



APPENDIX C, AIR TRAFFIC COMMUNICATIONS



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C.1 Service Issue

The operators at airports in southeast Missouri have expressed concerns about limited radio communications capabilities in the region. These conditions result in operational delays and operator time pressures.

C.2 Environment

Poplar Bluff Municipal Airport is located in southeast Missouri. The airport serves as an important transportation link for the region, especially for medical services.

From an aviation perspective, air traffic control (ATC) is provided by the Memphis Air Route Traffic Control Center. The primary means of communicating with aircraft in/near Poplar Bluff Municipal Airport is through a transmitter/receiver site. This site is located at Walnut Ridge, Arkansas, approximately 55 miles southwest of Poplar Bluff Municipal Airport.

There are several other airports in southeast Missouri that are served by the same Walnut Ridge transmitter/receiver location. They all suffer air traffic control communication limitations to some degree from the same geographic/terrain-based reasons. These airports are:

- Campbell Municipal
- County Memorial
- Dexter Municipal
- Doniphan Municipal
- Kennett Memorial
- Malden Regional
- Mississippi County
- Sikeston Memorial Municipal

Figure C-1 shows these airports.



FIGURE C-1: AIRPORTS SERVED BY THE WALNUT RIDGE TRANSMITTER/RECEIVER SITE



Source: Jviation

While this distance from a transmitter/receiver is not unusual for an air traffic control frequency configuration, the combination of distance and the nature of the terrain in the area means aircraft have to be about 3,000 feet above the ground to be able to communicate with air traffic control. When aircraft are under 3,000 feet, communication is not available.

C.3 Description of Current Circumstances

While some airports have air traffic control towers that provide immediate access to air traffic control services, most airports do not. Many airports rely on remote links to transmitter/receiver sites, as does Poplar Bluff Municipal Airport. This arrangement can work; however, it depends on how well the transmitter antennae can “see” the airport. In the case of Poplar Bluff Municipal Airport, the combination of the 55-mile distance from the transmitter/receiver site to the airport and the terrain creates a situation where aircraft are not in radio communications with air traffic control until they are 3,000 feet above the ground.

This causes several problems:

Departure Clearances: There are two main issues with departure clearances. Because pilots do not have direct communication with air traffic control, they are forced to make a decision to either depart and attempt to



contact air traffic control in the air (sometimes not possible due to weather limitations), or they contact the Flight Service Station remotely, and receive a relayed departure clearance.

When a relayed departure clearance is used through Flight Service, the procedures used by air traffic control to manage the timing of the departure are limited. Normally air traffic control will issue a “clearance void” time, meaning a departure expiration time. Typically, this time frame is brief, perhaps a five- to ten-minute window. In this time frame, the pilot needs to finish his or her pre-flight activities, perform final checklists, engine run-up, and depart in this time frame. Several pilots have reported this sometimes leads to a “rushed” departure situation. While pilots always have the option of asking for a more flexible time limit, they typically do not want to risk a flight delay and will try to make the limited departure window work.

Because communications are relayed in this manner, the ability for air traffic control to quickly authorize subsequent arrivals or departures is restricted. In one example, two aircraft taxied out for departure, but they were both told to wait until an arrival that was still 12 minutes away had landed.

Aircraft #1 was cleared for departure, and aircraft #2 had to wait until #1 had finished its pre-flight, departed, and flew high enough to make contact with air traffic control. Air traffic control had to communicate back through the relay process to issue a clearance to aircraft #2. These types of departures delays cause notable inefficiencies.

This type of “avoidable” delay can be very significant to medical air ambulance providers that often operate at Poplar Bluff Municipal Airport, as well as to operators at other impacted airports listed previously. In some cases, it can have adverse effects on the patient being transported. Air ambulance service providers from other airports often need to be contacted to provide back-up service when departure clearances cannot be issued and time is of the essence.

Approach Clearances: For aircraft arriving at Poplar Bluff Municipal Airport and the other airports in southeast Missouri listed above, the radio communications limitations are also very problematic.

Because of the combined effects of the radio communications gap and a similar radar coverage gap, the air traffic control procedures for controlling aircraft in/out of the Poplar Bluff area are very limited. It is considered a “one in/one out” type of operation defined by an area that has an approximately 20-mile radius and up to 3,000 feet above ground level. This means air traffic control will only let one aircraft at a time operate inside that defined horizontal and vertical area.

This communications gap results in one especially problematic operational condition. When a flight is operating in instrument conditions (IFR) due to clouds/visibility, they are required to have an air traffic control approach clearance. Each instrument approach procedure also includes a “missed approach” instruction. If the flight gets close to the Airport and the weather is not good enough to land, the airport has to have to a safe path (missed approach) to fly and re-contact air traffic control.

In the case of Poplar Bluff Municipal Airport, each instrument approach has a missed approach segment that instructs the pilot to climb to 2,300 feet; this altitude is below radio communications coverage, which starts at about 3,000 feet. This means that if the weather is not ideal and the pilot has to use missed approach instructions, the pilot is supposed to climb out to 2,300 feet and wait. But at 2,300 feet, pilots cannot communicate with air traffic control because there is no communications coverage. The pilot is left with trying to contact other aircraft that hopefully are operating nearby and that are high enough in altitude (above 3,000 feet) to talk with air traffic control so that new instructions can be relayed. This is an awkward situation at best; and at worst, it puts a pilot into a bad weather situation with no way to contact air traffic control for revised clearance.



Mississippi County, County Memorial, and Dexter Municipal airports have similar issues with the initial approach altitude and missed approach altitude, relative to ATC communications. Malden Regional's procedures are right at the edge of ATC communications coverage for the area.

When there are two aircraft arriving, or two departing, or one of each, this means there will always be delays for the impacted airports in southeast Missouri.

Another issue with the radio communications gap can occur when pilots are late or miss making the notification to air traffic control that they have landed. When this happens, air traffic control must wait until they have positively determined the status of the aircraft. According to the airport manager at Poplar Bluff Municipal Airport, this is an event that happens on a weekly basis. This type of problem could be greatly reduced with effective radio coverage.

Due to the known radio communications gap, the tendency is for air traffic control to be very conservative when clearing an aircraft for approach and terminating their radio contact. For example, when an aircraft is 40 miles away (at 40 miles, the aircraft is still 12 to 15 minutes from landing) and approaching Poplar Bluff Municipal Airport, air traffic control will try to finish the communications with the aircraft as soon as possible and send them to the airport advisory frequency. The unintended consequence of this is that in the last 15 minutes of the flight, if another aircraft would like to depart from the Airport, they have to wait until the first aircraft completes its flight before air traffic control can even begin to consider a departure clearance. Once the first flight lands and communicates with air traffic control, the departing flight can relay a clearance request through Flight Service as a third party, and then they can depart. This can easily create 20- to 30-minute delays that would be avoidable with good radio communications.

Mission Predictability for Medical Flights: There are several additional issues for medical service providers that operate at Poplar Bluff Municipal Airport and other airports in southeast Missouri that should also be considered. One company has four pilots and twelve medical personnel on staff and frequently flies fixed-wing aircraft when the weather is not suitable for helicopter transport. These medical missions commonly involve time-critical patients with stroke/brain/cardiovascular conditions. In these instances, a 20- to 30-minute departure delay can make a significant difference in the patient's treatment and potential for recovery.

The airport is also the access point for medical specialists that fly into the Poplar Bluff area and other communities in southeast Missouri to see patients at local clinics or hospitals. These specialists fly to the area because the services they provide are not available from physicians in the local communities. These "flying doctors" have reported problems with delays both inbound and outbound from Poplar Bluff Municipal Airport. This is a service that would be significantly improved if the radio communications gap was addressed.

Corporate access: When locally based corporations fly executives or customers into Poplar Bluff Municipal Airport, arrival and departure inefficiencies can adversely affect how the company perceives the Poplar Bluff area. One corporate pilot stated the delays in arriving/departing the Airport have had a significant effect on their company's willingness to "invest" in the area.

C.4 Recommendation

Issues noted here could be resolved by establishing a radio Remote Communications Air/Ground (RCAG) facility or radio repeater site to augment air traffic control radio coverage for the airports in southeast Missouri. In order to be effective, this equipment would need to be approved by FAA and connected to the FAA Technical Operations infrastructure.



The costs of a full RCAG site would be approximately \$300,000, not including site acquisition. There are likely other options that could be less costly, such as a Ground Communication Outlet (GCO) or a Remote Transmitter/Receiver (RTR), but these alternatives are not as effective.

The FAA's current process is to establish funding "certainty" for the ongoing maintenance for the lifecycle of the communications equipment. This maintenance could be a reimbursable agreement, or it could be an agreement with the local community to contract for the annual maintenance cost of the equipment.

The site should be located on a tower or on a point of higher than the relative terrain of the area in the area between Poplar Bluff, Malden, and Campbell. Ideally, it would be located at a site that already has power and/or telecommunication established to reduce implementation expenses.



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