NEW DIRECTIONS IN AIR TRAFFIC MANAGEMENT AND INDUSTRY CONSULTATION

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INTRODUCTION

Thank you for your welcome and for the opportunity to speak today on the future of air traffic management and industry consultation.

I believe that that future is going to be largely dependent on the success or otherwise of the newly reconstituted Australian Strategic Air Traffic Management Group, or ASTRA for short, in advising government on directions which best take into account the needs and aspirations of all sectors of the industry.

What I plan to do today is to:

- outline the origins and history of ASTRA, including its recent rebirth as a formally recognised industry organisation,
- explain why it was necessary to restructure it in a fundamentally different form,
- explain how the new ASTRA operates, and
- very briefly touch on some of the major issues being considered as we attempt to design the changes that will be needed to ensure that our ATM system can meet the needs of the travelling public over the next 20 years or so.

I hope today to persuade you that the new ASTRA is now ready to take on the very challenging role of being industry's formal voice to Government on future ATM directions. However, whether or not Government accepts the advice offered, will depend largely on the quality of that advice, the manner in which it is presented, and the degree to which it is supported across the industry. So although ASTRA is the industry advisory body, it needs the support of everyone in the industry if it is to be effective.

I should stress here that while I am the current chairman of ASTRA, the views that I express today are my personal views and do not necessarily reflect the views of ASTRA or any other body. They are my views alone.

Secondly, during this presentation I am going to refer to some weaknesses in the "old" ASTRA. This is in no way intended as a criticism of that organisation, or of its individual members, of which I had and continue to have the highest regard.

THE NEED FOR CHANGE IN ATM

We have the very good fortune to be part of a particularly dynamic industry, and one which contributes substantially to the social and economic well-being of our nation.

According to BTRE, more than 44 million passengers were carried on our domestic airline services last year, and a lot more were flown on Fly In-Fly Out and dedicated aeromedical operations. The one thing that united all of these passengers was their need for safe, efficient and cost effective transport.

We can generally give the travelling public what it wants today, but apart from the recent setbacks associated with the Global Financial Crisis, passenger numbers are growing fast, and unless we make some radical changes to the way we do things, we will not be able to keep up with the projected demand for seats.

It is confidently predicted that passenger numbers will double over the next twenty years, despite the current effects of the GFC. But is this likely?

Well, let us look at the BTRE statistics for the past sixty years in twenty year bites, to see what has happened in the past.

In the first twenty years from 1949, when our modern airline industry was in its infancy, our annual domestic passenger numbers virtually quadrupled from 1.5 million to 5.5 million.

In the next twenty years to 1989, the number almost doubled to a little under 10.5 million.

And over the last twenty years to the end of last year, the total annual domestic passenger load more than quadrupled from 10.5 million to reach 44 million.

It would be unrealistic to expect continuous unending growth, and I believe that the size of our industry has a natural limit, which may be dependent on any number of factors, including population growth, average disposable incomes, the availability or cost of fuel, or the ability of our ATM system to handle more aircraft. Nevertheless it seems to me that with a rapidly increasing population, and based on what has happened in the past, we should, at the very least, expect significant growth over the next twenty years.

Yet Sydney – Melbourne is already the fourth busiest city pair route in the world, and Sydney Airport in particular is already very close to its artificially limited capacity now, at least during the periods when most of the travelling public currently wants to travel. And since Sydney is the major hub in our system, problems there or on the Sydney-Melbourne route tend to have major repercussions in other parts of the country. There are other ports around the country which also have the potential to reach saturation with further growth in air traffic.

So let me ask a rhetorical question:

"How efficient and cost effective do you think that air transport will be in twenty years time, if the passenger numbers double as predicted and we do not substantially change the way we do business?"

It is a very sobering thought.

Clearly, some of the potential for increased air traffic congestion can be reduced to some extent by the use of larger aircraft, however, it will not single-handedly solve the potential congestion problems that a doubling of passenger traffic will create. Something must also be done to significantly increase the capacity, and the efficiency, of the air traffic management system, while still preserving our current high safety standards.

Major changes to the ATM system can be expected to require major changes to aircraft equipment and operation, and to infrastructure. Such changes are expensive and require time to either up-date or replace existing equipment, and complete associated training. Poor decisions can therefore have very costly repercussions. Consequently it is in everyone's interest that such changes be carefully planned well in advance.

The point that I am trying to make is that all of us in the industry, including aircraft operators and maintainers, airports, Airservices Australia, the Bureau of Meteorology, CASA, equipment suppliers and maintainers, and data suppliers, all need a national air traffic management strategic plan on which to base our business decisions.

The development and implementation of such a plan requires a vast amount of coordinated work by the various stakeholders, including those I have just mentioned as well as the federal government and any other airspace users or service providers, including airports, who may be affected by changes in the current ATM system.

This then was the *raison d'etre* for the formation of the original ASTRA: to develop and facilitate the implementation of the National Air Traffic Management Strategic Plan.

THE HISTORY OF ASTRA

Although its genesis lay in the early 1990s, ASTRA was first launched in 1998, by a number of people from CASA, Airservices Australia, and the top end of the industry, who recognised the need for a national air traffic management strategic plan to use as a basis for long term decision making. Under the chairmanship at various times of Gary Lawson-Smith, Adrian Dumsa, Murray Warfield, and Ian Mallett, ASTRA developed such a plan, which has since been updated twice.

The development of a national air traffic management strategic plan was a very significant achievement, and one in which ASTRA led the world, with the result that much of it was adopted by ICAO as the basis for its Global Air Traffic Management Operational Concept and Global Air Navigation Plan.

ASTRA was also instrumental in facilitating the development of the regulatory framework, standards and operating procedures for the very successful introduction of GPS and ADS-B.

Yet for all its foresight and significant achievements, ASTRA had one major weakness: it had no formal standing within the government's decision making process.

And this weakness came to a head with Project ATLAS.

It was recognised very early that ADS-B had the potential to provide very considerable benefits to the Australian aviation industry. It offered surveillance that was potentially more accurate and reliable than radar, and because of its very low cost could offer surveillance over the whole continent, at least at the upper levels. It was evident that with an adequate roll out of ADS-B, there would be no need to replace the existing en route radars, provided that all aircraft operating within, or in the vicinity of existing radar coverage, were fitted with ADS-B OUT equipment to make them visible to the ADS-B surveillance system.

ASTRA also recognised that if the fitting of ADS-B OUT was adopted across the entire fleet, then the collision risk in the vicinity of non-towered aerodromes, which has long been a source of concern to operators of high performance aircraft, could be reduced substantially. All it would take would be the complementary fitting of ADS-B IN equipment to those high performance aircraft considered to be at risk.

It seemed to ASTRA that the potential benefits to all stakeholders of a universal ADS-B OUT fit were of such a magnitude that they could not be ignored, and it began work on Project ATLAS which was aimed at achieving universal fitment of ADS-B OUT.

But it quickly became apparent that a project to fit ADS-B OUT to all aircraft in the GA fleet could also provide further cost saving and safety enhancing benefits, if the opportunity was taken to simultaneously provide a GPS navigator, instead of just a blind GPS receiver, to provide the required position information to the ADS-B OUT package. In other words, at very little extra cost, the entire GA fleet could also be provided with a modern and reliable GPS navigation system which would allow a fundamental change from reliance on terrestrial navigation aids to satellite based navigation, with further potential cost savings from not having to maintain all of the existing navigation aid network.

But there was a catch: who would pay for the fitting of the equipment in the non-commercial aircraft?

These issues were all brought together in Project ATLAS, which proposed the mandatory fitment of an ADS-B OUT capability, with a GPS navigator included in the package, funded for the operators of aircraft of less than 5700 kg, from the cost savings to airlines from not replacing the existing en route radars.

With the benefit of hindsight, it seems clear that what Project ATLAS attempted to achieve was a very innovative and practical development which had the potential to

significantly improve safety and efficiency across the whole industry while substantially reducing long term costs.

It is a matter of history now that Project ATLAS failed, despite the enormous amount of resources that were put into it by industry, Airservices and CASA. There are the usual conspiracy theories about the project being scuttled by various people in authority, but the truth is that the decision not to proceed with ATLAS was taken in large part on the basis that it did not have strong support either across all industry sectors or at the senior levels of those sectors which did support it at the working level.

In other words, ATLAS failed because the project was not adequately sold to all of the stakeholders.

Part of the reason was that time was very short: the final deadline for the Airservices Board to make a decision on replacing the en route radars was rapidly approaching. With the benefit of hind sight, it may have been a case of too much too soon. Given more time, the marketing of the proposal might have been more successful, but the fact remains that we as an industry missed a great opportunity. Neither the potential value of Project ATLAS nor the potential costs of its failure, were fully appreciated at the time, but are now becoming very apparent.

The failure of Project ATLAS created a lot of confusion and a loss of confidence in ASTRA within the industry, as many had not previously understood that despite its leading role in this and other projects, ASTRA in fact had no formal place in the Government's decision making process and no implementing function. Consequently ASTRA fell into a largely moribund state while the situation was re-evaluated.

In the mean time, Airservices, which had always recognised the value of ASTRA's planning and coordination functions, encouraged a revival of ASTRA with a more formal structure and a formal place in the government's decision making process. To its credit, Government recognised the value of having a truly representative industry body capable of providing it with genuine, whole of industry advice, and last year's National Aviation Policy Green Paper committed the government to:

> *"improving coordination across Government agencies and consultation with industry on directions in air traffic policy, including:*
>
> - *using the Aviation Policy Group (APG), chaired by the Secretary of the Department of Infrastructure, Transport, Regional Development and Local Government, to coordinate the development and implementation of the air traffic management plan; and*
>
> - *formalising the role of the Australian Strategic Air Traffic Management Group (ASTRA) as the industry advisory group on air traffic management directions."*

This gave industry for the first time, the opportunity to have a formally recognised place in the Government's decision making process through ASTRA. But the failure

of ATLAS made it clear that some changes would be required. Government made a number of observations about the new ASTRA, including its view that ASTRA should:

- clarify and strengthen its role,
- be representative of the whole of industry,
- show greater involvement of industry at more senior levels, and
- show greater focus and control of its work plan.

What this meant in effect was that ASTRA should be transformed from an informal and primarily technically oriented body into a formally established industry body, with a formal structure and a set of business rules to ensure that its advice would truly represent the collective view of the entire industry, and at the senior executive levels.

To be able to do this would be no small achievement, and it was recognised that consensus would not be possible in all cases, as the needs and aspirations of some sectors were, and remain, quite different from those of other sectors.

BUILDING THE NEW ASTRA

The APG strongly supported the concept of a new and formally constituted industry body, and Airservices Australia took the lead in revitalising ASTRA, strongly supported by CASA and the Department.

It was seen that the first step would be the appointment of an industry chairman who would be acceptable to all sectors and who would be seen to be independent of both Airservices and CASA. In the event, I was asked if I would accept the role. I agreed to take it on for twelve months in order to get the new ASTRA launched, and was duly appointed by the membership of the then existing ASTRA Plenary in March of this year.

The second step would be the production of a new charter to clearly define the intended role of the new organisation, and to detail the operating rules to give it the best chance of fulfilling that role.

The new charter had to pick up on the issues raised by both Government and industry following the failure of Project ATLAS, and to change it into a genuine industry advisory body to meet the new role given to it by Government.

In the event, the new charter was written quickly and formally endorsed after an out of session debate, at the May meeting of the former ASTRA Plenary, at which the new ASTRA Council was officially launched.

Role

The primary role of the new ASTRA is quite simply to advise government on future ATM directions. It will do this in the main by further developing the current ASTRA-produced Australian National ATM Strategic Plan within the policy guidelines to be established by Government in the forthcoming National Aviation Policy White Paper, but it will also offer unsolicited advice on some issues and respond to specific requests for advice.

It also has a secondary role, which is to help facilitate the implementation of the plan. It is important to understand that while ASTRA has no actual implementing responsibilities, which remain with the various agencies, it nevertheless provides a unique and invaluable forum for the coordination and facilitation of implementation activity, because it brings together all of the various ATM stakeholders.

It is also worth noting at this stage that ASTRA is primarily concerned with strategic concepts, that is to say what the ATM system should look like in 5, 10 and 20 years from now. It has not been set up to concentrate on current procedural or location specific issues, which are the responsibility of the Office of Airspace Regulation within CASA. However ASTRA will not shrink from providing advice on systemic issues about which it has concerns.

Guiding Principles

One of the serious shortcomings of this industry of ours has been its inability in the recent past to work together for the common good. No one has had to divide us to conquer us: we have done it all ourselves. We have as a result been largely impotent in the government decision making process, to our significant cost.

While some years have passed since the very divisive NAS was foisted on the industry as a result of its failing to agree on LLAMPS, there is still significant hurt and suspicion lingering in some sectors, and it was recognised that in reforming ASTRA as a whole of industry body, we would have to work very hard to earn and keep the trust of all of the industry sectors.

The Charter therefore establishes and highlights a set of guiding principles, to emphasise that ASTRA is an industry body working for the good of the whole industry, and within the ATM policy guidelines set out by Government.

Given my brief here today, I think it is worthwhile stating those guiding principles:

> *"In developing its positions and providing its advice, ASTRA will:*
>
> *(1) take into account the views of all sections of the industry, while recognising that consensus may not always be possible due to the differing requirements of the different sectors of the industry,*
>
> *(2) make recommendations aimed at ensuring that Australia's ATM infrastructure meets the operational needs of all sectors of the aviation community,*
>
> *(3) ensure that its advice is consistent with Australia's commitment to the ICAO Global Operating Concept for ATM and, where appropriate, approaches adopted by other leading aviation countries,*
>
> *(4) carefully consider the safety, efficiency and environmental benefits offered by each proposal together with industry's capacity to absorb additional costs, and*
>
> *(5) carefully consider industry's capacity to absorb change."*

I have no doubt that the formal statement of those principles in the new Charter assisted greatly in making the new ASTRA acceptable to all industry sectors. I can only hope that adherence to these principles during our deliberations will help to ensure that we avoid those difficulties which have divided us in the past.

A further step that we have taken in this regard is to ensure that decisions of the Council are not taken as the result of a simple vote. Instead, a procedure is in place which ensures that all views are carefully and openly considered, and decisions are taken in the best interest of the industry and the nation. The charter specifically provides for the provision of opposing views where the Council is unable to reach

consensus on a particular issue. I would be happy come back to that point later if there is time and interest.

Structure

Let us now turn to the structure of the new ASTRA. The formal structure has three levels: the governing Council, a number of working groups, and a secretariat.

Council

The Council is the governing body, which directs the work program, develops the whole of industry positions on issues of interest, and provides advice to the Aviation Policy Group via the Aviation Implementation Group.

The Council is headed by an independent chairman and a deputy chairman, both of whom are appointed by the Council. The Council may choose people to fill these two positions regardless of their membership of the council or even the industry. At present we have a Chairman who retired from the industry 18 months ago, and a deputy chairman from CASA, which is not a member of the ASTRA Council.

While the Council has to represent all industry sectors, there is a limit to how big such a body can be if it is to be useful. Membership of the Council has therefore been carefully controlled to ensure that it represents all industry sectors at an appropriate level, while still remaining small enough to be usefully workable.

This membership issue has proven to be perhaps the most controversial issue faced by ASTRA to date, but we have taken a firm stand, even though it has caused some understandable disappointment in some organisations.

In the end, it was decided that the Council should comprise a representative cross section of the industry associations, and only those other organisations for which there is no appropriate industry association and which are deemed to be significant enough to be considered for membership in their own right.

The current membership is as shown on this slide. Basically it includes the major industry associations plus Qantas and Virgin, for whom there is no industry association, plus Airservices Australia and the Bureau of Meteorology.

The test for any new organisation seeking membership of the Council is “who do you represent that is not already represented?”

Graham Giddey from Newcastle Airport is the current Australian Airports Association representative at ASTRA, having recently taken over from Ken Allcott who represented you very ably for many years until his move to Airservices Australia.

The Australian Defence Force was also offered membership of the Council because as both a user of airspace, and as an ATC service provider, it has two separate and irrefutable claims to being part of the industry. However the ADF decided that it should not be a member, although it remains involved as an observer at Council

meetings, and individual ADF members are actively involved in various working groups.

As mentioned before, CASA is not a member because being the regulator, it sits above the industry, and is not a part of it. However that does not prevent CASA officers from being heavily involved in ASTRA, and our current Deputy Chairman, Ian Mallett is a CASA officer, and several other CASA officers are members of the various working groups.

Working Groups

The Working Groups are where most of the technical work of developing recommended positions, or facilitating the implementation of new procedures and technologies is carried out. They are tasked, via a formal Work Program, by the Council, which considers their recommendations before deciding on any formal industry position.

As with the Council, membership of the working groups is also carefully structured and controlled to ensure that all affected sectors are represented, and by people with technical or other expertise to offer at an appropriate level. Membership of the working groups is open, by invitation of the Council, to anyone with expertise to offer, regardless of whether or not their employer is represented on the ASTRA Council. However, in general we aim to have around six to twelve members of each working group, with a maximum of 15, in order to ensure that they have adequate expertise, are adequately representative of all affected sectors, but are still focussed and controllable.

Secretariat

Finally, there is a secretariat, currently provided by Airservices, and I would like to put on the record my appreciation of the support which Airservices provides.

Observers and Guests

In writing the Charter, it was recognised that there is a lot of talent residing in individual organisations which are not able to be actual members of the Council, and that there are other bodies with responsibilities which are related in some way to the work of ASTRA, and whose voices should be heard during the Council's deliberations. Consequently it was decided that provision should be made for their attendance at Council meetings as Permanent Observers. Provision has also been made for a limited number of members of member associations to attend Council meetings as guests.

The aim is to ensure that the Council has genuinely whole of industry representation, and makes best use of industry's resources, while keeping the numbers down to a manageable size.

Senior Executive Involvement

The ASTRA Charter requires that all Council decisions which are likely to significantly affect the industry are referred back to the members' parent bodies for their formal endorsement, to ensure that the advice given to Government is supported by industry at the senior executive level.

Current Status

I trust that this introduction will serve to demonstrate that ASTRA is now well down the road towards completing its transition from being an informal technically oriented group, to being a formally structured industry body, representing the interests of all sectors of the industry, and picking up on all of the weaknesses noted by both Government and industry in the aftermath of Project ATLAS.

Progress has not been as fast as I had hoped, but given the difficulties involved in making such a fundamental change to an existing body, realigning its culture, and getting the various industry sectors working happily together, it has probably been faster than most of us expected, and speaks volumes about the industry's desire to make progress.

The Council has already met twice, and meets again in Canberra on Wednesday.

The new Charter has been endorsed, and can be accessed at our new web-site.

The new Work Program has been endorsed, the working groups have been formally raised and are commencing work on their tasks as allocated by the work program, and I am expecting the first progress reports at the Council meeting on Wednesday.

ASTRA has already provided its first formal industry advice to the Office of Airspace Regulation, on matters related to collision avoidance in the vicinity of GAAP aerodromes.

Finally, I am happy to report that we have identified a high quality candidate to take over from me as Chairman when I stand down in February next year. His nomination will be presented to the Council on Wednesday for its consideration.

THE FUTURE

So much for the past and present.

The Future of ATM

I have been asked to talk briefly about what the future holds for Air Traffic Management. I was not chosen to be the inaugural chair of the new ASTRA because of any significant ATM technical knowledge or understanding, and in any event, since I am not speaking on behalf of the Council, I can only offer some personal views and raise some questions which will need some serious work in the future.

The rapid and continuing growth in the number of passengers flying globally has already demonstrated the limitations of the current system of global air traffic management, and our own national system has already been found wanting on occasions. It is clear that the current system will simply not be able to cope with the growing number of people wishing to fly. In my view, a number of pretty fundamental changes will be necessary to improve the efficiency of the system, if it is to cope with the expected doubling of passenger numbers over the next twenty or so years.

Put very simply, we have to be able to allow more aircraft to occupy the airspace between nodes than ever before, and the only way to do that is to allow them to fly closer to each other, both vertically and horizontally, without putting them at increased risk.

Concurrently, there is the growing political need to be seen to be reducing the environmental impact of our operations. This includes reducing our carbon emissions, which means reducing fuel burn. This in turn requires a system which will allow the aircraft to be operated in the most fuel efficient manner, with minimum delays and minimum low level operation. It also includes a need for more precise navigation to avoid, where possible, noise sensitive areas.

This combination of requirements is quite a tall order for our ATM planners.

It also presents a challenge to Government, because there is no point in airlines reducing carbon emissions by maximising efficiencies en route, and then government policy requiring aircraft to fly to somewhere else simply because it would otherwise touch down a minute after the start of a curfew, or to hold off the coast for 20 minutes because it has arrived before the end of a curfew. If Government is really serious about the environment, then it should review the inflexible nature of curfews, because the two policies are not reconcilable in my view.

But there is some good news. It seems to me that today we are at the threshold of perhaps the most significant period of change in aviation technology since the start of the jet age. New technologies, which to an old timer like me seem incredible, are now coming on line, and should enable very significant improvements in the capacity of our air traffic management system.

I would just like to mention three, because in my view these three, underpinned by improved communications between stakeholders, will define the ATM system of the future:

- Performance based navigation systems, currently being trialled, which will allow us to increase capacity by reducing horizontal separation requirements, and increase efficiency by shortening the track miles required for arrivals and departures,

- RVSM, currently in place but not being fully enforced, which will allow us to double the capacity of routes above FL290, by reducing the vertical separation from 2,000 to 1,000 feet, and

- ADS-B, now almost fully rolled out at the upper levels, which will, by providing greatly improved surveillance, enable us to maintain safety standards despite the increased traffic density. ADS-B based CDTI systems may also offer significant safety enhancement in the vicinity of non-towered aerodromes and greater efficiencies during some departures and arrivals.

These technological capabilities, once fully incorporated into our aircraft and ground infrastructure, will give us the potential to substantially reduce the required separation distances which currently limit the capacity of our existing ATM system to accept significant growth. Using these technologies will enable us to stack more aircraft into the existing airspace and reduce fuel burn without reducing safety standards.

But, and it is a big but - it will require all aircraft operating in the high density airspace to be appropriately fitted if we are to achieve the promised benefits, and that will take time and a great deal of investment.

This begs the question, “who is going to pay?”

The debate over who is going to pay has already begun in the US, with industry arguing that since ground infrastructure is increasingly being replaced by aircraft mounted equipment, the US Government should pay.

That argument would not work here, however, since in Australia the industry pays for the ground infrastructure already. But perhaps a case could be made that the benefits offered by new systems can only be fully realised if all aircraft operating in the airspace are appropriately fitted, and that the national good accruing from universal fitment would justify government financial assistance.

On the other hand, it has been suggested by some that it is more likely that fitment will be mandated for those aircraft wishing to use affected airspace, and it would therefore become a commercial decision to be made by operators whether to up-date and gain the benefits, or not to upgrade and be excluded from certain airspace. However if, for example, RNP approaches and departures become the norm at the major airports, which seems likely, could Government really ban operations to those ports by an airline which chose not to equip their aircraft for RNP?

Clearly the debate has a long way to go, but operators need to be planning now.

But just stacking more aircraft into the air will not be enough. They have to be able to depart and arrive smoothly and without delay. Traditionally we have considered ATM as covering the period from take-off to landing, but this will not be enough in the future. We are going to need to pay much more attention to airport design. There is, after all, no point in getting aircraft efficiently from one place to another if there is nowhere to disembark passengers on arrival or if the airport infrastructure can not cope with the number of passengers trying to get through the terminal, collect their luggage, and leave the airport.

So we will all have to broaden our view, and think “kerb to kerb”. But even that may not be enough, as those of us familiar with unending queues at taxi ranks or stuck in traffic trying to get to our next appointments will recognise. All of these aspects will

need to be considered if we are going to be able to handle the expected number of passengers twenty years from now.

One thing is very clear: whatever we do to increase efficiency will require the timely and routine sharing of a great deal of operational information between airlines, ATC, airports, and all of the various agencies which play a part in getting passengers from kerb to kerb.

Consequently ASTRA is assisting with the development of InDEx, for Integrated Data Exchange. As you can imagine, this will have a major impact on stakeholders, because it will require the acquisition of compatible hardware, new software and the development of business rules to safeguard commercially sensitive information which must nevertheless be shared between some stakeholders if efficiency gains are to be realised. This new Integrated Data Exchange project will be the foundation for all of our future efforts to improve the capacity of our industry to move the expected numbers of passengers efficiently, and its importance can not be over-stated.

Major changes in the way we design routes are already underway. Up until recently, we have designed routes which were tied tightly to the availability of ground based navigation aids, and many aircraft are still bound by the limitations of this somewhat antiquated airways system. But maintaining this system is expensive, and time and fuel savings, and therefore environmental benefits, are achievable by using a more flexible approach. Consequently we now have User Preferred Routes starting to appear, which allow suitably equipped aircraft to use routes independent of the ground based navigation aid network in order to take maximum advantage of the winds existing on the day.

The use of such routes brings in all sorts of issues for controllers and pilots alike. It is one thing to predict and plan to avoid potential conflicts on set routes, but another thing entirely to predict conflicts on flexible routes. The need to be able to predict and avoid potential conflicts has required the development of advanced conflict detection software. But we are already looking at User Preferred Trajectories, which will introduce the concept of user selected timings as well as routes, and with it a new set of challenges to the planners.

Let me go back to the issue of ground based navigation aids for just a moment. With the change to satellite based navigation, what will the future hold for the ground based navigation aid network once the airlines no longer use it, and are therefore no longer required to pay to use it? Could the remaining non-airline IFR operators afford to cover the full cost of maintaining the network, and if not, what should happen to it? A very interesting issue for the industry, CASA and Government to ponder, and one which is already on ASTRA’s work program!

Regardless of the future of the ground based navigation aid network, it is clear that the emphasis will move from the familiar ground based approaches, to augmented satellite based approaches with vertical guidance. Australia has already committed to the introduction of Baro VNAV approaches, but the reality is that the cost of certificating the aircraft systems to the required standard, coupled with the costs of Ground Based Augmentation Systems, will restrict the availability of Baro VNAV to

relatively newly designed, high value aircraft operating in to major ports, many of which already have ILS to provide vertical guidance.

But there is a very real, and if I put my old RAAA hat back on for a moment, arguably more pressing requirement for the provision of approaches with vertical guidance for regional operators, in particular the regional airlines, aeromedical operators and business operators who need access to rural and remote airstrips.

For these aircraft, a satellite based augmentation system is clearly required to provide adequate coverage at a realistic cost. Suitable, relatively low cost equipment is already available for these aircraft and is in wide spread use in the US with the WAAS, or Wide Area Augmentation System.

We could make a similar system available here. Australia and our neighbours all fall within the footprint of the Japanese MSAS satellite. All that is needed to provide approaches with vertical guidance to the regional operators is the political will to firstly enter an arrangement with the Japanese government over access to the system, and secondly, to build the appropriate ground stations and communications links. But it is up to industry to first build a sufficiently strong case for it and to put that to government. This is another complex issue on ASTRA's Work Program.

I have only touched on a few issues here, but there are many others, in what is a very complex discipline, and ASTRA must cover all of them if it to be able to plan effectively for the future and to market that plan successfully to all stakeholders.

CONCLUDING REMARKS

Today I have tried to outline the origins and history of ASTRA, concentrating on its rebirth as an industry body to enable it to fulfil its new Government given role as "the industry advisory body on ATM directions".

I have tried to suggest that the predicted passenger growth will require a fundamental change to the way that we manage air traffic, and I have very briefly touched on what I believe will be the four pillars of the ATM system within twenty years: Performance Based Navigation, RVSM, ADS-B, and Integrated Data Exchange.

I have also briefly touched on a number of complex issues to be faced by both industry and government, including the future of the existing terrestrial navigation aid network and the need for a satellite based augmentation system to provide regional operators with vertical guidance for their approaches in rural and remote areas.

What Will The Changes Mean To You?

So what will the changes mean to you?

For the first time industry now has a formal voice in the government's decision making process, and that means that you individually have a formal voice via your membership in the Australian Airports Association. So make the most of it. Use your

representative, Graham Giddey, to bring your collective voice to ASTRA, and to keep you up-dated on developments as they occur.

You can expect increasing airport input into ATM considerations as we embrace the “kerb to kerb” concept.

If we all do our job well, we will finish up with a government endorsed strategic plan to remove some of the current uncertainty and provide the basis for more effective long term planning of aircraft and infrastructure needs.

With luck and hard work, we will be able to collectively achieve an ATM system which is capable of meeting the expected growth in the industry, which will make best use of limited resources, and which will meet the needs of all sectors of the industry.

I hope that I have been able to persuade you that the new ASTRA is now ready to assume its very challenging role of being industry’s formal voice to Government on future ATM directions. How well we succeed will depend on what Government does with the advice we offer, and as I said at the outset, whether or not Government accepts our advice, will depend largely on the quality of that advice, the manner in which it is presented, and the degree to which it is supported across the industry. So ASTRA needs the full support of everyone in the industry if it is to be effective in meeting industry’s needs. What you get out of it will be proportional to what you put in.

The final point I want to emphasise is the need for us as an industry to forget our individual differences and work together for the good of the industry. By formalising the role of ASTRA, Government has given the industry a wonderful opportunity to demonstrate that the various industry sectors can work together and produce useful, coherent, whole of industry advice. If we can make ASTRA work as planned, and our progress to date suggests that we can, then it can provide the model for industry to work together in other ways.

This might turn out to be one of ASTRA’s greatest legacies.

Thank you.