



# Implementing TFM Reroutes: An Integrated Approach

In order to promote improved information exchange, situational awareness, decision making, and strategy implementation between traffic flow management (TFM), air traffic control (ATC), and the airspace users, The MITRE Corporation's Center for Advanced Aviation System Development (MITRE/CAASD) has developed an operational concept for how TFM-derived reroutes can be integrated between TFM, ATC, flight planning, and flight deck capabilities.

## Background

Although the Federal Aviation Administration (FAA) and the airspace users collaborate on the reroute strategy, it is nevertheless cumbersome to implement. The efforts needed to identify the flights that need to be rerouted and to manually implement the new route as a refiled flight plan or a flight plan amendment can take an inordinate amount of time. Further, TFM needs to have the best and latest information on all intended routes of flight in order to maximize the effectiveness of TFM decisions. This is precluded if there is uncertainty in how reroutes will be addressed. From the airspace user's perspective, knowledge of TFM initiatives and ATC-specific restrictions facilitates the flight planning process. The implementation of rerouting strategies can be facilitated through integration of planned and existing automation systems. New capabilities in the Enhanced Traffic Management System allow for the identification of the flights affected by a rerouting advisory. This enables electronic communication of the reroutes and provides a means by which the National Airspace System can be made more efficient and predictable.

## The Components

In practical terms, integration of TFM rerouting initiatives is achieved as follows: The coordination and implementation of rerouting initiatives relies on the core concept of determining exactly which flights are affected by the initiative. Early coordination of this "reroute list" enables users to plan around the constraints causing the reroute (congestion, severe weather, or other ATM restrictions). For flights already airborne, TFM can use the rerouting list in an interface with ATM automation to facilitate the transmittal of the TFM strategy.

## Flight Planning

Traffic flow managers will notify flight planners that planned flights are potentially affected by TFM initiatives, allowing the planners to incorporate the initiative into their routes or to plan around the constraint. In addition, knowledge of ATC-specific restrictions, such as ATC-preferred routes, improves awareness of how the flight will actually be flown.

## ATC

An interface with TFM automation enables the incorporation of rerouting strategies into ATM automation, thereby eliminating the effort of determining which flights are affected. The desired reroute can be automatically integrated into ATM capabilities to assess the impact of the reroute on the sector plan and to facilitate the entry of the necessary flight plan amendments.

## Flight Deck

Once the reroute has been assessed by ATC, it can be sent via data link to the cockpit, eliminating the need for lengthy and potentially misunderstood verbal clearances, thereby creating opportunities to integrate the data link clearance with onboard flight management systems.

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