COMMENTS BY JOSEPH M. DEL BALZO
ACTING DEPUTY ADMINISTRATOR
FEDERAL AVIATION ADMINISTRATION
HISPANIC HERITAGE MONTH, CLOSING CEREMONY
WEDNESDAY, OCTOBER 13
FAA CAFETERIA

It's an honor to bring to a close this year's Hispanic
Heritage Month. And it was appropriate that this month's
celebration happened to coincide with a fascinating exhibit
at the Corcoran Gallery of Art...an exhibit which displayed
popular folk art from all over Latin America. I hope many of
you had a chance to see it.

We talk a lot about America as a multi-cultural society. But
what the Corcoran show demonstrated was the fact that
Hispanic culture in the western hemisphere is itself multi-
cultural. It is a colorful, imaginative blend of Native
American, African, European...and even some Asian
cultures. And Spain itself, as we know, was heavily
influenced by its Arabic past.

So as the FAA continues on its course toward genuine
workplace diversity, I know we will continue to look for
guidance to those of you with an Hispanic heritage. For it
is your culture, perhaps more than any other, which has
mastered the art of weaving together the many strands of
racial and ethnic difference into a single design.

And there is a common element in this design...a basic pattern. It could be seen in this year's program observing Hispanic Heritage Month. This is your emphasis on education and professional development.

I've noticed over the years that Hispanics always emphasize the importance of education in preparing young people for meaningful, rewarding lives. We are all aware of your concern about the high drop out rates among Hispanic youth from poor families.

And I've been especially proud of the work of FAA employees across the country who provide mentoring and tutoring to high school students who need special encouragement. Each year, we honor a number of these people for their volunteer work at the Equal Employment Opportunity awards ceremonies.

Others try to motivate young people to go on to college and prepare themselves for careers in the professions and in demanding technical fields. EEO awards this year went to Hispanics who helped organize summer enrichment programs...who helped raise scholarship funds for minority youth...and who took part in an adopt-a-school program in riot-torn south central Los Angeles.

And of particular importance to the FAA have been those who are active in recruiting Hispanics for employment in our own Agency, sometimes providing special training and counseling to aid those who are disadvantaged by a background of poverty and educational deprivation. I'm thinking, for example, of the A-Plus Program at the Houston center.

Faith in the value of education...and the belief that equality of occupational opportunity begins with the equality of educational opportunity...these seem to me to be strongly held Hispanic values which must be preserved...in our nation...and in the federal government.

These are values which are shared by many of those who belong to other minority coalitions within the FAA...regardless of their origins. Faith in education is a core American value...and old American value...which is kept vital by the life experience of our racial and ethnic minorities.

Throughout this past month, speakers on several of your programs have stressed the importance of continuing education and professional development for your own career advancement within the FAA.

This message could not be more timely. For with the reduction in the number of middle managers which the Clinton Administration is planning...many of the easy, well-trod career paths in our Agency will disappear. The new paths will be steeper and rockier, demanding much more from those who aspire to reach the top. Only those who have rigorously trained themselves for the climb can hope to succeed.

Given the traditional Hispanic commitment to education, I have no doubt that some of you here today will be among the few who make it to the summit. It will be a great adventure.

It's been a pleasure to take part in this closing ceremony of Hispanic Heritage Month and I'm sure we all greatly appreciate the work of your organizing committee, especially Mark Rios, Miriam Vega, and the Office of Civil Rights. The impressive programs they put together reminded us all, as President Clinton said in his proclamation, that...

> "Hispanic Americans are helping all of us to uphold the legacy of our democratic society."

Thank you very much. I look forward to next year.

REMARKS BY JOSEPH M. DEL BALZO
ACTING DEPUTY ADMINISTRATOR
FEDERAL AVIATION ADMINISTRATION
RTCA SYMPOSIUM
NOVEMBER 15, 1993
ORLANDO, FLORIDA

Thank you, Dave.

      I may surprise some of you today. I'm not going to talk
about satellite navigation...not much anyway. In fact, I'm not
going to discuss any of the new technology programs I'd normally
talk about at a symposium like this.

      The people I've met with lately all want to know "What's
happening at the FAA"? So this morning, I'd like to review some
of the planning activities we've had underway for the past few
months and the processes we're putting in place to deal with the
far-reaching changes we know are on the way. Frankly, I can't
recall another period when we've had so much going on at once.

      First, there is the growing momentum to change
government...to eliminate waste and inefficiencies and to make it
more responsive. For the first time that I can remember, we're
looking at a budget that, in real dollars, is less than what we
had the previous year.

      There are the reports of the Airline Commission and the
Vice-President's National Performance Review. Together, these
reports contain three dozen or so proposals aimed at improving
the air traffic control system...with the recommendation to spin
off the air traffic control function into an independent
government corporation topping both lists.

Then, there is the unrelenting pace of technology...a progression
so fast we can barely stay even.

      And there is the growing trend toward globalization as
airlines look beyond their national borders for mergers and more
profitable routes.

      While some issues will surely be the subject of continuing
debate and negotiation, this much is certain: We can no longer
ignore the imperative to change...and to change quickly. The FAA
of tomorrow must be more customer oriented and responsive...more
integrated and informed...more accountable and cost efficient
than we are today. In short, we've got to discard our old
bureaucratic ways and learn to conduct our business in much the
same manner as you manage your own enterprises.

One of our first steps toward achieving this objective was to develop a new strategic action plan. Right about now, most of you are probably thinking "Sounds like the same old bureaucratic stuff to me".

Perhaps. But I can't name one company that's succeeded without a solid business plan...a strategic document outlining where the company wants to be in the next five or ten years and how they're going to get there. That's what our plan does. And it has some important differences from those we've put out in the past.

The financial crisis that's hit the airlines has brought home to us that our customers can't afford to wait until the 21st Century for new products. So although future technology development is still an important part of our planning, we've given equal consideration to what we can do to improve services today.

Another explicit differences is that, unlike our earlier efforts, this strategic plan isn't a wish list. It's been crafted to take into account the reduced budget targets that have been provided to us. We've got to live with the reality that the taxpayers aren't going to give us the money to do all the things we want to do...or that you'd like us to do. We're going to have to pick among difficult alternatives just as you do every day in your own enterprises.

So this plan is different in many ways. But its most distinguishing feature isn't in the plan itself, but in the way it was developed.

We began last February, shortly after the arrival of the new Administration. The FAA's Executive Board--that's about two dozen of our most senior managers--developed a basic approach for a strategic agenda. Then we borrowed a strategy from the Operational Planning and Management Team called a challenger session.

We spent the months of June and July just listening. We listened to senior managers who've been with us for many years. And to newly hired employees...people with a fresh perspective...people willing to challenge the status quo. We invited outside experts to come in and talk to us: people well versed on international activities...policy analysts...even a few sociologists.

In late August, we held a similar session for the members of the National Aviation Coalition...that's a group which includes the leaders of virtually all the aviation trade associations and member organizations. That meeting also included a number of others from the airlines and from industry...a representative set of our customers.

We spent the day with them...listening to their concerns, hearing from them what they thought the FAA should be focusing on both in the near term and in the long term. Then we took some time off to sort out what we had heard. And to package that information into something that each of us could not only support...but make happen.

What emerged was a set of seven strategic areas of concentration. We appointed a team leader for each of these areas. Then we gave them the task of developing very precise, descriptive commitments geared toward meeting those goals within a realistic...and specific...time table.

On October 19, we met once again with the industry group. This time to verify that the commitments we were signing up for responded to what they had told us they needed. The next, and final step, is to develop the implementation plans to make these strategic objectives and tactical products happen. We plan to finish that by the end of this month and to publish the plan before the end of the year.

Before I move on to my next topic, I'd like to list quickly the seven areas of concentration and their team leaders.

The first is System Safety, led by Tony Broderick, the Associate Administrator for Regulation and Certification.

The second is Industry Vitality, and that's led by John Turner, the Associate Administrator for NAS Development. An example of a near term initiative in this category is "To develop a system for tracking the cumulative cost burden that agency rules place on the industry".

The third major thrust is System Capacity, led by Bill Pollard, Associate Administrator for Air Traffic.

Fourth is 21st Century Aviation, led by Marty Pozesky, Associate Administrator for System Development and Engineering. An example of a near-term objective under this thrust is "To determine the feasibility of GPS for CAT II and CAT III operations".

A longer term thrust is "To implement GPS-based Automated Dependent Surveillance on the airport surface".

Fifth is FAA Organization, led by Herb McClure, Associate Administrator for Human Resource Management. Here's where you'll find our objective to operate the FAA more like a business. There's also a near-term project to complete a study of the FAA corporation proposal.

The sixth is International Leadership, led by Joan Bauerlein, Director of the Office of International Aviation.

And the seventh area is Environmental Responsibility, led by Louise Maillet, Director, Office of Environment.

Each major area of concentration has an executive board member assigned to work with each one of the team leaders.

One feature we insisted on was that the strategic plan had to be designed with enough flexibility so that it could accommodate and account for change...like the various recommendations coming from the Airline Commission, the Gore Plan, and the President's budget resolution initiative. What we've actually done is take each recommendation and make sure that, if it's adopted, we can fit it in under one of these seven major thrusts.

While the Executive Board has been hard at work on the strategic plan, a number of subcommittees have been active on a variety of fronts.

The Operational Planning and Management Team recently completed its work on an operational concept for the FAA. As I mentioned earlier, the OPMT made extensive use of industry challenger teams in developing this concept. We expect this document to be available within the next two months.

Bill Pollard is leading a new cross-organizational committee in a corollary effort to implement the air traffic portion of the operational concept.

There are four other special studies that deserve mention. As part of our FY-94 budget request, we proposed cancelling what we call the DUATS service. We're presently revisiting how we can best provide preflight services to general aviation pilots. We hope to complete this review completed by January 1.

A second group has been given the task of improving the operational requirements process. This is something we've needed for a very long time. We've found that most of our acquisition woes can be traced back to a requirements definition problem.

We may eventually get out from under the rules and regulations of the acquisition process, but we can help ourselves right now by fixing the operational requirements process within the FAA.

A third study is looking at how we will go about managing the FAA business. Many have pointed out to us, and rightfully so, that we are not a business. We don't compete for customers with price and service. Our revenue doesn't depend on our product marketability. We don't have to turn a profit. And our managers don't have responsibility for a definite bottom line.

Nevertheless, we believe we can approximate some of the business-like forces many of you experience. We believe that by establishing a customer forum and opening up our strategic planning processes to include the people we serve, we can learn more about our customers' needs.

And while we may not be in a marketplace, we can try to approximate market measurements. One way is to create cost-performance measures. If we're going to manage more like a business we've got to know something about the cost and the quality of our product. How much does it cost us, for example, to operate and maintain the air traffic system? We don't know that.

We need a set of cost performance models that we can manage against. And we need to get a better fix on what our products are...what the lines of business are...what it is that we produce...what it costs us to produce those services and how do we measure the quality of those services.

We've had a group looking at the development of cost performance models for the past four or five months. Hopefully we'll have something to report the end of this calendar year.

The last study I'd like to mention concerns the proposal to restructure the FAA. Both Vice-President Gore and the Airline Commission have recommended spitting off the air traffic function into an independent government corporation within the Department of Transportation...leaving the safety and regulatory function where it is now within the FAA.

They make a compelling argument that an ATC corporation would have more latitude to deal with budgetary, personnel, and acquisition problems.

They point out that other countries, New Zealand, Australia, and Germany, have all established successful ATC corporations. But in all candor...and I mean this constructively...none of us knows how such a corporation would function in an airspace as large and busy as ours.

We've established a special committee to help us understand more fully what this involves. The committee includes some of our best and most knowledgeable managers. It's being led by Ed Kelly, who also chaired the OPMT. Dorothy Barry from the Human Resource Management organization, Dan Baudette from the Regulation and Certification Office, and Dave Hurley out of Air Traffic also served on the OPMT and are working with Ed on this committee, full-time, as well.

As you might imagine given our safety mission, this is something that we want to approach with the utmost caution. The group is looking at two options. One is a federal corporation that would provide air traffic services only...there's a corporation called NATS that provides similar functions in Great Britain. The second option is to establish a federal corporation that would take in all the functions the FAA now performs. This, by the way, is not an open-ended study...we fully expect to finish it in six months.

This is by no means all of the activities we have underway, but it is a good cross-section.

There is one final observation that I would like to make. Six months ago, we asked the RTCA to organize a special task force to develop industry-wide recommendations for the transition to digital communications. We asked, among other things, for an industry consensus on the medium for differential transmissions. I'm disappointed to hear that the task force has been unable to reach an agreement on this issue.

I know it's been a difficult undertaking, but I don't believe we can afford to delay any further. We need a single, clear decision and we need RTCA to continue to press forward until we reach a conclusion. I have urged Dave to put together a red team...no more than 12 people...drawn from FAA senior management and the RTCA Board...to drive this to a resolution.

I believe that someday, when we can gain some historical perspective, the period of the 1980s and 1990s will be one of the great formative moments for our industry. It will be seen as a unique period when an interplay of forces acted together to reshape the world of aviation that has been familiar for so long.

These periods are exhilarating. But they can also be unsettling. None of us can be sure who will be the winners and who will be the losers once the turmoil subsides and a new order emerges.

It's always a temptation for those of us who have prospered under the old order to try to stall...even to prevent...the arrival of the new. But we all know that such efforts are ultimately as futile as they are unwise. We can, however, try to smooth the transition...to modulate the abruptness of the shift. For we cannot afford to allow a service as essential as aviation to be disrupted as we try to negotiate the passage from one era to the next.

Such times require the collective wisdom and experience of everyone in government and industry. It is a time for collaboration and coordination...for sharing ideas and debating alternatives.

Over the years, the FAA and RTCA have worked together to develop the standards and procedures that have brought order to our industry and allowed it grow and prosper. We can look back on 50 years of solid achievement. And we can look ahead to developments in technology that will surpass all that we have achieved so far. It's going to be a fast, steep, hectic climb...and both of our organizations need to build a tight team if we're to reach the summit.

Thank you.

TALKING POINTS FOR JOSEPH M. DEL BALZO
REASON FOUNDATION SEMINAR
"SPINNING OFF AIR TRAFFIC CONTROL"
DECEMBER 1, 1993
WASHINGTON, DC

PRELIMINARY REMARKS/ACKNOWLEDGEMENTS:

A. Thank the Reason Foundation (Robert Poole) for invitation to speak on behalf of the FAA.

B. Recognize the expertise of the assembled panelists.

C. This seminar coincided with the kick-off of the National Aviation Weather Users' Forum...I regret that I missed some of the earlier presentations.

D. I have followed the work of the National Airline Commission closely and with great interest. I've read the Commission's report and the recommendations from the Vice-President's National Performance Review quite thoroughly.

E. It's impossible to deny many of the problems identified in the two studies or to question the motives that led to their recommendations. For as we all know, a safe and efficient national airspace system, capable of meeting the demand for air service, is fundamental to the economic stability of the airlines and the aviation industry.

I.   The FAA recognizes that it needs organizational reform.

    A.   The introduction of new technology...which began in earnest in the mid to late 1980's...is forcing us to rethink the way we do business. For example: We predict that, over time, air traffic control will move from active to passive. Most functions will be automated and essentially hands-off.

    B.   Federal procurement regulations, and the way the FAA manages large acquisitions, thwart our ability to implement new technology as quickly as we should.

    C.   Inflexible government personnel regulations hinders us from making the best use of human resources.

    D.   The vagaries of the federal budget process can make it difficult to finance new technology and to react quickly to changing staffing requirements, and

    E.   There is growing momentum to change government...to eliminate waste and inefficiencies. The FAA of tomorrow must be more customer oriented and responsive-- more accountable and cost efficient than we are today. And this means we must discard many of our old bureaucratic ways.

II.   The Airline Commission and the National Performance
      Review make a compelling argument that incorporating
      the Air Traffic Control function...or all the FAA...would
      remedy these problems.

      A.   Secretary Pena and FAA Administrator Hinson are
           committed to seeing that the recommendations are
           taken seriously and the right corrective action is
           implemented.

      B.   They are equally determined that any changes will be
           built on a full and careful analysis of all factors and
           that the FAA's outstanding operational and safety
           record will not be jeopardized.

      C.   It's worth remembering that not everything is
           broken.

           1.   The U.S. has the world's safest and most
                efficient Air Traffic Control system.
           2.   We handle one-half of the world's traffic.
           3.   Measured in operations, the top 19 airports in
                the world are located here--London's Heathrow
                is number 20.
           4.   Every hour in the domestic system, the FAA
                handles between 4 and 5 thousand aircraft and
                provides 30,000 air traffic services.
           5.   And our costs are about half of those in Europe.

D. It's incumbent upon all of us to be very careful about making wholesale changes without knowing the full implication of those changes.

III. The Air Traffic Control Corporation Study Approach

A. The Secretary has established a Working Group to review three alternative organizational reform models.

1. The best Air Traffic Control government corporation;

2. The best FAA government corporation; and

3. An optimized FAA government organizational model.

B. The working group has a two-tiered structure.

1. The first tier is an Executive Oversight Committee.

a. It's function is to define and assign issues for evaluation, guide and direct the analysis of the organizational reform options, deliberate results, and recommend the best FAA model.

b. The Executive Oversight committee is
composed of 18 senior officials with
knowledge of agency and government-
wide operations, including:

--the Department of Transportation and the
FAA;
(Including the FAA Administrator, Deputy
Administrator, and Chief Counsel)
--OMB and the Office of Personnel
Management;
--the Defense, Treasury, and Labor
Departments;
--the Executive Office of the President;
the National Performance Review;
(Robert Stone, Project Director)
--the Council of Economic Advisors
--the National Airline Commission
(Sandra Pianalto, First Vice President and
COO, Federal Reserve Bank of Cleveland)
--other government corporations
(Craven Crowell, Chairman, Tennessee Valley
Authority, St. Lawrence Seaway
Development Corporation, etc.)

2. The working group's second tier is an Ad Hoc
Task Force which will perform the analysis and
assist the Executive Oversight Committee.

a.   Edward Kelly, the FAA's Deputy Associate Administrator for Airway Facilities directs the task force.

b.   A cadre of full-time members has been chosen from the major organizational disciplines in the FAA.

c.   Other include representatives from the Office of the Secretary, the Office of Management and Budget, the Council of Economic Advisors, and the Departments of Defense, Treasury, Justice, and Labor.

d.   The task force will engage consulting firms and individuals who are experts in corporate management theory, finance, personnel resources, and procurement, as needed, to assist in defining and analyzing alternative organizational options.

3.   Each group is expected to deliver a product.

a.   The Ad Hoc Task Force will provide the Executive oversight Committee with the best model for each of the three organizational alternatives;

b. The Executive Oversight Committee will recommend to the Secretary the best organizational model from among the three options.

IV. PRELIMINARY WORK HAS ALREADY BEEN DONE BY THE TASK FORCE.

A. Information from other government corporations has been reviewed and analyzed. (Export Import Bank, St. Lawrence Seaway Development Corporation, Tennessee Valley Authority)

B. Prior organizational studies have been sought out and reviewed.

C. Examples of the "best business practices" in the private sector have been examined.

D. Data have been gathered about air traffic control corporations in other countries (New Zealand, Australia, Great Britain, Germany.)

While other countries have corporate experience, it is a different order of challenge to make a corporation work well in airspace as complex and busy as ours.

V. THE TASK FORCE'S NEXT STEPS ARE TO ESTABLISH CRITERIA AND PROCEED WITH THE ANALYSIS OF ORGANIZATIONAL MODELS:

A. Each model will be evaluated against the four major problem areas identified in the Airline Commission and NPR Reports (leadership, funding, personnel, and acquisitions).

  1. Ensure continuity of leadership.

      -- Tenure of the Administrator/CEO
      -- Relationship of the corporation to DOT, the Congress, Industry, and the Users
      -- Oversight - how and by whom (Board of Directors or other alternative)
      -- What is the corporate decision-making process?
      -- Accountability and empowerment of executives.

  2. Funding stability
      -- What are the alternative revenue sources-- user fees, ticket tax, Congressional appropriation, or other means?
      -- Which alternative provides the most flexibility and stability for managing funds and for long-term planning.
      -- Which budget process create an incentive to maximize return on investment?

3. A simplified personnel system that lets us

   -- Hire the kind of people we need when we need them.
   -- Create flexible and competitive compensation and benefits packages.
   -- Build a quality culture.
   -- Reduce the cost of personnel.

4. An acquisition system that allows us to buy what we need when we need it, and to make the best deals. The system should:

   -- Streamline front-end requirements setting.
   -- Provide flexible vendor selection, negotiation, and contract award.
   -- Improve contract administration and streamline oversight.

5. Each model will also be evaluated against a set of ancillary considerations. These include:

   -- Impact on aviation safety
   -- Responsiveness to customer needs
   -- Financial viability
   -- Liability issues
   -- National Defense
   -- The cost to users
   -- Right to Strike
   -- Impact on other agency functions

6.	After selecting the best model for each alternative, the task force will draft legislation to effect the recommended changes.

IV.	TIMETABLES:

A.	The first meeting was held two days ago...
Monday, November 29.

B.	All work is to be completed within six months' time - April 1994.

C.	This timetable means we will have a legislative proposal ready to go by April.

VI.	SUMMARY:

A.	The Secretary and the FAA Administrator are fully behind this effort.

B.	The working group is on a fast track.

C.	There are two overriding concerns.

1.	There must be no derogation of safety.

2.	The system must continue to accommodate all users.

REMARKS BY JOSEPH M. DEL BALZO
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FEDERAL AVIATION ADMINISTRATION
AVIATION & AIRPORT INFRASTRUCTURE
INTERNATIONAL CONFERENCE AND EXPOSITION
DECEMBER 7, 1993
DENVER, COLORADO

Thank you very much. I'm delighted to be here in Denver for this truly splendid conference and exposition of aviation enterprise and ingenuity. It couldn't have been better timed. For in just a few weeks, Denver will open the doors on the first major new airport to be built in the United States in more than two decades.

The new Denver International Airport is a showpiece of American aviation technology, a catalyst for the economic development of this region, and a tribute to this great city and the courage and vision of its people. All of us at the Federal Aviation Administration are proud to have been a part of this historic project.

As I look at the technology displayed here, I'm reminded of another historic event. This month marks the 90th anniversary of the first manned-flight of a power-driven aircraft. That first flight lasted 12 seconds and flew just 120 feet. Only a handful of newspapers bothered to report it. Orville and Wilber Wright could never have foreseen the potential growth unleashed by that short, erratic flight. It would have been inconceivable to them that in the space of nine decades, we would have airplanes routinely carrying 400 passengers and cargo...non-stop and at supersonic speeds...from New York to Tokyo...from Los Angeles to Buenos Aries...and from the Netherlands to the ski slopes of Colorado.

They could not have envisioned the technology that would produce computers and the sophisticated air traffic control devices that are available today. Certainly, no one would have predicted the age of satellites and the enormous range of possibilities this technology opens for civil aviation.

The speed with which some of these new technologies have become available has been a surprise, even to us at the FAA. We are, quite realistically, on the threshhold of a new age of aviation...an exciting era of invention and innovation...of promise and challenge.

As a federal agency, the FAA has always been aware of the link between airport capacity and economic development. And in recent years, we have become increasingly aware of the link between capacity, the financial health of the airline industry, and service to air travellers. In the increasingly competitive world aviation market, profitability...even survivability...will depend, in large measure, on expanded capacity...in the airspace...and at the airports.

This afternoon, I'd like to describe how the FAA is using rapidly emerging technology to enhance capacity, improve the margin of safety, and increase efficiency in the U.S. air transportation system.

The three advances which I'll discuss today...higher levels of automation, digital telecommunications, and satellite-based navigation...are certain to stimulate and support the future growth of the aviation industry--not just in the United States, but throughout the world. For the systems we are building today require an unprecedented level of cooperation and coordination on a global scale. The problems of air traffic management will allow less and less room for uniquely national solutions.

So while I will be describing some of our own efforts, we at the FAA are very much aware of the need to work toward international standards of integration and compatibility. We are part of a collaborative process which is already well underway, and which will certainly gain momentum in the near future.

Many of you know that the FAA is in the eleventh year of a massive program to replace our air traffic control system. Much of today's system was acquired between 1965 and 1975. Although it was modern at the time, most of this equipment is now outdated and increasingly less capable of managing the volumes of traffic that we have today...and expect for the future. New systems are being installed nationwide which will automate many routine air traffic control, enabling our controllers to handle a far greater volume of traffic while reducing still further the already low likelihood of human error.

One such program replaces the existing computer hardware at our air route traffic control centers with the most powerful and complex real-time computer system ever built. Once this system is in place, en-route controllers will be able to dynamically reconfigure the airspace almost instantly... adjusting the workload, rerouting aircraft around bad weather and providing a greater margin of safety. Aircraft will move through even the most crowded airspace following routes selected to minimize delay and save fuel...routes flexible enough to be changed mid-course, if necessary by controllers and pilots communicating by means of onboard computers. The first of these new computer systems will begin operating in the Seattle Center in 1996.

Then, around the end of this decade, a similar automation improvement will be available in the terminal area. Controllers will have top-of-descent, approach spacing, and sequencing aids to handle higher levels of traffic in the terminal area with greater efficiency and safety. The payoff will be additional capacity at those airports which today are choked with congestion.

One of the key components of terminal automation is being tested here at Stapleton Airport and at the air route traffic control center in nearby Longmont, Colorado. This component, which we call by the acronym CTAS--a Center-TRACON Automation System--looks at planes as they come in from all directions while they're still about two to three hundred miles from the airport...and finds the most efficient way to sequence the arriving traffic.

As incoming planes converge on the aerial "gate" about forty miles out, CTAS generates computer graphics which display the space and time relationships among all aircraft...and provides controllers with precise, fuel efficient descent and vectoring advisories for the spacing and sequencing of planes during final approach.

If we bring this system on line at just 12 high-volume airports, it will save airlines over half a billion dollars in operating costs and reduced delays in less than ten years.

Advanced automation has a huge additional benefit: much of it can be used to great advantage for air traffic control over the oceans. The use of oceanic airspace is increasing rapidly. For years, aircraft flying oceanic routes were, by necessity, mandated to fly on inefficient fixed tracks regardless of wind conditions. Moreover, the lack of radar coverage required 20 minute spacing between any two aircraft. The results of these restrictions are unutilized airspace capacity, excessive fuel consumption, and high costs to both airlines and passengers.

Two new air traffic control automation capabilities--the Dynamic Ocean Track System--the other is Automatic Dependent Surveillance--will let us offer the same efficient service over the oceans that is now available over land. By knowing the exact location of every plane at every moment in oceanic airspace...and by maintaining constant, instantaneous contact with each one...it becomes possible to safely handle vastly increased levels of trans-oceanic traffic.

Recently, in collaboration with the Government of Fiji, we set up a full-scale trial of the Dynamic Ocean Tracking System...a demonstration which we're told is already reaping benefits in terms of flight time, fuel savings, and reductions in controller workload. Some industry estimates claim that this and similar programs which reduce separation between aircraft will result in the savings of hundreds of millions of dollars in the Pacific region alone within the next dozen years.

These are some of the larger automation projects. On a smaller scale, but equally important, we've installed a new product here at Denver International Airport which we call a Final Monitor Aid Display. The runways at the new airport were planned far enough apart to permit controllers to execute triple approaches...which means that we can land three aircraft simultaneously, even in bad weather. The final monitor aid display lets the control monitor the approaches more closely. It's the first of its kind anywhere.

Implicit in all these advances in technology is a corollary requirement. If we are to succeed in expanding the capacity of our airports and our airspace, we must -- at the same time -- expand our capacity for communications. This is the reason behind our development of digital datalink.

The existing radio and ground based system of air traffic control communications dates from World War II. It is a good, reliable system. But it wasn't developed to handle the volume of air traffic, the sophisticated high speed aircraft, or the torrent of information with which ground and flight crews must cope today. It's a little like a record company sticking faithfully to old standard 78 rpm breakable discs in an age of CDs and digital tape.

We had to move on. So for the past ten years, the FAA has pursued an aggressive research program to bring about the shift to digital communications in air traffic control operations.

At 31 airports in the United States, pilots now visually receive predeparture briefings over a digital datalink instead of the old voice-based radio system. Digital communications are far less prone to error and cut down on this phase of a controller's workload by a half or more. By the end of 1995, the FAA plans to extend this service to 60 airports. And by the end of the decade, if not sooner, datalink will be available for every phase of flight, and for all users of the airspace.

We expect by late 1995 to have two-way data link in routine use in oceanic airspace.

We're working with Boeing Airplane Company and the airlines to implement two-way datalink for step-climbs and other operational benefits in the oceanic airspace in roughly the same time period.

One of our air carriers told us that communications-related delays cost it more than $300 million dollars each year. At a time when airline companies are looking for ways to shave expenses, these new technologies offer an opportunity for real savings. Both the President's National Airline Commission and Vice-President Gore's National Performance Review recommend setting up a government-industry consortium to keep this program on a fast track.

The third...and most dramatic...component of the future air traffic management system is satellite navigation.

Two years ago, the International Civil Aviation Organization endorsed the concept of a global satellite-based navigation system for civil aviation. Shortly after this endorsement, the United States offered the use of its NAVSTAR Global Positioning System to civil aviation throughout the world. Since that time, the demand for this new technology by the U.S. aviation community has been overwhelming. We simply can't implement it fast enough.

Last spring, we approved the supplemental use of the U.S. Global Positioning System, the GPS, for all phases of flight, including non-precision approaches to airports. At least one GPS receiver which meets FAA certification standards is already on the market. GPS-based special category I applications will be in place by next April.

Another milestone event...one crucial for all that is to follow...will take place very soon when the full GPS constellation becomes operational. At that time, all 24 satellites -- 21 active and 3 "hot spares" -- will be functioning in their assigned orbits.

It's hard to overstate its potential value to civil users... nonprecision approaches to any runway-end in the world...high quality navigation services without investing in expensive avionics or ground facilities...instantaneous position reports and updates...optimum routing flexibility, with the accompanying savings in fuel and crew time. The possibilities are virtually unlimited.

We haven't had time to explore all the implications or solve all the problems. But there is not doubt that this technology has radically recast the future of air traffic control.

We are committed, as an Agency, to bring the benefits of satellite navigation to users as quickly as we can...and to work with the international aviation community to achieve an orderly, staged deployment of this technology consistent with our over-riding responsibilities for aviation safety.

These three technologies -- advanced automation, digital telecommunications, and satellite-based navigation -- are all inter-connected. The benefits increase exponentially as each is deployed. Leave one out, and there is a troublesome void. Like a set of nested boxes...it's all one neatly fitted package.

But there's far more here than we can put in a box. Because we think of aviation technology as strictly an engineering enterprise, we tend to focus on tangible products...on objects made of concrete or titanium or silicon. Our new technologies are all impressive achievements. But even more impressive is the added value which our engineering and technical professionals contribute to global aviation. They understand how to join the many separate components of our technology to build a seamless system of awesome power and complexity.

Denver International Airport is a superb example of the inspired fusion of imagination and technology. It's a lesson relevant to us all...that it's not just knowing the technology that counts the most...it's knowing how to use it.

Thank you very much.