US Concept: “Joint Use Airspace”

- The FAA version of Flexible Use of Airspace (FUA) is called “Joint Use Airspace”
- Although not defined as such, the domestic United States could be labeled as being completely FUA airspace.
- Exceptions; those areas listed as “Prohibitive” for security reasons.
- The United States does not use the term “Danger Area”. Instead the US uses the term “Warning Area”, which contains the same restrictions over oceanic airspace as would a “Danger Area”.
The Road to Joint Use of Airspace

- In the 1950’s, both commercial and civil aviation began to grow.
- The US Government, responding to a call to investigate a number of aircraft incidents, determined that a restructure of the civil aviation structure was required.
- The decision; to establish a separate civil aviation authority, which would no longer be subordinate to the Department of Commerce, but would reside under the new Department of Transportation.
- The new authority would be named the Federal Aviation Administration.
- The law which established this new structure was the Federal Aviation Act of 1958.

The Road to Joint Use of Airspace (cont’d)

The new legislation contained the following language:

Section 103. In the exercise and performance of his powers and duties under this Act the Administrator shall consider the following, among other things, as being in the public interest;

2) The promotion, encouragement and development of civil aeronautics.

3) The control of the use of navigable airspace of the United States and the regulation of both civil and military operations in such airspace in the interest of the safety and efficiency of both.

5) The development and operation of a common system of air traffic control and navigation for both military and civil aircraft
The new legislation also included under Section 303, the following:

(e) The Administrator shall develop, in consultation with the Department of Defense and all other affected Government agencies, plans for the effective discharge of the responsibilities of the Agency in the event of war and shall propose to Congress on or before January 1, 1960, legislation for such purpose:

Provided, That in the event of war the President by Executive Order (11161 July 1964) order may transfer to the Department of Defense any functions (including powers, duties, activities, facilities, and parts of functions) of any Agency prior to enactment of such proposed legislation.

This was made evident during events in 2001.

In the 1970’s, the legislation was revised and became United States Code 49. 49 USC (as it is know) included the following:

• Section 40103. “Transportation, Sovereignty and use of airspace”
  (a) Sovereignty and Public Right of Transit. –
  • (1) The United States Government has exclusive sovereignty of airspace of the United States.
  • (2) A citizen of the United States has a public right of transit through the navigable airspace.
The Road to Joint Use of Airspace (cont’d)

Under Section (b) “Use of Airspace”.

(1) The Administrator of the Federal Aviation Administration shall develop plans and policy for the use of the navigable airspace and assign by regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace. The Administrator may modify or revoke an assignment when required in the public interest.

The Road to Joint Use of Airspace (cont’d)

(2) The Administrator shall prescribe air traffic regulations on the flight of aircraft (including regulations on safe altitudes) for –

(A) Navigating, protecting, and identifying aircraft;
(B) Protecting individuals and property on the ground;
(C) Using the navigable airspace efficiently; and
(D) Preventing collision between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.
The Road to Joint Use of Airspace (cont’d)

(3) To establish security provisions that will encourage and allow maximum use of the navigable airspace by civil aircraft consistent with national security, the Administrator, in consultation with the Secretary of Defense, shall –

(A) Establish areas in the airspace the Administrator decides are necessary in the interest of national defense; and

(B) By regulation or order, restrict or prohibit flight of civil aircraft that the Administrator cannot identify, locate, and control with available facilities in those areas.

The Road to Joint Use of Airspace (cont’d)

(4) Notwithstanding the military exception in section 553

(c) Foreign Aircraft. - A foreign aircraft, not part of the armed forces of a foreign country, may be navigated in the United States as provided in section 41703 of this title.

(d) Aircraft of Armed Forces of Foreign Countries. - Aircraft of the armed forces of a foreign country may be navigated in the United States only when authorized by the Secretary of State.
Impact of the Legislation?

• FAA and Aviation Industry Leaders are able to discuss initiatives without airspace limitations. Over the past 18 months, they have met to discuss fuel saving initiatives.
• One of seven initiatives being considered will allow greater access to military Special Use Airspace (SUA) and Air Traffic Control Assigned Airspace (ATCAA) for non-participating aircraft
• The FAA focuses on how to maximize the concept of “Joint Use” to maximize airspace efficiency
• Redesign of existing areas could expedite enroute traffic flow, arrival and departures to airports, and assist in alleviating delays attributed to severe weather events
• Occasionally, airspace is stratified to minimize impact on enroute traffic without affecting military training
• Real-time use of airspace ensures efficient utilization, while a database is used to track the use of these areas

New Concept; “Adaptive Airspace”

• The FAA and US military have jointly partnered in an effort to better meet training requirements while maximizing National Airspace efficiency
  • Focus is initially limited to specific types of airspace. The military
  • A draft candidate list was agreed upon
    • List forwarded to military headquarters for dissemination to affected flying units
    • Units and ACCs will redesign airspace as required and amend LOAs
    • Progress tracked for lessons learned and dissemination across ACCs
  • Goal is to begin testing by the end of 2009
Adaptive Airspace (cont’d)

- The military will be able to maximize the effectiveness of the airspace and accommodate time sensitive missions, while benefiting civilian users.
- The concept uses a simple grid system, which permits the areas to be relocated with greater ease.
- Utilizing GPS, these areas will be moved to different sets of coordinates. Initially, the location of the training areas will be drawn around those areas that will receive the most benefit. The intent is to fulfill daily operations while maintaining the same volume of airspace.
- In addition, existing associated areas (some of the areas contain subdivisions) could be recalled as necessary yet still provide the same volume of airspace to meet military requirements.

Adaptive Airspace

Airspace is designed using Grid Squares
Example of moving an area

Example of Expanding areas

An example of an area with subdivisions
An example of an ACC with over 90,000 Sq miles of Special Use Airspace

Display of Traffic Operating over the Same Area
“Adaptive Airspace” (cont’d)

- The redesigns could be:
  - Permanent changes
  - Seasonal changes to accommodate peak traffic seasons
  - Temporal changes to accommodate peak traffic periods during the day
  - Combination of seasonal and temporal
- Three main concerns
  - Properly address associated Environmental issues
  - Real-time awareness of current airspace status by all users
  - Real-time coordination between airspace users and controlling agencies

Conclusion:

- United States concept of “Joint Use Airspace” is similar to the European concept of “Flexible Use of Airspace”
- Key points;
  - Airspace is shared by both civil and military users
  - Civil and military planners must work to ensure availability of all airspace
  - Military training areas need to be available for civil use when not being utilized for training missions
  - Joint airspace management cells can be used to implement a real-time use of airspace.
  - Structured procedures for activating and de-activating military areas should be part of any management process
  - A database should be utilized to track the use of “Joint Use/ FUA” airspace.