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PaperTitle: *Exploring Concepts for FAA
Flow Traffic Management Inter-
facility Collaborative Routing*

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This paper describes research done in 1998 in traffic flow management. The authors' efforts aim to formulate concepts to increase the flexibility and efficiency of the future National Airspace. Their main area of concern was in enhancing processes for Federal Aviation Administration (FAA) inter-facility collaborative routing. It was hypothesized that improved collaboration between the FAA's local and national flow management operations would result in the following benefits:

1. A more efficient flow management decision making process
2. Increased prevalence of flow management strategies that are system-oriented in emphasis
3. Improved user contingency planning based on increased awareness of FAA flow management plans and decisions
4. A reduction in the overall volume of restrictions applied at the local and national levels to manage flow problem situations.

To prove these assumptions, research was conducted by the FAA and Mitre to establish a concept of operation for inter-facility collaborative routing involving several activities. Direct observations were made at several FAA Air Route Traffic Control Centers (ARTCCs) and the Air Traffic Control System Command Center (ATCSCC). In addition, traffic flow management specialists at the Kansas City ARTCC served as subject matter experts (SMEs), providing iterative feedback on collaborative routing issues.

The research yielded very interesting results. Most strikingly was the need for cross facility cooperation and information sharing. Shortcomings in these areas made the decision making process less than optimal and decisions were made with imperfect information. Ultimately, these decisions were often modified, but the cost to the airlines was already present and could not be erased.

The authors then provide a view of what the new system will look like. Key features include: real-time sharing of information between local and national traffic managers and the ability to evaluate the potential effects of candidate flow

management actions before they are implemented. To illustrate the effect of such a system, a scenario was created local and national traffic managers, along with interested airspace users participated in a decision process to develop a resolution strategy for a flow problem caused by weather. The following steps were prescribed to deal with such situations:

1. Identify and Analyze the flow problem
2. Develop the reroute strategy
3. Evaluate the reroute strategy
4. Implement the reroute strategy

By following these steps, it was shown that when decision makers have the same planning information at the same time, these decision makers will share an understanding of the location and rationale of the constraint and hence make an optimal decision. Furthermore, it allows affected users to plot potential effects of reroute plans before they are put into affect – thus eliminating unnecessary cost when a less than optimal decision is modified.

Personal Comments:

This paper was the best of the 1998 group. The predictions made were close to accurate and their research was conducted with real people (controllers, airline personnel) and real data. This added credibility to their findings.