

ADDRESS TO FAA CANDIDATE DEVELOPMENT
PROGRAM PARTICIPANTS
DELIVERED BY JOSEPH M. DEL BALZO
ACTING ADMINISTRATOR
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC
JULY 7, 1993

Good Afternoon.

Let me begin by congratulating the 20 members of the Candidate Development Program, Class of 1993. And I congratulate, as well, the husbands, wives, companions, and friends who've supported you, encouraged you, and at times endured you...to help you reach this milestone in your career.

You come from the Washington Office, from the Regions, and from field Sector Offices. You work in Air Traffic, Airway Facilities, and Flight Standards...in Systems Engineering and Development and in Security. One of you is an aviation information manager. Others are NAS Program Managers, or two are lawyers in the Office of the Chief Counsel.

Most of you have been around for a while, and all of you have well-earned reputations throughout the Agency. We know you to be able managers, experts in your fields.

There was a time when expertise in one's field would have been enough to assure you a place among FAA senior management. Today, we expect our candidates for upper level management positions to have worked at all levels of the agency. We expect them to demonstrate a broad scope of experience...within their own organizations, certainly, but also within other areas of the FAA and even, if possible, in the private sector.

As I thought about what I wanted to say to you this morning, I was struck by the many changes which have taken place within the FAA over the past few years...and the far-reaching changes that are still to come.

Pessimists will say to you that the more things change, the more they remain the same. I am an optimist. Certainly, you must be as well...to have developed the skills, the self-confidence, the faith, and the sense of humor to survive the rigorous standards of the CDP assessment process that brought you to this day.

We are optimists because we know--not only that things change--but that change, shaped by the work of our own hands and directed by the work of our own minds, can and will make a difference in this agency.

The Federal Aviation Administration is in the throes of a transition driven by three powerful forces. The first is technology. The second is President Clinton's resolve to reinvent government...to make it more responsive and to provide higher quality services at less cost. The third is the commitment that this agency and this Administration has made to achieve workforce diversity.

The CPD Class of 1993 is evidence of this commitment: there are more minorities and women in this class than any that we have ever had. Can we do better. Yes we can, and we will.

The FAA is in the process of rebuilding itself...replacing our aging technology with a radically new air traffic control system based on digital communication, satellites, and giant, high-speed computers. But it's not just our technology which is changing. The character of the FAA as an organization...as a place to work...is undergoing fundamental change as well.

The old metaphors we use to understand organizations like the our own are no longer appropriate. They are holdovers from the industrial age, when it made sense to describe a company or a government agency as an engine and to think of workers as cogs in a huge machine. In order to make the place work, all that was necessary was to press the right combination of buttons or pull the right levers. But this mechanistic mind-set has outlived its usefulness. Increasingly, those of us who manage big bureaucracies are finding that our old techniques do not produce the predictable results they once did. We pull the same old levers, but discover that they are no longer attached to anything.

We need a new way to think about the FAA. We need to do some "discontinuous thinking" -- searching out all the outdated habits of thought and procedure which made good sense in an earlier time...but which now limit our capacity to change. We need to identify all our old assumptions about technology and people and organizational goals that no longer hold. We need to remember that old managerial maxim -- "change before you have to".

Like many other forward-looking public agencies, the FAA's approach to change reflects a fundamental rethinking of the role of government which has emerged in the nineties--a paradigm shift much like that documented in the book, Reinventing Government, by David Osborne and Ted Gaebler. The message of the book is simple: there is a revolution under way in government, as people demand more from public services but are unwilling to pay more in taxes. It's nothing like the reigning political philosophy of the 1980s which sought to reduce, even eliminate, many government services. Today the emphasis is on providing better quality public services without increasing the cost to the taxpayers.

This is not a very welcome idea in federal agencies which have long depended on an ever expanding economy to support an ever expanding level of activity. It is difficult for us to adjust to slow growth and diminishing revenues...without any significant reduction in the scope of our responsibilities.

But that is the situation we are all facing as managers. And we will all experience some real "culture shock" as we struggle to adapt. Imagine yourselves suddenly being assigned to work on your own in a foreign country ...say, China or India...without being fluent in the language or familiar with the customs. To thrive in such a challenging environment, you would have to learn an entirely new system of values. And if we are to succeed in the cost-conscious environment of the 90s, we will all have to adopt the values of a very different organizational culture.

Recently, the FAA published a new set of concise management principles which will provide direction for the entire organization and define a radically new way of doing business. These principles express the fundamental values which will guide us in managing the FAA during the coming years. They teach us the customs of the unfamiliar territory we are now entering.

Our objective is to add value to the wide range of services the FAA offers to the public and the aviation community, while actually decreasing the unit costs of our operations. In part, this effort is driven by the cost containment measures and staffing reductions initiated by the Clinton Administration. But it also makes sense given the economic hardship within our industry and the burden of the federal deficit. In an era of dwindling resources and increasing demand for our services, we have to master the challenge of doing more with less.

As part of a long-term plan to simultaneously modernize both the technology and the organization of the FAA, we have established a set of specific performance goals, all of which are aimed at increasing our level of service, improving our efficiency, and upgrading our quality. And all of these are to be achieved while we work to reduce our unit costs.

A commitment to service is, too often, a neglected virtue. Many government agencies have the reputation of being inward-looking and self-absorbed, oblivious to the needs of the public they are mandated to serve. While the FAA can take pride in its constant efforts to meet our many obligations and responsibilities, we need to be just as constant in our efforts to upgrade the quality of our service.

There are many ways in which we can become more customer-centered -- to be more responsive to the diverse needs of those who use our services. As an agency, we should be outward-oriented, ever alert to both the current and the changing needs of our customers, and careful to always evaluate our performance from the standpoint of what our customers think of us, rather than what we think of ourselves.

Efficiency is another attribute we seldom associate with government. In old-style bureaucracies there was often little incentive to shave costs, eliminate duplication of effort, trim redundant layers of management, streamline procedures and eradicate waste. Efficiency itself rarely figured as a major factor in the choice of those to be rewarded and promoted. But in the FAA which is emerging, cost-consciousness will be highly valued. Our executives will be given much more flexibility in how they manage their staffs and allocate their resources. But they will also be held accountable for delivering products and services on schedule and within budget.

Now I know that skeptics say that efficiency can be achieved only through the discipline of the marketplace...that the absence of competition dooms government agencies to be forever wasteful. That privatization is the only answer. But if you look closely at businesses which have proven their competitive fitness, what do you find? Nothing really very surprising. They are the firms which have set higher standards than others in their industry...which are better organized. And which are more thoughtful about what they do.

I believe the FAA can show a doubting world that efficiency can be achieved just as readily from an acute sense of public responsibility as from the cruel clash of competition. For an over-emphasis on competitiveness often degenerates into a destructive zero-sum game in which one group gains at the expense of another. Our continuing efforts within the FAA to build teamwork and a shared vision of our mission will, I am certain, demonstrate that efficiency does not require a high body count.

The third of our performance goals expresses the importance that we at the FAA are placing on quality. The push for quality which has energized American industry has now begun to transform American government. At the FAA, we recognize that if we are to succeed as a customer-centered organization, the quality of our service will depend not only on the advanced level of our technology but on the professional standards of our workforce. We are committed, as an agency, to building a diverse workforce of highly competent, motivated, technically and managerially sophisticated professionals. We believe that our investment in human resources must match our investment in air traffic control technology.

To achieve the broad objectives that I have outlined, the FAA must become an organization with a heightened capacity to learn and adapt -- one which sets ever higher standards for itself, measures the discrepancy between promise and performance, and seeks constantly to narrow the gap. But if we are to develop as an organization capable of continuous learning, we will depend on leaders with a capacity for continuous growth.

I have every hope that the careful process by which all of you here today were selected as candidates for Senior Executive Service has succeeded in what it is intended to do: to identify those with the mental vigor and intellectual drive to constantly renew themselves through learning. None of you are here by chance.

Most of you...all of you I hope...will become members of the Senior Executive Service within the next two to three years. Once you do, you will have a choice. Some people reach their career goal and then relax and enjoy it, limiting themselves to their personal concern and the concerns of the people in the tight little circle immediately around them. Others climb the ladder of success to their desired level, and then pause, lean down, and lend a hand to the people behind them.

Author Peter Drucker writes...in his new book...about the emergence of a post-capitalist society in which our most valuable asset is no longer Triple-A bonds or Manhattan real estate or a portfolio of blue chip stocks. Our most valuable asset will be knowledge. Prosperity, he argues, will result from the wise investment of intellectual capital.

We look to you, as our future senior managers, to be prudent investors...not only of your own accumulated wealth of knowledge...but of the cumulative knowledge to be found and nurtured throughout the FAA. We are today one of the premier technology-based organizations in the world. You will be inheriting, as our next generation of leaders, a vital national asset in the knowledge-based economy of tomorrow.

Thank you.

REMARKS BY JOSEPH M. DEL BALZO
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FEDERAL AVIATION ADMINISTRATION
PROFESSIONAL AIRWAY SYSTEM SPECIALISTS
GENERAL ASSEMBLY
ORLANDO, FLORIDA
AUGUST 30, 1993

Good Morning.

It's always a pleasure to meet all my old friends from PASS. Many of us can tell stories about each other which go back to another era. Howard and I and the others have a long history in common... a history which reflects the dynamic growth of both PASS and the FAA as we all struggled to keep up with the hectic expansion of aviation during these last twenty or thirty years.

Stories about unions can be dramatic. Those who have seen Jack Nicholson's portrayal of Jimmy Hoffa had a chance to relive...through this movie...the turbulent era of union organizing which most Americans living today have little knowledge. It's often said that we Americans have little interest in history, even when it's our own. So it doesn't really surprise me that our newer FAA employees, those who have joined the Agency in the last few years, often know little about one of the most momentous events in the history of the FAA ...in fact, in the history of labor relations in the United States. That event was the firing of more than 11 thousand striking air traffic controllers by President Reagan back in 1981.

Memories of the PATCO strike and its aftermath came back to us very recently when President Clinton and Secretary Pena finally lifted the rehiring ban which had been imposed for more than a decade. You may have heard that nearly four thousand of the fired PATCO controllers have expressed an interest in reapplying for their old jobs. That's many times the number we had anticipated. I don't know, of course, how many of these will actually return to the FAA. But I know that those who do come back will discover an FAA which is very different from the one they left. And the changes they will find are due, in no small measure, to the leadership initiatives of PASS. For the leaders of PASS, along with many of us in FAA management, were determined not only to remember this disruptive and demoralizing episode in our Agency's history.

We were determined to learn from it...to prevent it from ever happening again. Those of you who remember the Agency as it was 15 or 20 years ago know the scope of the changes which have since occurred. You remember that the old FAA was autocratic and intimidating, steeped in a stern, quasi-military culture where the

supervisor's opinion was the only one that mattered. If you dared to question an order or doubt their judgment, you did so at the risk of your career.

We knew this work environment had to change. Our response was a daring experiment in labor-management relations...began with PASS in the Eastern Region soon after the PATCO strike...and intended to begin the slow process of creating a new basis for cooperation and conciliation.

We called this experiment the Employee Involvement Process and those of us who were involved from the very start...Howard Johannssen, Arnie Aquilano, and myself...we can tell you that we all had to overcome a lot of mutual suspicion and antagonism.

People in the upper echelons of the FAA vigorously opposed any attempt to let the unions participate in decisions which they considered to be the sovereign prerogative of management. Union members were distrustful of any effort which might jeopardize their hard-won rights to collective bargaining. And people on both sides were often the targets of accusations from our own colleagues--accusations that we were impractical visionaries. Maybe even turncoats.

But we knew that there was no real alternative to the concept of employee involvement. The old adversarial relationship was just too destructive, too counter-productive to be allowed to continue unchallenged. Out of necessity and out of conviction, we have kept this experiment alive. We are still fine-tuning the concept, still defining the idea. The joint policy statement which PASS and Airway Facilities published this past April is the latest effort to cautiously and thoughtfully lay out what we trying to achieve.

The effective working relationship with PASS...as exemplified by the Employee Involvement Process...is becoming a model for the entire Agency. All the time, I keep hearing stories about its success.

One important indicator of how far we have come is the dramatic decline in the number of grievances filed by PASS representatives. In the New York TRACON, once a hotbed of discontent, there was an especially sharp drop...in a single year...from 17 to zero. Nowadays, grievances at that facility are rare. And grievances seldom go all the way to arbitration. At the New York TRACON and at all of our work centers, most disputes are be settled amicably beforehand.

Working together, we've been able to find creative solutions to troublesome managerial problems. One example is the revised call back system to handle after-hour equipment malfunctions in the Eastern Region. The new call back system was designed to eliminate the practice where controllers automatically called the name at the top of the list. The unhappy catalyst for this change was the loss of a technician in an auto accident. He had driven 50 miles to repair a facility and was killed on the return trip...perhaps he became drowsy...we'll never know.

This incident was reviewed as part of the Employee Involvement Process and a different procedure was devised...one which takes human factors into account. Now a single call-back manager is responsible contacting technicians...selecting those who indicate they are fit to work...and keeping track of them while they're out on assignment.

Attention to the human dimension has made many of our workplace environments more open and relaxed. The AF division manager in the Western Pacific region compares the situation today with the one which existed a few years ago. He likens it to the way you can tell if a family is a happy one...just by walking into their house.

That's the atmosphere in FAA offices today, in contrast to the discord you'd have sensed only a short time ago. This same division manager recalls that five years ago many FAA managers in the region were barely speaking to the PASS representatives. Today they stick together...even siding with each other in their dealings with upper level management. The work relationships have been totally transformed.

There are new coalitions being formed between PASS and FAA management at every level of the organization.

In the Southwest region, supervisors in one sector were eager to introduce EIP but they were hamstrung by the requirement that only dues-paying union members could work on committees. And there were only four paid-up members in the entire sector. Not enough to get started.

These managers knew they were legally prohibited from actively encouraging union membership. But they also feared that traces of an old stigma still existed within the sector...a attitude that discouraged members from joining.

It was this stigma that they wanted to dispel. They wanted to send a message that if you wanted to join the union, that was an O.K. thing to do. The decision was each employee's to freely make. So they decided to join PASS themselves. They became associate members in the hope that others would feel more comfortable about union affiliation. Within a few months, PASS membership in the sector jumped from four to thirty members.

It comes as no surprise, then, that the last collective bargaining negotiations between the FAA and PASS went a lot more smoothly than in the past. Both sides have learned to accept the legitimate concerns of the other. We have learned the futility of trying to outsmart or outgun each other around the bargaining table. We recognize that the best agreement is one which tries to find an honest balance among our many valid but competing interests. A one-sided victory in labor relations tends also to be a victory which is short-lived.

Another impressive proof of the success of the Employee Involvement Process is its adoption elsewhere in the Agency. Air Traffic looked at the evidence and decided to develop its own version of the concept....which they called Quality Through Partnership. Together, these two programs today cover roughly 85 percent of the FAA workforce. They worked in tandem at the time of the giant consolidation of the Southern California TRACON. The sheer magnitude of the task created a situation in which labor-management disputes were bound to erupt. But the merger was able to proceed with a minimum of confusion and conflict because of the EIP and its Air Traffic equivalent. We expect a similar level of collaboration when we move the Central Flow Control Facility.

PASS, NATCA, and FAA management are also working through the multitude of decisions required to put the Initial Sector Suite System into operation. Both unions have representatives who are core members of the ISSS planning team. These representatives have participated from the beginning, in recognition of the expert knowledge and vast experience which the two organizations and their members have at their command.

In the old FAA...before the strike...before EIP...senior managers would have made all these decisions on our own...pre-emptively ... without any thought of consultation with the unions.

So the controllers from the PATCO days would be startled at the differences which have taken place within the FAA during the intervening dozen years. But these changes...though profound and far-reaching...are quite insignificant when compared to the transformation which is about to occur within our organization.

Last week, at his swearing-in ceremony, the new FAA administrator, David Hinson, remarked that this was one of those moments in history when a powerful convergence of forces was going to produce great and unsettling change, whether or not we were prepared to cope with it.

He mentioned, for example, the trend toward the globalization of aviation as air carriers merge and air traffic control systems begin to bypass national boundaries. He mentioned the unrelenting impact of new technology...such as satellite-based navigationwhich forces us to redesign new air traffic control systems faster than we can build and install them.

And there is the recent recommendation of the President's Airline Commission to spin off the air traffic control and maintenance services of the FAA and set these up as a separate corporate entity within the Department of Transportation. The Commission offered few details about this plan. Is it federal or private? Profit or non-

profit? For the moment, the details don't concern us. The important point is that very significant organizational changes are being seriously considered.

And not only by the Airline Commission. The President's Task Force on Reinventing Government is making a similar recommendation. This task force...which, as you know...is headed by Vice President Gore...this task force is likely to make other recommendations which will make a difference in the way we do our business.

This Administration is committed to shrinking the size of the government and cutting back on federal spending. The FAA, just like any other agency in Washington, is expected to reduce its operating costs while...at the same time...to maintain...even to increase...the quality of our services to the public.

This is the dilemma we face. For the public's demand for our services is not diminishing. They want more services of higher quality, offered more quickly and with greater efficiency. The demand has not diminished. What has decreased is the public's ability...or willingness...to pay the additional costs.

In past years, we could meet budget shortfalls by playing around at the margin...a nip here, a tuck there...spreading projects costs over longer periods of time...postponing an expenditure until the next fiscal year. There were many budget tricks, and we used them all. But no trickery and sleight-of-hand will be enough this time. We're talking about quantum increases in efficiency and productivity which surpass anything we've ever had to achieve before. We're not worrying about cuts of a few hundred thousand dollars...or even a few million. What we're worrying about is the hundreds of millions that have to be cut from our day-to-day operating costs...and cut within a relatively short span of time.

Never before in the history of the FAA have we had spending reductions of this magnitude. And, frankly, we're not sure that we know how to do it...we certainly can't do it in a vacuum. We know from watching the often reckless cutbacks in some of our blue chip corporations that downsizing can often turn into dumbsizing.

The decisions to be made...if they are to be wise decisions...require a depth of understanding about the Agency which cannot be found in any single person or any circle of top-level managers. We are completely dependent on the insight and knowledge which is to be found everywhere in the Agency...found throughout our workforce.

Just a few months ago, there was a serious deficit in the Eastern Region. The managers doubted that there was enough money to see them through the end of the fiscal year. In the old days, when managers decided entirely on their own, they would have ordered all the usual cost-cutting measures -- such as the elimination or reduction of overtime and holiday pay...or restricting the use of government vehicles -- all the

usual steps which managers have always taken when money is short...steps which always seem to affect their workers more than themselves.

But because now the Employee Involvement Program was in place, and had proven its worth...it was decided jointly by management and by the PASS leadership to throw on the table all the ideas which had been proposed. Discussions were opened with all the union membership in each of the sectors, and everyone was invited to make suggestions.

The response was immediate, and as a result, the region was able to identify savings of over one half a million dollars, enabling the region to erase its deficit and balance its budget. I know that what was done so impressively in one region can be duplicated throughout our Agency. We must look to all of you...and to the people with whom you work every day. For you know where to eliminate the waste and duplication. You know where we can streamline, consolidate, simplify, without undermining the performance of our essential mission to safeguard aviation safety.

But to make these massive changes with intelligence and fairness and a steady sense of our responsibility...all of this will require a level of employee involvement which goes far beyond what we've accomplished up to now. All of our early successes with the Employee Involvement Process...these were all just trial runs for the really big event.

None of us know yet how to make all the changes which will be necessary. But all of us know how those decisions will be made... as a collaborative effort involving everyone in the FAA. Our experience in working so productively with PASS and the PASS leadership gives the entire Agency a pattern to follow...a framework for change and renewal.

Robert Kennedy once noted: "Progress is a nice word, but its motivator is change, and change has its enemies". Thirty years later, we have a new President who tells us we can make change our friend. The story of labor-management relations in the FAA has now come full circle. We are, indeed, friends.

Thank you.

REMARKS BY JOSEPH M. DEL BALZO
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FEDERAL AVIATION ADMINISTRATOR
PASS/IFATSEA GENERAL ASSEMBLY
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ORLANDO, FLORIDA
AUGUST 31, 1993

Good Morning:

Thank you for that generous introduction. I appreciate this opportunity to speak with labor representatives from so many countries. With all the global developments of the past few years...with all the challenges and opportunities facing aviation in literally every country of the world...the exchange of ideas is more important than ever before.

The invitation to share this platform with PASS President Howard Johannssen, is, in itself, a statement of how far we in the FAA have come in our relationships with our unions and their leaders. It wasn't always this way.

Twelve years ago, 11 thousand air traffic controllers walked off their jobs and were fired by President Reagan. This month, on the anniversary of that strike, President Clinton lifted the rehiring ban, closing out one of the most traumatic and momentous events in the history of the FAA...in fact in the history of labor relations in the United States.

In the first ten days after the ban was lifted, over 4,000 former controllers expressed an interest in reapplying for their old jobs. I don't know, of course, how many of them will actually return to the FAA. But those who do come back will discover an FAA which is far different from the one they left.

We were determined to learn from that strike and to prevent anything like it from ever happening again. Together with PASS, we put together a daring experiment in labor-management relations...one intended to begin the slow process of creating a new basis for cooperation and conciliation.

We called it the Employee Involvement Process and it has provided us with a framework for change and renewal. And it gives us the adaptability to cope with the profound and far-reaching changes that are about to occur in our organization. This morning, I would like to speak with you about those changes. For, by their very nature, they confront us all with very similar challenges...wherever we work, whatever our jobs.

Last week, at his swearing-in ceremony, the new FAA administrator, David Hinson, remarked that this was one of those moments in history when a powerful convergence of forces was going to produce great and unsettling change, whether or not we were prepared to cope with it.

Not the least of these is the trend toward the globalization of aviation as air carriers merge and air traffic control systems begin to bypass national boundaries.

Today, the availability of space-based technologies...new, more powerful computers...and advanced telecommunications provides the opportunity to create such a system...a truly global air traffic control system.

Let me say, straight off, that here in the United States, the transition has already begun. The FAA is literally reinventing itself with new technology, on a scale unlike anything we've ever attempted before.

Let me review briefly how our plans to modernize our air traffic control system are progressing, and the important features which will distinguish the next generation of technology from what we have today.

At the core of our modernization program is the Advanced Automation System...based upon one of the most powerful and complex real-time computer systems ever built.

Linked to this computer system is a newly designed work station for air traffic controllers which provides full color displays, integrated communication, state-of-the-art processors, and highly sophisticated new software.

With this new system, 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.

Terminal Air Traffic Control Automation--TATCA as we call it--is another major improvement that will be available by the end of the decade. Once TATCA is in place, 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 from TATCA will be additional capacity at those airports which today are choked with congestion.

One of the key components of TATCA is a Center-TRACON Automation System, which we developed in collaboration with the National Aeronautics and Space

Administration. Known by the acronym CTAS, it looks at planes as they come in from all directions while they are 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 airports, we estimate that, by the year 2000, it will save airlines nearly 600 million dollars in operating costs and reduced delays.

The economic benefits expected from CTAS will be multiplied many fold as the FAA begins to employ all of its new technology. The eventual savings to carriers will far exceed the cost of our investment in modernization.

Aircraft manufacturers tell us that it costs one million dollars a year to delay a 747-400 by just one minute each operating hour. The engineers at Boeing estimate that the extra cost of congestion, delay, and inefficient routing is in the range of 10 billion dollars.

That's enough to offset most of the money U.S. air carriers have lost over the past three years.

Another technology that is evolving rapidly is digital communications. At 31 airports in the United States today, pilots can receive predeparture briefings over a digital datalink instead of the old radio-based system. By the end of 1995, we plan to extend this service to 60 airports.

Recently, we completed a datalink version of the Automatic Terminal Information Service--ATIS--which provides similar improvements in the flow of information to pilots during the busy terminal approach phase of flight. The capability has been demonstrated with a major carrier and we intend to begin deployment at Houston, Texas, next year.

By the end of the decade, if not sooner, the FAA's new digital datalink communication system will be available for every phase of flight, and for all users of the airspace. In a later, more complex form, datalink will become part of a vast, interlocking system of computers, satellites, sensors, and software called the Aeronautical Telecommunications Network or ATN.

The ATN provides a communications architecture that takes those services which presently function through independent networks...air traffic control...fixed base operations...flight, airport, and airline operations...and integrates them into a single, coherent management system.

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The Aeronautical Telecommunications Network is being designed to create a seamless common air traffic control system that can be used, worldwide, sometime after the turn of the century. I'm not talking about a revolutionary new concept. The International Civil Aviation Organization--ICAO--has already made the decision that this technology will be the international standard.

For flights over the oceans, Automatic Dependent Surveillance (ADS), combined with datalink, will provide the means for immediate communication of accurate position reports between pilot and controller. Along with the Dynamic Oceanic Tracking System (DOTS) and Oceanic Display and Planning System (ODAPS), these programs provide opportunities for the introduction of advanced air traffic management services...and attendant capacity gains...which otherwise would not exist.

It's hard to over-estimate the magnitude of these benefits of these systems, or to exaggerate the force of the technological and economic imperatives which have powered the emergence of new concepts in air traffic control.

Perhaps the most dramatic of all has been the unexpectedly rapid development of satellite navigation and surveillance. The suddenness with which it has become both feasible and available has been a surprise to us all. We are committed, as an agency, to bring the benefits of satellite technology to users as quickly as we can.

In late spring, we announced that we have approved the supplemental use of the U.S. Global Positioning System, the GPS, for all phases of flight, including non-precision approaches to airports. And sometime this fall, GPS receivers meeting FAA certification standards are expected to be on the market.

Another milestone event...one crucial for all that is to follow...also takes place late this fall 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.

Ultimately, satellite navigation is a worldwide venture. We at the FAA recognize that the primary stand-alone navigation system in the 21st century will be provided by a Global Navigation Satellite System--GNSS. But it is becoming clear that the world will use GPS as a first step toward reaching that goal.

The first country to test GPS on a national scale is to be the island nation of Fiji. It's an ideal environment in which to evaluate the technology because of the vast areas of low-density airspace. Fiji's 300 islands are spread over nearly 400 thousand square miles with 19 airfields serviced by only five navigation aids. A typical flight crosses as much as 150 miles of ocean in visibilities of less than 5 miles...and all without navigational guidance of any kind.

The FAA is working closely with the Fiji CAA in setting up procedures for using and evaluating GPS in all en route and terminal operations. What we learn from this six month experiment will help us better understand the capability and reliability of GPS in actual day-to-day operation.

This project is preliminary to the next steps we are planning...the demonstration of the feasibility of GPS in very low minimum precision approaches is planned for 1995. A GPS-GNSS differential correction system is planned for Category I precision approaches in 1998. Both of these tasks will be completed during the next five years. And both will mark significant advances in our program to move steadily but incrementally into the era of satellite-based navigation.

The impact of satellites on air traffic control technology will be of such magnitude that it's hard to find historical parallels. Perhaps the introduction of the computer in the 1970's comes the closest. The scale is such that the next comparable innovation is, as yet, nowhere on the horizon.

Some predict that satellites will usher in the greatest decade of progress in aviation history.

Even those who are less enthusiastic agree that this technology will radically recast the future of air traffic control. For the introduction of satellites will not only radically advance the integration of several key air traffic control technologies into a single, seamless system...but will promote the integration of the many independent air traffic control authorities into a unified global operation.

As one European business journalist wrote this week: "the current drive to integrate European air traffic control is possibly the biggest civilian effort ever undertaken within Europe," I agree. But the scope and the scale of this integration reaches far beyond the European community. It encompasses the entire world.

These are changes of truly historic dimensions. And they are occurring at the same time that global economic conditions are forcing governments everywhere to retrench and restructure...to find less costly ways to provide essential public services.

We are all confronted with the same imperatives to change...and to change quickly. Air traffic control agencies in every country are experiencing many of the same pressures--to meet ever-increasing demands for expanded capacity--to keep pace with all the latest technology. And, at the same time, to reduce spending to stay within ever tighter budget limitations.

No one anywhere has the knowledge or experience to cope with these changes alone. We must all learn together. We must all begin to share ideas and insights. Not only among ministers of transportation and national air traffic control authorities, but

managers with workers, even unions with unions, as is happening this week here in Orlando.

There is no monopoly on wisdom...no capacity to unilaterally decide the best course of action. We can depend on no single country or economic bloc for infallible leadership. Nor can we entrust the responsibility for these decisions to some all-powerful international body of wise men, whether they reside in Brussels or Washington or Tokyo. The only workable solutions will be collaborative ones, to which we all freely contribute.

If we have learned anything from our past mistakes it is this: the complex issues that confront us cannot be resolved through one-sided actions. We must seek solutions together.

A pessimist will doubt that we have the collective will to achieve such an unprecedented level of consultation and cooperation. An optimist can only hope that it will happen because we have no choice.

Thank you.

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