GAO

United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-260452

February 24, 1995

The Honorable Slade Gorton
The Honorable Patty Murray
United States Senate

In December 1990, the Federal Aviation Administration (FAA) announced its decision to "remote"[1] the signal from a planned state-of-the-art radar installation at Yakima, Washington, (Yakima Air Terminal) to a terminal radar control (TRACON) facility located approximately 80 miles east in Pasco, Washington. According to FAA officials, several analyses conducted by the agency showed that expanding the existing TRACON facility at Pasco and remoting the signal there was more cost-effective than constructing a new TRACON facility at Yakima. Construction began in 1994, and FAA anticipates that the radar will begin operations in May 1995. As a consequence of the decision to remote the radar signal from Yakima, FAA will propose that the tower at Yakima Air Terminal and its remaining air traffic control functions be contracted out to the private sector.

In your letter dated November 17, 1994, you asked us to examine some concerns that representatives of the City of Yakima had raised about FAA's decision. This letter addresses the extent to which FAA's analyses of the two options' cost-effectiveness included the necessary and appropriate factors, and the safety impacts of remoting.

RESULTS IN BRIEF

FAA's cost analyses consistently demonstrated that remoting the radar signal to an expanded TRACON facility at Pasco was the most cost-effective of the two options considered. We found that FAA's cost analyses included factors that were necessary and appropriate but could have been more comprehensive. Including additional factors, however, even further supports the cost-effectiveness of consolidating the air traffic control functions at Pasco. Available data from FAA indicate that remoting does not increase safety risks.

[1]Remoting, part of consolidating the air traffic control functions for two or more airports, is routing each airport's radar signal to a single TRACON facility. Air traffic controllers stationed at the TRACON facility monitor and communicate with the aircraft that are using airspace in the geographic area associated with each radar.

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BACKGROUND

In 1983, FAA began a nationwide program of consolidating air traffic control facilities to gain the benefits of automation. Among the methods employed by FAA to achieve this objective is remoting radar signals from more than one radar to a single TRACON facility. In 1993, the House and Senate Appropriations Committees expressed interest in having FAA continue pursuing consolidation as a means to achieve cost savings.

In line with its nationwide policy, FAA conducted a series of analyses to determine whether establishing a consolidated radar facility at Pasco and remoting the radar signal from Yakima to Pasco was less costly than building a new stand-alone TRACON facility at Yakima. FAA determined that the former option was more efficient. FAA began construction of the expanded Pasco facility in 1994 and anticipates commencing operation of the radar by May 1995.

FAA's decision to remote the radar signal from Yakima to the TRACON facility at Pasco will also result in the Yakima tower's being operated by a contractor. Although FAA plans to have the state-of-the-art, Airport Surveillance Radar (ASR)-9 radar at Yakima in operation by May 1995, the decision to provide approach guidance to aircraft through the TRACON facility at Pasco dictates that the Yakima tower be reclassified to a level 1 tower that operates using visual flight rules (VFR).[2] In 1993, the House and Senate Appropriations Committees directed FAA to contract out all level 1 VFR towers to the private sector.

In September 1994, the Yakima Enhancement Coalition, composed of elected and appointed county and city officials and members of the business community, issued a report detailing the city's specific concerns with FAA's analyses and conclusions.[3] The coalition's concerns focused on two areas: (1) the cost comparisons between the two options and the resulting economic impact on the city and (2) the safety considerations associated with remoting radar signals and contracting out air traffic control towers.

FAA'S ANALYSES UNDERSTATED THE COST ADVANTAGE OF REMOTING

Several times during 1990-94, FAA compared the cost of a new TRACON facility at Yakima and an expanded TRACON facility at Pasco. These comparisons were

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[2]There are about 460 towers categorized at levels 1 through 5. Level 1 towers have the lowest activity and are the least complex. For example, the airport in Charlottesville, Virginia, has a level 1 tower that controls about 63,000 operations a year. On the other hand, Chicago's O'Hare International Airport has a level 5 tower that controls about 840,000 operations a year.

[3]Yakima Airport Enhancement Coalition, Stand-Alone Radar Task Force Yakima Airport Enhancement Coalition Report (Sept. 1994).

based on the costs for facilities and equipment, staff, the relocation of staff, and, when applicable, telecommunications. Each time, FAA used a consistent set of assumptions, and each time, the outcome favored consolidation at Pasco.[4] Over time, the cost difference between the two options widened. One factor in this growing difference was the introduction of new technology for remoting the signal. For example, advances in video compression reduced the total estimated facilities and equipment cost at Yakima from $3.2 million in April 1993 to $1.4 million in October 1994.[5]

FAA's cost comparison omitted two factors that, in our opinion, would also be valid in evaluating the two options. However, these factors, when considered, increase the cost advantage of remoting. The first factor is the amount of money that had already been spent in expanding Pasco's TRACON facility to accommodate remoting. As of January 1995, FAA obligated about $1.3 million to expand the Pasco TRACON facility, but the estimates for expanding Pasco did not lower the estimated facility cost in recognition of this fact. The second factor is the cost savings associated with contracting out the remaining air traffic control functions at Yakima. FAA's experience in other locations shows that the contracting program saves about $200,000 per tower per year.

To determine the effect of considering these two factors--and also to verify the figures FAA used in its most recent cost analysis--we conducted an independent cost analysis. Our analysis showed that without considering the additional factors, the total cost of locating a new TRACON facility in Yakima would be about $13.7 million, while the cost of remoting the signal to an enhanced TRACON facility in Pasco would be about $7.9 million,[6] representing a difference of about $291,000 annually over 20 years.[7] Adding the additional factors reduces the cost of remoting the signal to an enhanced TRACON facility at Pasco to about $4.0 million, representing a difference of about $485,000 annually over 20 years. See enclosure I for a detailed presentation of our analysis.

The Yakima Enhancement Coalition also expressed concern that FAA did not consider the economic cost that remoting would have on the County of Yakima.

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[4]One concern raised by Yakima was that FAA used the funded staffing level (7 controller positions at Yakima), rather than the authorized staffing level (10 positions), in determining the cost of establishing a TRACON facility at Yakima. Because the authorized staffing level was closer to the staffing level required for a TRACON facility, using the funded level raises the total staffing cost required for a TRACON facility at Yakima. However, FAA was consistent in using funded staffing levels at both Yakima and Pasco.

[5]Video compression allows the transmission of radar display data via telephone lines.

[6]This amount does not include the cost of the ASR-9 itself. This cost would be essentially the same regardless of where the TRACON facility is located.

[7]The costs of these two options are expressed as 1993 net present values.

The coalition cited two potential economic costs: (1) a loss of jobs in construction, air traffic control, and airway facility maintenance and (2) lessened opportunities for future enhancements to the airport. We think FAA acted reasonably in not including job losses in its analysis, in part because either option involves a potential negative economic impact for the community not selected. The cost comparison should focus on the relative costs and benefits of each option to the nation as a whole, and not to individual communities. We also believe that the concerns about lessened opportunities for further enhancements for the airport are unfounded. Regardless of the option selected, Yakima gains a net benefit because it receives the services provided by the state-of-the-art radar system.

AVAILABLE DATA DO NOT SHOW THAT REMOTING INCREASES SAFETY RISKS

The Yakima Enhancement Coalition expressed concern that by remoting the radar signal to Pasco, FAA jeopardizes the safe operation of the Yakima airport. Moreover, the coalition expressed concern that a contracted out tower would not provide the same level of service, in terms of its hours of operation, to the users of the airport.

We discussed the safety considerations with FAA officials in FAA headquarters and the Northwest Mountain Region, which has jurisdiction for the Yakima and Pasco areas. Officials in both offices stated that remoting does not compromise or impact safety. Because radar outages caused by problems with commercial telephone lines were a major concern raised by members of the Yakima Enhancement Coalition, we obtained a sample of FAA's fiscal year 1994 reports on outages of radars sending signals to a TRACON facility at a remote location. Of the 16 airports in the sample, none experienced scheduled or unscheduled outages due to problems with commercial telephone lines. FAA officials did acknowledge that some temporary interruptions in service would probably occur as they install the radar and the connection to the remote location. See enclosure II for a list of the 16 airports in the sample.

FAA officials in the office of Air Traffic Plans and Requirements Service also provided documentation indicating that the agency requires the operators of contracted out towers to maintain the same hours of operation as previously available. Moreover, any changes to the hours of operation must be approved by FAA. Also, the contractor's controllers must meet the same qualifications as FAA's controllers. Our analysis of FAA's data on the safety of FAA-staffed level 1, FAA-staffed level 2, and contracted out towers from 1988 through 1994 indicates that contract towers had proportionally fewer operational errors than FAA-staffed level 1 or FAA-staffed level 2 towers.[8] Thirty-two, or 30 percent, of the 108 level 1

[8]The level 1 and level 2 towers used in the analysis operate using visual flight rules and do not guide aircraft using radar.

towers had an operational error[9] during this period; 47, or 55 percent, of the 85 level 2 towers had an operational error during this period; and 2, or 7 percent, of the 28 contract towers had an operational error during this period. As FAA continues to contract out level 1 towers, it will be able to evaluate ongoing operational errors as well as contractors' compliance with the agency's policies on hours of operation and qualifications.

EXPERIENCE WITH YAKIMA SUGGESTS CONSIDERATION FOR FAA'S FUTURE CONSOLIDATIONS

The concerns raised by the citizens of Yakima lead us to believe that FAA may be able to do a better job of communicating the reasons for its decisions when consolidating air traffic control functions in the future. We found that from 1990 through 1993, FAA corresponded infrequently with the citizens of Yakima regarding the siting of the TRACON facility. Moreover, FAA did not provide the citizens of Yakima with data that supported its decision--even when the citizens showed interest and requested additional information. We believe that an open dialogue between the Yakima community and FAA may have averted many of the current problems in perception.

CONCLUSIONS

We found that FAA's cost analyses show that the nation will save about $291,000 annually for 20 years by remoting the ASR-9 radar signal from Yakima, Washington, to the TRACON facility at Pasco. In our analysis, when we added in the funds obligated to the Pasco TRACON facility expansion and the savings accrued from the contract tower program, the cost savings increase to about $485,000 annually for 20 years. FAA will achieve this cost savings without compromising the safety of the Yakima airport.

SCOPE AND METHODOLOGY

We conducted our review from December 1994 through February 1995 in accordance with generally accepted government auditing standards. We interviewed FAA officials in Washington, D.C., and the Northwest Mountain Region and obtained specific documentation regarding the cost of each option and associated safety information. We also met with the air traffic controllers in Yakima, Washington, and members of the Yakima Enhancement Coalition. We discussed our findings with FAA officials, including the Program Director, Air Traffic Plans and Requirements Service, and the Terminal Branch Manager, Air

[9]An operational error occurs when an air traffic controller does not use the standard separation criteria and does not establish an appropriate separation between aircraft at the airport or aircraft in the air.

Traffic System Plans and Program Division. The officials agreed with the information presented in this correspondence and suggested no major changes.

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We are sending copies of this correspondence to the Secretary of Transportation; the Administrator, Federal Aviation Administration; and to members of the Yakima Enhancement Coalition. We will also make copies available to others on request. Please contact me on (202) 512-2834 if you or your staff have any questions about this correspondence.

Kenneth M. Mead
Director, Transportation Issues

Enclosures - 2

GAO'S ANALYSIS OF THE COST OF LOCATING A TRACON FACILITY AT YAKIMA OR REMOTING THE SIGNAL TO AN EXPANDED TRACON FACILITY AT PASCO

FAA cost category	TRACON at Yakima	TRACON at Pasco	Difference
Facilities and equipment cost	**$2,808,908**	**$1,262,642**	**$1,546,266**
Plant engineering	$212,000	$112,428	$99,572
Electronic engineering	$7,000	$3,913	$3,087
Construction	$1,495,700	$866,175	$629,525
Electronic installation	$1,094,208	$270,285	$823,923
Other	$0	$9,841	($9,841)
Telecommunications cost	**$273,974**	**$633,257**	**($359,283)**
Installation	$43,602	$54,418	($10,816)
Recurring cost[a]	$230,372	$578,839	($348,467)
Salary cost[a]	**$10,011,548**	**$5,653,081**	**$4,385,467**
Supervisor (GS-12) Salary = $967,859/20 yrs.	$1,935,718 (2 positions)	$0 (0 positions)	$1,935,718
Staff Specialist (GS-11) Salary = $807,583/20 yrs.	$807,583 (1 position)	$0 (0 positions)	($807,583)
Controller (GS-11) Salary = $807,583/20 yrs.	$4,845,498 (6 positions)	$4,845,498 (6 positions)	$0
Facilities Technician (GS-11) Salary = $807,583/20 yrs.	$2,422,749 (3 positions)	$807,583 (1 position)	$1,615,166
Staff relocation cost (1 move = $50,000)	**$600,000**	**$350,000**	**$250,000**
Training	**$26,300**	**$10,800**	$15,500
Subtotal	$13,720,730	$7,909,780	$5,810,950
Obligated funds as of January 1995	**$0**	**($1,262,642)**	N.A.
Subtotal	$13,720,730	$6,647,138	$7,073,592
Savings from contract tower program[a]	**$0**	**($2,624,278)**	N.A.
Total cost over 20 years	**$13,720,730**	**$4,022,860**	**$9,697,870**
Cost per year for 20 years	**$686,037**	**$201,143**	**$484,894**

Note: We omitted the management staff position from the analysis because the salary for the position was not included in FAA's analysis. The addition of the position would have only strengthened the case to remote the signal to the TRACON facility at Pasco.

[a]The dollar amounts for the recurring telecommunications cost, the salary cost, and the savings from the contract tower program represent the costs (or savings) discounted over 20 years. FAA used a 4.4 percent real discount rate in the calculation of the telecommunications and salary costs. We applied the same interest rate to the savings accrued from the contract tower program.

AIRPORTS SELECTED BY FAA IN ANALYZING RADAR OUTAGES

Airport name	State	Level of air traffic control tower
Atlantic City International	NJ	III
Bakersfield Meadows Field	CA	III
Bangor International	ME	II
Cedar Rapids Municipal	IA	III
Caper/Natrona County International	WY	II
Harlingen Industrial Airpark	TX	I
Huntsville Madison County	AL	III
Jackson Municipal	MS	III
Limestone/Loring Air Force Base	ME	Military classification
Midland International	TX	III
Nantucket Memorial	MA	II
Pensacola Regional	FL	II
San Angelo/Mathis Field	TX	I
Springfield Regional	MO	II
Providence/Theodore F. Green State	RI	IV

Notes: FAA selected these airports at random.

Reports of radar outages cover fiscal year 1994.

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