Division
SVC-124
Room PL-401
Department of Transportation
400 7th Street, SW
Washington, DC 20590

TITLE: "SCAT - Air Service Demonstration for Small Communities"
PI NAME: Dr. Royce Bowden
PI TELEPHONE: 662/325-7623
DEPARTMENT: Industrial Engineering

Dear Sir or Madam:

Mississippi State University is honored to submit the above referenced proposal for your consideration. This proposal has been reviewed and approved for submission by the appropriate administrative units of the University.

Should you have any administrative questions please contact the ADMIN POC listed below. All technical questions should be addressed to the Principal Investigator (PI) identified above.

Sincerely,

James E. Peterson

James E. Peterson, Ph.D.
Director

Enclosure

Cc: Dr. Royce Bowden
Peggy Roach
SPA File:02 100898

ADMIN POC: Mary *Ann* Richardson
ADMIN TEL: 662/325-3486
ADMIN FAX: 662/325-3803
ADMIN E-MAIL: mrichardson@spa.msstate.edu

Mississippi State UNIVERSITY

A Proposal Submitted to: Department of Transportation

TITLE: **SCAT AIR SERVICE DEMONSTRATION FOR SMALL COMMUNITIES**

PRINCIPAL INVESTIGATOR(S)

Name Royce Bowden, Ph.D.

Signature/ Date Royce Bowden 4/19/02

Department National Center for Intermodal Transportation

Telephone 662-325-7623

FAX No. 662-325-7618

Desired Starting Date 09/01/02 | Proposed Duration Three years | Amount Requested $7,012,283

New X Renewal ____ Sponsor's Previous Identification No. ____

ENDORSEMENTS:

Department Head	**College/Center Official**
Name Larry Brown, Ph.D.	A. Wayne Bennett
Signature/ Date Larry J Brown	A.W. — Bennett op
Name	
Signature/ Date V	

Authorized Official	**Contracting Official**
Name James E. Peterson for Dr. Robert Altenkirch, VP/Research	Mary Ann Richardson, Assoc. Admin. Sponsored Programs Admin.
Signature/ Date James E. Peterson 4/19/02	P.O. Box 6156
	Mississippi State, MS 39762
	Telephone: 662-325-3486
	E-mail: mrichardson@spa.msstate.edu

SPA #

SCAT AIR SERVICE DEMONSTRATION

FOR SMALL COMMUNITIES

A BOW PROPOSAL

*to enhance air transportation to **our** community and nation*
through research and demonstration of
economically sustainable, safe, efficient, comfortable scheduled air service
utilizing a jet-speed, high flying small airliner

proposed by

MISSISSIPPI STATE UNIVERSITY

in collaboration with a

PUBLIC + PRIVATE SECTOR PARTNERSHIP
*of **our** communities **for our** communities*

presented to

U.S. DEPARTMENT OF TRANSPORTATION

Small Community Air Service Development Pilot Program

of the WENDELL H. FORD AVIATION INVESTMENT AND REFORM ACT, P.L 106-181
at 49USC 41743 and in US DOT ORDER 2002-2-11, DOCICETOST-2002-11590

DOCKET: OST-2002-11590

April 22,2002

National Center for intermodal Transportation

A partnership between the University of Denver and Mississippi State University

NCIT

Dr. Paul S. Dempsey
Director
University of Denver
2199 South University
Boulevard, 3rd Floor
Denver CO 80208
Phone: 303.871.6260
FAX: 303.871.4585
pdempsey@mail.law.du.edu

Dr. Royce O. Bowden
Deputy Director
Mississippi State University
133 Etheredge
PO BOX 9542
Mississippi State MS 39762
Phone: 662.325.7623
FAX: 662.325.7618
rbowden@ie.msstate.edu

April **22, 2002**

Read C. Van de Water
Assistant Secretary for Aviation and International Affairs
Department of Transportation
400 7th Street, SW
Washington DC 20590

ATTN: Matthew C. Harris, Special Assistant to the Assistant Secretary
for Aviation and International Affairs

Dear Secretary Van de Water:

I am pleased to submit this proposal for an air service research and demonstration grant. The proposal is a collaborative initiative that includes airline and aviation professionals from Diversified Business Enterprises, Inc. and Global Aircraft Corporation; transportation experts and researchers from Mississippi State University and the University of Denver; and community economic development leaders from the Oktibbeha County Economic Development Authority and the Columbus-Lowndes Economic Development Association. This public plus private sector partnership assembles significant resources and expertise to ensure the success of the proposed project.

We trust you can share our vision and sense our enthusiasm for this innovative initiative to help our communities – and, eventually, many others like them nationwide – find the transportation solutions they ***want.*** We welcome your response to the attached proposal and are prepared to discuss this proposal in detail at your earliest convenience.

Sincerely,

Royce Bowden

Royce O. Bowden, Jr., Ph.D.
Deputy Director, ***National Centerfor Intermodal Transportation***
Associate Professor of Industrial Engineering, ***Mississippi State University***

GRANT PROPOSAL

SCAT AIR SERVICE DEMONSTRATION

FOR SMALL COMMUNITIES

presented to

U.S. DEPARTMENT OF TRANSPORTATION

Small Community Air Service Development Pilot Program

of the WENDELL H. FORD AVIATION INVESTMENT AND REFORM ACT, P.L. 106-181
at 49USC 41743 and In US DOT ORDER 2002-2-11, DOCKET OST-2002-11590

DOCKET: OST-2002-11590

DATE: 22 April 2002

TO: The Docket Operation and Media Management Division
SVC-124, Room PL-401
Department of Transportation
400 7th Street, SW, Washington, DC 20590

Sponsor and Grant Recipient: Mississippi State University (MSU)

Grant Funds Administrator: **MSU** unit of National Center for Intermodal Transportation

Other Partners: University of Denver
Diversified Business Enterprises, Inc.
Global Aircraft Corporation
Oktibbeha County Economic Development Authority
Columbus-Lowndes Economic Development Association
and others

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SECTION 1: SIGNIFICANCE OF THE AIR SERVICE DEMONSTRATION

The proposed Small Community Air Transportation Concept (SCAT) will research, demonstrate, and validate an innovative method of providing safe, comfortable, reliable, and economical scheduled air service to small communities with low passenger volumes or where the community is underserved. The proposed SCAT air service concept engages the local community in determining the destination airports or hubs that will be served, the frequency of service required to meet local travel needs, and the price of airfares. The proposed project will benefit two or more small communities.

It is proposed to provide this enhanced service by ***right-sizing*** a airliner to satisfy the air travel needs of persons needing nonstop service to distant large cities and hubs not currently served from the local community. It is proposed to provide the SCAT air service with an advanced technology, ***right-sized*** airliner that delivers jet-like speeds, business-class sized seats, comfortable high-altitude operations to a city or hub selected by the local community leaders and airport authority.

Successful demonstration and validation of the SCAT Air Service Project will increase air service to many small communities that currently lack air service or are under served. Project success will also provide a method of reducing EAS subsidies to many small communities and lead to the development of continuous and self-sustaining local scheduled air transportation.

1.1 Small Community Air Service Problems and SCAT Solutions

Small communities throughout the **U.S.** are struggling to acquire or to maintain air transportation. Most never achieve the goal of sustainable air service. There are many problems challenging small communities and the Department of Transportation's desire to help them obtain adequate air service. However, the problems are solvable.

SCAT -- Small Community Air Transportation – is an innovative concept which requires the support of the Department of Transportation to validate its potential for providing solutions to the typical problems that plague and even prevent small community air transportation service.

PROBLEM - Imbalanced Seat Supply versus Seat Demand: Many small communities are served by aircraft with seating capacities exceeding community demand. Empty seats on each airliner cost money and result in higher-than-average airfares and/or requirement for government subsidies.

SCAT Solution - Right-Sizing the Airliner: Match the supply to the existing demand rather than engage in wishful thinking that demand can be increased by oversupply of seats. This will involve the demonstration of a new, small airliner configured for 9 passenger seats and derived from an existing, advanced technology aircraft.

PROBLEM - Inadequate Air Service Patterns: When seat supply exceeds seat demand, reduction in service frequency often results in diminished value of the service as perceived by travelers. When the low frequency of flights is combined with a need to connect from these

flights at airline hub airports, the result is compromised opportunity to connect onward. Alternatively, marginal passenger loads may provoke the airline to schedule the flight to stop through another city on the way to the airline hub and thus increasing the probability of weather and mechanical delays. Additionally, service patterns often involve a short and seemingly nonsensical commuter flight to a hub which is in the 'wrong direction' of travel considering the traveler's ultimate destination and which explains the source of the term 'puddlejumper'.

SCAT Solution - Enhanced Service Patterns: When the airliner is right sized, the resulting optimized seat supply will provide for robust service opportunities resulting in increased frequencies to more destinations. No longer limited by traditional turboprop speed and range, nonstop service can be to geographically logical hubs as far away as 1000 miles.

PROBLEM - Undesirable Service with Undesirable Aircraft: Many small communities are served with aircraft they consider cramped and 'clunky' and sometimes – however erroneously – translate these characteristics into 'unsafe'. These small airliners fly slow, at low altitudes, and are subject to continuous turbulence with noisy propellers directly outside the cabin. In addition to the lack of essential toilet facilities on many aircraft, the seating on these small airliners does not correspond to the business class seating that the typical business traveler is accustomed to on large jetliners. The lack of speed can effectively reduce community access to more desirable but distant airline hubs beyond the non-stop reach of conventional propeller-driven airliners.

SCAT Solution - Comfort, Safety, Efficiency In High Flying, Jet-Speed Small Airliners: This sleek, new generation small airliner will speak eloquently of advanced technology and comfort with seat width comparable to ***mainline business class*** seating and with an onboard lavatory. It can fly higher than most current generation mainline jetliners at speeds rivaling Regional Jets and with no noisy propellers inches from the passenger cabin to worry and annoy passengers.

PROBLEM - Higher Fares Than Considered Desirable: Many small communities consider the fares from their local airports to be higher than those at larger, distant airports.

SCAT Solution - Restoring and Enhancing Value in Local Air Service: We believe that many of the complaints about higher ticket fares at small community local airports are due to a ***perceived lack of value*** in the service offered. It is our intent to restore and enhance the ***value*** to local air service rather than merely addressing the surface issue of ticket price. Since most users of local air service identify as non-discretionary travelers, the inclination of these potential passengers ***is to use*** the local service *IF* such service can save them time which then equates to them as money. While the resulting ticket price may be higher than that of a low fare carrier at a distant airport, the ***net trip travel cost will likely be lower*** due to the resulting schedule efficiencies.

PROBLEM - Interrupted and/or Poor Quality of Service: The worst air service quality problem is when there is no service. This may be on a flight-by-flight basis in which the serving airline, faced with a mechanical cancellation, chooses to impact the least number of passengers by selecting the city served with the least number of booked passengers. This, however unintentionally, may consistently target the smaller communities. For communities hosting carriers predominantly serving small communities, the financial pressure on these carriers may

result in higher-than-normal cancellation and delay rates due to lack of carrier investment in resources promoting service reliability. In the ultimate case, service withdrawals can completely isolate the community from the national air service system.

SCAT Solution - Economic Sustainability Results in Reliable Service: *When* the offered capacity is right-sized and results in optimal service patterns to desirable and even distant destinations;

when the airplane is perceived as quick, comfortable, safe, and trustworthy;

when the airliner is efficient, economical, and reliable to operate;

then, the airline operator can expect to be financially rewarded with patronage levels and ticket yields commensurate with economically sustainable service at profit levels assuring continued service to all but the most tiny of our communities.

1.2 SCAT Project Goal and Objectives

The project goal is to conduct research to refine and validate the SCAT concept by demonstrating in communities the benefits of enhanced scheduled air service resulting from deployment of an advanced, high performance small airliner capable of safe, efficient, comfortable, sustainable air transportation conveniently serving our airport's low passenger density routes.

The specific objectives of the SCAT project are

- To demonstrate the need for advanced small airliners to serve small communities and to provide enhanced scheduled air service for these small communities;
- To demonstrate the public acceptance of these advanced small airliners;
- To demonstrate the economic sustainability of air service to small communities using advanced small airliners: and
- To develop a model plan for 'How-to' implement air service at other small communities and as an alternative to indefinite Essential Air Service subsidies.

1.3 SCAT Project Benefits

SCAT is not about planes; but, rather, SCAT is about benefiting people, government, and industry in small communities in the following ways:

- BENEFIT the community by bringing economically-sustainable air transportation service patterns to additional locations travelers desire with aircraft they will patronize;
- BENEFIT the local/regional/Federal funding agencies and elected officials by providing an excellent and visible value on the public investment and with their constituents;
- BENEFIT the Federal government by providing a means to transition small communities from subsidized service with undesired aircraft to the potential for market-driven service of appropriate sized aircraft fully integrated into the air transportation system;

- BENEFIT the existing airlines by potentially bringing to them economically sustainable connecting service within their networks and addressing their public duty in serving small communities;
- BENEFIT the local governments from increased economic stimulation through availability of efficient transportation service patterns giving rise to increased revenues flowing to and through the local treasuries; and
- BENEFIT other small communities not served by the demo project by boldly leading the way to show what can be done and -- more importantly -- how to do it.

1.4 SCAT Demonstration Plane

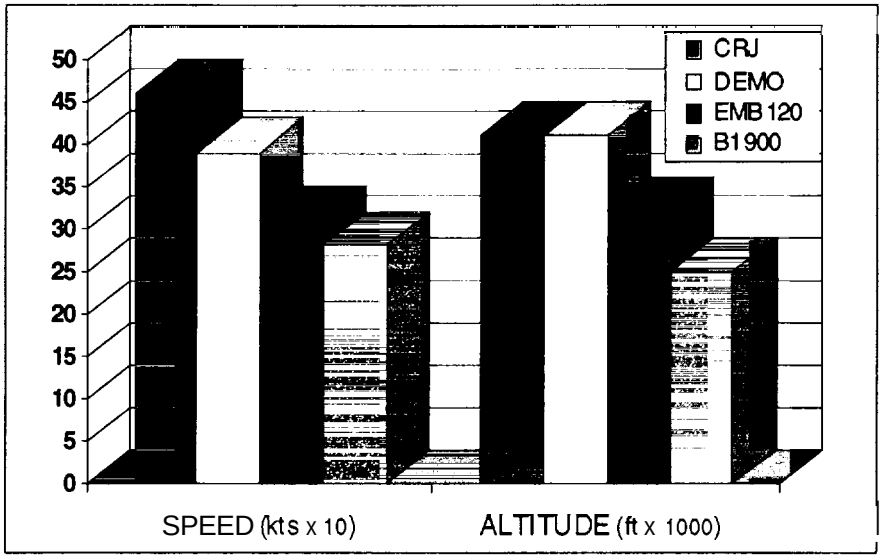
The basis of the SCAT concept of ***'right-sizing' the airliner for the market*** is an advanced technology aircraft with near all-weather operations, configured for 9 passenger comfortable business-class seats, flying faster, higher, farther, and more efficiently than any currently available propjet airliner.

The proposed SCAT demonstration airliner is the fully FAA certified Piaggio P-180, which has over 10 years of reliable operational service. The P-180 is not a small, noisy 'puddlejumper'. The P-180 airliner will provide its passengers with

- Jet-speed (350+ knots),
- High Cruise Altitudes (above 35,000 feet),
- Reliability (providing near all-weather operations),
- Efficiency (low emissions and high fuel economy).
- Quiet Comfort (with business-class seating and a lavatory), and
- Long Range (connecting distant commerce centers to 2.5 hours/1000 miles).

The following chart puts the speed and altitude characteristics of the proposed P-180 SCAT 'demo' airliner into perspective with other familiar small airliners.

AIRCRAFT COMPARISON



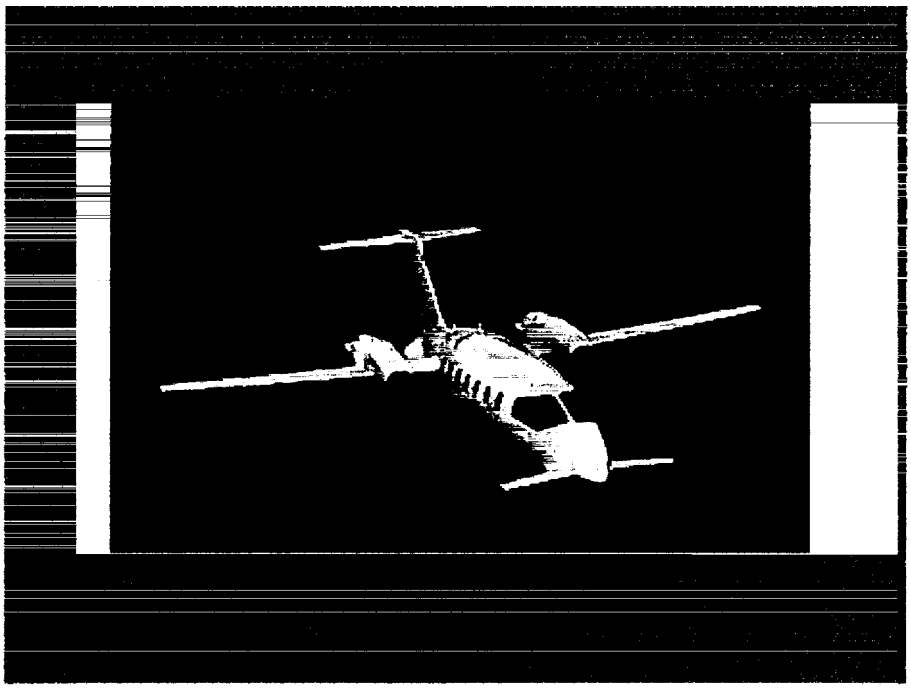
The P-180 flies faster and higher than the turboprop airliners (EMB 120 – Brazilia and B1900 – Beech) and as high as and nearly as fast as a Canadair Regional Jet. The P-180 **SCAT** airliner does not achieve this high performance by skimping on interior comforts as illustrated in the following table.

SCAT Airliner

PASSENGER COMFORT COMPARISON

MAX HEADROOM (feet)		SEAT WIDTH (Inches)	
6.0	Saab SF340	20+	SCAT airliner
5.9	BE1900D, J31/32/41	≤18	EMB120 Brasilia Saab SF340
5.8	SCAT airliner EMB120 Brasilia	17	BE1900D
4.8	Metro series	<17	Metro, J31/32/41

In the P-180 SCAT airliner, shown below, passengers will travel in comfort as they smoothly and quietly fly nonstop to their destinations at jet-speeds, occasionally noticing the typical slow airliners flying in the weather below.

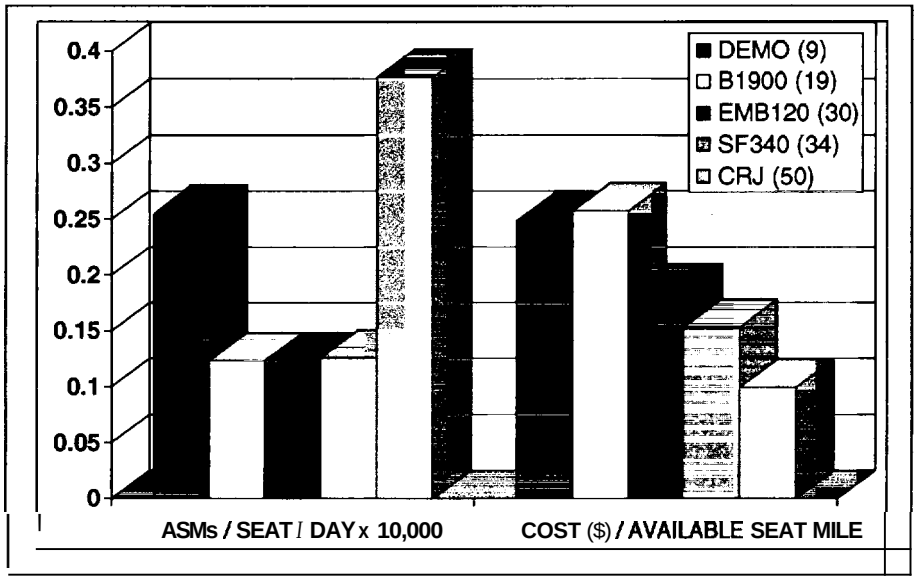


1.5 Economic Feasibility of the SCAT Airliner

The productivity of the airliner is an important consideration. Sustainable service on 'low passenger density' routes requires aircraft that are highly productive. Available Seat-Miles (ASMs) **is** a measure of airliner productivity. One ASM is generated when one seat is flown one mile. ASMs per day would indicate productivity per unit of time. The fastest (jet) aircraft with the most passenger seats will produce the most ASMs.

However, when comparing productivity per seat by dividing the ASM production value by the seating capacity, we find the faster aircraft are clearly favored when disregarding seating capacity. This is graphically depicted on the left side of the following figure with the nine-seat P-180 SCAT demo airliner comparing favorably with the 50-seat Canadair Regional Jet aircraft and both dramatically exceeding the productivity of the trio of turboprop regional airliners (19-seat B 1900 Beech, 30-seat **EMB** 120 Brazilia, and the 34-seat SF340 Saab). From this data, the P-180 SCAT demo airliner maintains reasonable productivity on a prospective low passenger density route for communities that could not support a larger passenger capacity airliner.

PRODUCTIVITY AND COST



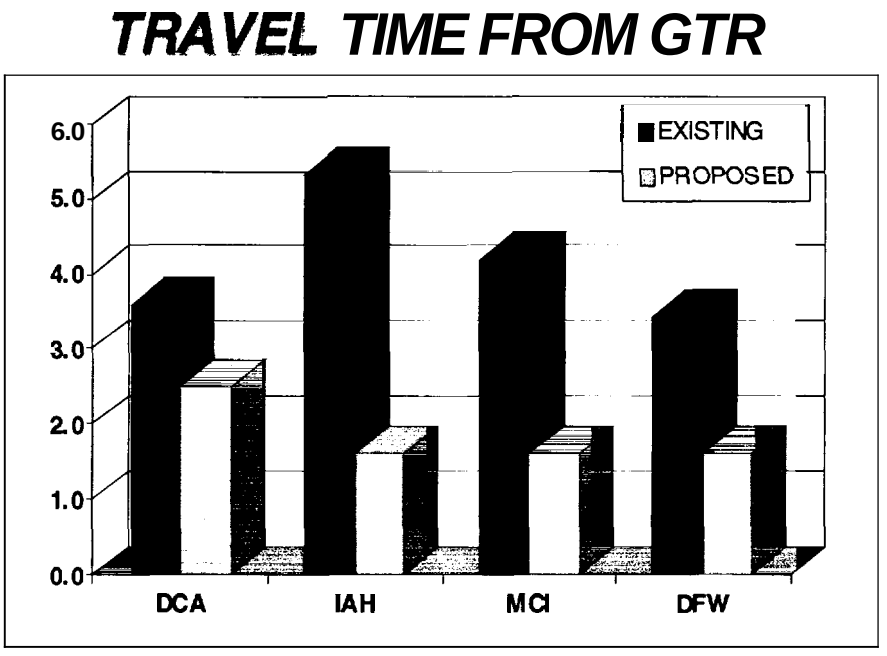
Airliner productivity is not the only consideration; cost should remain proportionate compared with larger capacity airliners. The data on the right side of the above graph illustrates a common airline fact: CASM (cost/ASM) increases with decreasing seating capacity. Of interest, however, is that our data supports the premise that the P-180 SCAT demo airliner can enjoy a CASM approximating that of existing 19-seat turboprop airliners while providing superior productivity with half as many seats (but flying much faster, and thus on more flights per day, which is what travelers desire).

The jet-speed P-180 demo airliner can be productive and economical. A more detailed financial analysis of the SCAT concept with the P-180 is provided in Section ***6*** and Section **7** of the proposal. In the following section, the impact that the jet-speed P-180 airliner will have on the traveler is outlined.

1.6 Efficacy of the SCAT Airliner

The characteristics of the P-180 demo airliner provides the capability of nonstop flights to destinations up to 1,000 miles away, which surpasses the approximate 400 mile nonstop distance limit of many turboprop airliners currently used to provide air transportation service to small communities. Take the airport that is local to Mississippi State University, the Golden Triangle Regional Airport (GTR), as an example. Currently, the following destinations can only be reached from GTR by using connecting flights or by flights making a stop along the way: Chicago, Cleveland, Indianapolis, Washington DC, Pittsburgh, Cincinnati, Detroit, Miami, and Dallas/Fort Worth. The P-180 demo airliner can provide direct flights to these locations, and more.

The chart below illustrates the dramatic reduction in travel time to four example destinations that could be achieved with the proposed jet-speed P-180 airliner flying nonstop from **GTR.**



DECODE: DCA = Washington Reagan National, IAH = Houston Bush Intercontinental, MCI = Kansas City Int'l, DFW = Dallas/Ft. Worth.

This valuable reduction in travel time is based on an airport that provides a better level of service than is available at most airports at small communities of a similar size. Consider how travelers using a lower level of air transportation services would respond to the proposed SCAT service. This increase in the value of the service can be provided to the traveler at a reasonable, sustainable price as will be illustrated in Section 6 and Section 7 of the proposal.

1.7 Implications For Other Small Communities

Intending no disrespect of the worthy efforts of communities, we find most are attempting to stimulate demand rather than addressing the seat oversupply problem, or they are simply in quest of larger (and more costly) airliners to serve their community.

We believe this demonstration project proposal has much wider applicability than to merely the communities that become directly involved. We propose that small communities – including those funded under Section 419 – should and can transition to economically-sustainable service using the 'How- to' model we expect to develop and demonstrate.

Looking beyond the limited scope of this demonstration, we believe it may well point the way out of the crisis of managing the demand for subsidies against the limited funds available to the Department under Section 419 to administer Essential Air Service (EAS) for small

communities. Our estimate -- which may be of great interest – is that the total subsidies expended over the last two decades could have paid for at least two jet-speed P-180 airliners for each and every **EAS** point presently in the program.

SECTION 2: SCAT DEMONSTRATION LOCATION

There are numerous small communities in Mississippi that could benefit from a successful SCAT demonstration as they help validate the SCAT concept for other small communities around the nation. It is proposed that the demonstration be located at a small community in Mississippi because that will provide ease of access for project researchers to monitor and collect data. Although a final decision has not been made, the Golden Triangle Regional Airport (GTR) located near MSU is one logical choice. Furthermore, economic development leaders from two of the counties serviced by GTR are very supportive of this proposal because they recognize that the SCAT concept is innovative and can improve the quality of local air service, which would make a positive impact toward economic development in the region. They have committed to raising partial funding for the project should MSU receive the grant for a local demonstration. Therefore, the justification of the research and demonstration project will be based on the data and conditions of GTR. However, the selection of the demonstration airport is reserved pending collaborative selection of participating communities based on DOT and community input.

Also, note that depending on the route selected from the demonstration base airport, the project may well involve service beyond the base-to-hub-and-back to an additional city due to the timing of the base airport flights to connect with the 'banks' of flights at the hub. This will potentially benefit yet another cooperating small community in supplementing their existing service.

The next portion of this section summarizes characteristics of airline service to the example airport, GTR.

2.1 Airline Service In The Golden Triangle Region

Golden Triangle Regional Airport (GTR) is somewhat centrally located between three Mississippi towns, Columbus, West Point, and Starkville (home of MSU). The airport serves a population of approximately 125,000. GTR is representative of the deficiencies evident in most small (usually EAS-supported) community airports in the **U.S.**

2.1.1 Strengths

- Air service at GTR has weathered dramatic changes in the US airline transportation system; and demand for air service at GTR remains high following the recent recession/terrorist attacks.
- Due in part to long drive times to competitive airports, GTR serves as a true regional airport capturing a notable 58% of local demand.
- Four of five travelers at GTR – and half of locals -- are on business travel. Two local universities create significant demand for air service.
- GTR service connects to three airline hubs; two of these hubs are served with more than the minimum 3 flights per weekday. Good non-stop service to its eastbound airline hub with high frequencies has resulted in virtual dominance in this market.

- In the past, new service at GTR generated an increase in total boardings rather than only diversion from one carrier to another.

2.1.2 Issues

- Travelers from the service area drive to other airports – notably Jackson, MS, Birmingham, AL, and Memphis, TN – to benefit from non-stop service, especially for westbound routings.
- Since the introduction of westbound one-stop service to Dallas, the number of flights to Dallas has decline in frequency despite remarkable demand potential.
- The value of direct service to Memphis has eroded since September with the loss of all non-stops and a reduction in frequency to three flights per weekday.
- According to the state, there is a potential 36% increase in boardings available to GTR.
- Typical of regional airports, fares from GTR are generally higher than those from larger competitive airports.
- The relative strength of air service at GTR has been declining with respect to the ratio of local to national boardings. The state study predicts that it will continue to decline. This study, citing the airport master plan, indicates enplanement growth at GTR has underperformed expectations.

2.1.3 Conclusions

- The proposed SCAT service could help communities, like those served by GTR, to achieve the 'number one goal' recommended by the state: 'To maintain [at least] the existing level of service' by maximizing local travel value.
- Airline decision-makers allocate high cost resources to capture high yield market share. Proactive, or at least preemptive, strategies to retaining competitive air service are essential after an adverse change to air service.
- **GTR** presently has unexploited air service strengths; schedules that offer high departure frequencies and conveniently timed flights can draw passengers to the GTR market.
- During the period of this recent recession and following the terrorists attacks, service to Dallas/Fort Worth (DFW) and Memphis has weakened considerably while service to Atlanta, GA has remained relatively strong. Comparing these routes, 'The strong became stronger; the weak became weaker'.
- Once high yield passengers acclimate to driving to competitive airports and become vested in another airline's loyalty program, it becomes difficult to win them back.
- Consistent with the state study, a two-flight-per-weekday, one-stop service is not a viable service pattern for most travelers.
- The now severely compromised DFW schedule offering two, one-stop daily flights is likely to result in accelerated leakage from GTR unless non-stop flights are added and/or flight frequency increased.

- State study data indicates GTR could recapture all of the enplanement underperformance by only tapping the westbound traffic potential lost through leakage. To meet existing demand, GTR should have at least two seats available westbound for each three seats available to Atlanta.
- If, as the state study concluded, daily non-stop service to DFW could fill one 50-seat RJ, then such demand could sustain the present two (one-stop) Brasilia flights plus two, non-stop, 9-seat demo flights. Because riders seek schedule convenience, passengers would not 'book away' from the one-stop flights consistent with anecdotal reports that travelers have not booked away from the conveniently timed turboprop flights that are adjacent when the midday RJ flight to Atlanta was introduced. This conclusion nicely illustrates how the proposed SCAT air service could be used to complement and grow service value when some service already exists. A frequency of four flights per day (with two of them non-stop, jet-speed) would provide better value than one RJ flight per day.
- Data shows significant demand also exists for non-stop service to Washington DC and NYC.
- The mission for communities, like GTR, should be to insure that local travelers are focused on travel costs – not merely ticket prices. This will correctly place the emphasis on the value of local service in reducing wasted time IF local air service is consistent with such a message. It is proposed that fast, comfortable SCAT air service would provide this value.

2.1.4 Detailed History, Data, and Analysis of Service at GTR

Detailed information on past and present service at GTR and related analysis is offered in appendices to this document.

2.2 Golden Triangle Regional Example Continued...What Could the SCAT Demo Do for a Region?

As noted above, air service at GTR has much to offer to travelers as compared to the air service of many small communities. However, communities with GTR equivalent service, have many opportunities to improve the characteristics of their service that 'drive' many of their local travelers away. This threatens the future of small community air service. The proposed SCAT concept addresses these problems and provides communities without air service the opportunity to establish quality air transportation service.

2.2.1 Improve the Efficiency and Value of Airline Travel from GTR

While the demonstration may not directly reduce *airfares* at GTR, it can ***increase service value*** and ***reduce travel costs*** for local travelers by significantly reducing travel times as illustrated in Section 1.6 of the proposal and by reducing the need for business travelers to spend an extra night away because of the timing and frequency of returning flights.

The major problem is too many seats for too few passengers resulting in low frequency/multi-stop connecting flights to two airline hubs from GTR. The demo airplane is 'right-sized' for many markets increasing frequency without flooding the market with uneconomical and unsold seats.

One approach to restoring the efficiency for travelers to and from GTR would be to enhance frequency with a supplement to onestop routings. Given the existing aircraft types on these routes as the smallest passenger capacity in each respective fleet, the only possibility is to deploy the proposed jet speed, high altitude, comfortable, 9-seat airliner.

Considering only route and operational efficiency, the greatest utility (of speed and altitude) could be gained on longer routes. For example, the Dallas/Fort Worth route is about 500 nonstop air miles versus the barely-more-than-one hundred miles from GTR to Memphis.

There are many other relevant factors in route selection; not the least of which is the inclination of the major, code-lending carrier to work with a SCAT airline.

2.2.2 Reduce 'Wrong Way' Flying and Multi-stop Connecting Flights

Many travelers will drive from two-and-one half to three-and-one half hours to catch a non-stop flight from Memphis, Birmingham, or Jackson rather than fly 'backwards' to Atlanta or endure a one-stop connecting flight.

One example illustrating travel time problems follows: GTR passengers can take commercial services from GTR, or drive to any of three larger airports in Jackson, MS, Memphis, TN, or Birmingham, AL. They may also routinely choose to drive to destinations within 500 miles, partly because of the time consumed in changing planes at hub airports. For example, it takes 6.5 to **7.5** hours to drive from GTR to Knoxville, TN. It takes 5.5 hours, door-to-door, to fly from GTR to Knoxville, TN, assuming you make good connections. With poor connections, driving becomes time-efficient for even greater distances.

This suggests a strong potential market for a service that flies directly to distant hubs like Washington, DC, or Dallas/Fort Worth. However, all the routes suggested are nothing more than hypotheses. These hypotheses must be confirmed or rejected based on research that draws both qualitative and quantitative data from potentially significant market segments. Additionally, to make connecting flights meaningful, commercial alliances resulting in worldwide marketing and distribution are an essential, but presently unknown element.

2.2.3 Increase the Number of Flights Operated at Jet Speeds and Altitudes

Passengers know that they can be more comfortable cruising at jet altitudes and speeds and getting them quickly to desirable destinations or to a favorable connecting hub.

2.2.4 Restore Enplanements and Stimulate Added Local Traffic

Airline service with an advanced technology, jet-speed, high altitude, 9-passenger airliner providing safe, efficient, business-class comfort will be attractive to local travelers resulting in increased patronage and reduced highway travel.

SECTION 3: PRIOR SMALL COMMUNITY AIR SERVICE ENDEAVORS

The provision of air service to smaller communities has always been a challenging objective for governments, air carriers, and representative constituents. By its very nature, air transportation services tend to be concentrated at the larger cities and metropolitan areas due to the larger potential traffic volume and resulting revenues. Historically, efforts to expand air transport provision to smaller places have met with mixed results. Moreover, the Airline Deregulation Act (ADA) of 1978 permitted air carriers to withdraw service from any community. Since 1978, many smaller communities have witnessed a substantial deterioration and degradation of air service, with many experiencing complete abandonment. This has happened despite initiation and operation of the Essential Air Service (EAS) subsidy program that was to provide a minimum level of service to those places that had received scheduled air service prior to deregulation. The **U.S.** Congress, the **U.S.** Department of Transportation (DOT), states, local governments, and small community airport authorities have all developed various programs and initiatives designed to maintain and/or enhance air service to smaller communities. It continues to be a challenging problem.

3.1 History Of Small Community Air Service'

Small community air service provision was recognized as an important issue soon after scheduled airline service became regulated as part of the Civil Aeronautics Act of 1938. One of the objectives of air service regulation was to ensure that each certificated "trunk" air carrier had a mixture of larger and smaller market routes, so that the airlines could cross-subsidize profits from larger markets to maintain air service to smaller places. In 1944, the Civil Aeronautics Board (CAB) initiated its "local service experiment" which was intended to expand air service to smaller and more isolated communities of the country, despite the fact that the "traffic potential at small cities is not encouraging" (CAB 1944; Eads 1972). The CAB implemented Section **406** subsidies to enhance small community air service and maintained stringent exit requirements on smaller routes. The original nineteen "local service airlines" providing this service were eventually winnowed down to six (Allegheny, Frontier, Ozark, Piedmont, Republic, Texas International) by the time deregulation began. Furthermore, the role of these airlines changed dramatically over the years from providing predominantly short-haul, low-density service in smaller markets to increasing provision of longer-haul, higher-density service in larger markets. Over time, these carriers evolved into "regional" or even "mini-trunk" airlines. It was clear that the profit potential was much greater for the larger markets, and these airlines consistently sought a greater mix of those markets.

Following World War TI, "air taxis" began providing uncertificated scheduled service using small aircraft (with fewer than 57 seats). The air taxis were eventually known as commuter carriers, and have become the main small community service providers during the era of deregulation.

In 1978, **U.S.** Congress promulgated the ADA that removed CAB regulatory authority over entry, exit, fares, and mergers. Constituents from many small communities feared that free exit from any route might result in a severe deterioration or even a total loss of service for many

[1] **Much** of **this** portion **is based *on* Goetz (1987)** and **is used by permission.**

small towns. In order to mollify small town apprehensions, the ADA included provisions for guaranteed EAS to all communities on the 1978 certificated route network. The CAB originally defined EAS as being two daily round trips, five days a week, or the level of service that existed in 1977, whichever was less. Subsequently, EAS has been defined as two daily round trips, six days per week, with not more than one intermediate stop on each flight to a hub airport (GAO 2000).

Other provisions of the ADA allowed small commuter airlines to become a more viable part of the national air transportation network, especially regarding small city service. Commuter airlines would be allowed to coordinate ticketing and baggage with major and regional airlines in order to streamline operations. They also would be eligible for the Federal Aviation Administration (FAA) loan guarantee program. Commuter airlines were thus expected to fill the void left by the anticipated reduction of major and regional airline services to small cities.

Despite these assurances, problems surfaced in response to the early service of the commuter airlines, including quality of service, safety, and financial fitness. Many commuter aircraft have been small, unpressurized, turbo-prop or propeller planes with capacities ranging from 8 to 56 passengers. Many have been without basic amenities, such as washrooms, and there usually were no flight attendants on board. Commuter carriers have not been able to match the safety record of the majors, while the financial fitness of some commuters operating small town routes has been dubious. Numerous small towns have witnessed successions of commuter carriers starting up and folding regularly, thus resulting in patterns of erratic service.

Especially since the institution of deregulation, small community service has been a particularly problematic issue. Most of the studies that have appeared to date indicate that smaller communities have had decreases in basic service levels, although conclusions vary as to the extent and significance of the decreases.

3.2 The Federal Essential Air Service Program

To maintain air service at smaller communities once deregulation took effect, the **U.S.** Congress enacted the Essential Air Service (EAS) program as a part of the 1978 Airline Deregulation Act. Originally designed to be a IO-year program, it has since been extended by Congress. The objective of the program is to provide a minimum level of air service to those places that had been receiving scheduled air service prior to the beginning of deregulation. The **U.S.** Department of Transportation (DOT) administers the EAS program by awarding subsidies to carriers willing to provide service to communities that would otherwise not receive it (GAO 2000). In 1994, Congress imposed additional criteria that prohibits DOT from providing subsidies for service to communities: 1) located within 70 highway miles of a medium- or large-hub airport, or *2)* that require a subsidy of more than $200 per passenger.

Since 1978, the number of communities benefiting from the EAS program has steadily decreased, even as the dollar amount of subsidy has increased. This is particularly true since 1996, when the FAA instituted the Commuter Safety Initiative imposing new safety requirements on commuter airlines, thus increasing costs. Since the number of passengers utilizing service supported by the EAS program has also declined, the subsidy per passenger has increased in recent years. Some of the decline in passenger traffic is attributable to the

availability of low-fare jet service at other airports within driving range of EAS communities (GAO **2000).**

3.3 Selected State Initiatives[2]

Under examination here are some of the programs implemented in several states. These programs offer insight as to their particular successes or failures. Knowledge of these programs will help the SCAT project team to define better approaches. The following provides a summary of some statewide programs related to commercial air service.

3.3.1 Iowa

Iowa [provides funds to its] commercial service airports to implement public awareness programs to enhance air service. The state recently appropriated funding for [these] airports to improve infrastructure such as terminal buildings.

3.3.2 Maine

The Maine Department of Transportation, Air Transportation Division [ATD] conducted an intrastate and interstate air service study. The intrastate air service study examined the needs of small communities throughout Maine to be linked and have access, at some point, to the national air transportation system. Although the State has not acted directly to fund or impact airline service for the intrastate system, the recommendations from this study were used as the basis for an instate carrier, Pine State Airlines, to develop an instate routing. This routing linked the most northern cities, Frenchville and Presque Isle, with the capital, Augusta, and then on to Portland, the major business center of the State. On the behalf of Portland and Bangor, the [ATD] funded the development of a marketing package for the two airports to approach Delta Air Lines regarding Atlanta service. **...**

3.3.3 Michigan

[The] Michigan Department of Transportation, Bureau of Aeronautics has undertaken an expansive air service program to help stabilize and expand commercial air service in the state. The program has three categories of projects that are eligible to receive state funding. The capital improvement and equipment category allows air carrier airports to apply for funding for projects that are not eligible for other grants such as terminal improvements and security equipment. The carrier recruitment and retention category provides funding for studies to identify and document air service needs, including identifying state and local subsidy needs that may be necessary to preserve or increase air service. The airport awareness category provides funding for projects that promote public awareness and increase community involvement related to air carrier service and the role of the airport in the community. However, only airports enplaning more than 150,000 passengers annually are eligible **....**

[2] This portion taken from the 1999 Mississippi Statewide Airports Study, Pages 5-128ff. Used by permission of the Mississippi Department of Transportation.

3.3.4 Minnesota

The Minnesota Department of Transportation (MnDOT), … has an active program … working with 11 Minnesota cities to develop a campaign for local air service promotion. Funding for this campaign was appropriated in 1997 by the … State Legislature [directing] MnDOT to determine the best method to enhance air service in the state. The program provides funding for advertising and marketing, as well as provides a matching grant to communities conducting air service analyses and airport-specific marketing. While not specifically coordinated …, the state's marketing program has provided an opportunity to capitalize on Northwest Airlines' Fly Local promotion [setting] specific "add on " fares for Minnesota cities serviced by Northwest Airlink … to analyze if having low add on fares helped stimulate traffic in the smaller markets. These fares allow passengers from the Minnesota spoke airports to fly to Minneapolis and connect to a flight to their final destination for a slight additional fare versus the nonstop fare that would be available from Minneapolis to the final destination. [In the] program, cities can apply for air service promotion grants [and] the State has implemented … a program that can be used by the local communities to promote … the local airport [with] TV, radio, and newsprint ads and a brochure. …

3.3.5 North Dakota

Through … the University of North Dakota's Aerospace Foundation (UNDAF), the State helped to support additional airline service to many communities…. UNDAF operated … a training program for China Air pilots, wherein a training pilot worked as a first officer in a Beech 1900 for Great Lakes Aviation/United Express. As part of this program, China Air actually paid a subsidy to Great Lakes for the pilot training [thus reducing] airline costs so Great Lakes could provide additional service to a new hub (Denver) from many of the communities. The program lasted approximately two years [with its demise] traced to problems with pilot graduation and lags in new class starts. North Dakota Aeronautics Commission also worked on the behalf of its communities to market new airline service from Frontier and American [and] acted as a liaison between the carrier and the communities … to provide seat guarantees to the carriers. The Commission has also developed marketing programs … and a chamber flyer...

3.3.6 South Dakota

South Dakota conducted an air service study in the late 1980s. This study analyzed both intrastate and interstate air service issues. To address the intrastate air service needs, the State set out to maintain an airline to serve these needs. Based on results from the air service study, intrastate routes were developed. The State contracted with GP Express, a regional carrier, to provide the service... The service was linear in nature, connecting many smaller cities [but] after six months, … was cancelled due to significant financial losses and limited ridership.

3.3.7 Vermont

While Vermont does not have a standing air service program, the state legislature did fund a three-month subsidy to a new commuter airline for start-up purposes. The state also actively pursues new service opportunities …though airline contacts and … state economic development and tourism offices.

3.3.8 Virginia

The Department of Aviation provides up to $20,000 a year for commercial service airports as a matching grant to assist airports in enhancing or attracting additional airline service [and can] be used to attract Part 135 operators.... The state also conducts statewide air service analyses.

3.3.9 Wyoming

The Aeronautics Commission provides air service marketing grants [as] matching funds up to $15,000 for airports to conduct local advertising or marketing or to initiate marketing to a new airline. [A] fly local program started with a statewide study but has expanded as a continuous program. Two recent promotions ...were aimed at travel agents and provided them with an incentive to book airline tickets from their local airport. These programs were done in concert with the airports with restaurants and local chambers of commerce providing assistance to purchase the incentives.

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SECTION 4: AIR SERVICE DEMONSTRATION ACTION PLAN

4.1 The Overall Strategy

The proposed project will research, demonstrate, and validate a unique method of providing safe, comfortable, efficient, and sustainable airline service to small communities with low passenger-density routes. The proposed air service will provide small communities with connections to distant airports and hubs through scheduling that is dictated by local air service needs.

The demonstration project will acquire, equip, and deploy a Piaggio P-180 aircraft to provide the required local air service. The aircraft, modified to an appropriate airliner configuration and leased to a qualified air operator, would provide scheduled service on selected, complementary, low passenger-density routes from the demonstration airport(s). This service would be marketed through a code-sharing relationship with a major airline with ticketing available worldwide via standard industry and agency protocols.

It is anticipated that the results of the research and demonstration project will clearly demonstrate significantly improved air service for small communities and also validate the economic benefits and practicality of utilizing efficient, high-speed, small airliners to provide air service to small communities on their low passenger density routes. The success of the demonstration will be proved by the economic sustainability of the air service without subsidy and with all demonstration activities terminated or transitioned to exclusively commercial air operations after the three years of the SCAT project.

4.2 Demonstration Project Research and Tasks

An effective research program that monitors and analyzes the performance of this demonstration project while in progress is a necessary component in ensuring success. With frequent and comprehensive monitoring, useful information will be provided to the operation through the team to improve service performance.

This project also represents an opportunity to study how the processes of business planning, decision-making, and analysis relates to the start-up of air service to a small community. The experience gained and lessons learned from this project will be relevant to many other smaller communities faced with similar problems in providing air service. The research component will thus chronicle and analyze important decisions made and actions taken within a case study format so as to document the process by which this project unfolded.

This study will evaluate the legal/regulatory issues small community airlines face including business principles, economics, finance, planning, operations, marketing, distribution, pricing, labor, cost containment, and alliances. Relationships with airports, travel agents, computer reservations systems, and government also will be explored and regulatory and policy issues involving safety, antitrust, licensing, finance, and employment examined. The resulting "how to" handbook will identify the strengths, weaknesses, successes, and lessons learned over the course of the project.

The market research portion of the study will focus on a key element in the success of any service: the customers. Interviews and surveys of passengers and potential passengers will determine what they expect of air service in this market, how that compares to the service they receive, and how that affects their choices in using air services.

Interviews and a continuing panel will establish a baseline assessment of air services and service needs. Then, use of the interview, panel, and survey data will continually monitor the customers' perceptions of the service they receive and how it fits their needs. With the panel, we will be able to assess their transportation choices throughout the course of the project, whether they take the demonstration aircraft or not. With the survey responses, we will be able to assess the service from the perspective of those who are using it.

By identifying and acting on those market variables that contribute to the success of the demonstration, travel will become more efficient, more convenient, and more comfortable than current options allow. While the primary benefit will be to those in the community who have a need for reliable air transportation service, the demonstration study will also benefit other small communities of similar size and scope to the demonstration airport(s). By conducting appropriate market research, we will identify and describe potential markets/segments that would be apt to utilize the SCAT concept—thus increasing the chance of success in new markets.

4.2.1 SCAT Air Service Demonstration Plan

Upon award of the project grant, the first effort will be to develop a comprehensive project plan wherein each task is identified and responsibility will be assigned to a specific party for managing and executing that task. Written descriptions of each task will be prepared and a detailed project schedule will be constructed to define the time relationship of all tasks.

The first major activity will be to collect pertinent air service data from the local air carriers, travel agencies, and related sources. These data will be analyzed to determine the routes that are underserved. From these air service data, the demonstration team, working with the local airport authority and the community leaders and business representatives will determine the air route to the targeted destination city or hub. Immediately following the identification of the destination city or hub, the SCAT team will start work to locate a second small city or community that needs air service and that could be supplemented by the SCAT demo airliner. The ideal route distances for the first route from the local community to the destination city or hub would be from 1.5 to 2.0 block hours (BH). Based on two round trips per day, this would result in an airliner utilization of six BH to eight BH per day. The second route will need to be about 1 to 1.25 hours in length to give a total airliner utilization of about 10 BH to 13 BH per day. This degree of airliner utilization will require four full-time flight crews to provide quality service and meet FAA criteria.

While the air service routes are being identified, negotiations will be conducted to acquire the demonstration airplane and make arrangements for the required modifications. It is estimated that it will take six to eight weeks to make the modifications. Following modification of the airliner, the unit will be checked out by Global Aircraft and then flight tested to validate weights, loading schedules, and performance data required to meet FAA operational requirements.

While the airplane is being modified, the air service team will identify the air service operator, initiate approvals for the proposed air service, and identify the support crews and flight crews for the initial air service. Training of the crews will be initiated about eight weeks prior to start of the demonstration air service. After the crews have been fully ground qualified and flight qualified, several proving flights will be made on each route to verify that all systems and personnel are ready for regular air service.

During the first two months of the project and after the routes have been identified, Diversified Business Enterprises, Inc. will negotiate ground service and code sharing agreements with major airlines where possible. In locations where ground support and/or code sharing is not available, the team will make plans to implement such service on an in-house basis.

The actual SCAT air service demonstration will be implemented about three months after award of the demonstration grant. Initial air service will be on the first route from the local community to the selected destination airport or hub and return. It is anticipate two round trips will be flown each day for a total utilization of six BH to eight BH per day. Air service to the small community beyond the destination city will be initiated as soon as possible; however, will likely take four to six weeks after the initial air service demo is started.

The demonstration team and the local community will conduct an aggressive advertising and promotional program to gain early acceptance of the SCAT air service and to build loyalty among local air travelers.

The *air* demonstration service will be continued through the second and third year while the MSU and University of Denver researchers conduct the marketing and transportation research and work on development of the SCAT Model Implementation Plan. The SCAT Model Implementation Plan will become a valuable tool for small communities interested in establishing their on SCAT air service.

4.2.2 SCAT Demonstration Market Analysis and Research

A key component of a model for analyzing a community's potential for air service is the market. We will examine published, secondary data to help qualify communities in considering this form of air service. We will also demonstrate a process for maintaining and developing a service that meets the needs of key constituencies -- the portions of the market that will contribute most to making the service not only viable, but self sustaining.

The research proposed will establish the model marketing program for other small communities that undertake this form of air service. It will demonstrate how to maintain close contact with the primary market for the service, which is the frequent business and organizational traveler.

We propose to study marketing aspects of the small community air service development pilot program through two interrelated research agendas. Once the demonstration project is in place, we will conduct a longitudinal, on-going survey of customers to determine whether the project has accomplished and it continuing to accomplish its primary goal in this small community: more convenient and more comfortable air transportation service than current travel

offerings. We will also determine the likelihood of success of the new airliner in other similar small communities that have a need for improved air transportation service. This will include an examination of funding/revenue sources for start-up, sufficient market base for continued viability, and a need assessment to assure that the project adds value for the prospective market.

First, we intend to take a phenomenological approach to gaining insight into the mind of the business air traveler. Depth interviews, one to two hours long, one-on-one, with fifteen frequent air travelers will be transcribed, and then analyzed to identify common themes and topics. Qualitative research methods such as the phenomenological interview and content analysis are appropriate to use for attempts to uncover what lies behind any phenomena about which little is known (Strauss 1990; Thompson, Locander, and Pollio 1989; Sanders 1982). Methods such as these have been used in various studies that sought to understand various consumer motivations (Otnes, Lowery, and Kim 1993; Hirschman 1992). It is crucial to the success of a demonstration that we understand the difference between the new service and the existing service in the minds of members of the core market.

In this study, the depth interview method will be employed in order to better understand consumers' motivations in choosing air service. From the data gathered, we will be able to assess when and why these business travelers are likely to choose the services of a larger airport, a community airport, or the proposed air service project. The results will be used to make any changes or improvements to the customer service level offered by the project.

These fifteen air travelers will be asked to continue with the project as a service evaluation and advisory panel. They will meet as a focus group in six month to one-year intervals. They will reassess the service, describe their use of the service, and serve as an on-going customer advisory board for the project. They will reassess the service as a group, usually before or after a dinner or luncheon, their reward for continued participation. Themes identified in the depth interviews will be discussed at these meetings as well as any new, emerging themes that underlie air travel. From these focus group sessions, we will be able to uncover any service problems experienced with the demo project.

Panelists will include business/organizational travelers who fly at least 12 times a year out of the demonstration airport(s), representing a notable portion of the market in themselves. They become a **part** of the marketing program, especially through positive word-of-mouth.

The second study will investigate the "servicescape" environment (or the physical surroundings associated with the travel service) of the demo project compared to larger airports and the current service offerings of our community airport. Prior research suggests that the physical setting may influence the customer's ultimate satisfaction with the service (Bitner 1990). This research (Bitner1992) proposes that for customers, positive responses to the servicescape will lead to behaviors such as service patronage, loyalty, and positive word-of-mouth. By conducting surveys of travelers who use the demo project, we will be able to empirically examine such proposed relationships. Results from these surveys will allow the project managers to assess their performance and make any changes or improvements that are necessary. The survey instrument will also contain questions regarding travel from larger airports, so a comparison of the project performance with the performance of the larger airport will also be determined.

The results of the marketing studies will be put into the context of the overall business model for the project, which will be developed based on secondary data, the experience of the project, financial flows and revenue sources, and comparative analysis of this service to other services offered in the community. The research will incorporate the flyers' experiences of related services, such as ground transportation, to the extent that they experience it. The primary focus, however, will be on the flights themselves.

A doctoral student will manage data, handle the administrative duties associated with the panel and the survey, and maintain contact with research subjects and sources. Several hundred responses to the survey are expected over the course of the study. The transcripts of the initial interviews and follow-up meetings with the panel will provide extraordinary value to the project. The results **will** be reported through the project at six month intervals, with a final summary report at the end of three years.

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4.2.3 SCAT Demonstration Monitoring and Analysis Research

The demonstration project provides a unique opportunity to study and analyze the process by which decisions are made relative to starting up air service for a small community. The type of aircraft to be utilized in this project is distinctly different in terms of seating capacity and operating costs from the typical aircraft used by commuter air carriers in smaller markets.

Since existing air carriers seem reluctant to deviate from established patterns of air service provision, this project represents a bold initiative that may signal a new approach to providing high quality air service to small communities in an economically sustainable manner. For this reason, the process by which this project evolved needs to be chronicled in a case study

format. Such a case study will be of particular benefit in perfecting the **SCAT** Model Implementation Plan for other small communities.

Comprehensive data on the demonstration and the associated operations including the air operations will be collected and analyzed and will include the following.

Financial analysis: The research will evaluate how the operation/operator is capitalized, and what portion of operating costs is covered by subsidy vs. ticket sales. It will examine the sources of revenue and costs, and attempt to evaluate how subsidies may be reduced through more efficient and productive operations. The study will endeavor to identify cost-savings measures and revenue enhancement opportunities.

Operational analysis: The research will evaluate on-time performance and reliability, passenger demand for routes served based on industry data of traffic flows, and actual sales on the demonstration project flights, as well as consumer satisfaction with the service.

Service analysis: The patterns of air service at the demonstration airport(s) will be closely monitored and analyzed within this project. Numbers of flight departures, seating capacities, passenger traffic, leading markets, and fare levels will be recorded throughout the study period. Updated analyses will be conducted on a quarterly basis, while a more comprehensive analysis will be conducted yearly.

The service patterns at the demonstration airport(s) will be compared to those at the other commercial service airports in Mississippi, as well as a sample of smaller market communities in the Southeast and other U.S. regions. The yearly comprehensive analysis will involve the identification of key factors and variables influencing patterns of air service. This service analysis will constitute one of the important inputs in the monitoring and feedback portion of the study.

Intermodal analysis: Part of the data collection effort will involve monitoring the origins and destinations of airline passengers at the demonstration airport(s), and recording the mode of travel to and from the airport. The purpose of this activity will be to analyze changes in the geographic range of the market area from which the demonstration airport(s) draws its passengers, and to analyze changes in intermodal conveyance to the airport. Results from the demonstration airport(s) will be compared to results obtained from other airports in Mississippi, **as** well as results of surveys from smaller community airports throughout the U.S.

TASK	TASK DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Detailed Project Planning Doc.	X	X	X			X			X			X		X		X		X		
2	Identify Demonstration Routes	X	X	X	X	X	X														
3	Financial Start-Up Data	X	X	X	X	X	X														
4	Financial Analysis & Proj. for Demo	X	X	X	X	X	X														
5	Pricing of Fares & Promotions	X	X	X	X	X	X														
6	Acquisition of Demo Airliner	X	X																		
7	Modification of Airliner		X	X	X																
8	Training Flight & Support Crews			X	X	X															
9	Negotiation of Code Sharing		X	X	X																
10	Advertising & Promotion of Demo Service		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
11	Marketing Research Project A: Panal	X		X			X						X				X			X	X
12	Demonstrtion Air Service				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
13	Marketing Research Project B: Survey			X		X		X	X	X	X	X		X	X	X	X	X	X	X	X
14	Evaluation of Demo Air Service	X	X	X	X	X	X														
15	Intermodal Analysis & Opportunities	X	X	X	X	X	X														
16	Evaluation of Aviation Technology Applicable to Small Airliner								X	X	X	X									
17	DOT Review Meetings		X					X					X		X		X		X		X
18	Model Air Service Implementation Plan				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
19	Progress Reports			X			X			X			X	X	X	X	X	X	X	X	X
20	Final Report (Annual & Project)												X				X				X

4.4 The Role of the Partners

4.4.1 The University Team

The NClT unit of MSU will coordinate the MSU and University of Denver (DU) research components of the project with the DBE Team, which is responsible for oversight of air operations. NClT, as a US DOT-qualified University Transportation Center, will assist with Federal promotion of the project, market research and analysis, project monitoring and analyses, and economic review and evaluation to derive an optimal business model for providing sustainable air service to smaller communities. It is proposed that the MSU Research and Technology Corporation own the demonstration aircraft for this project.

4.4.2 The Private Sector Team

This team will be responsible for coordination and oversight of air operations, aircraft and project management, and ACMI (aircraft, crew, maintenance, insurance) Air Operator, Government, Research, and Community liaison.

- Global Aircraft Corporation will provide project planning and management services, oversee airplane acquisition and modification, and provide engineering analysis/services related to incorporation of new aircraft technology into small airliners.
- Diversified Business Enterprises, Inc. (DBE) – DBE Team Leader (for the Private Sector), operational & safety oversight, overall project strategy & technical planning services, ACMI air operator liaison, and aircraft management.

4.4.3 Demonstration Airport(s), Constituent Communities, and Economic Development Entities

These can develop community consensus on fares and air service pattern requirements, engage in local community promotion of this service, and the economic development agencies and their private sector partners will contribute financial support for this demonstration.

4.4.4 The A.C.M.I. Air Operator and any Code-lending Major Airline

This entity provides contract air services with responsibility to train, qualify, and schedule crews, maintain and operate the demo aircraft per FAA regulations, insure the aircraft, owner and related parties per DOT requirements, and conform to DOD Quality & Safety standards.

Depending on the desired service pattern, an additional team member is likely to be one or more of large, code-lending airlines. In a code-sharing arrangement, these entities will provide the connectivity with the international scheduled air transportation network through their relationship with the industry computerized reservation, timetable, and data systems thus facilitating ticketing through internet portals and travel agencies worldwide.

SECTION 5: THE PUBLIC + PRIVATE DEMONSTRATION PARTNERSHIP

Coordinated by Mississippi State University (MSU), our partnership includes airline and aviation professionals from Diversified Business Enterprises, Global Aircraft Corporation; transportation experts and researchers from the University of Denver and MSU through the National Center for Intermodal Transportation; community economic development leaders to include the Oktibbeha County Economic Development Authority and the Columbus-Lowndes Economic Development Association. This public plus private sector partnership assembles significant resources and expertise to ensure the success of the proposed project.

5.1 University Resources

The research program at MSU is ranked by the National Science Foundation as 58th among universities in science and engineering research and as 37th among all US institutions in research and development expenditures in engineering. MSU is on track to meet a goal of ranking among the top 50 public research universities. The NSF Engineering Research Center (ERC) at MSU, established among the first three created in the South along with those at Duke and North Carolina State, is one of only a few in the nation that has "graduated" from NSF funding to become self-sustaining. In addition to the ERC, MSU operates over 25 centers and institutes including the MSU unit of the National Center for Intermodal Transportation.

5.1.1 National Center for Intermodal Transportation

The National Center for Intermodal Transportation (NCIT) was founded in 1998 as a University Transportation Center sponsored by the United States Department of Transportation. NCIT is a major national resource for educational, research, and technology transfer activities involving intermodal transportation. The NCIT and its studies is a collaborative partnership between two universities, the University of Denver (DU) and MSU, and multiple disciplines within each university including business, law, engineering, and science.

The NCIT educational programs instruct and inform students about an intermodal transportation system from the precollegiate level to the professional level on topics from airport planning and design to transportation law. By working with and connecting to both the public and the private sectors, NCIT conducts basic and applied research in areas of concern to the intermodal industry and to scholars in the field. In addition, NCIT has an active program of technology transfer to infuse research findings and results into the transportation community. Through NCIT, the results of the SCAT project will be rapidly disseminated at the Transportation Research Board and other national, regional, and local transportation conferences; transportation trade and research journals; and at MSU and DU in their transportation education programs.

Over the course of the SCAT project, NCIT will likely collaborate with faculty associated with the Mississippi Transportation Research Center and the Raspet Flight Research Laboratory at Mississippi State University, and the Intermodal Transportation Institute at the University of Denver.

5.1.2 Mississippi Transportation Research Center

The Mississippi Transportation Research Center (MTRC) was established in 1997 with funding provided by the Mississippi Department of Transportation (MDOT). MTRC is designed to work closely with MDOT division heads to administer university research projects from across the state. Faculty in the MSU Department of Civil Engineering along with faculty throughout the state university system are conducting MTRC-sponsored transportation engineering research focused on materials, construction, environment, airport planning, and intermodal design.

5.1.3 Raspet Flight Research Laboratory

The Raspet Flight Research Laboratory (RFRL), an integral part of the MSU Department of Aerospace Engineering, is located at Bryan Field, Starkville MS. RFRL is the largest and best-equipped university flight research facility in the country. Since 1948, the lab has been active in aerodynamics research, composite prototype development, and flight testing. The current fleet: Commander 690, Piper Twin Comanche and Aztec, Beech A-36, Cessna Agwagon and 310, Gulfstream Tiger, MSU Marvel II, Schweizer 2-32, Caproni A-21J, and Stearman biplane.

5.1.4 Mississippi State University Research and Technology Corporation

It is proposed that the MSU Research and Technology Corporation maintain ownership of the demonstration aircraft for this project. The MSU Research and Technology Corporation is a 501(c)3 corporation thus providing opportunities not otherwise available to state universities and facilitating the unique and important relationships between MSU and industrial affiliates.

5.1.5 Intermodal Transportation Institute

The Intermodal Transportation Institute (ITI) was established in 1991 as the University of Denver Center for Transportation Studies to promote the vision of sustainable transportation systems worldwide. In 1996 the name was changed to reflect more specifically its concern with the development of an intermodal system that was consonant with the goals of sustainability. ITI combines the substantial faculty expertise from across the academic units with the administrative support of the University and a strong and effective Board of Directors that consists of international leaders and pioneers in the intermodal transportation industry.

5.2 Private Sector Resources

5.2.1 Diversified Business Enterprises, Incorporated

Diversified Business Enterprises, Inc (DBE), an aviation consulting entity incorporated in 1993, has over 30 years of aviation technical and management experience encompassing passenger and cargo operations. DBE principals possess a comprehensive understanding of the Regional Airline Industry and marketplace with specific expertise in airline jet and regional turboprop transport training and operations, aircraft dispatching, and hazardous materials air transport.

5.2.2 Global Aircraft Corporation

Global Aircraft Corporation (GAC) was established in 1993. The staff of GAC has over 40 years of experience in aviation, aircraft development and certification, and aviation research & development. GAC has performed extensive research and development for the FAA, NASA, DOD, USDA, and the U.S. aircraft industry. Over the past eight years, GAC has been a major participant in the NASA Advanced General Aviation Technology Experiments (AGATE) Program. The NASA AGATE Program was implemented to advance technology in the GA aircraft field and aid in revitalization of General Aviation in the United States.

5.3 Community Resources

For air transportation service to be patronized, it must meet the needs of the community it serves. Therefore, we have enlisted the support of the Oktibbeha County Economic Development Authority and Columbus-Lowndes Economic Development Association to work with our research team should the project take place in the Golden Triangle Region. The goal is to not only create sustainable service for the demonstration airport but also to develop a methodology that can be applied by small communities nationwide to design their own sustainable air transportation service.

SECTION 6: FINANCIAL ANALYSIS OF SCAT CONCEPT

6.1 Overview of the SCAT Air Service Operational and Financial Concepts

The SCAT operational concept is to fly 400 to 800 mile routes between small communities and distant destinations and to provide this service at a frequency that satisfies the major air travel needs of the small communities. This entails block times of 1.5 to 2.5 hours using a small airliner with jet-like speeds. The proposed 9-passenger turbo-prop airliner is capable of cruise speeds of 360 to 390 knots and block speeds of 330 to 350 knots. A new model of this airplane would cost ***$5*** million equipped for air service. For the demonstration project, it is proposed to acquire a low-time used unit and modify it for the demonstration air service project.

A major component of the **SCAT** air service concept is that local communities will have a major role in determining their air service routes and frequencies. Obviously, these decisions must be balanced by the cost of fares to maintain sustainable service. To obtain and maintain control over the desired air service, it is proposed that local communities acquire ownership of the airplanes used in the service. This could be accomplished through several means; however, the most likely method appears to be through the use of local bond funds. In some cases, the small community may be large enough to generate adequate air service demand and bonding capacity to acquire the airplane using 100% local bond funds. In other cases, several small communities may form a cooperative air service program with other small communities and jointly issue bonds to acquire the airplane.

In many cases it is likely that the small communities will not be able to obtain high enough utilization of the airplane to reduce fares to an acceptable level if they must pay 100% of the airplane acquisition cost. Preliminary analysis of operational costs for SCAT operations has demonstrated that if the local community pays 50% of the airplane acquisition costs, then the air service operating costs are reduced to a level only slightly higher than existing turbo-prop air service. The slightly higher operating cost will be off-set somewhat by direct flights to desired destinations and shorter trip times.

6.2 SCAT as a Component of the Enhanced Essential Air Service Program

The current DOT Enhanced Essential Air Service Program empowers DOT to match local funding for air service at small communities on a 50:50 basis. Assuming that DOT provided 50% of the cost of acquiring a small airliner for small communities to implement the SCAT air service, many small communities would achieve better air service than currently available, obtain economically sustainable air service to desired destinations, and ultimately make such small communities independent of EAS support from DOT.

While funding of 50% of the cost of acquiring an airplane for local air service may sound expensive, it is not nearly as expensive as the alternatives of no air service or long-term support to the small community through the current EAS Program. In 2000, the average EAS payment to **72** EAS service points in the contiguous 48 states (plus Hawaii and Puerto Rico) was $667,989 with some payments ranging up to $1.3 million. In the last two decades of the Essential Air Service, the program has expended sufficient moneys to buy outright at least 2 of the small,

demonstration airliners for each of the present **72** service points. The proposed **SCAT** air service project is designed to demonstrate an innovative alternative to the current **EAS** program that will provide improved air service to local small communities at a reduced cost to the **DOT.**

6.3 Summary of Air Service Costs for the SCAT Demonstration Project

The estimated cost of air service in the **SCAT** demonstration project will be greatly influenced by stage length and total block hours flown per day. For the proposed demonstration, several potential destinations have been identified that are high percentage destinations for local travelers and will permit stage lengths of 1.5 to 2.5 block hours. The frequency of flights from GTR will be determined, in part, by the match-up with flight banks of major carriers at the destination airport.

Increasing the frequency of service between GTR and the destination airport will not be beneficial if the **SCAT** service does not match the flight banks of major carriers at the destination airport or if the demand at GTR is inadequate to support three or four flights per day. The alternatives to unrequired frequent flights between GTR and the destination airport are: 1) to hold the demonstration airplane at the destination airport to match frequency with GTR demand or **2)** to develop **SCAT** service with other small communities that also need air service to the selected destination. The first alternative of holding the demonstration airplane at the destination airport increases total operating cost due to under utilization of the crew and airplane to generate revenue. The second alternative provides greater utilization of the crew and airplane thereby reducing costs for GTR and also provides valuable air service to an additional small community or communities.

The proposed demonstration project will be modeled after the second alternative. The plan is to schedule departures from GTR to coordinate with banks of flights for major air carriers at the selected destination airport. Rather, than returning immediately to GTR, the demo airplane will continue to another small community that requires air service to the selected destination airport. The desired length of this route will likely be one to one and one-half block hours each way so that the demo airplane could return to the selected destination airport in time to coordinate with another bank of flights. The airplane will then return to GTR where it will make a quick turn to proceed back to the destination airport and then on the other small community. The return to the destination airport will be coordinated with flight banks in the evening. The final flight of the day will be from the selected destination airport to GTR. It is estimated that such an air service demonstration would require about ten block hours per day and that the service would be sustainable with a fifty-percent load factor.

Projections of operating costs for the demonstration project are summarized in the table below for various block times and based on a fifty-percent load factor. These estimates indicate the cost per air seat mile **(CASM)** of the demonstration small airliner can be comparable to current turbo-prop airliners. The methods used to compute the **CASM** cost of the demonstration airliner and & other regional airliners are presented in the following sections and summarized below.

Table 6.3.1: Effect of Airliner Acquisition Cost on Hourly Operating Cost and CASM

Percentage of Purchase Price	Hourly Cost	CASM
100% of Purchase Price, $5 Million	$785	$0.3401
50% of Purchase Price	$656	$0.2842
0% of Purchase Price (Demo Airplane)	$573	$0.2483

6.4 Derivation of Productivity and CASM Costs for Regional Airliners

The operational characteristics of several regional airliners have been analyzed to determine how the size of the airplane, block speeds, route distances and operational costs effect the Cost per Air Seat Mile (CASM) of each airplane. The CASM cost for several regional airplanes has been computed using data extracted from DOT Form 41; **YR** 2000, Quarters **2, 3,** and **4** and the 2001 Business and Commercial Aircraft Handbook. The CASM cost for three typical regional airliners and the proposed 9-passenger Demonstration Airliner are summarized in the following tables. The information provided in this section is intended to give the reader/evaluator a broad understanding of the operating characteristics of the subject airplanes and the methodology used to derive the CASM costs.

TRAVEL TIME COMPARISON *

AIRCRAFT	BLOCK SPEED - kts	1.5 hr Range - nm	2 hr Range - nm	2.5 hr Range - nm
Demo Airliner**	343	520	690	855
B1900D	268	400	540	NA
CRJ	460	690	920	1150
EMB120	310	465	620	775

* Speed from B/CA **PPH** 2001 and based on interpolated block speeds derived from 300 nm and 600 nm missions. Range is based on speed.

** Demo Airliner based on listed data for the Piaggio P-180.

AVAILABLE SEAT MILES / DAY (ASMs)

AIRCRAFT	TOTAL ASMs x10,000	~~ASMs / SEAT x1000~~
EMB120 (30)	3.69	1.23
Demo (9)	2.30	2.55
B1900 (19)	2.33	1.23
ERJ135 (37)	8.43	2.28
CRJ (50)	18.70	3.77

Data from DOT Form 41; YR2000, Quarters 2, 3, and 4

Derived information blended to properly weight the extremes using the following formula:

ASMs = [Average of (Mean departures per day + median departures per day)] x [Average of (Mean stage length + median stage length)] x number of aircraft passenger seats

	Departures	x	Staae Lath	=	ASMs/seat	x	Seats	=	/(y
B1900	6.3	x	195	=	1229	x	19	=	23342
ERJ135	5.7	x	403	=	2278	x	37	=	84279

NOTE: ERJ ASM Production calculation above utilizes ERJ135 and ERJ145 Average departures and Average stage lengths for additional data.

The **ASMs** of the ERJ135 were adjusted to estimate the **ASMs** for the 9-passenger demo airplane by the ratio of seats in the demo airplane to the seats in the ERJ135. *An* Enhanced Turn Time Factor (ETTF) was computed for the demo airplane due to shorter time required to unload, load, and service the smaller demo airplane, The shorter **turn** time for the demo airplane will contribute to its ability to generate more **ASMs** per day as shown below.

	ERJ135 ASMs	x	9/37th seats		ETTF (See note) =	ASMs/day / 9 = ASMs / seat
Demo ASMs =	[84279	x	0.243	= 204801	+ 2485 ASMs =	22965 ASMs/day / 9 = 2552

NOTE: ETTF (Demo) = [Enhanced Turn Time Factor = 7.5 min. of ERJ ASM /departure @ bk speed (343kts = 395 mph)] = [(0.7 hrs x 395 mph) = 276], [(276 x 9 seats) = 2485 ASM adjustment for Demo enhanced turn time]

DETAILS OF CASM C(

A/C TYPE	CREW	FUEL/OIL	RENT	DEPR.	INS.	TX	MAINTENANCE DIRECT	MAINTENANCE BURDEN	OTR	TOTAL A/C	BW DAY	DAILY COST	ASMs /DAY	COST /ASM
1900	164	129	**190**	9	5	8	169	67	22	**763**	**7.85**	**5990**	23342	**0.2566**
ADJUST	x 0.92	x 0.85	x 0.66	x 0.66	x0.5		x 1.10	x1.4						
Demo	**150**	110	125	6	3	8	186	94	22	**704**	**9.95**	**7005**	22965	**0.305**

CREW COST -- We expect a minimum of 8% savings over the baseline. This is NOT due *to* reduced Captain costs, but due to anticipated use of academic interns in the F.O. role and due to reduced training costs under part 135 and for other technical reasons. Since the F.O. is not a required crewmember under most circumstances, we believe it justifiable to retain these pilots on a stipend basis at an assumed modest cost reduction over the baseline.

FUEL COST -- These cost reduction factors are based on 2001 B/CA PPH mission fuel consumption data.

RENT -- This adjustment from the baseline is based on a conservatively reduced value of the acquisition cost and therefore assumed lease costs. This may be further reduced by innovative community-based ownership plans.

DEPRECIATION-- This is adjusted to be proportionate to the acquisition costs.

INSURANCE-- Considering that the highest premium is paid for liability and that is based on 'exposed aircraft seating capacity', we regard it as conservatively justifiable that the premium would be less -- although not half -- for a 9-seat airliner than for a 19-seat airliner.

MAINTENANCE-- These adjustments are based largely on B/CA 2002 OPG data comparing the King Air 350 -- very similar to the B1900 -- with the P-180, and their respective powerplants;

BLOCK HOURS/DAY -- Based on Form **41** data for baseline B1900. Demo hours are based on ERJ Form 41 data with additional available block time from the ETTF factored into ASM production calculations.

Using the methodology outlined above, the average **CASM** costs for the regional airliners and the demonstration 9-passenger airliner were computed and summarized in the table below.

COST PER AVAILABLE SEAT MILE (CASM)

AIRCRAFT	COST/ ASM (CENTS)
Demo **Airliner (9)**	**0.305****
81900 (19)	**0.257****
ERJ135 **(37)**	0.103 *

* Data from DOT Form **41,2000,** Quarters 2, 3, and 4
Derived information blended to properly weight the extremes using the following formula:
Average of {[(CASM **2Q2000** + CASM 3Q2000 + CASM **4Q2000)** / 3] + Median CASM}

** B1900 CASM is from blended Form **41** Jetstream and B1900 block hour costs. Demo CASM is factored from the nine cost parameters of the resulting baseline B1900 block hour cost. Each parameter is individually adjusted as indicated in the following table according to conservative but justifiably indicated differences based on information and estimates.

*** Demo Airliner CASM based on listed data for the Piaggio P-180, 9.95 Block Hours per day, and adjustments for crew cost, fuel consumption, and maintenance costs.

It should be noted that the above estimated CASM cost of the 9-passenger demonstration airliner is based on cost comparisons of larger regional airplanes and average block times per day for those operations. The adjustments for crew cost, fuel consumption, and maintenance costs for the demo airliner are based on data for turbo-prop airplanes. Thus the estimated CASM for the demonstration airliner is considered a reasonable estimated average CASM based on utilization of 9.95 block hours per day and rental and depreciation costs comparable to the other regional airliners. The actual cost will be strongly influenced by crew costs, airliner rental cost, and depreciation that are related to both daily and annual utilization of the small airliner. Thus, the above computed CASM cost is a reasonable average cost to compare to other regional airliners. The effect of actual airplane operating block time and ownership costs are discussed in Section 6.5 and Section 6.6

6.5 Substantiation of CASM Cost for Demonstration Airliner

It is proposed that the demonstration airliner will be purchased with demonstration grant funds so that no ownership costs will be incurred in the demonstration project. The B-1900 airliner has an average ownership cost that is 26% of its hourly operating cost that is typical for turbo-prop airliners and is a major factor in determining hourly operating costs. By purchasing the demonstration airliner with grant funds, the cost of ownership is eliminated and the hourly operating cost is reduced accordingly. The reduced hourly operating cost of the demo airliner will permit the demonstrated air service to break even with a lower load factor and will also strongly contribute to the sustainability of service after the demonstration project is completed.

To implement a SCAT air service operation at a typical small community, it may be necessary for the community to pay part or all of the airliner acquisition cost. A new 9-passenger airliner is estimated to cost $5 million based on current prices of the Piaggio P-180. The cost of ownership has been computed for several ownership scenarios. The first is based on the local community paying 100% of the purchase price and financing the purchase with bonds payable over 15 years. The second scenario assumes the local community pays 50% of the purchase price with the balance being paid by another community(s) or the DOT Enhanced Essential Air Service Program. The final scenario is for the demonstration airliner where the purchase price is paid by the demonstration grant. The resulting ownership costs were used to

compute the CASM cost for the demonstration project and the other scenarios. The ownership costs and CASM costs are computed in the following tables and summarized in the table below.

Percentage of Purchase Price	Hourly Cost	CASM
100% of Purchase Price, $5 Million	$785	$0.3401
50% of Purchase Price	$656	$0.2842
0% of Purchase Price (Demo Airplane)	$573	$0.2483

It should be noted that the assumed airline service life of 20,000 hours for the proposed demonstration airplane is conservative in terms of the total useful life of the airplane. Both the Piaggio P-180 and the Beechcraft B-1900 (19 Passenger) airplanes are FAA certificated under Federal Air Regulation Part 23 that does not have a prescribe useful life for such airplanes. In this class of airplanes, service life is established based on progressive maintenance and inspections and demonstrated useful life. Many B-1900 airliners are currently working with total airframe times in excess of 25,000 hours and some are approaching 30,000 hours. With proper maintenance, it is estimated the B-1900 should have an airline service life of 40,000 hours. In comparison, many larger airliners certified under FAR Part 25 have in excess of 70,000 hours of operation and some are in excess of 100,000 hours.

In general, most airplanes used in airline service have at total life that exceeds the airline service life by 20% to 40%. This is because the cost of maintenance and the maintenance down-time increases operating costs, reduces the dependability of the service to the flying public. Therefore, each airliner reaches a time when it is more economical to replace the airplane with a new unit and sell the old airplane. The used airline airplanes are commonly bought by air freight operators and companies that have much lower utilization requirements for their air service operations and for which on-time scheduling is not critical.

The residual value of used airliners ranges from about 15% of new price for high-time airframes with high-time engines to about 50% for moderate time airframes with low-time engines. A conservative airline service life of 20,000 was assumed in the following computation of operating cost and CASM costs. Since the Piaggio P-180 was not purposed-designed for commercial air service, it is estimated the airplane should provide economical service for 8 to 12 years depending upon annual utilization. At a utilization of 10 block hours per day six days per week, P-180 would accumulate 3,120 block hours per year. FAA Form 41 statistics reveal that airframe hours range from about **70%** to 85% of block hour time due to the time the airliner spends in taxiing, holding, and at reduced power on approach and descent. Assuming a typical value of 80%, a service life of 20,000 hours on the P-180 would equate to 25,000 block hours. Thus, if the 9-passenger airliner was used 3,120 block per year, the airline life of the airplane would be **8** years. The following financial projections are based on an assumed airline life of eight year with the unit being sold at the end of 7.5 years and replaced with a new unit.

By creating proper reserves for airplane replacement in the operating schedule and using the residual cash value of the airplane when it is sold, it would be possible to purchase a new airplane with a large cash down payment and very little bond or short-term financing.

The ownership cost of the proposed small airliner has been computed for the three different financing plans presented above, The summary results are in Table 6.5.1 and the detail computation are presented in the following three tables.

ESTIMATED AIRLINER OPERATING COSTS

SCAT 9-PASSENGER AIRLINER
Bond 100% of Airplane Acquisition Cost
10-Apr-02

This cost analysis is based on the acquisition of a new Piaggio P-180 airplane with an airline service life of 20,000 hours and a residual value of 40%. The cost of airplane rental and depreciation is based on the issuance of local government bonds with a term of 15-years at 6% interest and a pay-off at the end of 7.5 years.
Airplane utilization is based on 10 block hours per day 6 days per week and a useful life of 25,000 block hours.
Airplane utilization is estimated at 3,120 block hours per year & airplane service life of 8 years.
Bonds to be paid off at 7.5 years.

	AMOUNT	ANNUAL	HOURLY
Acquisition of Piaggio P-180 Airplane	$5.0 Million		
Annual Bond Payments for 7.5 years	520,472	520,472	
Principle Balance on Bonds at 7.5 years	3,050,000		
Residual Value of Airplane	2,000,000		
Additional Cost to be Amortized In Rental	1,050,000	140,000	
TOTAL		$660,472	$212

Estimated Airliner Hourly Operating

CREW	FUEL/OIL	RENT**	DEPRE.	INSUR.	TAXES	MAINTENANCE DIRECT	MAINTENANCE BURDE	OTHER	TOTAL HOURLY
150	110	$212		3	8	186	94	22	785

* Estimated cost of Crew, Fuel, Insurance, Taxes, Maintenance, and Other is based on data extrapolated from Beechcraft 1900 as presented on DOT Form 41; YR 2000, Quarters 2, 3, and 4.

** RENT of airplane based on amortization of bond payments over 7.5 years & 20,000 hour service life of airplane.

TOTAL HOURLY	BH/DAY	DAILY COST	ASMs Per Day	COST PerASM
785	10	7,811	22,965	0.3401

ESTIMATED AIRLINER OPERATING COSTS

SCAT CPASSENGER AIRLINER
Bond 50% of Airplane Acquisition Cost
10-Apr-02

This cost analysis is based on the acquisition of a new Piaggio P-180 airplane with an airline service life of 20,000 hours and a residual value of 40%. The cost of airplane rental and depreciation is based on the issuance of local government bonds for 50% of acquisition cost with a term of 15-years at 6% interest & a pay-off at 7.5 years, Airplane utilization is based on 10 block hours per day 6 days per week and a useful life of 25,000 block hours. Airplane utilization is estimated at 3,120 block hours per year & airplane service life of 8 years. Bonds to be paid off at 7.5 years.

	AMOUNT		ANNUAL	HOURLY
Acquisition of Piaggio P-180 Airplane	$2.5 Million			
Annual Bond Payments for 7.5 years	260,236		260,236	
Principle Balance on Bonds at 7.5 years	1,525,000			
Residual Value of Airplane	2,000,000			
Additional Cost to be Amortized In Rental	475,000	Surplus	0	
TOTAL			$260,236	$83.41

Estimated Airliner Hourly Operating Cost *

CREW	FUEL/OIL	RENT **	DEPRE.	INSUR.	TAXES	MAINTENANCE DIRECT	MAINTENANCE BURDEN	OTHER	TOTAL HOURLY
150	110	83		3	8	186	94	22	656

* Estimated cost of Crew, Fuel, Insurance, Taxes, Maintenance, and Other is based on data extrapolated from Beechcraft 1900 as presented on DOT Form 41; YR 2000, Quarters 2, 3, and 4.

** RENT of airplane based on amortization of bond payments over 7.5 years & 20,000 hour service life of airplane.

Estimate of CASM Cost for 50% of Airliner Purchase Price

HOURLY COST	Per Da.	PerASM
6,527	22,965	0.2842

ESTIMATED AIRLINER OPERATING COSTS

SCAT 9-PASSENGER AIRLINER
No Airplane Acquisition Cost (0%)
10-Apr-02

This cost analysis is based on the acquisition of a new Piaggio P-180 airplane with an airline service life of 20,000 hours and a residual value of 40%. The zero cost of airplane rental and depreciation is based on acquisition of the demonstration airplane with DOT grant funds.
Airplane utilization is based on 10 block hours per day 6 days per week and a useful life of 25,000 block hours.
Airplane utilization is estimated at 3,120 block hours per year & airplane service life of 8 years.

	AMOUNT	ANNUAL	HOURLY
Acquisition of Piagglo P-180 Airplane	*0*		
Annual Bond Payments for 7.5 years	*0*		
Principle Balance on Bonds at 7.5 years			
Residual Value of Airplane	2,000,000		
Additional Cost to be Amortized in Rental	2,000,000 Surplus	*0*	
TOTAL		*$0*	$0.00

Estimated Airliner Hourly Operating Cost •

CREW	FUEL/OIL	RENT **	DEPRE.	INSUR.	TAXES	MAINTENANCE DIRECT	MAINTENANCE BURDEN	OTHER	TOTAL HOURLY
150	110	0	0	3	8	186	94	22	573

• Estimated cost of Crew, Fuel, Insurance, Taxes, Maintenance, and Other is based on data extrapolated from Beechcraft 1900 as presented on DOT Form 41; YR 2000, Quarters 2, 3, and 4.

** RENT of airplane based on amortization of bond payments over 7.5 years & 20,000 hour service life of airplane.

Estimate of CASM Cost for Zero Cost of Airliner Purchase Price

TOTAL HOURLY	BH/DAY	DAILY COST	ASMs Per Day	COST Per ASM
573	10	5,701	22,965	0.2483

The results of the preceding analyses are summarized in Table 6.5.1 below.

Percentage of Purchase Price	Hourly Cost	CASM
100% of Purchase Price, $5 Million	$785	$0.3401
50% of Purchase Price	$656	$0.2842
0% of Purchase Price (Demo Airplane)	$573	$0.2483

The preceding analyses demonstrate that the acquisition cost of the proposed small airliner has an impact of up to 36% on the operating cost of SCAT air service. The analysis also shows that if the DOT provided 50% of the acquisition cost, the cost of SCAT air service would be only **14.5%** more than if the DOT paid 100% of the airliner purchase price.

The concept of the small community financing 50% of the cost of acquiring the small airliner and financing start-up costs provides an economically sound method of identifying those small communities that are serious about starting and continuously supporting air service to their community. The cost of implementing SCAT air service at other communities would be small compared to the cost of the airplane and well within the financial capabilities of communities as small as 50,000 population. In some special cases, such as communities that depend on tourism and similar industries based on frequent traveler turnover, it is possible that SCAT air service could be successful in communities of 25,000 population or less.

The major result of this financial analysis is that the proposed SCAT Air Service Concept shows significant promise for bringing efficient, dependable, and high-speed air service to small communities that currently do not have any air service or those that are under served. Secondly, the SCAT concept also demonstrates great potential for supplementing direct air service to distant cities and hubs that are currently accessible only by routing through hub airports and/or by multiple-stop air service.

SCAT air service can also be used to supplement service by major carriers and their affiliates to increase frequency of service where increased frequency is needed by travelers, but the load count cannot economically justify a turbo-prop or regional jet. It is common knowledge in the airline industry that all major carriers and their affiliates are moving toward jet-powered airliners and the phasing out of smaller turbo-prop airliners. As the phase-in of the larger regional airliners (typically 40 to 70 seats) occurs, the frequency of flights will likely decrease at many small community airports. The termination of turbo-prop service due to implementation of regional jet service will totally eliminate air service for some small communities and seriously degrade service at others. SCAT air service could be the answer to providing continuing air service to these small communities.

The DOT Essential Air Service Program has been a valuable tool for providing air service to many small communities that would not have otherwise been provided air service or been able to afford such service. While the original intent of the EAS Program was to provide funds to startup air service at small communities, it was anticipate that most of these air services would become self-sustaining within several years. Some communities have been able to wean their air service from the EAS subsidy due to growth of traffic, businesses, and tourist travel. Unfortunately, many communities continue to depend on EAS subsidies to maintain their local air service. The reasons for this continuing dependency on EAS funding is due to many and varied reasons. However, many small communities have been receiving EAS funding for over twenty years and will likely continue to do so into the foreseeable future.

The SCAT Air Service Concept beings a new approach to providing air service to small communities that could lead to self-sustainable air service independent of long-term DOT/EAS funding. Most importantly, the SCAT initiative places local communities in a leadership role in determining the destinations served, the frequency of service, the airfares, and management responsibility to assure profitable operation of the air service. The SCAT concept is totally consistent with current federal policy of making local governments responsible for their success.

6.6: Computation of CASM Cost for Various Service Patterns

The CASM costs computed in the preceding section were based on the assumption of a stage length of about 10 hours. The CASM cost computed in this section are based on the assumption that the local community pays 50% of the airliner acquisition cost and that the purchase is financed with bonds with a 15 year term and a payoff at 7.5 years. It is assumed that the balance of the airplane purchase price might come from a second cooperating community or from Enhanced EAS funding. The CASM costs for various airliner utilization are presented in Table 6.6.1.

As noted earlier, the stage length and crew cost are major factors affecting the CASM of any air service operation. The crew cost in these analyses were based on the same assumptions as the crew cost in Section 6.5 for the demonstration airliner. The affect of stage length on CASM cost has been estimated and is presented in the following table. These analyses utilized crew costs based on data in DOT Form 41 for **YR** 2000 for the B-1900 airliner less an eight percent reduction for local pilot rates. These data indicate 4 flight crews are required to meet operational requirements and FAA regulations for 10 BWday and 6 day/week air service. These same crew requirements were assumed for the SCATthis analysis and the demonstration project for utilizations of over 7 BH per day. For 6 BH and 7 BH daily utilization, it was assumed that three (3) air crews could provide quality service.

In general, the analyses showed that for the small airliner purchased with 50% local funds, the CASM cost varied from $0.3005 for a 6BH daily operation to $0.2657 for a 14BH daily operation. These analyses clearly demonstrate the sensitivity of the CASM cost to airliner daily utilization. More importantly, the analyses indicate that the projected CASM costs for the small airliner on stage lengths from 6BH to14BH ($0.3005 to $0.2657) are very competitive with the average cost of turbo-prop air service ($0.2566) for 10 BH utilization. Comparing the estimated CASM cost for the demo airliner and the B-1900 at 10 BH of utilization, the estimates indicate the demo airliner cost is about 10.7% higher ($0.2842 vs. $0.2566). This favorable cost comparison indicates the SCAT concept has economic merit. The added value features of SCAT such as business class seating, more passenger room and comfort, and the ability to provide service at the time and frequency that meets the traveler's needs should more than offset the difference in fares for business travelers. It should be noted that average CASM costs can be very deceiving compared to those encountered in actual air service. According to DOT data, the CASM costs for identical route distances can vary by factors of 2:1 to **4:** 1.

The projected competitive CASM costs for the SCAT service are strong indicators that the SCAT air service concept can economically compete with larger turbo-prop air carriers in certain markets and also provide reasonable fares to communities that do not currently have air service provided the community air travelers support the service. The projected competitive CASM costs for the SCAT demo airliner also indicate the proposed air service should reach breakeven within the first ***6*** to 8 months of operation and should have a high probability of remaining self-sustaining after the demonstration project is completed.

TABLE 6.6.1 :

AFFECT OF SERVICE PATTERNS ON AIRLINER OPERATING COSTS
SCAT 9-PASSENGER DEMONSTRATION AIRLINER
Salary Cost same as Beechcraft B-1900 Airliners
LOCAL SHARE 50% of Airliner Price

This cost analysis is based on the acquisition of a new Piaggio P-180 airplane with an airline service life of 20,000 hours and a residual value of 40%. The airplane rental and depreciation is based on acquisition the local community paying 50% of the acquisition price of the demonstration airliner.
Airplane utilization is based on operation 6 days per week and a useful life of 25,000 block hours.
Crew *Cost* based on 3 Crews for less that 8 BH utilization per day and 4 Crews for 8 BH or more per day.

BLOCK HOURS	CREW' COST	FUEL/OIL	RENT**	DEPRE.**	INSUR.	TAXES	MAINTENANCE DIRECT	MAINTENANCE BURDEN	OTHER	TOTAL HOURLY
6	187.50	110	83		3	8	186	94	22	$694
8	187.50	110	83		3	8	186	94	22	$694
10	150.00	110	83		3	8	186	94	22	$656
12	125.00	110	83		3	8	186	94	22	$631
14	107.15	110	83		3	8	186	94	22	$613

* Estimated daily Crew *Cost* of $1 500 for 10 BW day based on 2 crews & same annual salary cost of as Regional Airliners.
** RENT & DEPRECIATION of airplane is zero based on acquisition with grant funds.

BLOCK HOURS	TOTAL HOURLY	BH/DAY	DAILY COST	ASMs PerDay	COST PerASM
6	694	6	$4,161	13,848	0.3005
8	694	8	$5,548	18,464	0.3005
10	656	10	$6,560	23,080	0.2842
12	631	12	$7,572	27,696	0.2734
14	613	14	$8,584	32,312	0.2657

6.7 Potential Affect of Advanced Technology on Purpose-Designed Small Airliners

During the past eight years, NASA has conducted the Advanced General Aviation Transportation Experiment Program (AGATE) with a primary focus on revitalizing General Aviation. In 1996, NASA initiated the General Aviation Propulsion Program (GAP) to develop new reciprocating, turbo-jet, and turbo-prop engine technology. Global Aircraft Corporation has been a major participant in the AGATE program, has participated in the GAP program, and is currently participating in the NASA Aviation Safety Program designed to increase operational safety, utility, and economy of GA airplanes.

Some of the technology developed in these NASA programs would be applicable to the design and development of a purpose-designed small airliner similar to that proposed for the subject air service demonstration. While there are numerous new technologies that could be incorporated in the development of a new small airliner, there are several technologies that could have significant impact of acquisition cost and operating cost of such an airplane. The turbine engine technology being developed under the NASA GAP program has a goal of reducing the price of such engines by 40% which could significantly reduce the acquisition cost of a purpose-designed turbo-prop or turbo-jet powered small airliner. Secondly, this new engine technology is demonstrating outstanding fuel economy that is projected to reduce fuel consumption by 25% or more. Such fuel savings would have a significant impact of the cost of air service and would contribute to the national goal of reducing consumption of oil-based fuels and air pollutants.

Global Aircraft will investigate the new technologies available or under development that could have significant impact on the acquisition cost of small airliners or their operational costs. The technologies will be identified, their status of development determined, and they will be evaluated to determine their potential impact on acquisition cost and operational costs of small airliners. The results of this investigation will be completed in Year **1** of the project.

It is projected that a purpose-designed small airliner can be developed that will provide for a minimum service life of 40,000 hours (50,000 Block Hours) and significantly lower airplane acquisition and operating costs. These lower costs and longer service life will benefit small communities by permitting the airplane to be purchased with longer term bonds (to reduce annual bond payments), will result in higher residual value of the airplane to enhance resale, and lower operating cost to make the service available to more and smaller communities.

SECTION 7: FINANCIAL PROJECTIONS FOR SCAT DEMONSTRATION

7.1 Overview of Project Funding and Financial Accounting

It is proposed that the air service demonstration project will be funded by a combination of DOT funds and local funds and in-kind contributions. No airport funds will be used. The majority of the total project funds will be used to acquire the demonstration airplane, fund project start-up costs, and fund air service research and project management. It is projected that the air service revenues will offset air service operations costs within the first year after the demonstration service is fully operational. The nature of the project costs, funding sources, and financial accounting are discussed in the following paragraphs.

The project encompasses three distinct types of costs: project management and implementation costs, air service start-up costs, and ongoing air service operations costs. The first two categories of costs are directly related to the demonstration project; whereas, the air service operations costs are directly related to providing the desired air service on a continuing and economically sustainable basis. Therefore, it is proposed to separate the project costs into three categories for project accounting and funding purposes. The cost elements contained in each category are briefly discussed below.

The DOT project funds will be directed to MSU, which will coordinate the accounting of these funds with participating partners. All partners will be required to provide proper documentation of the use of DOT project funds and other local funds and in-kind contributions to the project to MSU per DOT reporting requirements. DOT will reimburse MSU for project costs. It is expected that DOT will provide funds for project management and implementation costs including the acquisition of the demonstration airplane. Local economic development agencies have pledged to provide cash matching funds for about ten percent (10%) of the total demonstration project cost to support implementation and operation of the SCAT air service demonstration.

7.2 Project Management, Transportation Research, and Implementation Costs

Project Management, Transportation Research, and Implementation Costs include all costs related to detailed project planning, implementation and management of the demonstration project, research related to optimization of local air service and validation of the economic feasibility of the demonstrated air service, documentation of air service operational costs, development of a SCAT Model Implementation Plan for other small communities, and preparation of a final report on the demonstration project.

The air service demonstration is proposed as a three-year project. It is projected that the greatest share of demonstration project expenses will be incurred in the first year and that funding for this category of costs will decrease significantly in the second and third years. MSU will provide overall management and coordinating services for the project grant. NCIT will provide staff for planning, transportation research, economic analysis, business model development, and evaluation of the success of the project. Global Aircraft Corporation will provide project planning and management services, management of aircraft acquisition and

modification, analysis of new aviation technology that is applicable to increasing safety and reducing operating costs of small airliners, and managing ongoing air service operations. Diversified Business Enterprises, Inc. will provide planning services for the overall project and air service operations and will provide management of start-up for the demonstration air service and on-going air service. It is proposed that these project costs will be funded by the DOT grant.

7.3 Air Service Startup Costs

Prior to the initiation of air service under the demonstration project, there are numerous tasks that must be completed to satisfy project requirements. These tasks include completing negotiations with current air carriers for code sharing and ground support of the demonstration airliner; acquisition of the demonstration airplane, modification of the airplane to meet FAA criteria and project operational objectives; hire, train, and qualify the initial cadre of flight crews; acquire, inventory, and secure an appropriate stock of spare parts and expendables; coordinate with the local airport staff and board and NCIT in establishing air fares for the demonstration project, prepare and distribute flight schedules and air service information; and cooperate with the local airport authority and economic development agencies in marketing and promoting the demonstration project and new air service. The technical and management services required to plan and implement the start-up of air service will be funded by the DOT grant together with financial and in-kind contributions by the local partners.

For this class of aircraft, we propose to implement a commercial 'fleet maintenance plan' insuring the longevity of the major aircraft components such as the engines, landing gear, and flight systems. The establishment of these contracts would be funded during the startup phase. Prudence also requires the establishment of a modest contingency account in the operating reserves for uninsured losses such as Foreign Object Damage (FOD), insurance deductibles, and similar items. These necessary startup funds would occur within the first grant year and flow as reimbursable expenses through **MSU** from the DOT grant on an as-required basis.

During the initial months of the demonstration project, it is expected that the passenger load factors will be lower than required to generate revenues for break-even operation. This situation will generate a negative cash flow that will be subsidized by the grant funds. The load factors should increase over the first six to eight months of the demonstration so that no subsidy of ongoing air service operations would be required beyond the first year. During the first six months of the demonstration, it is estimated that an operating subsidy of about $153,000 will be required to cover negative cash flow of air service operations and miscellaneous start-up costs.

The acquisition and modification of the demonstration airliner is the largest cost in the proposed project. It is proposed to acquire a low-time Piaggio P-180 airplane and upgrade it to FAA air service standards under FAR PART 135. The upgrades will include the installation of nine business-class width seats (20+ inches), installation of equipment to meet airline service requirements, and upgrading avionics and electronic systems to increase reliability and safety. A breakdown of the airplane and startup costs is presented in Table 7.3.1 below.

In addition, Training costs will be incurred to train support staff and four flight crews to provide quality service in the demonstration. An inventory of spare parts and supplies will be required to provide timely maintenance and maximum utilization of the airplane.

During the first **six** months of the air service demonstration, it is anticipated that load factors will be less than required for breakeven operation. The cashflow projection for the first year assumes the demonstration air service will be first initiated between a local airport and a selected destination airport. During the second month of operation, additional service will be initiated between the destination airport and a second small community.

TABLE 7.3.1

Summary of Airplane Costs
SCAT Air Service Demonstration Project
April 16, 2002

Description	Item Cost	Amount
ACQUISITION OF DEMO AIRPLANE		
Piaggio P-180 Airplane (Blue Book Estimated Price, Pre-owned)		**$3,300,000**
AIRPLANE UP-GRADES FOR COMMERCIAL AIR SERVICE		**259,476**
Avionic Up-Grades (TCAS, TAWS, Air Phone & Data System)	66,757	
Digitial Voice Cockpit Recorder, 460 mHz ELT, HD Battery Heavy Duty Oxygen System, Compliance w/ Service Bulletins	92,719	
High Weight Mods & Service Bulletins	**50,000**	
Engine Fire Extinguishers (2 Systems)	**50,000**	
AIRPLANE MODIFICATIONS FOR AIR SERVICE		**220,000**
HD Wide Seats, Harden Interior, Lavatory		
SPARE PARTS		**146,600**
TOTAL AIRPLANE ACQUISITION AND MODIFICATION COSTS		**$3,926,076**
TRAINING COST FOR AIR OPERATIONS		**$80,000**
Flight Crew Training and Start-up (2 Months)		
Chief Pilot, 3 Captain, 4 First Officers		
Includes Ground School, Flight Training, and Route Proving		
START-UP AND AIR DEMO SUBSIDY		**$153,000**

7.4 Demonstration and Ongoing Air Service Operations

It is proposed that the demonstration aircraft will be acquired with DOT funds with a non-airport entity as registered owner. It is proposed that the Mississippi State University Research and Technology Corporation (MSU RTC) assume ownership of the airliner for the duration of the demonstration project, It is intended that the MSU RTC lease the airliner to the air operator for one dollar a year. Since aircraft acquisition will have no cost impact on air service operating costs, the result is the lowest possible ticket costs. It is projected the resulting operating costs will be comparable with current generation turbo-prop air service.

The cost of ongoing operations will include expenses such as the contract ACMI air operator (aircraft fuel, crew, maintenance, insurance), the costs of any code-lending large airline (for computer reservations services and customer service 'front end' costs), cost of airport-based customer interface and aircraft line service, and management of ongoing air service operations. Diversified Business Enterprises, Inc., assisted by Global Aircraft, will be responsible for management of ongoing air service operations and coordination with the local airport authorities.

The expenses of ongoing air service operations will be offset by the net ticket revenues. As passenger load factors increase, it is projected that ticket revenues will eventually exceed air service operating costs. As net revenues exceed the break-even point, the positive cash flow will be used to first create an aircraft replacement reserve and later be used to reduce ticket costs, if possible.

The demonstration air service is projected to become cost-neutral or better after **six** to eight months of operation. Successful demonstration of this economic fact will permit the air service to be continued beyond the first year of the demonstration without further subsidy from the DOT.

7.5 Computation of Operating Costs and CASM for Demonstration Project

The operating cost and CASM cost analysis showed that for the demonstration airliner purchased with grant funds, the CASM cost varied from $0.2916 for a 6 Block Hours (BH) daily operation to $0.2297 for a 14 BH daily operation. These analyses clearly demonstrate the sensitivity of the CASM cost to airliner daily utilization. More importantly, the analyses indicate that the projected CASM costs for the demonstration airline on daily utilization from 6 BH to14 BH ($0.2916 to $0.2297) are very competitive with the cost of turbo-prop air service ($0.2566). At a utilization of 10 BH per day, the estimated CASM of the demo airliner is about **3%** less than the B-1900 turbo-prop airliner ($0.2483 vs. $0.2566). The operating and CASM costs are presented in the following table.

The projected competitive CASM costs for the demonstration air service project are strong indicators that the SCAT air service concept can economically compete with larger turbo-prop air carriers. The projected competitive CASM costs for the SCAT demo airliner also indicate the proposed air service should reach breakeven within the first ***6*** to **8** months of

operation and should have a high probability of remaining self-sustaining after the demonstration project is completed.

AFFECT OF SERVICE PATTERNS ON AIRLINER OPERATING COSTS

SCAT 9-PASSENGER DEMONSTRATION AIRLINER

Salary Cost same as Beechcraft B-1900 Airliner4

This cost analysis is based on the acquisition of a new Piaggio P-180 airplane with an airline service life of 20,000 hours and a residual value of 40%. The zero cost of airplane rental and depreciation is based on acquisition of the demonstration airplane with DOT grant funds.
Airplane utilization is based on operation 6 days per week and a useful life of 25,000 block hours.
Crew Cost based on 3 Crews for less that 8 BH utilization per day and 4 Crews for 8 BH or more per day.

Estimated Airliner Hourly Operating Cost

BLOCK HOURS	CREW * COST	FUEL/OIL	RENT **	DEPRE.**	INSUR.	TAXES	MAINTENANCE DIRECT	MAINTENANCE BURDEN	OTHER	TOTAL HOURLY
6	187.50	110	0		3	8	186	94	22	$611
8	187.50	110	0		3	8	186	94	22	$611
10	150.00	110	0		3	8	186	94	22	$573
12	125.00	110	0		3	8	186	94	22	$548
14	107.15	110	0		3	8	186	94	22	$530

* Estimated daily Crew Cost of $1500 for 10 BW day based on 2 crews & same annual salary cost of as Regional Airliners.
** RENT & DEPRECIATION of airplane is zero based on acquisition with grant funds.

BLOCK HOURS	TOTAL HOURLY	BH/DAY	DAILY COST	ASMs PerDay	COST PerASM
6	673	6	$4,038	13,848	0.2916
8	611	8	$4,884	18,464	0.2645
10	573	10	$5,730	23,080	0.2483
12	548	12	$6,576	27,696	0.2374
14	530	14	$7,422	32,312	0.2297

7.7 Cashflow Projection for Demonstration Project

Cashflow projections have been prepared for the three-year demonstration period. These projections are based on the operating costs and **CASM** cost for the demo airliner acquired with DOT funds and for various service patterns. Scenarios of 6 BH to **14** BH were analyzed and these data were used in the cashflow projections according to the stage length. **A** separate cashflow projection was prepared for each year of the project and the projections are presented below.

The cashflow projection for Year 1 of the actual air service operation indicates that the operation should breakeven in about 6 months and reach a significantly positive cashflow position by the end of the first year. The second and third year of the project indicates significant profitability if a load factor of **67%** can be attained across the service routes.

ASHFI PROJECTION

SCAT Air Service

DOT Small Community Air Service Development Pilot Program

YEAR 1

	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Stage Length 1 - Block Hours	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Stage Length 2 - Block Hours	0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Total Daily Distance Route 1 - nm	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	
Total Daily Distance Route 2 - nm	0	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	
Service Frequency, Route 1 (RT)	2	2	2	2	2	2	2	2	2	2	2	2	
Service Frequency, Route 2 (RT)	0	1	2	2	2	2	2	2	2	2	2	2	
Total Daily Utilization - BH	6	8.4	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	
Route 1 Air Fare, One-Way	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	
Route 2 Air Fare, One-Way	$0	$170	$170	$170	$170	$170	$170	$170	$170	$170	$170	$170	
Number of Passengers/Flt., Route 1	4.0	4.5	4.5	5.0	5.0	5.5	5.5	5.5	6.0	6.0	6.0	6.0	
Number of Passengers/Flt., Route 2	0.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	5.0	5.0	5.0	5.0	ANNUAL
Total Passengers per Day	16	34	34	36	38	40	40	40	44	44	44	44	11,804
ASM Route 1	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	5,778,864
ASM Route 2	0	7,409	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	3,202,454
TOTAL Daily ASMs	18,522	25,931	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	8,981,318
Number of Crews	3	4	4	4	4	4	4	4	4	4	4	4	
Estimated CASM Cost	0.2916	0.2645	0.2483	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	
REVENUE:													
Route 1	$4,000	$4,500	$4,500	$5,000	$5,000	$5,500	$5,500	$5,500	$6,000	$6,000	$6,000	$6,000	
Route 2	$0	$2,720	$2,720	$2,720	$3,060	$3,060	$3,060	$3,060	$3,400	$3,400	$3,400	$3,400	
TOTAL REVENUE (Daily)	$4,000	$7,220	$7,220	$7,720	$8,060	$8,560	$8,560	$8,560	$9,400	$9,400	$9,400	$9,400	2,535,000
OPERATING COST:	$5,401	$8,818	$8,278	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	2,488,494
GROSS INCOME (Daily)	-$1,401	-$1,598	-$1,058	-$415	-$75	$425	$425	$425	$1,265	$1,265	$1,265	$1,265	
GROSS INCOME (Month)	-42,030	-47,950	-31,747	-12,446	-2,246	12,754	12,754	12,754	37,954	37,954	37,954	37,954	
CUMMULATIVE INCOME(Loss)	-42,030	-89,980	-121,727	-134,173	-136,419	-123,664	-110,910	-98,156	-60,202	-22,248	15,706	53,660	53,660

CASHFLOW PROJECTION

SCAT Air Service Demonstration

DOT Small Community Air Service Development Pilot Program

YEAR 2

	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Stage Length 1 - Block Hours	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Stage Length 2 - Block Hours	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Total Daily Distance Route 1 - nm	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	
Total Daily Distance Route 2 - nm	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	
Service Frequency, Route 1 (RT)	2	2	2	2	2	2	2	2	2	2	2	2	
Service Frequency, Route 2 (RT)	2	2	2	2	2	2	2	2	2	2	2	2	
Total Daily Utilization - BH	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	
Route 1 Air Fare, One-Way	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	
Route 2 Air Fare, One-Way	$170	$170	$170	$170	$170	$170	$170	$170	$170	$170	$170	$170	
Number of Passengers/Flt., Route 1	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Number of Passengers/Flt., Route 2	5.0	5.5	5.5	5.5	5.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0	ANNUAL
Total Passengers per Day	44	46	46	46	46	48	48	48	48	48	48	48	14,664
ASM Route 1	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	5,778,864
ASM Route 2	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	3,659,947
TOTAL Daily ASMs	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	9,438,811
Number of Crews	3	4	4	4	4	4	4	4	4	4	4	4	
Estimated CASM Cost	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	
REVENUE:													
Route 1	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	
Route 2	$3,400	$3,740	$3,740	$3,740	$3,740	$4,080	$4,080	$4,080	$4,080	$4,080	$4,080	$4,080	
TOTAL REVENUE (Daily)	$9,400	$9.740	$9,740	$9,740	$9,740	$10,080	$10,080	$10,080	$10,080	$10,080	$10,080	$10,080	3,091,920
OPERATING COST:	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	2,538,077
GROSS INCOME (Daily)	$1,265	$1,605	$1,605	$1,605	$1,605	$1,945	$1,945	$1,945	$1,945	$1,945	$1,945	$1,945	
GROSS INCOME (Month)	37,954	48,154	48,154	48,154	48,154	58,354	58,354	58,354	58,354	58,354	58,354	58,354	
CUMMULATIVE INCOME(Loss)	37,954	86,108	134,262	182,417	230,571	288,925	347,279	405,633	463,987	522,341	580,695	639,050	639,050

CASHFLOW PROJECTION

SCAT Air Service Demonstration

DOT Small Community Air Service Development Pilot Program

YEAR 3

	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Stage Length 1 - Block Hours	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Stage Length 2 - Block Hours	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Total Daily Distance Route 1 - nm	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	
Total Daily Distance Route 2 - nm	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	1,646	
Service Frequency, Route 1 (RT)	2	2	2	2	2	2	2	2	2	2	2	2	
Service Frequency, Route 2 (RT)	2	2	2	2	2	2	2	2	2	2	2	2	
Total Daily Utilization - BH	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	
Route 1 Air Fare, One-Way	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	
Route 2 Air Fare, One-Way	$170	$170	$170	$170	$170	$170	$170	$170	$170	$170	$170	$170	
Number of Passengers/Flt., Route 1	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Number of Passengers/Flt., Route 2	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	ANNUAL
Total Passengers per Day	48	48	48	48	48	48	48	48	48	48	48	48	14,976
ASM Route 1	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	18,522	5,778,864
ASM Route 2	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	14,818	3,659,947
TOTAL Daily ASMs	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	33,340	9,438,811
Number of Crews	3	4	4	4	4	4	4	4	4	4	4	4	
Estimated CASM Cost	0.2916	0.2916	0.2645	0.2483	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	0.2440	
REVENUE:													
Route 1	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	
Route 2	$4,080	$4,080	$4,080	$4,080	$4,080	$4,080	$4,080	$4,080	$4,080	$4,080	$4,080	$4,080	
TOTAL REVENUE (Daily)	$10,080	$10,080	$10,080	$10,080	$10,080	$10,080	$10,080	$10,080	$10,080	$10,080	$10,080	$10,080	3,144,960
OPERATING COST:	$9,722	$9,722	$8,818	$8,278	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	$8,135	2,642,097,
,GROSSINCOME(Dailv)	$358	$358	$1,262	$1,802	$1,945	$1,945	$1,945	$1,945	$1,945	$1,945	$1,945	$1,945	
GROSS INCOME (Month)	10,745	10,745	37,850	54,053	58,354	58,354	58,354	58,354	58,354	58,354	58,354	58,354	
CUMMULATIVE INCOME(Loss)	10.745	21.490	59.341	113.394	171.748	230.102	288.456	346.810	405.165	463.519	521.873	580.227	580.227

SECTION 8: PROJECT MANAGEMENT & FINANCIAL ACCOUNTING

Mississippi State University, as the grantee, will have total responsibility for administration and financial control of the DOT demonstration grant. The MSU unit of the National Center for Intermodal Transportation (MSU-NCIT) shall have management control of the demonstration project and schedule and will be responsible for assuring all demonstration team members perform their tasks in a timely and technically competent manner.

8.1 Project Planning & Scheduling

MSU-NCIT, in collaboration with Global Aircraft and in consultation with Diversified Business Enterprises, Inc., will prepare a detailed project plan and schedule at the initiation of the demonstration project. The schedule will be monitored and updated monthly to assure timely performance of the project tasks and timely implementation of the project work elements. Global Aircraft will provide a computerized project management program and the services of a scheduler to prepare and update the project plan and schedule.

After the initial detailed project work plan and schedule have been prepared, it is proposed that representatives of the grant team present the project plan and schedule to the DOT contract monitor and related DOT staff to assure compliance of the project plan with DOT regulations and contract requirements. Any suggested changes will be incorporate into the plan before major activities or upgrades are implemented.

8.2 Project Coordination and Reporting

MSU-NCIT and Global Aircraft, in consultation with Diversified Business Enterprises, Inc., will be responsible for weekly monitoring of the progress of the demonstration project. Global shall be responsible for daily monitoring of the project tasks and progress to assure timely implementation of the demonstration air service, reliable service, and to resolve operational problems that may occur. Global will provide bi-weekly written reports to MSU-NCIT concerning progress of the project, problems encountered, resolution of problems, and any schedule impacts.

MSU-NCIT will provide written quarterly reports to the DOT contracting office concerning progress and project status. Detailed semi-annual reports will be prepared and presented to the DOT contracting office and technical monitor. During the first year, it is proposed to have three meetings with DOT staff to review project plans at the beginning of activities, and project progress at the semi-annual and annual stages. In the second and third year, two meetings and presentations with DOT staff are planned.

8.3 Financial Accounting and Reporting

MSU will be responsible for detailed accounting of all grant funds and local funds provided in support of the demonstration project. MSU currently processes in excess of $100 million of

federal and private R&D contracts per year and has implemented an accounting system that meets federal accounting standards. At the beginning of the project, a detailed cashflow projection will be prepared indicating the anticipated expenditure of funds by each team member. This cashflow projection will be provided to the DOT contracting officer to assist DOT in planning payment for project activities. Since MSU is a public educational institution and unable to provide reserve funds to finance the project, it is requested that MSU be permitted to invoice the DOT for project expenditures on a monthly basis and that such invoices be paid in less than **30** days. MSU will require proper financial documentation from each team member in accordance with DOT and GAO standards.

8.4 Final Report and Deliverables

Each year, a final report of the research and demonstration activities will be prepared in multiple copies as required by the grant agreement. A verbal presentation of the yearly activities will be presented to DOT staff to provide early dissemination of the project results and to obtain feedback from the DOT staff.

At the conclusion of the project, a SCAT Model Plan will be finalized and provided to the DOT staff. The SCAT Model Plan will be a "How-To" manual that will address determining the market for SCAT air service, how to plan, implement, and manage the air service, how to finance the service, how to engage a qualified air carrier to operate the service, and how to manage the air service operation to assure sustainable and continuous local air service. The SCAT Model Plan document will also include specific information derived during the demonstration project that will validate the actual performance of the SCAT air service demonstration. At the end of each year, a partial SCAT Model Air Service Implementation Plan will be prepared based on cumulative research and demonstration results. Although the SCAT Model Air Service Implementation Plan will not be complete until the end of the project's third year, the yearly partial plans can be used by the DOT and other small communities to begin evaluating how and when SCAT air service can be implemented at other small communities.

SECTION 9: MEASUREMENT OF PROJECT SUCCESS

The project goal is to conduct research to refine and validate the SCAT concept by demonstrating in communities the benefits of enhanced scheduled air service resulting from deployment of an advanced, high performance small airliner capable of safe, efficient, comfortable, sustainable air transportation conveniently serving our airport's low passenger density routes.

The achievement of the goal will be measured by how well the SCAT project team completes its four primary objectives.

Objective 1 - To demonstrate the need for advanced small airliners to serve small communities and to provide enhanced scheduled air service for these small communities.

This object has been partially accomplished throughout the proposal using the Golden Triangle Regional Airport as an example for the need for right-sizing the airliner for the market. Furthermore, as stated earlier, it is common knowledge in the airline industry that all major carriers and their affiliates are moving toward jet-powered regional airliners and the phasing out of smaller turbo-prop airliners. As the phase-in of the larger regional airliners (typically 40 to 70 seats) occurs, the frequency of flights will likely decrease at many small community airports. The termination of turbo-prop service due to implementation of regional jet service will result in the elimination of service in some small communities and will seriously degrade service at others. Small communities will need right-sized airliners to continue meeting their air service needs.

The successful conclusion of the latter part of the objective will be when the SCAT project team conducts research to identify new routes appropriate for the demonstration airport(s) and the P-180 airliner and then establishes air service to those routes. The SCAT project team will have a continuous comparison of service requirements to customer perceptions of services.

Objective 2 - To demonstrate the public acceptance of these advanced small airliners.

The degree of public acceptance of the SCAT air service will ultimately be reflected by the percentage of seats sold per flight. If SCAT flights depart nearly full, on average, over the course of the demonstration, then this objective will be successfully completed.

Objective 3 - To demonstrate the economic sustainability of air service to small communities using advanced small airliners.

The estimation of the CASM costs for the SCAT service in the proposal indicates that the SCAT air service concept can economically compete with larger turbo-prop air carriers in certain markets. The validity of the assumptions made in the CASM calculation will be established by quantifying the cashflow experienced by the demonstration.

Objective 4 - To develop a model plan for 'How-to' implement air service at other small communities and as an alternative to indefinite Essential Air Service subsidies.

To truly measure the utility of the SCAT model implementation plan delivered at the end of this project, a survey designed to measure the success of a group of small communities using the plan would need to be conducted, which is not included in the proposal. However, the SCAT project team will rely on the peer review process established by the National Center for Intermodal Transportation to evaluate the model plan.

SECTION 10: BUDGET FOR DEMONSTRATION PROJECT (3-YR)

10.1 Summary Budget with Projected Matching Funds

The total cost of the three-year demonstration project is $7,012,283. Local community economic development and local government leaders have agreed to raise local funding in the approximate amount of $750,000. Therefore, the requested **DOT** grant for the three-year program is $6,262,283. Due to the extended nature of the demonstration project it is requested that funds for the three-year program be committed from the FY 2002 budget allocation.

Since the announcement of this solicitation was made in the middle of the fiscal year for most local government and economic development agencies, most are unable to make specific financial commitments at this time. Nonetheless, the EDAs and local governments have agreed to request the required local funding in their FY2003 budgets, which are approved in August 2002.

SCAT Air Service Demonstration Project

April 16, 2002

	YEAR 1	YEAR2	YEAR3	TOTAL
ANNUAL TOTAL PROJECT COST	5,225,632	935,079	851,572	7,012,283
LOCAL SUPPORT	200,000	350,000	200,000	750,000
US DEPARTMENT OF TRANSPORTATION GRANT	$5,025,632	$585,079	$651,572	$6,262,283)

The Oktibbeha County Economic Development Authority and the Columbus-Lowndes County Economic Development Association have committed to help the project team raise the local matching funds if the DOT funds the three-year proposal.

10.2 Budget For Demonstration Project (3-YR)

Budget follows on next page.

DOT Small Community Air Transportation Project Budget
Year 1
(September 1, 2002 - August 31, 2003)

	Monthly Rate	Time Period	% Time Per Month		Total
Staff Salaries*					$118.472
Project Management					
Project Manager, NCIT-MSU	$5,000	09/01/02 - 08/15/03	50.00%	$28,750	
Project Manager	$5,250	08/16/03 - 08/31/03	50.00%	$1,313	
Project Research					
Royce Bowden, NCIT-MSU	$9,065	09/01/02 - 12/31/02	25.00%	$9,065	
Royce Bowden	$9,065	01/01/03 - 08/15/03	10.00%	$6,799	
Royce Bowden	$9,518	08/16/03 - 08/31/03	10.00%	$476	
Steve LeMay. MSU Marketing Research	$10,864	09/01/02 - 05/15/03	10.00%	$9,234	
Steve LeMay	$10,864	07/01/03 - 08/15/03	100.00%	$16,296	
Steve LeMay	$11,407	08/16/03 - 08/31/03	10.00%	$570	
Nicole Hoffman, MSU Marketing Professor	$9,567	09/01/02 - 05/15/03	10.00%	$8,132	
Nicole Hoffman	$9,567	05/16/03 - 06/30/03	100.00%	$14.35 1	
Nicole Hoffman	$10,045	08/16/03 - 08/31/03	10.00%	$502	
Jason Lueg. MSU Marketing Professor	$9,567	09/01/02 - 05/15/03	10.00%	$8,132	
Jason Lueg	$9,567	05/16/03 - 06/30/03	100.00%	$14.35 1	
Jason Lueg	$10,045	08/16/03 - 08/31/03	10.00%	$502	
Student Salaries					$20,004
Doctoral Student	$3,334	09/01/02-08/31/03	50.00%	$20,004	
Fringe Benefits					$33,794
Staff Salaries (25.5%)				$30,210	
Student Salaries (1.00%)				$200	
Graduate Tuition ($282/month)				$3,384	
Permanent Equipment					$3,926,076
Acquisition of Demo Airplane					
Piaggio P-180 Airplane (Blue book estimated Price, Pre-owned)				$3,300,000	
Spare Par5				$146,600	
Airplane Up-Grades for Commercial Air Transportation Service					
Avionic (TCAS, TAWS, Air Phone and Data System)				$66,757	
Digitial Voice Cockpit Rcorder, 460 mHz ELT, HD Battery					
Heavy Duty Oxygen System, Compliance w/ Service Bulletins				$92.719	
High Weight Mods and Service Bulletins				$50,000	
Engine Fire Extinguishers (2 Systems)				$50,000	
HD Wide Seats, Harden Interior, Lavatory				$220,000	
Expendable Property and Supplies					$7,900
Printing				$500	
Panel Informant Incentives				$3,000	
Survey Informant Incentives				$2,000	
Transcription Costs				$1,800	
Office Supplies				$500	
Phone (Long Distance)				$100	
Domestic Travel					$6,000
Academic Conferences (@ $1,000 per researcher)				$3,000	
Meetings with DOT and NCIT-MSU Dirctor				$3,000	
Subcontracts					$1,013,287
University of Denver				$221,875	
Global Aircraft Corporation				$791,412	
Total Direct Costs					$5,125,534
F&A - Indirect Costs (43.00% Excluding Tuition, Equipment, and **$963,287** of **Subcontracts**)**					$100,098
Total Costs					$5,225,632

*Monthly rate of pay is based on a 5% annual increase that begins on 16 August.
** F&A rate of 43% applied to first $25,000 of each subcontract in Year One.

DOT Small Community Air Transportation Project Budget
Year 2
(September 1, 2003 - August 31, 2004)

	Monthly Rate	Time Period	% Time Per Month		Total
Staff Salaries*					$118,683
Project Management					
Project Manager, NCIT-MSU	$5,250	09/01/03 - 08/15/04	50.00%	$30,188	
Project Manager	$5.513	08/16/04 - 08/31/04	50.00%	$1,378	
Project Research					
Royce Bowden, NCIT-MSU	$9,518	09/01/03 - 08/15/04	10.00%	$10,946	
Royce Bowden	$9,994	08/16/03 - 08/31/04	10.00%	$500	
Steve LeMay, MSU Marketing Professor	$11,407	09/01/03 - 05/15/04	10.00%	$9,696	
Steve LeMay	$11,407	07/01/04 - 08/15/04	100.00%	$17,111	
Steve LeMay	$11,977	08/16/04 - 08/31/04	10.00%	$599	
Nicole Hoffman, MSU Marketing Professor	$10,045	09/01/03 - 05/15/04	10.00%	$8,538	
Nicole Hoffman	$10,045	05/16/04 - 06/30/04	100.00%	$15.068	
Nicole Hoffman	$10,547	08/16/04 - 08/31/04	10.00%	$527	
Jason Lueg, MSU Marketing Professor	$10,045	09/01/03 - 05/15/04	10.00%	$8,538	
Jason Lueg	$10,045	05/16/04 - 06/30/04	100.00%	$15,068	
Jason Lueg	$10,547	08/16/04 - 08/31/04	10.00%	$527	
Student Salaries					$20,004
Doctoral Student	$3,334	09/01/03-08/31/04	50.00%	$20,004	
Fringe Benefits					$34,016
Staff Salaries (25.5%)				$30,264	
Student Salaries (1.00%)				$200	
Graduate Tuition ($296/month)**				$3,552	
Permanent Equipment					$0
Research Computing Equipment				$0	
Expendable Property and Supplies					$4,100
Printing				$500	
Panel Informant Incentives				$1,000	
Survey Informant Incentives				$2.000	
Transcription Costs				$0	
Office Supplies				$500	
Phone (Long Distance)				$100	
Domestic Travel					$5,000
Academic Conferences (@ $1,000 per researcher)				$3,000	
Meetings with DOT and NCIT-MSU Dirctor				$2,000	
Subcontracts					$676,628
University of Denver				$220,609	
Global Aircmft Corporation				$456,019	
Total Direct **Costs**					$858.431
F&A - Indirect **Costs (43.00%** Excluding Tuition, Equipment, and **5676,628** of Subcontracts***)					$76,648
Total Costs					$935,079

*Monthly rate of pay is **based** on a 5% annual increase that **begins** on 16 August.
Tuition **based on a **5%** annual increase.
*** F&A rate of 43% applied to first $25,000 of each subcontractin Year One.

DOT Small Community Air Transportation Project Budget
***Year* 3**
(September 1, 2004 - August 31,2005)

	Monthly Rate	Time Period	% Time Per Month		Total
Staff salaries*					$1 24.618
Project Management					
Project Manager, NCIT-MSU	$5,513	09/01/04 08/15/05	50.00%	$31,700	
Project Manager	$5,788	08/16/05 08/31/05	50.002	$1,447	
Project Research					
Royce Bowden, NCIT-MSU	$9,994	09/01/04 08/15/05	10.00%	$11,493	
Royce Bowden	$10,494	08/16/05 08/31/05	10.002	$525	
Steve LeMay, MSU Marketing Professor	$1 1,977	09/01/04 05/15/05	10.00%	$10,180	
Steve LeMay	$1 1,977	07/01/05 08/15/05	100.00%	$17,966	
Steve LeMay	$12.576	08/16/05 08/31/05	10.00%	$629	
Nicole Hoffman, MSU Marketing Professor	$10,547	09/01/04 05/15/05	10.00%	$8,965	
Nicole Hoffmnn	$10,547	05/16/05 06/30/05	100.00%	$15,821	
Nicole Hoffman	$1 1,074	08/16/05 08/31/05	10.002	$554	
Jason Lueg. MSU Marketing Professor	$10,547	09/01/04 05/15/05	10.00%	$8,965	
Jason Lueg	$10,547	05/16/05 06/30/05	100.00%	$15.821	
Jason Lueg	$1 1,074	08/16/05 08/31/05	10.00%	$554	
Student Salaries					$20,004
Doctoral Student	$3.334	09/01/04-08/31/05	50.00%	$20,004	
Fringe Benefits					$35,710
Staff Salaries (25.5%)				$31,777	
Student Salaries (1.00%)				$200	
Graduate Tuition ($311/month)**				$3.732	
Permanent Equipment					$0
Research Computing Equipment				$0	
Expendable Property and Supplies					$5,100
Printing				$500	
Panel Informant Incentives				$2,000	
Survey Informant Incentives				$2,000	
Transcription Costs				$0	
Office supplies				$500	
Phone (*Long* Distance)				$100	
Domestic Travel					$5,000
Academic conferences(@ $1,000 per researcher)				$3,000	
Meetings with DOT and NCIT-MSU Dirctor				$2,000	
Subcontracts					$580,860
University of Denver				$223,788	
Global Aircraft Corporation				$357,072	
Total Direct Costs					$771,291
F&A - Indirect Costs (43.00 Excluding Tuition, Equipment, and $580,860 of Su :ontracts***)					$80.281
Total *Costs*					$851,572

*Monthly rate of pay is based on a 5% annual increase that begins on 16 August.
**Tuition based on a 5% annual increase.
*** F&A rate of 43% applied to first $25,000 of each subcontract in Year One.

APPENDIX A: REVIEW OF HISTORICAL AIR SERVICE AT GOLDEN TRIANGLE REGIONAL (GTR) AIRPORT

This review of past scheduled airline service is excerpted with permission from the Mississippi Department of Transportation from the portion of a mid-1999 Mississippi State Department of Transportation Airports Study applicable to GTR. All editorial/ supplied content is in [brackets]. The use of 'present tense' in these quotations refers to the status at the time of the study. Notations within [brackets] in very small font indicate the source location within the state study.

A1 [Introduction] [Page 5-1]

Many communities … recognize the strong tie between scheduled commercial air service and their ability to sustain or attract economic development opportunities. Each community's ability to support different levels of scheduled air service varies based on several factors, including population, employment, tourism, and income. The location of nearby airports is also an important factor in a community's ability to support air service....

It is important to note that [the] scheduled commercial air service route structure is constantly changing due to the deregulated airline environment, ongoing airline mergers, and the financial condition of the airlines. Given the dynamic nature of the airline industry, it is likely that changes in the system will continue to occur.…

To understand [the history of GTR] air service.., input from a number of industry and local sources was utilized. Information was derived from sources such as the **U.S.** Department of Transportation *(US* DOT), the Mississippi Department of Transportation (MDOT), the Official Airline Guide **(OAG),** and the [GTR] airport.…

The … level of scheduled service provided at [GTR airport] is an important indication of the strength of ... [its] air service system. In addition to current service, service histories provide an opportunity to see how service has actually changed in each [served] market. From the service histories, it is possible to then determine how passenger demand levels have responded to various service changes. The … market histories can provide important clues for determining … "potential" versus actual enplaned passenger levels.

A2 Service Histories [Page 5-2]

As previously noted, service histories provide insight into how activity has changed [at GTR].… This analysis provides data for ... the [GTR] airport [to] include Iocation and travel times to competing airports; airline service overview; annual enplanements; number of annual departures; total number of annual seats; number of carriers serving the market; nonstop markets served; top origin and destination airports; and average fares. …

A3 Location [Pages 5-2ff]

Golden Triangle Regional Airport is located off of **U.S.** Highway **45,** approximately 90 miles due north of Meridian and 176 miles northeast of Jackson. Alternate, larger airports are a minimum of two and one-half hours away as shown in [the following table]. The distances to these airports help to explain why Golden Triangle Regional Airport is able to capture a [high] percentage of air traffic generated in the region.

ESTIMATED TRAVEL TIME AND MILEAGE FROM GOLDEN TRIANGLE REGIONAL AIRPORT TO CLOSEST LARGER AIRPORTS

	Birmingham	Jackson	Memphis
Miles	**136**	**176**	**166**
Driving Time	**2** hours **32** min	3 hours 20 min	3 hours

[TABLE 5-1, Page 5-3] Source: Rand McNally, TripMaker

... Golden Triangle Regional Airport functions as a truly regional airport. The airport serves the three cities marking the triangle: Columbus, Starkville, and West Point. Mississippi State University and Mississippi University for Women are located in the region and are major contributors to local demand for air service...

A4 Service [in 1999] [Page 5-3]

... Atlantic Southeast Airlines (ASA) offers seven daily, weekday flights to Atlanta using 30-seat Brasilia aircraft. Delta operates nine connecting banks at Atlanta, so Golden Triangle Regional has very good connecting opportunities at Atlanta. In addition, ASA routes [certain] of its westbound flights from Atlanta to Golden Triangle Regional. These flights then fly on to Alexandria, Louisiana and Dallas/Ft. Worth where Delta also operates a hub.

In addition, Express Airlines [as Northwest Airlink] offers three daily flights between Golden Triangle Regional and Northwest's hub in Memphis. The three flights are timed to meet Northwest's three connecting banks at Memphis. . .

A5 Air Service In Prior Years [Pages 5-3, 5-5]

In prior years, Golden Triangle Regional had air service to three connecting hub airports: Memphis, Atlanta and Nashville. Memphis service dates back to the days prior to airline deregulation when Republic service the route with 100-seat, DC-9 aircraft. At that time, Republic offered one daily direct flight to Memphis. ...

Golden Triangle Regional Airport also served as a spoke in American Airlines' hub at Nashville during the mid-1980s until 1996 when American closed this hub. American Eagle served the route with 19-seat aircraft, either **Jetstream** 31s **or** Metros.

ASA's service to Atlanta has been developing steadily over the decade. As the market has grown, ASA has added additional frequencies to Atlanta. This will continue [at] Golden Triangle Regional ... matching the ... connecting banks Delta Air Lines offers at Atlanta. ASA has also put in place one-stop service to Dallas, using the 30-seat Brasilia aircraft. This service began in the mid-1990s and [connects via] Alexandria, Louisiana, the city where ASA stops en route to Dallas/Ft. Worth.

[The following table] shows **a** history of annual departures from Golden Triangle Regional [with Atlanta as] the dominant service point ... Departures have been growing steadily at an average annual rate of 3.8 percent. In [the] table, ... Memphis departures appear to be declining. However, this is an anomaly of the sample year chosen. Express Airline's conversion to an all-Saab 340 fleet resulted in temporary deployment of one aircraft over Tupelo in 1997. This one-stop service has been replaced in 1998 with three nonstop flights to Memphis, servicing all of Northwest connecting banks.

GOLDEN TRIANGLE REGIONAL AIRPORT ANNUAL DEPARTURES, 1982-1997

Hub Airports		1982	1987	1992	1997
Atlanta		401	1,451	1,626	2,118
Nashville		0	678	1,152	0
Memphis		1,918	1,356	1,199	927
	Subtotal	2,319	3,485	3,977	3,045
Other Airports					
Alexandria, LA		0	0	0	1,460
Meridian, MS		262	405	513	0
Hattiesburg/Laurel, MS		0	19	81	0
Tuscaloosa, AL		896	542	135	01
Tupelo, MS		61	365	522	168
	Subtotal	1,219	1,331	1,251	1,628
	Grand Total	3,538	4,816	5,228	4,673

es, OAG Database

A6 Capacity [Pages 5-5ff]

The number of seats offered from Golden Triangle Regional Airport reflects several important trends:

- Retirement of large turboprop aircraft, such as the Convair 580, early in the 1980s and discontinued use of 100-seat jets on short haul routes.
- Widespread use of 19-seat aircraft for feeder service to hub airports in the late 1980s and early 1990s. These small aircraft, typically Beech aircraft or Metros enabled frequent service to hub airports from smaller cities and were used by both American Eagle and Express Airlines (Northwest Airlink).
- Acquisition of Express Airlines by Northwest and subsequent standardization of the aircraft fleet to Saab 340 aircraft (and regional jets).

The aircraft used at Golden Triangle Regional Airport reflect these important fleet decisions. During the early 1980s, Republic Airlines operated larger turboprop and DC-9 aircraft. Northwest restructured its short haul routes, once served by Republic, and deployed 19-seat aircraft. American used the same class of aircraft for its Nashville service. Most recently, the airlines have abandoned 19-seat airplanes in favor of 30-seat aircraft.

[The following table] summarizes the annual seat capacity available at Golden Triangle Regional Airport. This airport ... has added capacity in the last ten years. In fact,...the number of seats available has grown 24 percent. ASA's incremental addition of flights to Atlanta and Dallas/Ft. Worth account for most of the increase in capacity (i.e. seats).

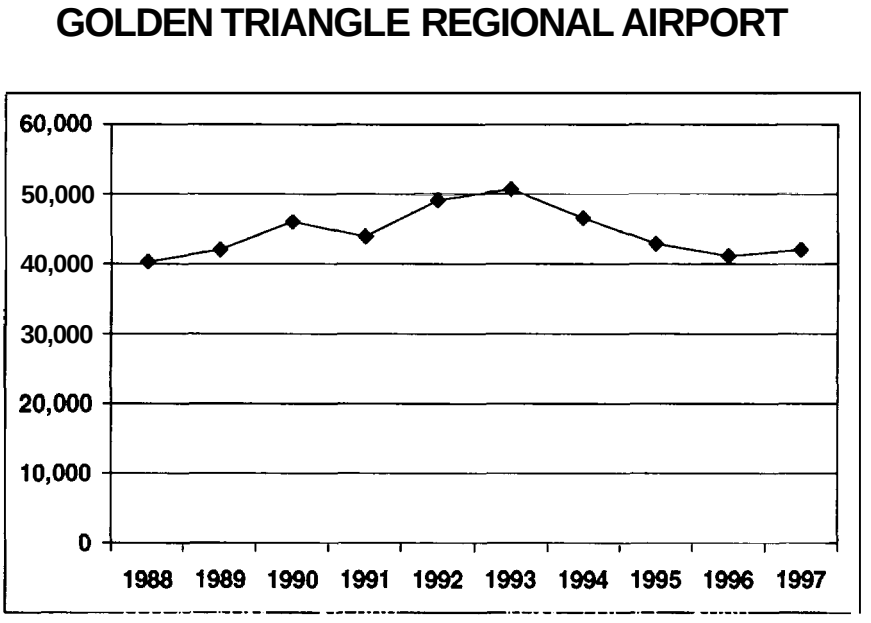
Golden Triangle Regional Airport Annual Seat Capacity, 1982-1997

	1982	1987	1992	1997	% Chg '87-'97
Total No. of Annual Seats	238,596	112,839	134,059	140,058	24%
Average Aircraft Size	67	23	26	30	30%

[Table 5 3, Page 56) Source: Back Information Services, OAG Database

A7 Traffic Trends [Page 5-6]

Given changes in [the character of] air service at Golden Triangle Regional Airport, the level of air service has remained remarkably stable. The slight upswing during the early 1990s is explained by the addition of ASA flights and American Eagle service to Nashville. [The following graph] presents a summary of air carrier enplanements at Golden Triangle Regional Airport for 1988 to 1998.



ANNUAL ENPLANEMENTS 1988-1997
[EXHIBIT 5 2, Page 5-7] Source: Golden Triangle Regional Airport

A8 Top Markets [Page 5-7]

The travel patterns of passengers traveling to or from Golden Triangle Regional Airport reflect those destinations that were accessible either via Memphis or Atlanta and reasonably priced as compared to other nearby airports. With Southwest Airlines operating at Birmingham and Jackson, a significant portion of air passengers will be drawn to these airports to take advantage of lower fares.

[The following table] shows Golden Triangle Regional Airport's top 30 markets. It is interesting to note that several East Coast cities rank in Golden Triangle Regional's top 10 destinations. These include Washington D.C., New York, Philadelphia, and Boston. ... Large declines in travel to Chicago's O'Hare Airport between 1992 and 1997 are almost entirely attributable to new service offered by Southwest at Jackson International to [Chicago's) Midway Airport. The diversionary impact of Southwest is significant. Southwest service began at Jackson in August 1997, and travel to Chicago O'Hare from

Golden Triangle declined **47** percent in the remaining five months of the year. This change in travel pattern does not even reflect the impact on Golden Triangle Regional's traffic for an entire year.

GOLDEN TRIANGLE REGIONAL AIRPORT TOP 30 ORIGIN AND DESTINATION MARKETS
(Includes estimated unduplicated commuter traffic)

Rank	Airport	Total O&D 1992	Total O&D 1997	% Chg '92 vs '97
1	W Hartsfield [Atlanta] GA	9860	6500	-34 %
2	Dallas/Ft Worth Int TX	3010	4320	44 %
3	National DC	3800	3100	-18 %
4	O'Hare Intl [Chicago] IL	5250	2780	-47 %
5	La Guardia [NY City] NY	2930	2550	-13 %
6	Los Angeles Intl CA	2540	1920	-24 %
7	Philadelphia Intl PA	1940	1780	-8 %
8	Logan Intl [Boston] MA	1910	1690	-12 %
9	Wayne Cnty [Detroit] MI	2750	1680	-39 %
10	W Rogers [Oke City] OK	1270	1560	23 %
11	Hopkins [Cleveland] OH	1950	1490	-24 %
12	Hobby [Houston] TX	1340	1370	2 %
13	Newark Intl NY	1320	1340	2 %
14	Seattle/Tacoma	1510	1340	-11 %
15	San Antonio Intl TX	1000	1260	26 %
16	San Francisco In CA	1450	1170	-19 %
17	Lambert-St Louis MO	1570	1160	-26 %
18	Orlando Intl FL	2020	1150	-43 %
19	Tampa Intl FL	1500	1090	-27 %
20	Denver Intl CO	1510	1070	-29 %
21	Raleigh/Durham NC	900	1000	11 %
22	Pittsburgh Intl PA	840	950	13 %
23	Charlotte NC	510	830	63 %
24	Cincinnati/N Ktky OH	840	830	-1 %
25	St Paul Intl MN	1300	820	-37%
26	Miami Intl FL	810	770	-5 %
27	Sky Harbor [Phoenix] AZ	900	760	-16 %
28	Indianapolis IN	1030	760	-26 %
29	Houston Intercont TX	780	750	-4 %
30	R Mueller [Houston] TX	480	750	56 %
	Other	33180	30270	-9 %
	Total	92000	78810	-14 %

[TABLE 5-4, Page 5-8] Source: U S Department of Transportation, 10 Percent O & D Sample, via DataBase Products

A9 Fares [Page 5-81]

One of the primary factors influencing a passenger's decision on a departure airport is the cost of travel. [Of] fares paid in 1997 from [GTR and competing airports] to the region's most popular travel destinations, [the following table shows GTR] overall had the highest average one-way fares.... [It is usually] less expensive to travel from ... Birmingham and Jackson, both airports where Southwest

Airlines operates, and Memphis, the regional hub for Northwest Airlines [resulting in] considerable incentive for passengers from the area to drive to these airports.

AVERAGE ONE WAY FARES PAID IN 1997 AT COMPETING AIRPORTS

Rank	Airport/Market	GTR	Birmingham	Memphis	Jackson
1	Hartsfield [Atlanta] GA	$154	$161	$78	$176
2	Dallas/Ft Worth Int TX	$157	$190	$173	$101
3	O'Hare Intl [Chicago] IL	$204	$129	$200	$153
4	Tampa	$172	$80	$119	$134
5	National DC	$181	$187	$162	$182
6	Houston Intercont TX	$236	$110	$191	$122
7	Orlando Intl FL	$140	$85	$115	$103
8	La Guardia [NYC] NY	$234	$237	$217	$202
9	Baltimore/Wash Intl MD	$333	$85	$245	$114
10	Los Angeles Intl CA	$210	$182	$205	$183
	All Markets	$226	$148	$175	$159

[TABLE 5 5 , Page 5-9] Source Department of Transportation, DataBase ODIA

A10 Traffic And Service History Summary [Page 5-9]

[The table following] summarizes a traffic and service history for Golden Triangle Regional Airport. Traffic levels have remained stable, despite competitive pressures exerted by first ValuJet at Jackson and more recently, by Southwest Airlines at both Jackson and Birmingham. With these low cost options close by, Golden Triangle Regional has continued to perform well, suggesting that overall demand has expanded and diversion has probably increased simultaneously. The presence of two universities within the region provides an outside source of potential air travel demand that is special to this region. ...

GOLDEN TRIANGLE REGIONAL AIRPORT TRAFFIC 81SERVICE SUMMARY, 1982-1997

Measure	1982	1987	1992	1997
Annual Enplanements	39,266	41,782	49,100	41,943
No. of Actual Departures	3,538	4,816	5,228	4,673
Total No. of Annual Seats	238,596	112,839	134,059	140,058
Average Aircraft Size	67	23	26	30
No. of Carriers Serving the Market	2	4	3	2
No. of Nonstop Markets Served	5	7	7	4
Actual Average Fare			$1 72	$266

A11 Parking Lot, Passenger, Travel Agent Surveys [Pages 5-57, 5-60, 5-63ff]

Surveys provide a means for determining the adequacy of the existing scheduled air service provided at [GTR]. Three surveys were designed, administered, and analyzed ...: parking lot, passenger, and travel agent.

The parking lot survey at [GTR]t was conducted on May 14 and May 15, 1998. During these two days, approximately 209 automobiles were recorded in the parking lots. Lowndes County, the county where the airport is located, was identified by the survey as being the primary county of residence. Other counties that had a significant number of automobiles in the Columbus/Starkville/West Point airport

during the survey included Oktibbeha, Clay, and Monroe. Automobiles from out-of-state were not noted with any substantial frequency during the survey. Enplanements at the airport in **1997** were approximately 42,000.

Passenger surveys were conducted at [GTR] during late April to early June **1998** [to] provide a means for obtaining detailed information from current air travelers on their travel habits and patterns. Information such as airport usage, methods of ticket purchase, and travel purpose can be gleaned from the passenger surveys … [and especially from] visitors to the State.

…

A total of **74** responses were received from passengers at Golden Triangle Regional Airport. The majority of the respondents, ***66*** percent, identified themselves as visitors to the area compared to **31** percent residents and **3** percent part-time resident. The top states identified by visitors included Texas, Michigan, Kentucky, North Carolina, and Tennessee. Those respondents who indicated they were local residents noted Starkville, Columbus, Macon, Ackerman, and West Point as their home. Overall, approximately 50 percent of the respondents noted that they used a travel agency to purchase their airline ticket. Other methods of purchase, in order of highest to lowest response, were in-house corporate ticketing, other methods, military, and airline. When the results for the residents and visitors to Columbus/Starkville/West Point are combined, approximately **78** percent of the respondents were traveling for business, **21** percent **…** for vacation, and **1** percent … for military purposes. This percentage was highly skewed toward business travel for visitors to the area as opposed to evenly split between business and vacation travel for residents.

Overall, the respondents indicated an average of nearly seven trips per year, with a total of **515** annual total trips. The respondents indicated that they sometimes use other airports for their departures including Birmingham, Jackson, Memphis, and Mobile [and accounting] for an additional **51** annual departures. The primary reason identified by the respondents for using an airport other than [GTR] was fares. Top destinations of the respondents to the passenger survey at [GTR] were in the following states: Tennessee, Georgia, New York, and Texas. **…**

A survey of travel agencies in Mississippi was conducted in June **1998.…** The average ticket value … was **$333.** The purpose of travel for the tickets sold … was nearly evenly split between business **(49.6%)** and pleasure **(48.6%)** [with the remainder] for military travel.

A12 Market Area Determination [Pages 5-69, 5-78]

County	Existing % Capture	1997 Airport Demand
Chickasaw	28%	621
Choctaw	29%	219
Clay	74%	4,057
Lowndes	73%	17,783
Monroe	33%	2,321
Noxubee	42%	841
Oktibbeha	55%	14,273
Webster	19%	420

[excerpt from Table 5.42, pages 5-70ff] Source: Wilbur Smith Associates

[Page 5-78]

Using data from [the table above], the actual ... market area for [GTR] extends into eight Mississippi counties. It was also noted that residents of Alabama are using the airport for their commercial air travel needs. The northernmost edge of the county in the market area, Monroe, is approximately 60 miles from Golden Triangle Regional Airport. To the west, Webster and Choctaw counties form the western boundary of the Columbus/Starkville/West Point market area; the western edge of these counties is approximately **45** miles from the airport. Noxubee County, located south of Lowndes County, is the southernmost county in the market area. The southern edge of this county is approximately **50** miles south of the airport. Although the airport is located approximately five miles west of the city limits of Columbus, the state line is located approximately eight miles east of central Columbus. ...

The size of the Columbus/Starkville/West Point market area is considered average for an airport served exclusively by regional/commuter airlines. While not located near an interstate, Columbus/Starkville/West Point does have good access via U.S. Route 82 and **U.S.** Route **45,** four-lane highways. Survey results indicate that passengers from the local market area are driving primarily to airports in Memphis and Jackson to obtain other commercial air service. Birmingham is also being used, but to a lesser extent. Jackson is located approximately **175** miles southwest of Columbus/Starkville/West Point, while Memphis is 180 miles northwest. Birmingham is actually the closest competing airport at approximately **135** miles. These distances to competing airports should be sufficient for the airport to maintain a large portion of its true market area.

The service provided at these two competing airports is much greater than is currently provided at Golden Triangle Regional, with Jackson being served by majorhational airlines such as Delta, Southwest, and **TWA,** and regionakommuter airlines American Eagle, Northwest Airlink, US Airways Express, and Continental Express. Memphis is the regional hub for Northwest Airlines who provides a high frequency of service to many markets. Typically, passengers are willing to drive between one to two hours to reach an airport with majorhational service. Airports served by Southwest, however, are known to attract passengers from as far away as three hours.

A13 Potential Passenger Demand [Pages 5-96ff]

Previous [content] have presented data on existing market conditions at [GTR]. If existing levels of commercial air service and competition for passengers among airports remain unchanged, it could be assumed that each airport's capture rate of the demand within its market area would also remain relatively unchanged. Under this type of baseline scenario, demand at each airport could be expected to grow at a normal rate of growth unless demographic or socioeconomic characteristics change radically.

The purpose of this element is to determine if [GTR] could logically increase its capture of passengers within its individual market area. Subsequently, each airport is evaluated to determine if increased demand levels, hereby referred to as "potential" demand, are adequate to support improved or additional air service. Potential demand represents the level of demand that might be anticipated at each airport if conditions or events are present that induce the market to capture a higher percentage of the air travel demand associated with its local market area. The potential demand scenario for each market assumes that, to a reasonable level, passengers in the local market areas will begin to use the closest airport with greater frequency.

... Most small and intermediate-sized airports experience passenger diversion. Therefore, "potential" demand levels ... are developed that reflect some continued leakage from the market. To establish market-specific assumptions related to potential demand at [GTR], the following factors were examined and considered:

- Current airport-specific enplanement levels and levels of scheduled service (i.e., aircraft size, number of nonstop destinations, number of daily departures, number of carriers)
- Distance and quality of ground access to competing airports
- Level of commercial air service available at competing airports
- Number of airports that are in competition for [GTR] passengers...
- Factors causing diversion from the market areas of study airports

Passengers traveling via commercial airlines often consider many factors in selecting an airport for their departure. These factors are generally referred to as "sensitivity" factors. These factors impact travelers in various ways. Passengers traveling for pleasure, referred to as discretionary travelers, generally have the highest propensity to leave their local market area and drive to a more distant departure airport. Depending upon the time involved and the advantages gained, non-discretionary or business-related travelers will also leave the local market area for their airline departures.

Studies in the psychology of air travelers have shown that the total number of flights offered is the highest-rated factor in the passenger's decision-making process. This is particularly true for business travelers. Airline schedules that offer high departure frequencies and conveniently timed flights can often draw passengers from one market to another. Nonstop service is also an important factor. Many passengers often choose to leave the local market area to obtain nonstop versus connecting service on their departure flight. Passengers will bypass the local airport to travel to the large airport with a high volume of nonstop service to avoid connections and, sometimes, regional/commuter aircraft. The majority of the travel agency survey results indicated that passengers use other airports to access larger aircraft. Although passenger aversion has decreased in recent years with the introduction of regional jet aircraft, some passengers still try to avoid flying on regional/commuter aircraft in favor of larger jet aircraft.

Airline loyalty, as driven by a passenger's vested interest in a particular carrier's frequent flyer program, often influences a passenger's decision-making process as it relates to selecting a departure airport. In situations where a particular airline has served a community for an extended period of time and then terminates service, an impact on the passenger's decision-making process for a departure airport may be experienced due to the passenger's vested interest in the airline's frequent flyer program. If the airline continues to serve a nearby city, passengers may drive to a competing airport to continue to build equity in their established frequent flyer program. Loyalty to frequent flyer programs has also proved to be a formidable obstacle to new carriers who attempt to initiate service in an established carrier's market.

The availability of discount fares, however, is one of the most important factors considered by air travelers when selecting a departure airport. Airline fares were noted as part of the survey efforts of travel agencies and passengers as a primary reason for leakage from the local airport market areas. Southwest Airlines, the dominant low-fare carrier in the **U.S.,** with its presence at Jackson ... and Birmingham, has impacted air travel patterns... In addition, at smaller airports, the use of 30-seat aircraft limits the number of discount fares available to travelers. For example, if a carrier allows 15 percent of the aircraft seats to be discounted at the lowest excursion fare rate, this means there are 21 seats on a **MD-88** (142 total seats), but only three on a 19-passenger aircraft or possibly five on a 30-passenger plane.

By reviewing enplanements per population ratios and existing capture rates of demand, as determined by survey results, unconstrained demand estimates were developed for [GTR]. If all airports provided an equal level of service in terms of the number of airlines, size of aircraft, number of frequencies, nonstop destinations served, and price, each airport would theoretically capture all demand that is associated with its market area. This level of demand is referred to as "unconstrained" demand. None of the constraints that affect an airport's actual ability to capture its total demand are considered in the development of an unconstrained demand estimate for each airport. "Potential" demand refers to the level of demand that might be anticipated at each airport if conditions or events are present that induce each airport to capture a higher percentage of the total unconstrained demand associated with its market area. Potential demand estimates reflect conditions that cannot be changed in each market area such as distance to larger airports with better service.

To identify an unconstrained demand level for [GTR], enplanements were translated into an existing capture rate of ... total air travel demand. Existing capture rates ... were determined through analysis of parking lot, travel agent, and passenger surveys. [The table below] presents unconstrained demand estimates for [GTR reflecting] estimates ... generated for the current time frame based on 1997 enplanement levels. ...

Golden Triangle Regional	**41,943**	**58%**	**69,605**

Demand for air travel is also generally considered to be related to a number of socioeconomic factors, including population. Therefore, as part of the process to determine potential demand levels for [GTR], the ratio of 1997 enplanements to population ... was reviewed. Nationally, an average

enplanement per population ratio would be between 1.0 and 2.0. High ratios are usually associated with markets that draw a substantial amount of visitor travel. For markets … well below the national ratio, substantial passenger leakage to a competing market or markets may be occurring. By comparing [the GTR] ratio to the national and State average, the relationship between the demand for commercial air service [at GTR] and the population of the market area can be determined. This relationship was considered as part of the process to establish [the GTR] unconstrained demand level.

With an unconstrained demand level established for [GTR], the next step was to develop a more realistic estimate of the demand that could actually be captured, or a "potential" demand estimate. As the market for [GTR] is examined to establish its potential demand estimate, the passenger sensitivity factors are considered to determine the ability or likelihood of [GTR] airport being able to increase the percentage of its unconstrained passenger demand that it enplanes. For [GTR], assumptions were made related to the feasibility of increasing passenger capture rates on a county-by-county basis within the airport's established market area. Many airports … share passenger demand associated with various counties. For instance, the counties where the Columbus/Starkville/West Point [airport is] located, Lowndes [has] passengers that drive to Jackson to access commercial air service. This study's process to establish potential demand levels did not increase demand for [GTR] at the expense of another…. This analysis assumed that, to some extent, more passengers would use the [GTR] airport … instead of continuing to drive to an airport such as Jackson or to an out-of-state airport. [The GTR] market was examined to identify the relative percentage of demand being served beyond the State, as well as the percentage of passengers who are currently leaving the local market area and driving several hours to use a more distant Mississippi commercial service airport.

[The following table] presents the existing and estimated potential capture rates and resultant passenger demand levels [for GTR] airport. It … was assumed in the potential demand scenario that … no increase in capture of out-of-state passengers [would occur]. It is likely that if service were improved to [GTR] that the influx of these passengers would increase. …

[Pages 5-100, 5-101]

In **1997, 41,943** passengers were enplaned at Golden Triangle Regional Airport. Through previous analyses it was estimated that unconstrained demand for the airport in Columbus/Starkville/West Point is **69,605,** indicating the airport is capturing approximately ***58*** percent of its unconstrained demand.

The Golden Triangle Regional Airport in Columbus/Starkville/West Point competes for passengers primarily with the airports in Jackson and Memphis. To a lesser extent, passengers leave the local market area and use airports in New Orleans and Tupelo for their air service needs. Primary reasons identified for passenger erosion in the Columbus/Starkville/West Point market include:

- Passengers leaving the market to obtain service on discount carriers (such as Southwest Airlines in Jackson, Birmingham, and New Orleans)
- Passengers leaving the market to obtain nonstop service (such as Northwest Airlines in Memphis)
- Passengers leaving the market to obtain service on larger aircraft

Market characteristics, distance to competing airports, and highway access were reviewed to determine the airport's ability to capture a higher level of unconstrained demand. Based on these factors, higher capture rates were assumed for various counties that comprise the Columbus/Starkville/West Point market area. [The following table] compares existing and potential capture rates and passenger demand for the Columbus/Starkville/West Point market. [The] largest gain in potential passengers for this market is anticipated from Lowndes and Oktibbeha counties. These two counties currently have the highest

numbers of enplanements and could be expected to see the highest increases. Based on this higher capture of demand from all of the counties within the existing market area, the airport has the potential to enplane approximately 55,025 passengers in the current time frame. This represents a potential capture rate of 79 percent **of** the unconstrained demand estimate for Golden Triangle Regional airport. The remaining unconstrained demand is anticipated to continue to leave the local market area to use competing commercial service airports.

Airport	1997 Enplanements	Current Potential Demand Estimate	Potential Capture Rate
Golden Triangle Regional	**41,943**	**55,025**	**79%**

A14 Potential Air Service Improvements [Pages 5-104, 5-105]

With potential demand estimates identified ... the analysis shifts to determining if new or improved levels of service can be supported. To make this determination, factors such as number of hubs served, flight frequency, aircraft types, and airlines that may be able to be supported are considered ...

The study's analysis focuses its attention on reviewing and evaluating [the ability of GTR] to support economically self-sustaining scheduled commercial air service to hub airports. Most route systems operated by **U.S.** domestic scheduled air carriers are considered "hub and spoke". The hub and spoke system is operated extensively in the **U.S.** wherein passengers from smaller spoke cities fly to the larger hub airport to connect to **an** aircraft destined to another spoke city which represents their final destination. Much of the service provided at spoke cities is provided by regional/commuter airlines that operate as feeders to the larger majorhational carriers who operate at the hub airports. While a trend to point-to-point service is occurring, the majority of the point-to-point service is between very high-density markets. It is anticipated that [GTR] will continue to serve **as** [a spoke] in the airline hubbing pattern.

A critical factor in determining the feasibility of service to hub airports from spoke cities is the distance **of** the hub airport to the spoke city. Turboprop aircraft have traditionally served spoke cities that fall within a 300-mile range. This distance was used as a basis primarily due to the operating characteristics of the turboprop aircraft that were used **by** the regionakommuter carriers. With this stage length, the regionakommuter trip from the spoke airport to the hub was kept to less than two hours. This mileage barrier has recently been expanded with the introduction of regional jet aircraft by many of the regional/commuter carriers and some advanced turboprop aircraft such as the Domier 328. Regional jets are now being operated on stage lengths as long as 1,100 miles and the Dornier 328 is being operated on stage lengths of more than 500 miles.

...

Regional airline connecting hubs were examined to determine which hubs present opportunities for traditional turboprop versus regional jet service [at GTR]. There are [seven] airline connecting hubs that appear geographically located in proximity to [GTR]:

- Atlanta–Delta
- Memphis – Northwest
- Dallas – American and Delta
- Charlotte – US Airways
- St. Louis – Trans World Airlines
- Cincinnati – Delta
- Houston – Continental

Regional/commuter airline service is currently available to [three] of these airports [from GTR]. The distance to these airline hubs from [GTR] is presented in [the following table].

DISTANCES [BY AIR FROM GTR] TO AIRLINE CONNECTING HUBS 1/

From	Atlanta	Memphis	Dallas	Charlotte	St. Louis	Cincinnati	Houston
GTR	**237**	154	506	464	**343**	455	478

1/ Number in **BOLD** represent those under 400 miles that fall within range for turboprop aircraft. The remaining distances would require the use of regionaljet or major/national jet aircraft.

For purposes of this analysis, these general guidelines were used to determine [the ability of GTR] to support additional hub service with the identified potential demand estimate. (For … markets with less than 30,000 annual potential enplanements, it [is] assumed that service to a second airline connecting hub [cannot] be supported in the near term. While some … airports have had service to two hubs in the past, given the current airline operating environment, including the existing airline hub structure and the phasing out of 19 passenger aircraft, the near term prospects for new hub service appear limited for airports with this level of passenger activity. To attract a second airline to these communities requires more in-depth analysis of each market to identify the level of local commitment, including possibly financial commitment, to support service by a second carrier …

... The process to evaluate the adequacy of existing service and the feasibility of improved service was conducted from the carrier's economic viewpoint. The analysis assumes that service must be financially feasible for the airline and convenient for the traveler in order to be successful. To be convenient, the service must provide multiple options for passengers to connect to their final destination and the hub airport must be located such that it does not require a passenger to travel significantly in the opposite direction of the final destination... The number of departures provided from a hub airport to the passenger's final destination also affects the passenger's hub-making decision. If one hub airport offers 10 daily departures to a final destination (such as Lexington, Kentucky), and another hub airport only offers three daily departures to Lexington, the passenger is more likely to select the departure airport with the highest frequency of departures to Lexington if other factors do not make the trip more inconvenient.

Since many cities comprise an airport's top markets and there are other destinations than can be reached from the hub airports that are not necessarily "top 10" markets, a regional analysis was performed. This regional analysis combines all of the origin and destination markets into regions of the **U.S.** to determine where the majority of the passengers are destined from a regional perspective.,. Using this regional aggregation, the suitability of the hub airports was determined by examining the number of departures from the hub to markets in these regions.

...

The analysis to determine the financial feasibility of the service was conducted using an analytical computer mode. This model analyzes demand between specific city pairs to determine if air service is economically viable from the carrier's viewpoint. The model uses aircraft-specific costs averaged for the carriers operating the aircraft to evaluate the expense that would be incurred and determine the fare that could be charged to operate the service at an adequate profit level. It is important to note that while the model does evaluate the financial feasibility, it is only a tool and does not analyze the service from a "real-world'' perspective. For instance, the model may show that service between two markets is financially viable once per day using a Beech 1900 aircraft. In reality, a carrier is not likely to implement new service to an airport that can only support one departure per day on a small, 19-seat aircraft. Therefore, the model's results must be tempered with analysis of the likelihood of the service improvement.

[Pages 5-108, 5-109ff]

Two carriers, Atlantic Southeast Airlines (Delta connection) and Express Airlines (Northwest Airlink), currently serve Golden Triangle Regional Airport. These two carriers provide service using regional/commuter aircraft to three airline hub airports, Atlanta, Dallas, and Memphis. The service to Atlanta is linked with Alexandria, Louisiana, as the aircraft starts in Dallas, stops in Alexandria and continues on to Golden Triangle Regional and then Atlanta. On average, there are four departures per day to Dallas (through Alexandria), seven departures per day to Atlanta, and three departures per day to Memphis.

The airport enplaned 41,943 passengers in 1997. Analysis of the market's potential demand indicated the airport has the potential to enplane approximately 55,025 passengers on an annual basis in the current time frame. With this level of potential demand, service to three airline hubs appears well suited to meet the airport's demand. The existing service is geographically diverse providing passengers with access to the east, north, and west. The analysis for Golden Triangle Regional Airport focuses on the airport's ability to support additional frequencies and/or larger aircraft to some of the airport's existing airline connecting hubs.

As presented earlier in the analysis, the top five origin and destination airports in 1997 for the Golden Triangle Regional **Airport,** according to the **U.S.** Department of Transportation in the 10 Percent O&D Sample, were as follows:

- Atlanta
- Dallas/Fort Worth
- Washington (National Airport)
- Chicago (O'Hare Airport)
- New York (La Guardia Airport)

To further examine where travelers are destined and how the existing hubs can serve this airport's demand, demand was aggregated by region. The ... regions and the states [within each are presented following with] Golden Triangle Regional Airport's demand for the O&D airports summed by region:

GOLDEN TRIANGLE REGIONAL AIRPORT'S REGIONAL DEMAND

Region [and states/territories within each]	Percent of Total Demand	Annual Potential Enplanements
Southeast [FL, GA, NC, SC, PR, VI, VA]	23.6%	12,986
Northeast [all other states]	18.8%	10,368
Midwest [MI, WI, MO, KY, OH, IN, IL]	18.8%	10,340
South Central [TX, OK, NM, CO, KS]	17.8%	9,789
Southwest [CA, AZ, NV, UT, HI]	9.5%	5,202
Mid-South [LA, AR, MS, AL, TN]	5.4%	2,946
Northwest [WA, OR, ID, AK]	3.5%	1,899
North Central [MN, IA, NE, SD, ND, WY, MT]	2.8%	1,522
Total	100.0%	55,025

[Page 5-109]

The Southeast region includes the states of Florida, Georgia, South Carolina, North Carolina and Virginia. For Golden Triangle Regional, this region captures the highest level of collective demand. Demand in this region can most logically be served from Golden Triangle Regional via the Atlanta hub. Atlanta can also serve demand to the Northeast fairly well due to its high level of departures to markets in the Northeast. The Memphis hub, located in the Mid-South region, serves markets in the Mid-South and Midwest with a relatively high frequency of flights. Demand to cities in the South Central and Southwest regions is well served via ... Dallas.

Given the Golden Triangle Regional Airport's existing level of service to three airline hubs and its potential demand estimate for the current time frame, the route analysis for this airport focused on service to these hubs versus evaluating additional airline hub service. The results of the route analyses for the Golden Triangle Regional Airport are discussed ... following:

A1.14 Atlanta [Page 5-110]

As the largest airline connecting hub for Delta Air Lines, Atlanta currently provides nine connecting banks for passengers arriving from other markets. Delta offers hourly service to many major markets, providing high frequency to many U.S. and international destinations. For the purposes of this analysis, all of the potential demand identified for [the] Golden Triangle Regional markets in the Southeast and Northeast regions, and half of the demand to markets in the Midwest was assigned to the Atlanta hub, totaling **28,524** annual potential enplanements. The route analysis model shows that with this level of potential demand, three daily departures on the Canadair Regional Jet (CRJ) appear financially feasible. The model results support the financial feasibility of the existing service, indicating that this level of potential demand can support seven departures per day using the Embraer 120. It is likely that a combination of service with CRJs and Embraer 120s would be financially feasible for this market at a maximum of seven daily frequencies in the near term. A mix of equipment on this route would allow the market to maintain a higher frequency while providing additional seats on larger equipment. In terms of

scheduling, an earlier departure time to Atlanta could open up additional connecting opportunities for passengers traveling from Columbus/Starkville/West Point to reach their final destinations earlier in the day. The earliest arrival for a passenger traveling from the region to other destinations such as Washington, D.C., Chicago, and New York is 11 a.m. Eastern time. However, in order to reach many of these destinations earlier in the morning would require a departure time of at least 5:30 a.m. which may not garner a high level of passengers. The remaining departure times throughout the day provide passengers from the region with sufficient connecting time to the top destinations.

A1.14 Memphis [Pages 5-110]

As an airline hub for Northwest Airlines, Memphis provides a significant level of service to destinations in the Mid-South, Midwest, and Southeast regions. In terms of establishing a potential demand level to analyze for this hub, it was assumed that all of the demand for the Mid-South region and half of the demand for the Midwest would use the Memphis hub. This translates into 8,116 annual potential enplanements. The route analysis model indicates that only two daily departures can be supported with this level of demand using the Saab 340. It should be noted that the Northwest Airlink carrier recently introduced the Saab 340 into the market; many of [the] Northwest Airlink markets had historically been served with a 19-passenger aircraft. This aircraft change was part of the carrier's program to replace all 19-passenger aircraft with larger aircraft to provide a uniform fleet. This fleet improvement will likely stimulate additional demand for the service resulting in a sufficient level to support the three daily departures. With Northwest's three daily departure banks from Memphis, it is important that three daily flights be maintained to provide travelers with sufficient access in Memphis.

A1.14 Dallas [Pages 5-110ff]

While American Airlines is the dominant carrier at Dallas, Delta Air Lines still provides a good level of service for passengers utilizing ASA for connecting purposes. In addition, because Dallas is a top market, this service helps the airport capture demand to this market with its one-stop service. The existing ASA service to Dallas from Golden Triangle Regional consists of one-stop service with the aircraft stopping in Alexandria, Louisiana, on its way to Dallas. This one-stop service provides excellent westbound opportunities for the passengers traveling from Golden Triangle Regional.

The stage length from Golden Triangle Regional Airport to Dallas nonstop is over 500 miles. This stage length would require the use of regional jet aircraft if the service were nonstop. The current flights are operated with Embraer 120 aircraft that operate well at stage lengths under 350 miles. Assuming service to Dallas would attract demand for markets in the South Central, Southwest, Northwest, and North Central regions, approximately 18,412 potential annual enplanements would utilize Dallas service. According to the results of the route analysis model, if the service were operated nonstop with a CRJ, only one departure per day could be supported. If the markets continue to be 'tagged' or operated on this linear one-stop routing, two departure per day on the CRJ would be financially viable. The model indicates that if the existing one-stop service pattern continues with the Embraer 120, four departures per day could be financially feasible.

A1.14 ***[Summary]***

In all, the route analysis model indicates that the existing service currently provided at Golden Triangle Regional Airport is generally sufficient, with the potential for some aircraft upgrades to larger equipment in the Atlanta market, and possible additional frequencies or larger aircraft to Dallas. Without significant changes in travel characteristics or local economics, major changes in air service do not appear warranted to meet the market's potential demand estimate in the near term.

A.15 Action Plan [Recommended To Gtr By The Study] [Pages 5-127ff]

The factors that drive the need for commercial air service vary markedly .... Through the development of an unconstrained passenger demand estimate for each market, this study has estimated the total number of annual commercial air travelers that currently appear to be associated with each county in the [GTR market area]. These market areas statistics were based on results of airport parking lot surveys, and validated through passenger and travel agency survey results. The survey results identified that many ... commercial air travelers choose to leave the market area that they are associated with and to initiate their commercial air travel from a more distant, competing commercial service airport located either within the State or beyond in contiguous states. This study has assumed that passenger diversion to other airports is a reality given the current airline operating environment. Competition for airline passengers will continue....

Given the fact that passenger diversion **or** leakage will likely continue over time, the type of air service that can realistically be supported by [GTR] is to some extent predetermined. [GTR] will continue to compete with larger airports such as Jackson International ... that offer higher service frequencies, majorhational and regional/commuter jet equipment, and low-cost carrier service. The existing service opportunities are also somewhat constrained by location relative to airline connecting hubs. These factors were considered in the evaluation of realistic air service opportunities for [GTR].

The potential demand estimates developed in this analysis represent a portion of the unconstrained demand for each market area that is considered to be realistically achieved given the constraints affecting [the GTR] market. For [GTR], a higher capture of unconstrained demand has been identified due to the distance from the market to other competing airports and the level of service provided. ...

The route analyses detailed in the previous section were carried out assuming that each of the study airports would be able to capture an optimal, yet realistic, level of its total unconstrained level of annual enplaning passengers. It is important to note that the results of the route analyses ... is contingent on many factors, but the results are definitely predicated upon the ability of [GTR] to attract the level of potential passenger demand used in [the] analysis. For [GTR], commercial air service improvements are tied to increased levels of passenger demand, as opposed to the [current] level of annual enplanements....

Changes in the air service environment for [GTR] including airline decisions regarding equipment, fares, additional connecting banks, and routes to be served will continue to occur, impacting findings related to the route analysis. The most important finding of this analysis is that, for the most part, the existing service provided at [GTR] can be supported and that even if increases in passenger activity do not occur in the short term that the existing service can be maintained. While improved and/or additional service is warranted in some markets, the number one goal for all markets should be to maintain the existing level of commercial air service.

Air service improvements identified in this … air service study must be implemented from the bottom up, not the top down. In other words, action will be required by the communities that are served … to realize the opportunities for air service improvements that have been identified in this study.

[Pages 5-134]

The route analysis identified that the airport appears to have a sufficient number of carriers providing service. The number one goal for Golden Triangle Regional is to maintain the level of service provided by the three carriers who provide residents with several travel options (Atlanta, Memphis, and Dallas). In terms of service to Atlanta, the route analysis showed that while the airport cannot support an all regional jet fleet at the existing frequency level, a mix of service by 50-passenger regional jets and 30-passenger turboprops appears warranted. As ASA continues to acquire regional jets as part of their aircraft fleet, Golden Triangle Regional should provide ASA with documentation on the community's ability to support service by these aircraft. It is likely that with ASA's fleet changes that Golden Triangle Regional is under consideration **for** regional jet flights, however, the timing **of** the introduction of these flights to the airport may be influenced by coordination with the carrier.

It is, however, important to note that the statewide analysis focused primarily on in-state passengers. **For** Golden Triangle Regional, it was estimated that out-of-state demand generated approximately 1,400 enplanements in 1997. If the airport is successful in attracting a higher level of out-of-state demand, the potential demand estimate could increase, but the resulting level of total demand is not likely to change the recommendations for this airport. Marketing to out-of-state passengers is, however, highly recommended to help grow the airport's passenger activity.

Implementation of air service initiatives such as a fare watch program and close coordination with major businesses in the region, especially educational facilities, should be considered to help stimulate awareness of the benefits to the community of using the local airport. Discussion about the different carriers and the options they provide for domestic and international travel should be highlighted.

A16 Projections Of Aviation Demand

A16.1 General Approach to Forecasting [Page 4-1ff]

… Commercial airline operations and fleet mix projections were developed based on expected aircraft load factors. With this approach, aircraft seating capacities are used in conjunction with known and expected aircraft usage by the carriers operating at [GTR]. Because the national aviation industry is virtually certain to continue to shift to the use of aircraft with greater seating capacities, the average number of departing seats at [GTR] was assumed to also rise during the projection period [of 20 years with milestones at **5** and 10 years]. Increased seating capacity often causes projected rates of growth for operations to be lower than the corresponding enplanement growth rates. This is because with higher aircraft seating capacities, fewer operations are required to carry the same number of passengers.

…

A16.2 Commercial Service Activity Projections [Pages 4-3ff]

Since air carrier … operational activity levels are directly linked to enplanements, a preferred enplanement projection for [GTR] must be established. These preferred enplanement projections are needed prior to proceeding with the development of projections of operational demand for the commercial carriers. Commercial service activity projections were developed for both passenger enplanements and annual operations. In addition, projections were developed for the commercial fleet mix at [GTR] with commercial airline service. For these projections, calendar year 1997 was used as the base year, with the most recent FAA forecasts (**FAA** Aviation Forecasts, FY 1998-2009) used as both a reference and a projection tool.

... The following terms used in this [study] must be defined:

- Maior airlines are airlines with gross operating revenues during any calendar year of more than $1 billion.
- National airlines gross between $100 million and $1 billion during any calendar year.
- Regional airlines are those airlines which gross less than $100 million during any calendar year.
- Commuter airlines are classified by type of aircraft used rather than the level of operating revenue. The term "commuter" is not associated with the **U.S.** Department of Transportation (DOT) reporting system for carrier earnings. Commuter airlines are those which operate aircraft with a maximum of 60 seats, and who also conduct at least five scheduled round trips between two or more points.

Projections of commercial activity were prepared for [GTR in expectation **of** continued] commercial service throughout the planning period. ...

No additional assumptions were made regarding the level of air service [at GTR] while preparing these projections, only natural growth was assumed. New types of service, such as transition from strictly regionalkommuter service to combined major/national and regionalkommuter service ... were not analyzed.

A16.3 Annual Passenger Enplanements [Pages 4-4ff]

Passenger enplanement projections were developed using a market share approach. The market share/growth rate methodology examines [GTR's] historical and projected share of the **U.S.** market through a comparison of historical and expected growth rates ... The **U.S.** forecast provides a growth base, reflecting how industry traffic in general is anticipated to grow in the future, considering factors such as the nation's economic health, aviation industry trends, and airline fuel and fare pricing trends. Based on the U.S. forecast and historical activity at each airport, assumptions were made relative to how [the GTR] share of **U.S.** enplanements would change over the 20-year planning period.

Enplanements on regional/commuter carriers at Golden Triangle Regional have increased slightly over the past nine years from 40,331 in 1988 to 41,943 in 1997. This represents an overall average annual rate of growth of 0.44 percent. During this time, the airport's market share of **U.S.** regionakommuter enplanements continued to decline from 0.13 in 1988 percent to 0.07 percent in 1997. To develop enplanement projections for Columbus/Starkville/West Point [the] anticipated market share was applied to the projected **U.S.** enplanements to derive enplanement projections for each of the milestone years.

The specific formula used to develop this projection is as follows:

Market Share * **U.S.** Regional Commuter Enplanements = 2017 Projected Enplanements

Example ... (.0005) * (155,300,000) = 80,800

... Assuming that the airport's market share of **U.S.** regionalkommuter enplanements continues to decline to 0.05 percent in 2017, enplanements at the airport are projected to reach 80,800 [in the table below]. This declining market share results in an average annual rate of increase in enplanements of 3.33 percent.

The Golden Triangle Regional master plan completed by the LPA Group in 1989 projected enplanements to increase to 81,300 in 2008. The master plan's projections were extrapolated to 2017 to

provide … forecasts. Using the master plan's average annual growth rate (3.67 percent), enplanements at Golden Triangle Regional would reach 112,400 in 2017. The [FAA] projects enplanements at Golden Triangle Regional to increase to 98,484 in 2017, an average annual rate of 4.08 percent. The [FAA] enplanement [data shows] 42,485 in 1996 … which is approximately 600 more enplanements than [was actually] reported in 1997. [FAA] and master plan projections for this airport are considered ambitious based on actual 1997 enplanements at this airport and the growth that the airport has experienced in recent years.

COLUMBUS/STARKVILLE/WEST POINT – GOLDEN TRIANGLE REGIONAL ENPLANEMENTS PROJECTION – MARKET SHARE APPROACH

Year	Golden Triangle Enplanements	United States Regional/Commuter Enplanements	Golden Triangle Market Share	Golden Triangle Growth Rate [% per annum]
1988	40,331	31,500,000	0.13%	--
1989	41,954	33,200,000	0.13%	4.02%
1990	45,990	38,600,000	0.12%	9.62%
1991	43,920	40,200,000	0.11%	-4.50%
1992	49,100	44,700,000	0.11%	11.79%
1993	50,666	49,200,000	0.10%	3.19%
1994	46,609	55,300,000	0.08%	-8.01%
1995	42,875	55,800,000	0.08%	-8.01%
1996	41,106	60,100,000	0.07%	-4.13%
1997	41,943	61,900,000	0.07%	2.04%
Projected				
2002	57,600	82,300,000	0.07%	6.55%
2007	68,200	106,500,000	0.06%	3.44%
2017	80,800	155,300,000	0.05%	1.71%

[TABLE 4-1, Page 4-5] Sum: FAA Aviation Forecasts, FYs 1997-2008, Airport Management Records, The Airport Technology and Planning Group, hc (AirTech)

A16.4 Commercial Fleet Mix [Page 4-22]

Commercial fleet mix projections for [GTR] were developed in conjunction with the commercial operations projections. This methodology is used because the number **of** average seats per departure and the types of aircraft in the fleet are dependent upon each other. …

[The data in the following table] present the existing and projected fleet mix for [GTR] … **A** shift to aircraft with higher seating capacities is expected …, as airlines modernize their fleets. For … [GTR service] by Northwest Airlink, the regional/commuter carrier for Northwest Airlines, the future fleet mix reflects the carrier's recent decision to replace their 19-passenger Jetstream 31 aircraft with 30-passenger Saab 340 aircraft (October 1998) … It is not anticipated that a return to 19-passenger aircraft will be experienced … given the current conditions in the regional/commuter airline industry.

Year	6-14 Seats	15-19 Seats	20-40 Seats	> 40 Seats	Total	Avg. Seats per Departure
1997	0.0%	4.0%	96.0%	0.0%	100.0%	30
Projected						
2002	0.0%	0.0%	85.0%	15.0%	100.0%	33
2007	0.0%	0.0%	79.0%	21.0%	100.0%	34
2017	0.0%	0.0%	72.0%	28.0%	100.0%	36

A16.5 Annual Airline Operations [Page 4-32]

With an average of 13 departures a day in 1997, regional/commuter operations at Golden Triangle Regional were 9,602 in 1997; average seats per departure were 30. The average number of seats per departure is expected to increase from 30 in 1997 to 36 in 2017. As [the table below] indicates, with the projected increase in enplanements and average seats, operations are expected to increase from 9,602 in 1997 to 10,000 in 2002. After 2002, the number of operations is expected to decrease slightly over the next 15 years from 10,000 to 9,400 in 2017. This 2017 operational level translates into approximately 13 average daily departures on regionakommuter aircraft.

Year	Regional/Commuter Enplanements	Average Seats	Regional/Commuter Departures	Regional/Commuter Operations
1997	41,943	30	4,801	9,602
Projected				
2002	57,600	33	5,000	10,000
2007	68,200	34	4,900	9,800
2017	80,800	36	4,700	9,400

END OF APPENDIX **A**

APPENDIX B: REVIEW OF RECENT AIR SERVICE AT GTR AND ANALYSIS

This document reviews airline service at GTR within the period from mid-1999 to mid-2002.

B1 Recent Service Patterns

The recent GTR service pattern connecting with three airline hub locations is shown following.

GTR Weekday Scheduled Air Service

	Date	Freq	Stops	Type	Source
DL* To/Fr DFW	May/1997	3x	1	EM2	OAG
	May/1998	3x	1		OAG
	Sep/1999	3x			OAG
	Oct/1999	3x			OAG
	Apr/2001	2x	1		DL Timetable
	Mar/2002	2x	1		GTWASA www
DL* To/Fr ATL			0	EM2	OAG
	May/1998	6x	0	EM2	OAG
	Sep/1999	7x	0	EM2	OAG
	Oct/1999	7x	0	EM2	OAG
	Apr/2001	4x	0	EM2	DL Timetable
		1 x	0	CRJ	
	Feb/2002	5x	0	EM2	OAG
		1 x	0	CRJ	
	Mar/2002	6x	0	EM2	GTR/ASA www
		1x	0	CRJ	
NW* To/Fr MEM			0	SF3	OAG
	May/1998	3x	0		OAG
	Sep/1999	3x	0		OAG
	Oct/1999	2x	0		OAG
	Nov/2000	3x	0		CO Timetable
	Sep/2001	3x	0		NW Timetable
		1x	1		
	Mar/2002	3x	1		NW Timetable

LEGEND:		
	DL*	Delta Airlines codesharing carrier ASA
	NW*	Northwest Airlines codesharing carrier Express
	EM2	EMBRAER EMB-120 Brasilia
	SF3	Saab 340
	DFW	Dallas/Ft. Worth Airport
	ATL	Atlanta International Airport
	MEM	Memphis International Airport
	OAG	Official Airline Guide
	CO	Continental Airlines
	CRJ	Canadair Regional Jet

Source: GTR and USDOT

B2 Service From GTR To Airline Hubs

B2.1 To And From Memphis

Service to and from Memphis (MEM) has been notably stable for most of the recent five years. Then, just prior to the widespread airline service reductions resulting from the **US** terrorist attacks of September 11, the MEM service by Northwest Airlink carrier Express I was planned for upgrade to one additional (one-stop) frequency. In the aftermath of the attacks, MEM service was apparently reduced to three, one-stop flights. While this is certainly to be preferred over a frequency reduction, it severely impairs the utility of the service when the median flying time from GTR (via the one-stop) to MEM is 1 hour + **45** minutes. Though this value remains less than the drive time of 3 hours, this apparent advantage can be severely compromised with minimum hub connection time to transfer from the inbound GTR flight to the outbound flight to the final destination. These factors put stress on the utility of the remaining service and pressure on the value pricing of such a product.

B2.2 To and From Atlanta

Contrary to the expectations of the state study, we find that service frequency to ATL did not continue to increase past the **7** that existed during the study. Rather, DL elected to deploy an RJ in that market, though only midday and not during the likely traffic peaks in the morning and evening hours. Even so, this return of 'jet service' likely served **as** an important stimulus for the constituent communities of GTR in spite of initial frequency reduction from **7** to ***5*** with the intro of the CRJ. Traffic apparently justified the subsequent frequency enhancements by DL – first to 6, then to **7** -- over the next year after the CRJ came online (and this notwithstanding the traffic shock following the 9-11 attacks).

B2.3 To and From Dallas/Ft. Worth

Direct service between GTR and DFW has not fared so well. From the initial 3 frequencies that appear in the late 90s (and may have been a reduction from the **4** frequencies claimed by the state study), we find that even well before the terrorist attacks, DL had already pulled down the DFW frequencies to two per day. This is a hard blow. Since these flights were already a one-stop route, now with only two frequencies, it provides very little opportunity to be used by most travelers. In fact, it is only little more than an hour longer to connect through ATL to DFW than via the Alexandria (AEX) one-stop ASA service, and the ATL connection offers much greater schedule flexibility.

Note present service to ATL represents 220 daily available seats: six daily 30-seat Embraers, plus a 40-seat **CRJ.** Given the existing (underperforming) ***58%*** capture rate and the approximate '2-for-3' ratio suggested by the regional analysis as well as the O&D demand for service **of** ATL and DFW (from the state study excerpt in Appendix **A),** we should then see 120 daily seats westbound. The present schedule provides only 60 ***IF*** considering that no one boards in AEX -- which clearly could **not** be considered the norm. Anecdotal evidence indicates that about **7** seats are allocated to GTR on each DFW flight. If we consider the even higher ratio (of destination demand for ATL compared to DFW) suggested by the DOT O&D data following, the case for a greater supply of seats to DFW becomes even more compelling.

B3 US DOT Data

In the next graphic, we note the DOT data as indicating potential traffic demand on the GTR-DFW route. Though the data is not as robust, there also appears to be sufficient demand in the DCA route to merit consideration **of** non-stop (O&D) service with a 9-seat high speed regional airliner. Likewise, consideration could be given to New York (LGA) were it not for the experience **of** regionals operating there posting record-setting delays. In addition to the trip length being excessive for even a high speed regional airliner, we would regard this route as a poor choice.

ATL-GTR	10%	One-way	Lgst	Lgst A/L Mkt	Lwst A/L I-way
Miles=241	Pax/Day	Fare	A/L	Share%	Fare
1Q 2001	12	231	DL	100	230
4Q 2000	16	212	DL	92	193
3Q 2000	12	226	DL	97	149
2Q 2000	16	215	DL	97	49
1Q 2000	14	213	DL	98	213
4Q 1999	15	221	DL	95	188
3Q 1999	17	213	DL	97	205
2Q 1999	15	185	DL	99	185
1Q 1999	17	180	DL	95	120
4Q 1998	11				
GTR-DFW					
Miles=491					
1Q 2001	10	192	DL	80	156
4Q 2000	10	170	DL	82	141
3Q 2000	10	161	DL	85	152
1Q 2000	13	191	DL	81	153
4Q 1999	17	144	DL	76	141
3Q 1999	16	194	DL	81	187
2Q 1999	10	167	DL	74	163
1Q 1999	11	159	DL	74	152
4Q 1998	15				
GTR-DCA					
Miles=742					
1Q 2001	10	237	DL	76	175
4Q 2000	12	199	DL	52	191
3Q 2000	10	187	DL	54	172
2Q 2000	11	219	DL	57	179
GTR-NYC					
Miles=961					
4Q 2000	12	207	NW	63	171
3Q 2000	13	258	NW	53	255
1Q 2000	10	309	DL	52	274
4Q 1999	11	239	DL	60	230
3Q 1999	11	311	NW	59	282
2Q 1999	12	267	DL	63	258
4Q 1998	12				
ORD-GTR					
Miles=588					
1Q 1999	10	266	DL	51	241
4Q 1998	12				

B4 Analysis And Selected Conclusions

While it is true that the state study found that fares at GTR are higher – usually substantially higher -- than competing airports, it is NOT our intent to reduce to reduce air fares; rather it is our intent to reduce TRAVEL **COSTS** for the majority of travelers to/from GTR by increasing their travel efficiency. We expect to accomplish this through travel patterns from GTR that increase utility especially to the business traveler.

In the following data we find the GTR airport has been experiencing a decline in boardings since a peak apparently early in 2000. This could be explained by the national recessionary trend over the same period.

Moving Twelve Month Total	Enplanements	Total Each Airline	Feb 2002
April 2000-March 2001	47421		
May 2000-April2001	47424	**NW**	671
June 2000-May 2001	47172	ASA	1980
July 2000-June 2001	46734		
August 2000-July 2001	46207		
September 2000-August 2001	45774		
October 2000-September 2001	44109		
November 2000-October 2001	42704		
December 2000-November 2001	41839		
January 2001-December 2001	41322		
February 2001-January 2002	40906		
March 2001-February 2002	40749		

On an annual basis, it can be seen that annual boardings peaked in 2000 after good gains in the late 1990s.

GTR Enplanements	1996	1997	1998	1999	2000	2001	% Chg'01/'00
January	3107	2846	2961	3256	2841	3068	108.0%
February	3075	3003	2960	3034	3159	2850	90.2%
March	3597	3584	3628	4053	4074	4121	101.2%
April	3602	3472	3488	3940	3525	3528	100.1%
May	3870	3923	3921	4017	4349	4146	95.3%
June	3736	3538	3569	4305	3902	3464	88.8%
July	3312	3697	3944	4222	4287	3760	87.7%
August	3357	3406	3682	3513	3931	3498	89.0%
September	3256	3447	3341	3576	3693	2329	63.1%
October	3685	3868	4155	3992	4334	3022	69.7%
November	3220	3475	3959	3757	4177	3063	73.3%
December	3289	3684	3747	3741	3887	3370	86.7%
TOTALS	**41106**	**41943**	**43355**	**45406**	**46159**	**40219**	87.1%
Charter Totals				1168	1412	1103	78.1%
Totals w/Charters				**46574**	**47571**	**41322**	86.9%
State study target			**44690**	**47617**	**50736**	**54060**	
FAA growth target		**42783**	**44529**	**46345**	**48236**	**50204**	
GTR master plan		**42615**	**44179**	***45800***	**47481**	**49223**	

GTR enplanements have consistently and substantially underperformed in growth – even in the best years -- compared to the targets set by the state study and with the last data (1997) published therein. Even when compared with the most conservative projections cited in the study, GTR still underperformed in all but two years. While the national economic recession is not the responsibility of the local community, the response to such is certainly the prerogative of the constituents. We recommend to the GTR constituents communities aggressive and concerted action to achieve the enplanements forecast for it by its own master plan, **FAA** forecasts, or the state study.

Assuming GTR airport improvements are predicated from the airport master plan and consistent with the state study, we recommend community air service developments be emphasized thus to preserve a balance between service demand and the supply and pacing (airport) infrastructure with these growth projections to insure good return on the public investment and so as to remain competitive nationally.

An even more important incentive exists for air service development within the GTR market area. If, as predicted by the state study (and consistent with our expectations), service by RJ is substituted for service by turboprop, the absence of enplanement growth will result in reduced frequency of service. This could have a dramatic negative effect on the presently noteworthy capture rate and have financial consequences for GTR.

Our conclusion in review of the current service, and following the economic downturn beginning about one year and the subsequent terrorist attacks, is that the weak routes became weaker, and the strong routes became stronger. In this statement, we specifically do not refer to airlines or cities, but rather to routes based on their service patterns. This follows reason, since DL is preserving its strong hub in ATL and therefore the connections from GTR. Any reduction in traffic will be sacrificed on the DFW route. With NW, there are no such options and with an even marginal reduction in traffic, the former non-stop service must be combined with traffic from Tupelo for a one-stop. This also hurts the utility of the service on that route as noted earlier.

To further validate our observation that these routes now are even less likely to be on any travelers radar, we note that neither route now qualifies to be listed in the OAG North American Pocket Flight Guide (NAPFG). Under present **OAG** criteria (determined by the number of seats in these markets), subscribers to this 'traveler's bible' will never see these connections and will find the only listed airline connection to **GTR** as DL thru **ATL.**

Consistent with the state study, we do agree that a two-flight-per-weekday, one-stop service is really not a viable service pattern for most travelers. This is true even when the alternative routing may not make 'geographic sense'; that is, it may be more convenient to fly with the flexibility of GTR-ATL-DFW than it is to fly the 'straight line' of GTR-AEX-DFW. And, indeed, one of the direct DFW flight departures is late morning and one of the DFW direct flight departures is early afternoon; not good times to serve most business travel needs. Moreover, the morning direct flight departure from DFW is sufficiently early to miss most west coast-originating flights, and the evening direct flight to DFW arrives too late to connect with about half of the west-coast bound flights leaving DFW.

It is also important to carefully identify what we intend when we state that these routes are weak, we do not mean that there is an insignificant demand; rather that the utility of the route to the typical business traveler – who, after all, is the predominant regional airline traveler – is severely compromised by the combination of reduced frequency and one-stop service to the connecting hub.

Therefore, we conclude that the preferred approach to restoring the efficiency for travelers to and from GTR would be to preserve frequency and abandon one-stop routings. Given the existing aircraft types on these routes as the smallest passenger capacity in each respective fleet, the only possibility is to deploy the proposed jet speed, high altitude, comfortable, 9-seat airliner. Considering only route and operational efficiency, we would suggest the greatest utility (of speed and altitude) could be gained on the DFW route since it is considerably longer -- about 500 non-stop air miles versus the barely-more-than-one hundred from GTR to MEM. Many other factors *are* relevant, however, not the least of which is the inclination of the major, code-lending carrier to work with such a project and the resulting service.

We find no reason to believe that travelers will 'book away' from the present DFW one-stop flights if the demo service supplements this with non-stop service at complementary times **of** the day. This passenger behavior is for the same reason that ASA has not seen travelers book away from the Brasilia flights that are adjacent to the new RJ service to ATL. Though travelers consistently prefer jets, they value schedule even more as is noted in the state study.

Additionally, we note that travelers from Jackson are presently well served by Southwest with **4** non-stops per day to Houston at which they can transfer onward to numerous other westerly destinations served by that carrier. Though price may incentify many of these travelers, convenience has also clearly been well served by this strategy. Capturing this leakage from GTR will necessarily involve convincing the time-pressured traveler that GTR offers good connections westbound.

The state study found, not surprisingly, that the growth rate of Jackson enplanements will increase as a portion of the national enplanement growth rate. The irresistible conclusion is that the flow of leakage from the potential growth **of** GTR is increasing in the direction of Jackson.

As evidence of this, GTR actually has more destinations west of the Mississippi River within it's 'Top **30'** than Jackson. However, only **1/3** of the GTR westerly destinations are shown with growth occurring contrasted with 90% of Jackson's westerly destinations showing growth.

We conclude there is considerable unexploited demand in the GTR-DFW market.

END OF APPENDIX **B**

APPENDIX C: SUBCONTRACTOR BUDGETS

University of Denver Research Team Budget for Air Service Development Demonstration Project--Year 1
(9/1/02-8/31/03)

	Monthly Rate	Time Period	Time Per Month		Total	
Salaries					$61,783.50	
Andrew R. Goetz, Project Director	$6,250	09/01/02-012/31/02	30.00%	$7,500.00		(To be paid as overload)
	$6,563	01/01/03-05/31/03	30.00%	$9,844 50		(To be paid as overload)
	$6,563	06/01/03-08/31/03	100.00%	$19,689 00		(Salary increase starting 01/01/03)
Timothy M. Vowks	$3,000	09/01/02-05/31/03	20.00%	$5,40000		
	$3,000	06/01/03-808/31/03	100.00%	$9,000.00		
Graduate Student	$1,150	09/01/02-05/31/03	10000%	$10,350.00		
Fringe Benefits					$6,414.00	
Overload Pay		$17,344 @ 7.1%		$1,232.00		
Summer Salary (Goetz)		$19,689 @20.5%		$4,036.00		
Non-appointed (Vowles)		$14,400 @ 7.1%		$1,022.00		
Student		510,350 @ 1.2%		$124.00		
Consultants					$72,800.00	
Paul Stephen Dempsey		20% academic, 100% summer		$72,800 00		
Expendable Property and Supplies					$4,500.00	
Air Service Data (Back Associates)				$4,000 00		
Daa for 4 years (1999, 2000, 2001, 2002) @ $1000/year)						
Publishing				$100.00		
Phone (Long Distance)				$200 00		
Office Supplies				$200 00		
Domestic Travel					$9,660.00	
Quarterly Research Conducted m Starkville, Mississippi						
1) Air Travel Expenses				$6,000.00		
3 persons x 4 trips/year= 12 person round trips (Denver-Golden Triangle Regional)						
(12 trips @ $500/trip)						
2) Per Diem Expenses				$3,060.00		
3 persons x 3 days/trip x 4 trips/year = 36 persondaysfyear						
(36person-days/year @ $85/trip)						
3) Ground Transportation				$600.00		
4 trips x 3 daydtrip = 12 days						
(12 days @ $50/day)						
TOW Direct Costs					$155,157.50	
F&A (Indirect Costs)	43.00% x MTDC				$66,717.73	
Total costs					$221,875.23	

University of Denver Research Team Budget for Air Service Development Demonstration Pro]&--Year 2
(9/1/03-8/31/04)

	Monthly Rate	Time Period	Time Per Month		Total	
Salaries					$63,635.10	
Andrew R Goetz. Project Director	$6.563	09/01/03-012/31/03	30.00%	$7,875.60		(To be paid as overload)
	$6,891	01/01/04-05/31/04	30.00%	$10,336.50		(To be paid as overload)
	$6,891	06/01/04-08/31/04	100.00%	$20,673.00		(Salary increase starting 01/01/04)
Timothy M Vowles	$3,000	09/01/03-05/31/04	20.00%	$5,400.00		
	$3,000	06/01/04-08/31/04	100.00%	$9,000.00		
Graduate Student	$1,150	09/01/03-05/31/04	100.00%	$10,350.00		
Fringe Benefits					$6,677.00	
Overload Pay		$18,212 @ 7.1%		$1,293.00		
Summer Salary (Goetz)		120,673 6320.5%		$4.238.00		
Non-appointed (Vowles)		$14,400 @ 7.1%		Sl.022.00		
Student		$10,350 @ 1.2%		$124.00		
Consultants					$72,800.00	
Paul Stephen Dempsey		20% academic, 100% summer		$72,800.00		
Expendable Property and Supplies					$1,500.00	
Air Service Data (Back Associates)				$1,000.00		
Data for 1 year (2003) @ $1000/year)						
Publishing				$100.00		
Phone (Long Distance)				$200.00		
Office Supplies				$200.00		
Domestic Travel					$9.660.00	
Quarterly Research Conducted in Starkville, Mississippi						
1) Air Travel Expenses				$6,000.00		
3 persons x 4 trips/year= 12 person round trips (Denver-Golden Triangle Regional)						
(12 trips @ $500/trip)						
2) Per Diem Expenses				$3.060.00		
3 persons x 3 days/trip x 4 trips/year = 36 person-days/year						
(36 person-days/year @ $85/trip)						
3) Ground Transportation				[illegible]		
4 trips x 3 days/trip = 12 days						
(12 days @ $50/day)						
Total Direct *Costs*					$154,272 10	
F&A (Indirect Cats)	43.00% x MTDC				$66,337.00	
Total Costs					$220,609.10	

University of Denver Research Team Budget for Air Service Development Demonstration Project--Year3
(9/1/04-8/31/05)

	Monthly Rate	Time Period	Time Per Month		Total	
Salaries					$65,581.20	
Andrew R Goetz, Project Director	$6.891	09/01/04-012/31/04	30.00%	1826920		(To be paid as overload)
	$7,236	01/01/05-05/31/05	30.00%	$10,854 00		(To be paid as overload)
	$7,236	06/01/05-08/31/05	100.00%	$21.70800		(Salary increase starting 01/01/05)
Timothy M Vowles	$3,000	09/01/04-05/31/05	20.00%	$5,400.00		
	$3,000	06/01/05-808/31/05	100.00%	$9,000.00		
Graduate Student	$1,150	09/01/04-05/31/05	100.00%	510,35000		
Fringe Benefits					$6,954 00	
Overload Pay		119,123@ 7.1%		51,35800		
Summer Salary (Goetz)		$21,708 @20.5%		$4,450 00		
Non-appointed (Vowles)		$14,400 @ 7.1%		$1,022 00		
Student		510.350 @ 1.2%		$124 00		
Consultants					$72,800 00	
Paul Stephen Dempsey		20% academic, 100% summer		$72,80000		
Expendable Property and Supplies					51,50000	
Air Service Data (Back Associates)				$1,000.00		
Data for 1 year (2004) @ $1000/year)						
Publishing				$100 00		
Phone (Long Distance)				$200 00		
Office Supplies				$200 00		
Domestic Travel					$9,660 00	
Quarterly Research Conducted in Starkville, Mississippi						
1) Air Travel Expenses				$6,000 00		
3 persons x 4 trips/year= 12 person round trips (Denver-Golden Triangle Regional)						
(12 trips @ $500/trip)						
2) Per Diem Expenses				$3,060 00		
3 persons x 3 days/trip x 4 trips/year = 36 pason-daysfyear						
(36 person-days/year @ $85/trip)						
3) Ground Transportation				$600.00		
4 trips x 3 days/trip = 12 days						
(12 days @ $50/day)						
Total Direct *Costa*					$156,495.20	
F&A (Indirect Costs)	43 . m x MTDC				$67,292.94	
Total Costs					$223,788.14	

Budget for Global Aircraft Corporation

DOT AIR SERVICE DEMONSTRATIONPROJECT

YEAR 1

(September 1,2002 to August 31,2003)

	Monthly Rate	Time Period	% Time Per Month		Total
GAC Staff Salaries					**$169,459**
Michael Smith, Demo Plan & Management	$9,405	12 Mo.	40.00%	45,144	
Michael Smith, Air Service Ops. Managemt	$9,405	12 Mo.	45.00%	50,787	
Mike Smith, Jr., Airplane Modifications	$5,142	12 Mo.	20.00%	12,341	
Mike Smith, Jr., Air Service Start-up & Support	$5,142	12 Mo.	30.00%	18,511	
Mike Smith, Jr., Evaluation New Technology	$5,142	12 Mo.	15.00%	9,256	
Aeronautical Engineer, GAC	$4,350	12 Mo.	30.00%	15,660	
Project Scheduler	$3,000	12 Mo.	25.00%	9,000	
Staff Support, GAC	$2,920	12 Mo.	25.00%	8,760	
Overhead					**$137,261**
Precent of Direct Salaries (Note 1)	81.00%			137.261	
Consultants & Subcontracts					**$241,400**
Deversified Business Enterprises, Inc.					
Doug Myers, Demo Project Management	$11,500	12 Mo.	50.00%	69,000	
Doug Myers, Air Service Management	$11,500	12 Mo.	50.00%	69,000	
staff support	$4,200	12 Mo.	100.00%	50,400	
DBE, Technical & Regulatory Consultants				53,000	
Training Cost for Air Operators					**$80,000**
Flight Crew Training and Start-up (2 Months)					
Chief Pilot, 3 Captain, 4 First Officers					
Includes Ground School, Flight Training, and Route Proving					
Permanent Equipment					**$0**
Expendable Property and Supplies					**$0**
Phone (Long Distance) (Note 2)				0	
Domestic Travel					**$42,000**
Meetings with small communities & airline industry, DBE & GAC				36,000	
Meetings with DOT, DBE & GAC				6,000	
Total Direct Costs					**$670,120**
G&A (Indirect Costs) (Note 3)	18.10%				**121,292**
Total Costs					**$791,412**

Note 1: Overhead Rate based on DCAA audit of Global Aircraft Corporation (Y of Direct Labor)
Note 2: Phone charges included in Overhead Rate, no expendable property required
Note 3: General & Administrative Rate based on DCAA audit of Global Aircraft Corporation (Yo of TDC)

Budget for Global Aircraft Corporation

DOT AIR SERVICE DEMONSTRATION PROJECT

YEAR 2

(September 1, 2003 to August 31, 2004)

	Monthly Rate	Time Period	% Time Per Month		Total
GAC Staff Salaries					**$113,262**
Michael Smith, Demo Plan & Management	$9,690	12 Mo.	35.00%	40,698	
Michael Smith, Air Service Ops. Managemt	$9,690	12 Mo.	35.00%	40.698	
Mike Smith, Jr., Airplane Modifications	$5,300	12 Mo.	10.00%	6,360	
Mike Smith, Jr., Air Service Support	$5,300	12 Mo.	20.00%	12,720	
Project Scheduler	$3,090	12 Mo.	15.00%	5,562	
Staff Support, GAC	$3,010	12 Mo.	20.00%	7,224	
Overhead					**$91,742**
Precent of Direct Salaries (Note 1)	81.00%			91,742	
Consultants & Subcontracts					**$160,125**
Deversifii Business Enterprises, Inc.					
Doug Myers, Demo Project Management	$11,800	12 Mo.	35.00%	49,560	
Doug Myers, Air Service Management	$11,800	12 Mo.	40.00%	56,640	
Staff support	$4,325	12 Mo.	75.00%	38,925	
DBE, Technical & Regulatory Consultants				15,000	
Permanent Equipment					$0
Expendable Property and Supplies					$0
Phone (Long Distance) (Note 2)				0	
Domestic Travel					**$21,000**
Meetings with small communities & airline industry, DBE & GAC				16,000	
Meetings with DOT, DBE & GAC				5,000	
Total Direct Costs					**$386,129**
G&A (Indirect Costs) (Note 3)	18.10%				**69,889**
Total Costs					**$456,019**

Note 1: Overhead Rate based on DCAA audit of Global Aircraft Corporation (% of Direct Labor)
Note 2: Phone charges included in Overhead Rate, no expendable property required
Note 3: General & Administrative Rate based on DCAA audit of Global Aircraft Corporation (% of TDC)

Budget for Global Aircraft Corporation

AIR SERVICE DEMONSTRATION PROJECT

YEAR 3

(September 1, 2004 to August 31, 2005)

	Monthly Rate	Time Period	% Time Per Month		Total
GAC Staff Salaries					**$86,280**
Michael Smith, Demo Plan & Management	$9,690	12 Mo.	30.00%	34,884	
Michael Smith, Air Service Ops. Managemt	$9,690	12 Mo.	25.00%	29,070	
Mike Smith, Jr., Air Service Support	$5,300	12 Mo.	15.00%	9,540	
Project Scheduler	$3,090	12 Mo.	15.00%	5,562	
Staff Support, GAC	$3,010	12 Mo.	20.00%	7,224	
Overhead					**$69,887**
Precent of Direct Salaries (Note 1)	81.00%			69,887	
Consultants & Subcontracts					**$129,180**
Deversified Business Enterprises, Inc.					
Doug Myers, Demo Project Management	$11,800	12 Mo.	35.00%	49,560	
Doug Myers, Air Service Management	$11,800	12 Mo.	30.00%	42.480	
staff Support	$4,325	12 Mo.	60.00%	31,140	
DBE, Technical & Regulatory Consultants				6,000	
Permanent Equipment					$0
Expendable Property and Supplies					$0
Phone (Long Distance) (Note 2)				0	
Domestic Travel					**$17,000**
Meetings with small communities & airline industry, DBE & GAC				12,000	
Meetings with DOT, DBE & GAC				5,000	
Total Direct Costs					**$302,347**
G&A (Indirect Costs) (Note 3)	18.10%				**54,725**
Total Costs					**$357,072**

Note 1: Overhead Rate based on DCAA audit of Global Aircraft Corporation (% of Direct Labor)
Note 2: Phone charges included in Overhead Rate, no expendable property required
Note 3: General & Administrative Rate based on DCAA audit of Global Aircraft Corporation (% of TDC)

APPENDIX D: PARTNERS' LETTERS OF SUPPORT

GLOBAL AIRCRAFT CORPORATION

P. O. Box 850
Starkville, MS 39760
(662) 324-2800

April 17, 2002

Dr. Royce **O.** Bowden, Jr., Deputy Director
National Center for Intermodal Transportation
Mississippi State University
Mississippi State, MS **39762**

RE: Application for Air Service Demonstration Grant
DOT Small Community Air Service Demonstration Pilot Program
DOT Docket OST-2002-11590

Dear Dr. Bowden:

It has been a pleasure working with you, Doug Myers, and the NCIT staff at MSU and the University of Denver in preparing the MSU proposal for the SCAT Air Service Demonstration Grant for the US Department of Transportation.

We think the collaborative efforts of all the team have developed an outstanding technical proposal with reasonable economic justification for its acceptance and funding by the DOT. We hope the technical staff and evaluators at DOT will catch the vision of how the successful demonstration of the SCAT air service concept could benefit many small communities and simultaneously reduce the cost of EAS subsidies to small communities.

We stand ready to support the financial basis for the air service demonstration component of this proposal and to assist you and MSU in your efforts to obtain funding of the project. We wish you and the team success in your efforts to obtain the demonstration grant. Please advise if we can assist you in any manner.

Sincerely yours,

Michael R. Smith

Michael R. Smith, P.E., Ph.D.
President

DIVERSIFIED BUSINESS ENTERPRISES, INC.

PO Box 370335 Milwaukee WI 53237-0335 USA 414.762.1351 dmyers@ dbeinc.net

22 April **2002**

Royce O. Bowden, Jr., Ph.D., Associate Professor
Mississippi State University
Department of Industrial Engineering
McCain Engineering Bldg., Box 9542
Mississippi State, MS **39762**

Dear Dr. Bowden—

Diversified Business Enterprises, Inc. is pleased to indicate our full support of and partnership in the Small Community Air Transportation 'SCAT' Demonstration for small communities like the Golden Triangle Region of northeast Mississippi.

During my years of service with the airlines, I have not forgotten my small town roots. I have concluded that modern air travel represents 'life, liberty, and pursuit of happiness' as perhaps our founding fathers could never have imagined it. Our citizens travel by air to save time – 'life' – and to enjoy the freedom that air travel can bring – 'liberty' – and in 'pursuit of happiness' in both business opportunities and personal associations. Unlike the transportation of two centuries ago, I cannot conclude that present travel options are equally available to residents of small communities as to those in our large cities. It was this observed deficiency, then, that motivated me to search for solutions to the present troubles with small community air transportation.

Now, following the inspiration that brought the SCAT concept to mind, I have been immensely blessed to have become acquainted with key community and research leaders such as yourself, Dr. Michael Smith, John Rucker, and the many others that have embraced this solution. You have recognized that SCAT could demonstrate value not only in strengthening air service in the Golden Triangle region of Mississippi, but also address the difficulties experienced by many small communities nationwide.

We salute Mississippi State University as the sponsor of the application, and our fellow key partners at both the MSU unit and University of Denver unit of the National Center for Intermodal Transportation, and at Global Aircraft Corporation, as **well** as the many community **entities** that have grasped this concept for its local and national significance.

It is a tribute to the creative genius of my friend and colleague, Dr. Alessandro Mazzoni, that his airplane design provides the opportunity for such a demonstration. I believe this demonstration will conclude there is a bright future for a purpose-designed small community regional airliner thus to benefit thousands of small communities.

Sincerely—

COPY

Doug Myers, President
Diversified Business Enterprises, Inc.

OKTIBBEHA COUNTY ECONOMIC DEVELOPMENT AUTHORITY

April 19,2002

The Honorable Read C. Van de Water
Assistant Secretary for Aviation and International Affairs
U. S Department of Transportation
400 7th Street, S.W.
Washington, DC 20590

Dear Assistant Secretary Van de Water;

This letter is to affirm our strong support for the proposal of Mississippi State University to conduct an air service demonstration project for Northeast Mississippi, and to solicit your positive consideration of this concept.

Oktibbeha County is growing rapidly – 18% from 1990 to 2000 Because of this growth, and because this area is well known as being supportive of innovative ideas, **we** are confident that Northeast Mississippi is **ideally** suited for this demonstration project under auspices of Mississippi State University

While we understand that local financial support is **needed,** we are unable to commit funds during the current fiscal year for this purpose. **We do,** however, assure you of our commitment to work together as a region to provide needed **local** funding support in the coming years We make this commitment because **we** feel strongly that this project will enhance our **efforts** to create quality jobs for our growing population.

Please **carefully** consider the replication benefits to other underserved rural regions throughout the country and favorably consider this proposal for a DOT Air ***Service*** Demonstration Grant.

Sincerely,

John I. Rucker, CED
Executive Director

JIR/as

CLEDA
COLUMBUS-LOWNDES ECONOMIC
DEVELOPMENT ASSOCIATION

April 19, 2002

Hon Read C. Van de Water
Assistant Secretary of Aviation
and international Affairs
U. S. Department of Transportation
400 7th Street, SW
Washington, DC 20590

Dear Assistant Secretary Van de Water:

Re: Small Community Air Service Demonstration Grant
Golden Triangle Region of Northeast Mississippi
DOT Docket OST-2002-11590-1

We recognize that local financial support of this project is highly desirable. Our organization is the economic development agency for Columbus and Lowndes County, and we recognize that transportation is a key component of economic development. We pledge our support to this project as we recognize the benefits it will provide in our recruitment efforts as well as our dealings with existing industry.

Since we are in the middle of the current fiscal year, there are no budgeted funds to support the demonstration project this year. However, we will work together to look for local funding for the project in the coming fiscal years if DOT approves the MSU proposal.

We strongly support this proposal for a DOT air service demonstration gront and request your careful consideration of this innovative air transportation concept

Sincerely,

Charleigh D. Ford, Jr.
Executive Director

P. O Box 1805, Columbus, Mississippi 39703 (662) 328-8369
Fox (662) 327-3417

NMIDA
NORTH MISSISSIPPI INDUSTRIAL DEVELOPMENT ASSOCIATION

Hon. Read C. Van de Water
Assistant Secretary for Aviation and International Affairs
U.S. Department of Transportation
400 7th Street, SW
Washington, DC 20590

Re: Small Community Air Service Demonstration Grant
Golden Triangle Region of Northeast Mississippi
DOT Docket OST-2002-11590-1

Dear Assistant Secretary Van de Water:

We have reviewed the proposal of Mississippi State University to conduct a unique air service demonstration project for the communities of Northeast Mississippi. We think the proposed project can significantly improve our air service to points west of the GTR area. and potentially which will benefit our existing businesses, our economic development efforts, and the flying public.

Many small communities in Mississippi and across our nation need better air service. The proposed Small Community Air Transportation concept (SCAT) appears to have excellent potential for increasing the frequency of air service to the Northeast Mississippi area and to also provide non-stop rapid service to distant cities that are currently difficult to access.

The strong technical team, lead by the MSU Center for Intermodal Transportation, is highly qualified to conduct this project and assure a successful demonstration. Successful demonstration of the proposed SCAT Air Service concept could lead to development of methodologies to implement similar service to small communities across the U.S. in addition to improving air service into our area.

We recognize that local financial support of this project is highly desirable. Our organization is in the middle of our current fiscal year and we cannot provide immediate financial support to the demonstration project. However, we commit to work together with other partners and agencies to find local funding for the project in the coming fiscal years if DOT approves the grant for the MSU project.

We strongly support the MSU proposal for a DOT air service demonstration grant and request your careful consideration of this unique air transportation concept.

Sincerely yours,

Stan B. Griffin

THE CENTER AT EMCC

for Manufacturing Technology Excellence

April 19,2002

Hon. Read C Van de Water
Assistant Secretary for Aviation and Internal Affairs
U.S.Department of Transportation
400 7" Street, SW
Washington, DC 20590

Re: Small Community Air Service Demonstration Grant
Golden Triangle Region of Northeast Mississippi
Dot Docket OST-2002-11590-1

Dear Assistant Secretary Van de Water.

The *SCAT* demonstration project proposed by Dr Royce Bowden of MSU is a unique approach for improving air service for small communities We believe this project *can* significantly improve air services to our area while demonstrating a cost effective way to improve *air* services to other small communitics. The Golden Triangle's unique needs and the unique resources at MSU provide a solid foundation to assure the success of this demonstration project.

We strongly support the DOT's program for improved air service to small communities We believe this demonstration project will benefit our existing businesses, our economic development activities and all small community air service programs. We strongly support this proposal for a DOT air service demonstration grant and request your careful consideration of this innovative air transportation concept.

Yours truly,

Stan Rice
Executive Director

cc John Rucker, Audrey Scales

P O BOX 100 • MAYHEW, MS 39753
PHONE (662) 243-CMTE (2683) • FAX (662) 243-2684

Mississippi Department of Transportation / P.O. Box 1850 / Jackson, Mississippi 39215-1850 / Telephone (601) 359-7001 / FAX (601) 359-7110

(601)359-7850 ***AERONAUTICS DIVISION*** **Fax(601)359-7855**

April 3,2002

Royce O. Bowden, Jr., Ph.D.
Associate Professor of Industrial Engineering
Deputy Director of National Center
For Intermodal Transportation
P. O. Box 9542
Mississippi State, MS 39762

Dear Dr. Bowden,

Thank you for the information on the Air Service Demonstration Project proposed for the Golden Triangle Regional Airport (GTRA) under the Small Community Air Service Development Pilot Program.

As discussed with Dr. Michael R. Smith this morning. we support any new programs that would improve air service in our state and capture some of the 50% loss of air travelers to out of state airports as identified in the latest update of our State Airport System Plan.

While we cannot co-sponsor projects under the proposed program, we support or endorse the effort of any of the air carrier airports in the state that desire and qualify to submit an application to be included in the program.

Thank you for sending us a copy of your proposal.

Sincerely,

Elton E. Jay

Elton E. Jay, P.E.
Director.

APPENDIX E: KEY PERSONNEL

E1 Key University Research Personnel

Dr. Royce O. Bowden, Jr., Deputy Director, *National Center for Intennodal Transportation;* Associate Professor, Department of Industrial Engineering, *Mississippi State University*

NCIT Deputy Director Royce O. Bowden, Jr., co-directs the National Center for Intermodal Transportation and manages NCIT activities at MSU. His degrees include a PhD and MS in engineering. Prior to joining MSU, he served in engineering positions at Texas Instruments in Dallas, Texas, and Martin
Marietta Aerospace in New Orleans, Louisiana.

Dr. Bowden has been awarded over one million dollars in research grants and contracts and has served on teams charged with obtaining and administrating an additional thirteen million dollars in research grants and contracts. His research provided the foundation for the optimization component of PROMODEL's SimRunner simulation optimization software package, which fueled the proliferation of commercial software that combines simulation and optimization to design transportation, manufacturing, and service systems. SimRunner is used worldwide, and conference organizers frequently invite Dr. Bowden to make presentations on how this evolving technology is used to optimize the performance of complex systems.

Dr. Bowden's publication record includes two textbooks, one book chapter, and three book manuals. Recently, McGraw-Hill requested the writing of the 2nd edition of his textbook, Simulation Using ProModel, because of its popularity. He has 25 refereed articles published and an additional 27 research conference articles and numerous reports published. He is as an Associate Editor of Intemational Journal of Modeling and Simulation.

Dr. Bowden has received awards for his teaching and research excellence from the Institute of Industrial Engineers and Sigma Xi: the Scientific Research Society. He has been twice honored as a Hearin-Hess Distinguished Professor in the College of Engineering at MSU.

Dr. Jason E. Lwg, Assistant Professor of Marketing, College of Business and Industry, *Mississippi State University*

Dr. Lueg earned his Ph.D. and M.B.A. from The University of Alabama. His professional experience includes positions in the banking industry in both operations/compliance and commercial lending. He has published articles in the Journal *of Business Research* and *Intemational Review of Retail, Distribution and Consumer Research.* He has also published in academic conference proceedings and made several conference presentations. His research interests are in the areas of electronic commerce/retailing, consumer behavior, business strategy, and organizational culture

Dr. Nicole P. Hoffman, Assistant Professor of Marketing, College of Business and Industry, *Mississippi State University*

Nicole Hoffman earned her Ph.D. and Masters degrees in Marketing at The University of Alabama. Prior to obtaining her doctorate, Nicole taught the Marketing courses at the University of Montevallo for one year and Spring Hill College for two years. She was also the Assistant Director of the Master of Business Administration program at Spring Hill. Nicole has published articles in the ***Journal of Business Research, Journal of Business to Business Marketing,*** and ***Academy of Marketing Science Review.*** She has also published in several national academic conference proceedings. Her research interests include business-consumer relationships, branding, and measurement issues related to structural equation modeling.

Dr. Paul Stephen Dempsey, Professor of Law and Director of the Transportation Law Program, *University of Denver;* Director, *National Center for Intermodal Transportation*

Dr. Paul Stephen Dempsey is a Professor of Law and Director of the Transportation Law Program at the University of Denver. He also serves as Director for the National Center for Intermodal Transportation (NCIT). ***An*** expert in aviation policy, Dr. Dempsey has written more than fifty law review and professional journal articles, scores of newspaper and news magazine editorials, and ten books. His most recent books are ***Airport Planning and Development: A Global Survey*** (McGraw Hill, 1999), ***Airline Management: Strategies for the 21st Century*** (Coast Aire, 1997), ***Air Transportation: Foundations for the 21st Century*** (Coast Aire, 1997), and he co-authored a book **on** Denver International Airport with Dr. Andrew R. Goetz and Dr. Joseph **S.** Szyliowicz. He recently co-edited (with Joe Szyliowicz) the Symposium on Intermodal Transportation, that appeared **as** a special issue of the ***Transportation Law Journal***, and wrote a research article, 'The Law of Intermodal Transportation: What It Was, What It **Is,** and What It Should Be," for that symposium. He is also a principal investigator for the ITI/NCIT study, "Metropolitan Planning Organizations: An Assessment of the Transportation Planning Process." Since 1979, he has been faculty editor of the ***Transportation Law Journal.*** He also serves on the editorial boards of the ***Denver Business Journal*** and the ***Aviation Quarterly.*** He has been a frequent commentator on ABC Nightline, the MacNeil-Lehrer News Hour, **CNN** Crossfire, and National Public Radio. Dr. Dempsey holds the following degrees: ABJ, JD, University of Georgia; LLM, George Washington University; DCL, McGill University. He is admitted to practice law in Colorado, Georgia, and the District of Columbia. He is also vice chairman and director of Frontier Airlines, Inc.

Dr. Andrew R Goetz, Associate Professor Department of Geography and the *Intermodal Transportation Institute, University of Denver*

Dr. Andrew **R.** Goetz is an Associate Professor in the Department of Geography and the Intermodal Transportation Institute at the University of Denver. Much of Prof. Goetz' research is in the field of aviation. His PhD dissertation analyzed the effects of airline deregulation on service to small communities. He has published numerous articles on airline industry dynamics and resultant effects on air service and pricing in journals such as *Transportation Research, Annals of the Association of American Geographers, Policy Sciences, Journal of the Transportation Research Forum, Growth and Change, Journal of Air Law and Commerce, Economic Geography,* and others. In addition to co-authoring a 1997 book, *Denver International Airport: Lessons Learned* with colleagues Paul Dempsey and Joe Szyliowicz, he also published a book analyzing regulatory policy in the airline industry with Paul Dempsey. He served as the project team leader on a Congressional study, "Metropolitan Planning Organizations: An Assessment of the Transportation Planning Process," completed in March 1999, and is also the project leader on a study examining intermodal planning processes at state Departments of Transportation. He recently co-authored (with Tim Vowles) an article, ''Progress in Intermodal Passenger Transportation: Private Sector Initiatives," which appeared in the intermodal transportation symposium issue of the *Transportation Law Journal.* He teaches courses on air transportation, transportation planning and policy; urban and regional planning; and surface passenger transportation, among others. He serves on the editorial board of the *Journal of Transport Geography* and has served as chair of the Transportation Specialty group of the Association of American Geographers. Dr. Goetz received a BA from Northwestern University, MA from Kent State University, and PhD from Ohio State University.

Dr. Timothy M. Vowles, Research Associate, *Intermodal Transportation Institute* and *National Center for Intermodal Transportation, University of Denver*

Dr. Timothy M. Vowles is a research associate with the University of Denver Intermodal Transportation Institute and National Center for Intermodal Transportation. His PhD dissertation explored the effects that low-cost airlines, such as Southwest Airlines, have on service and pricing patterns. His Masters thesis dealt with predicting the probability of the loss of commuter air service for small communities. He has published several research articles on aviation topics in transportation journals, such as the *Journal of Transport Geography, Air Transportation Management,* and *Transportation Law Journal.* Dr. Vowles also served as a research associate on the Congressional Metropolitan Planning Organization study and a recent study on intermodal planning practices at state Departments of Transportation. Dr. Vowles received a BA from the University of San Diego, MA from Ohio State University, and PhD from the University of Denver.

E2 Key Private Sector Personnel

Douglas R. Myers, President, *Diversified Business Enterprises, Znc.;*
Chief Operating Officer, *M3 Aviation, Znc.*

Doug Myers serves as President of Diversified Business Enterprises, Inc., an aviation consulting entity that has also operated motor carrier scheduled passenger service. He is concurrently a department director with a regional airline. The breadth of his aviation technical experience extends over 30 years of which the last 20 years have been in various airline management positions for passenger and all-cargo operations.

His leadership in training and safety -- unique windows into every facet of an airline operation -- has provided a depth of understanding of the Regional Airline Industry and marketplace. He is a requested speaker for his visionary approach, resourcefulness, and passion for excellence resulting in industry initiatives and new standards.

He is a rated ground and flight instructor and Airline Transport Pilot on jet and regional turboprop airplanes as well as a certificated Aircraft Dispatcher and has expertise as an Air Transportation Hazardous Material Specialist and Instructor.

Dr. Michael R. Smith, President/Chairman, *Global Aircraft Corporation*

Dr. Smith is a senior aviation executive with over 38 years of experience in aviation, aircraft development and certification, aviation research & development, and has been a pioneer in the field of composite material process development and certification methods for General Aviation and special use aircraft. He has been involved in six light airplane development and certification programs and has performed extensive research and development for NASA, DOD, FAA, USDA, and the U.S. aircraft industry. He worked as a project engineer/flight test pilot for the Raspet Flight Research Center at Mississippi State University for 8 years and operated a consulting engineering business for twenty years. He has over 5,900 flight hours including over 1400 hours of flight test experience. He has served as the President of Global Aircraft Corporation since 1993 where he has managed the development of an all-composite GA airplane and developed a revolutionary composite propeller for GA airplanes that is more efficient and quieter than typical metal propellers.

Dr. Smith has been a key participant in the formation of the NASA AGATE Program to revitalize General Aviation and has served as Leader of the NASA/FAA Task Group to develop certification guidelines for GA Composite Airplanes. He has BS and PhD degrees from Mississippi State University in Aeronautical Engineering and a MS degree from Clemson University in Engineering Mechanics. He has provided consulting services as a registered Professional Engineer since 1965. He has published over **55** technical reports and articles on various aspects of aircraft design, development, and flight testing; design and development of composite propellers, and development of composite processes for aviation applications.

NO CHANGES HAVE BEEN MADE SINCE THE JUNE 2 SIR RELEASE

PART IV - REPRESENTATIONS AND INSTRUCTIONS

SECTION K - REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS

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K.1 REPRESENTATIONS/CERTIFICATIONS CLAUSES AND PROVISIONS

3.1-1 Clauses and Provisions Incorporated by Reference

CLAUSES AND PROVISIONS INCORPORATED BY REFERENCE (JUNE **1996)**

This screening information request (SIR) or contract, as applicable, incorporates by reference one or more provisions or clauses with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make the full text available, or offerors and Contractors may obtain the full text via Internet from the Federal Aviation Administration (FAA) home page (http://www.faa.gov).

(End of clause)

The following clauses are incorporated by reference:

3.2.5-1	OFFICIALS NOT TO BENEFIT	*APRIL* 1996
3.2.5-3	GRATUITIES OR GIFTS	*APRIL* 1996
3.2.5-4	CONTINGENT FEES	OCTOBER 3,1996
3.2.5-5	ANTI-KICKBACK PROCEDURES	OCTOBER 3,1996

3.2.2.3-10 Type of Business Organization

TYPE OF BUSINESS ORGANIZATION (APRIL 1996)

The offeror or quoter, by checking the applicable box, represents that: Not Applicable Non-profit Educational Institution

(a) It operates as / / a corporation incorporated under the laws of the State of, / / an individual, / / a nonprofit organization, or / / a joint venture; or

(b) If the offeror or quoter is a foreign entity, it operates as / / an individual, / / a partnership, / / a nonprofit organization, / / a joint venture, or / / a corporation, registered for business in _____. (country)

(End of provision)

3.2.2.3-15 Authorized Negotiators

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AUTHORIZED NEGOTIATORS *(APRIL* **1996)**

The offeror or quoter represents that the following persons are authorized to negotiate on its behalf with the Government in connection with this request for proposals or quotations:

Mary Ann Richardson, Associate Administrator, Sponsored Programs Admin.

P.O. Box 6156, Mississippi State, MS 39762

(End of provision)

3.2.2.3-23 Place of Performance

PLACE OF PERFORMANCE (APRIL 1996)

(a) The offeror or quoter, in the performance of this contract, / / intends, /X / does not intend (check applicable block) to use one or more plants or facilities located at a different address from the address of the offeror or quoter as indicated in this proposal or quotation.

(b) If the offeror or quoter checks "intends" in paragraph (a) above, it shall insert in the spaces provided below the required information.

Place of Performance (Street, Address, City, County, State, Zip Code)	Name and Address of Owner and Operator of the Plant or Facility if Other than Offeror or Quoter

(End of provision)

3.2.2.3-35 Annual Representations and Certifications

ANNUAL REPRESENTATIONS AND CERTIFICATIONS (APRIL 1996)

The offeror certifies that annual representations and certifications (check the appropriate block):
[ ] (a) Dated _____ (insert date of signature on submission) which are incorporated herein by reference, have been submitted to the contracting office issuing this contract and that

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the submittal is current, accurate, and complete as of the date of this contract, except as follows (insert changes that affect only this contract; if 'none,' so state):

[X] (b) Are enclosed.

(End of provision)

3.2.2.3-70 Taxpayer Identification

TAXPAYER IDENTIFICATION (APRIL 1996)

(a) Definitions.

(1) "Common parent,'' as used herein, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

(2) "Corporate status,'' as used herein, means a designation as to whether the offeror is a corporate entity, an unincorporated entity (e.g., sole proprietorship or partnership), or a corporation providing medical and health care services.

(3) "Taxpayer Identification Number (TIN)," as used herein, means the number required by the **IRS** to be used by the offeror in reporting income tax and other returns.

(b) **All** offerors are required to submit the information required in paragraphs (c) through (e) of this provision in order to comply with reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M and implementing regulations issued by the Internal Revenue Service (IRS). If the resulting contract is subject to the reporting requirements, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) Taxpayer Identification Number (TIN),

[X] TIN: 646000819
[ ] TIN has been applied for.
[ ] TIN is not required because:
[ ] Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not leave income effectively connected with the conduct of a trade or business in the U.S. and does not have all office or place of business or a fiscal paying agent in the U.S.;
[ ] Offeror is an agency or instrumentality of a foreign government;
[ ] Offeror is an agency or instrumentality of a Federal, state, or local government;
[ ] Other State basis. _____

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(d) Corporate Status.

[ ] Corporation providing medical and health care services, or engaged in the billing and collecting of payments for such services;
[ ] Other corporate entity
[ ] Not a corporate entity
[ ] Sole proprietorship
[ ] Partnership
[ ] Hospital or extended care facility described in 26 CFR 501(c)(3) that is exempt from taxation under 26 CFR 501(a).

(e) Common Parent.

[ ] Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this clause.
[ ] Name and TIN of common patent:

Name _____

TIN _____

(End of provision)

3.2.2.7-7 Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (APRIL 1996)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that--
(I) The Offeror and/or any of its Principals--
(A) Are [ ] are not [X] presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;
(B) Have [ ] have not [X] within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers: or

commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; and
(C) Are [ ] are not [X] presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision. (ii) The Offeror has [ ] has not [X] within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.
(2) 'Principals,' for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions). THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.
(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in terminating this contract. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.
(d) Nothing contained in the foregoing shall be construed to require establishment of **a** system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

3.2.5-7 Disclosure Regarding Payments to Influence Certain Federal Transactions

DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (OCTOBER 3,1996)

(a) Definitions.

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(1) "The Act," as used in this clause, means section 1352, title 31, United States Code.

(2) "Agency," as used in this clause, means executive agency, within the meaning of 5 U.S.C. 101, 102, and 104(I), and any wholly owned Government corporation within the meaning of 31 U.S.C. 9101..

(3) "Covered Federal action," as used in this clause, means any of the following Federal actions:

(i) The awarding of any Federal contract.

(ii) The making of any Federal grant.

(iii) The making of any Federal loan.

(iv) The entering into of any cooperative agreement.

(v) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(4) "Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) and include Alaskan Natives.

(5) "Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

(6) "Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

(7) "Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

(i) An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment.

(ii) A member of the uniformed services, as defined in subsection 101(3), title 37, United States Code.

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(iii) A special Government employee, as defined in section 202, title 18, United States Code.

(iv) *An* individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, title 5, United States Code, appendix 2.

(8) 'Person,' as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

(9) 'Reasonable compensation,' as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

(10) 'Reasonable payment,' as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

(11) 'Recipient,' as used in this clause, includes the Contractor and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

(12) 'Regularly employed,' as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. *An* officer or employee who is employed by such person for less than 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

(13) 'State,' as used in this clause, means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibitions. The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that:

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(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal action) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the screening information request (SIR), the offeror shall complete and submit, with its offer, OMB Standard Form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this clause in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of $100,000 shall disclose accordingly.

(4) This certification and disclosure is a prerequisite for making or entering into this contract imposed by the Act. Any person who makes a prohibited expenditure or fails to file or amend a disclosure form, shall be subject to a civil penalty of not less than $10,000 and not more than $100,000, for each such failure.

(c) The prohibitions of the Act do not apply under the following conditions:

(1) Agency and legislative liaison by own employees.

(i) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(ii) For purposes of subdivision (c)(1)(i) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(iii) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(A) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

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(B) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(iv) The following agency and legislative liaison activities are permitted where they are prior to Screening Information Request (SIR) of any covered Federal action:

(A) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(B) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(C) Capability presentations by persons seeking awards from an agency pursuant to the provisions of a law authorizing such actions;

(v) Only those services expressly authorized by subdivision (c)(1)(i) of this clause are permitted under this clause.

(2) Professional and technical services.

(i) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of:

(A) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of submittal/offer or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(B) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any submittal/offer or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(ii) For purposes of subdivision (c)(2)(i) of this clause, 'professional and technical services' shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a submittal/offer by a

lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's submittal/offer, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a submittal/offer are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(iv) Only those services expressly authorized by subdivisions (c)(2)(i) and (ii) of this clause are permitted under this clause.

(v) The reporting requirements herein shall not apply with respect to payments of

(vi) reasonable compensation made to regularly employed officers or employees of a person.

(e) Disclosure. (1) The Contractor who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, OMB Standard Form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed to make any payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(2) The Contractor shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (e)(1) of this clause. An event that materially affects the accuracy of the information reported includes:

(i) A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

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(ii) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(iii) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

(3) The Contractor shall require the certification, and if required, a disclosure form by any person who requests or receives any subcontractor exceeding $100,000 under the Federal contract.

(4) All subcontractor disclosure forms shall be forwarded from tier to tier until received by the prime Contractor. The prime Contractor shall submit all disclosures to the Contracting Officer at the end of the calendar quarter in which the disclosure form is submitted by the subcontractor.

(f) Agreement. The Contractor agrees not to make any payment prohibited by this clause.

(g) Penalties.

(1) Any person who makes an expenditure prohibited under paragraph (b) of this clause or fails to file or amend the disclosure form to be filed or amended by paragraph (b) shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(2) Contractors may rely without liability on the representations made by their subcontractors in the certification and in the disclosure form.

(h) Cost allowability. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provision.

(End of clause)

3.2.5-12 Notice of Employment of Former United States Government Employees (Service Contracts)

NOTICE OF EMPLOYMENT OF FORMER UNITED STATES GOVERNMENT EMPLOYEES (SERVICE CONTRACTS) (OCTOBER 1996)

(a) This clause implements the Federal Workforce Restructuring Act of 1994 ("Buyout"), P.L. 103-226. The following requirements apply to any contract, task order, or other arrangement for service contracts entered into after March 30, 1994 and immediately upon knowledge of such arrangements.

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(b) The offeror shall provide, along with the submittal, the following notice and certification of employment of employee(s) who were previously employed by the United States Government and received the voluntary separation incentive payment ("buyout"). This notice is required immediately upon the Contractor's knowledge at any time during the contract period. The Contractor shall provide notice to employees that in accordance with the buyout legislation, the buyout employee performing on a personal service contract for the Untied States Government is required to repay the buyout incentive..

NOTICE OF EMPLOYMENT OF FORMER UNITED STATES GOVERNMENT EMPLOYEES (SERVICE CONTRACTS)

The following individuals are former United States Government employees who are presently employed by [company name]. (Use as many lines as necessary.)

Employee's Name	Former Agency of Employment	Description of Contract Task	Subcontractor	Date of Separation from Agency
N/A				

____ This company has not hired and does not intend to hire any former United States Government employees who took the buyout.

Contractor's Certification

On behalf of
I certify that the above information is accurate and complete to the best of my knowledge.

_____

Contracting Officer's Certification

I have reviewed the above information and have determined that:

____ The buyout legislation has not been violated

____ The employment is in violation of the buyout legislation and the employee is required to repay the incentive payment. The Contractor shall remind the employee of his/her obligation to pay.

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_____
[Contracting Officer's Name]

_____
Date

(End of clause)

3.5-6 Royalty Information.

ROYALTY INFORMATION (APRIL 1996)

(a) Cost or charges for royalties. When the response to this solicitation contains costs or charges for royalties totaling more than $250, the following information may be included in the response relating to each separate item of royalty or license fee:
(1) Name and address of licenser.
(2) Date of license agreement.
(3) Patent numbers, patent application serial numbers, or other basis on which the royalty is payable.
(4) Brief description, including any part or model numbers of each contract item or component on which the royalty is payable.
(5) Percentage or dollar rate of royalty per unit.
(6) Unit price of contract item.
(7) Number of units.
(8) Total dollar amount of royalties.
(b) Copies of current licenses. In addition, if specifically requested by the Contracting Officer before execution of the contract, the offeror shall furnish a copy of the current license agreement and an identification of applicable claims of specific patents.

(End of provision)

ALTERNATE I

Substitute the following for the introductory portion of paragraph (a) of the basic clause:

When the response to this solicitation covers charges for special construction or special assembly that contain costs or charges for royalties totaling more than $250, the following information shall be included in the response relating to each separate item of royalty or license fee:

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3.5-7 Patents-Notice of Government Licensee

PATENTS-NOTICE OF GOVERNMENT LICENSEE (APRIL 1996)

The Government is obligated to pay a royalty applicable to the proposed acquisition because of a license agreement between the Government and the patent owner. The patent number is

_____ [Contracting Officer fill in]

_____ [Contracting Officer fill in]

If the offeror is the owner of, or a licensee under, the patent, indicate below:
( )Owner ( )Licensee

If an offeror does not indicate that it is the owner or a licensee of the patent, its offer will be evaluated by adding thereto an amount equal to the royalty.

(End of clause)

3.5-14 Representation of Limited Rights Data and Restricted Computer Software

REPRESENTATION OF LIMITED RIGHTS DATA AND RESTRICTED COMPUTER SOFTWARE (OCTOBER 3,1996)

(a) This Screening Information Request (SIR) sets forth the work to be performed if a contract award results, and the Government's known delivery requirements for data, as defined in the clause "Rights in Data-General.'' Any resulting contract may also provide the Government the option to order additional data under the "Additional Data Requirements" clause, if included in the contract. Any data delivered under the resulting contract will be subject to the "Rights in Data-General" clause that is to be included in this contract. Under the latter clause, a Contractor may withhold from delivery data that qualify as limited rights data or restricted computer software, and deliver form, fit, and function data in lieu thereof. The latter clause also may be used with its Altemates II and/or III to obtain delivery of limited rights data or restricted computer software, marked with limited rights or restricted rights notices, as appropriate. In addition, use of Alternate V with this latter clause provides the Government the right to inspect such data at the Contractor's facility.

(b) As an aid in determining the Government's need to include any of the aforementioned Alternates in the clause "Rights in Data-General," the offeror's response to this Screening Information Request **(SIR)** may, to the extent feasible, complete the representation in paragraph (b) of this provision to either state that none of the data qualify as limited rights data or restricted computer software, or identify which of the data qualifies as limited rights data or restricted computer software. Any identification of limited rights data or restricted computer software in

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the offeror's response is not determinative of the status of such data should a contract be awarded to the offeror.

REPRESENTATION CONCERNING DATA RIGHTS

Offeror has reviewed the requirements for the delivery of data or software and states (offeror check appropriate block)--

[X] None of the data proposed for fulfilling such requirements qualifies as limited rights data or restricted computer software.

[ ] Data proposed for fulfilling such requirements qualify as limited rights data or restricted computer software and are identified as follows:

Note: "Limited rights data" and "Restricted computer software" are defined in the contract clause titled "Rights In Data-General."

(End of provision)

3.6.2-3 Walsh-Healey Public Contracts Act Representation

WALSH-HEALEY PUBLIC CONTRACTS ACT REPRESENTATION (APRIL 1996)

The offeror represents as a part of this offer that the offeror is [ ] or is not [3 a regular dealer in, or is [ ] or is not [ ] a manufacturer of, the supplies offered. Not applicable - non-profit educational institution

(End of provision)

3.6.2-5 Certification of Nonsegregated Facilities

CERTIFICATION OF NONSEGREGATED FACILITIES (APRIL 1996)

(a) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

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(b) By the submission of this offer, the offeror certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The offer agrees that a breach of this certification is a violation of the Equal Opportunity clause in the contract.

(c) The offeror further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time period) it will--

(1) Obtain identical certifications from proposed subcontractors before the award of subcontracts under which the subcontractor will be subject to the Equal Opportunity clauses;

(2) Retain the certifications in the files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS
OF REQUIREMENT FOR
CERTIFICATION OF NONSEGREGATED FACILITIES

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract under which the subcontractor will be subject to the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontractors during a period (i.e., quarterly, semiannually, or annually).

(End of provision)

3.6.2-6 Previous Contracts and Compliance Reports

PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (APRIL 1996)

The offeror represents that--(a) It [X] has, [ ] has not, participated in a previous contract or subcontract subject either to the Equal Opportunity clause of this solicitation, the clause originally contained in Section 310 of Executive Order No. 10925, or the clause contained in Section 201 of Executive Order No. 11114; (b) It [X] has, [ ] has not, filed all required compliance reports; and (c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

3.6.2-8 Affirmative Action Compliance

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AFFIRMATIVE ACTION COMPLIANCE (APRIL 1996)

The offeror represents that (a) it [X] has developed and has on file, [ ] has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor **(41** CFR 60-1 and 60-2), or (b) it **[ ]** has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(End of provision)

3.6.3-1 Clean Air and Water Certification

CLEAN AIR AND WATER (APRIL 1996)

The Offerors signature on this contract constitutes an affirmative attestation that:
(a) Any facility to be used in the performance of this contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;
(b) The Offeror will immediately notify the Contracting Officer, of the receipt of any communication from the Administrator, or a designee, of the EPA, indicating that any facility that the Offeror uses for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and
(c) The Offeror will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

(End of clause)

3.6.3-3 Hazardous Material Identification and Material Safety Data.

HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA (APRIL 1996)

(a) Hazardous material, as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

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(b) The offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material	Identification No.

(c) The apparently successful offeror, by acceptance of the contract, certifies that the list in paragraph (b) of this clause is complete. This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

(d) The apparently successful offeror agrees to submit, for each item as required within 30 calendar days after contract award , a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful offeror being considered nonresponsible and ineligible for award.

(e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause or the certification submitted under paragraph (c) of this clause, the Contractor shall promptly notify the Contracting Officer and resubmit the data.

(f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property.

(g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material,

(h) The Government's rights in data furnished under this contract with respect to hazardous material are as follows:

(1) To use, duplicate and disclose any data to which this clause is applicable. The purposes of this right are to-

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(i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;

(ii) Obtain medical treatment for those affected by the material;

(iii) Have others use, duplicate, and disclose the data for the Government for these purposes.

(2) To use, duplicate, and disclose data furnished under this clause, in accordance with subparagraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.

(3) The Government is not precluded from using similar or identical data acquired from other sources.

(i) Except as provided in paragraph (i)(2) the Contractor shall prepare and submit a sufficient number of Material Safety Data Sheets (MSDS's), meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous materials identified in paragraph (b) of this clause.

(1) For items shipped to consignees, the Contractor shall include a copy of the MSDS with the packing list or other suitable shipping document which accompanies each shipment. Alternatively, the Contractor is permitted to transmit MSDS's to consignees in advance of receipt of shipments by consignees, if authorized in writing by the Contracting Officer.

(2) For items shipped to consignees identified by mailing address as agency depots, distribution centers or customer supply centers, the Contractor shall provide one copy of the MSDS's in or on each shipping container. If affixed to the outside of each container, the MSDS must be placed in a weather resistant envelope.

(End of clause)

3.6.4-2 Buy American Act--Supplies

BUY AMERICAN ACT--SUPPLIES (JULY 1996)

(a) The Buy American Act (41 U.S.C. 10) and Executive Order No. 10582, dated December 17, 1954, as amended, provide that the Government give preference to domestic end products.

(b) Definitions:

(1) "Components," as used in this clause, means those articles, materials, and supplies incorporated directly into the end products.

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(2) "Domestic end product," as used in this clause, means (1) an unmanufactured end product mined or produced in the United States, or (2) an end product manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as the products referred to in subparagraphs (c)(2) or (3) of this clause shall be treated as domestic. Scrap generated, collected, and prepared for processing in the United States is considered domestic.

(3) "End products," as used in this clause, means those articles, materials, and supplies to be acquired for public use under this contract.

(4) "Foreign offer," as used in this clause, means an offered price for a foreign end product, including transportation to destination and duty (whether or not a duty free entry certificate is issued).

(c) The Contractor shall deliver only domestic end products, except those--

(1) For use outside the United States;

(2) That the FAA determines are not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality;

(3) For which the FAA determines that domestic preference would be inconsistent with the public interest; or

(4) For which the FAA determines the cost to be unreasonable.

(i) Unless the FAA determines otherwise, the offered price of a domestic end product is unreasonable when the lowest acceptable domestic offer exceeds the lowest acceptable foreign offer, inclusive of duty, by:

(A) More than ***6*** percent, if a domestic offer is from a large business that is not a labor surplus area concern; or

(B) More than 12 percent, if a domestic offer is from a small business concern or any labor surplus area concern.

(ii) The evaluation in subparagraph (i) above shall be applied on an item by item basis or to any group of items on which award may be made, as specifically provided by the screening information request.

(iii) If an award of more than $250,000 would be made to a domestic concern if the 12 percent

factor were applied, but not if the 6 percent factor were applied, the FAA will decide whether award to the domestic concern would involve unreasonable cost.

(End of clause)

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3.6.4-15 Buy American Act Certificate

BUY AMERICAN ACT CERTIFICATE (JULY 1996)

(a) The offeror certifies that each end product, except as listed below, is a domestic end product (as defined in the clause "Buy American Act-Supplies,") and components of unknown origin are considered to have been mined, produced, or manufactured outside the United States.

Excluded End Product	Country of Origin

[list as necessary]

(b) The offeror agrees to furnish any additional information as the Contracting Officer may request to verify the above information and to evaluate the offer. Offerors may obtain from the Contracting Officer lists of articles, materials, and supplies excepted from the Buy American Act.

(End of provision)

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3.6.4-5 Buy American--Steel and Manufactured Products

BUY AMERICAN--STEEL AND MANUFACTURED PRODUCTS (JULY 1996)

(a) Section 9129 of the Aviation Safety and Capacity Expansion Act of 1990 (Subtitle B of Title IX of Pub. L. 101-508, the Omnibus Budget Reconciliation Act of 1990) requires the use of steel and manufactured products produced in the United States when a project such as that covered by this contract receives funding.

(b) The Contractor shall deliver only steel and manufactured products produced in the United States. This requirement shall not apply where the Secretary or his or her designee has found--

(1) That its application would be inconsistent with the public interest;

(2) That such materials are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality;

(3) In the case of the procurement of facilities and equipment under the Airport and Airway Improvement Act of 1982, (i) the cost of components and subcomponents which are produced in the United States is more than 60 percent of the cost of all components to be delivered under this contract, and (ii) final assembly of the facility or equipment to be delivered under this contract has taken place in the United States; or

(4) That inclusion of domestic material will increase the cost of the overall contract by more than 25 percent.

(c) In calculating components' costs, labor costs involved in final assembly shall not be included in the calculation.

(d) This clause takes precedence over the provisions of clause "Buy American Act--Supplies" and clause "Buy American Act--Construction Materials" in respect to their applicability to steel and manufactured products.

(e) The offeror warrants that steel and manufactured products to be used in the project are produced in the United States, and that components of unknown origin are considered to have been produced or manufactured outside the United States. Should any end product be of foreign origin, the Contractor shall identify, in writing, such products and country of origin to the Contracting Officer prior to contract award. Such information is required in implementation of Section 9129 of the Aviation Safety and Capacity Expansion Act of 1990, (Subtitle B of Title IX of P. L. 101-508, the Omnibus Budget Reconciliation Act of 1990).

(End of clause)

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3.6.4-8 Buy American Act--NAFTA Implementation Act--Balance of Payments Program

BUY AMERICAN ACT--NAFTA IMPLEMENTATION ACT--BALANCE OF PAYMENTS PROGRAM (JULY 1996)

(a) Definitions. As used in this clause--

(1) "Components" means those articles, materials, and supplies incorporated directly into the end products. Domestic end product means (i) an unmanufactured end product mined or produced in the United States, or (ii) an end product manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. A component shall also be considered to have been mined, produced, or manufactured in the United States (regardless of its source in fact) if the end product in which it is incorporated is manufactured in the United States and the component is of a class or kind (i) determined by the Government, to be not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality, or (ii) to which the agency head concerned has determined that it would be inconsistent with the public interest to apply the restrictions of the Buy American Act.

(2) "End products" means those articles, materials, and supplies to be acquired under this contract for public use.

(3) "Foreign end product" means an end product other than a domestic end product.

(4) "North American Free Trade Agreement (NAFTA) country" means Canada or Mexico.

(5) "NAFTA country end product" means an article that (i) is wholly the growth, product, or manufacture of a NAFTA country, or (ii) in the case of an article which consists in whole or in part of materials from another country or instrumentality, has been substantially transformed in a NAFTA country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services (except transportation services) incidental to its supply; provided, that the value of those incidental services does not exceed that of the product itself.

(b) This clause implements the Buy American Act (41 U.S.C. 10), the North American Free Trade Agreement Implementation Act (Pub. L. 103-182, 107 Stat. 2057), and the Balance of Payments Program by providing a preference for domestic end products over foreign end products, except for certain foreign end products which meet the requirements for classification as NAFTA country end products.

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(c) The Contracting Officer has determined that the NAFTA applies to this acquisition. Unless otherwise specified, the Acts apply to all items in the schedule. The Contractor agrees to deliver under this contract only domestic end products unless in its offer, it specifies delivery of foreign end products in the provision "Buy American Act-North American Free Trade Agreement Implementation Act-Balance of Payments Program Certificate." An offer based on supplying a NAFTA country end product requires the Contractor to supply a NAFTA country end product or, at the Contractor's option, a domestic end product.

(d) The restrictions of the Buy American Act or the Balance of Payments Program will be applied to foreign offers, except as follows:

(1) Canadian end products under supply contracts with an estimated value above $25,000 and Mexican end products under supply contracts with an estimated value above $50,000.

(2) NAFTA country construction materials under construction contracts with an estimated acquisition value of $6,500,000 or more.

(End of clause)

3.6.4-10 Restrictions on Certain Foreign Purchases

RESTRTCTIONS ON CERTAIN FOREIGN PURCHASES (APRIL 1996)

(a) Unless advance written approval of the Contracting Officer is obtained, the Contractor shall not acquire for use in the performance of this contract--

(1) **Any** supplies or services originating from sources within the communist areas of North Korea, Vietnam, Cambodia, or Cuba;

(2) Any supplies that are or were located in or transported from or through North Korea, Vietnam, Cambodia, or Cuba; or

(3) Arms, ammunition, or military vehicles produced in South Africa, or manufacturing data for such articles.

(b) The Contractor shall not acquire for use in the performance of this contract supplies or services originating from sources within Iraq, any supplies that are or were located in or transported from or through Iraq, or any supplies or services from entities controlled by the Government of Iraq.

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(c) The Contractor agrees to insert the provisions of this clause, including this paragraph (c), in all subcontracts hereunder.

(End of clause)

3.6.4-11 Inconsistency Between English Version and Translation of Contract

Inconsistency Between English Version and Translation of Contract (April 1996)

In the event of inconsistency between any terms of this contract and any translation thereof into another language, the English language meaning shall control.

(End of clause)

3.6.4-17 Buy American Act--NAFTA Implementation Act--Balance of Payments Certificate

BUY AMERICAN ACT--NAFTA IMPLEMENTATION ACT--BALANCE OF PAYMENTS CERTIFICATE (JULY 1996)

(a) The offeror certifies that each end product or service, except as listed below, is a domestic end product or service (as defined in the clause "Buy American Act-NAFTA Implementation Act-Balance of Payments Program") and components of unknown origin are considered to have been mined, produced, or manufactured outside the United States.

Excluded End Product Country of Origin

_____
_____
_____
[list as necessary]

(b) Under certain circumstances, offers of North American Free Trade Agreement (NAFTA) country end products (as defined in the clause "Buy American Act-North American Free Trade Agreement Act Implementation Act-Balance of Payments") will be given the same preference as domestic end products. To obtain this preference, offerors must identify below those end products that are NAFTA country end products. Products that are not identified and certified below will not be deemed NAFTA country end products

Excluded End NAFTA Country of Origin Product

_____
_____
_____
[list as necessary]

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(c) The offeror agrees to furnish any additional information as the Contracting Officer may request to verify the above information and to evaluate the offer. Offerors may obtain from the Contracting Officer lists of articles, materials, and supplies excepted from the Buy American Act.

(End of provision)