COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

RELEASED 2/2/78

B-166506

JAN 31 1978

The Honorable Leo J. Ryan
Chairman, Environment, Energy,
and Natural Resources Subcommittee
Committee on Government Operations
House of Representatives

Dear Mr. Chairman:

As requested in your October 12, 1977, letter we have analyzed the Federal Aviation Administration's (FAA) final monitoring report on Concorde operations at Dulles Airport, the National Academy of Sciences' report on the determination of public reaction to Concorde operations, and FAA's Notice of Proposed Rulemaking, which would establish noise limits for supersonic aircraft. These documents were not available for analysis in our report issued to you on September 15, 1977, entitled "The Concorde--Results of a Supersonic Aircraft's Entry Into the United States," CED-77-131.

Based on our analysis of the FAA proposed rulemaking, we are recommending that the Secretary, Department of Transportation (DOT), prior to issuing a final noise rule, make two important changes. The "local option" provisions--the right of the local airport proprietor to regulate noise at its own airport--may, in fact, not be a viable method for regulating Concorde noise. We are recommending that more clearly defined guidance be given to airport proprietors so that they can invoke their local option (if they desire) without encountering long legal battles. In addition, the proposed rule does not establish noise standards for new design supersonic aircraft. Rather than developing noise standards for use in designing new supersonics, the proposed rule would allow standards to be developed based on noise reduction technology as it becomes available. It appears to us that the Federal government should provide some criteria to industry as to the noise levels that would be acceptable for future aircraft rather than letting the development of future technology control the noise levels that will be established. Therefore, we are also recommending that the final noise rule require new design supersonic aircraft to meet the same noise levels as new design subsonic aircraft.

One of the major conclusions in FAA's final monitoring report is that based on the public opinion survey, Concorde has gained in acceptance during the trial period. We found no valid basis for such a statement. In our prior report, we raised serious questions about the validity of the public opinion surveys as does the National Academy of Sciences' report. Even though the validity of the surveys was questionable, the number

and types of noise complaints were significant and indicate a general negative response to the Concorde.

The results of our review are summarized in the enclosure to this letter. We have also included recent statistics on Concorde operations at John F. Kennedy Airport in New York. We met with FAA officials and have recognized their comments to the extent appropriate in finalizing our report.

As arranged with your office, we will make this report available to FAA and other interested parties two days after the issue date.

Sincerely yours,

Comptroller General
of the United States

Enclosure

ENCLOSURE

ENCLOSURE

ANALYSIS OF SUPERSONIC AIRCRAFT NOTICE OF PROPOSED RULEMAKING AND RELATED DOCUMENTS

When we issued our report on September 15, 1977, entitled "The Concorde--Results of a Supersonic Aircraft's Entry Into the United States," CED-77-131, three significant documents had not yet been released by the Department of Transportation/Federal Aviation Administration (DOT/FAA). These documents which we have now analyzed are as follows:

--The National Academy of Sciences' report entitled "Community Reactions to the Concorde: An Assessment of the Trial Period at Dulles Airport"

--DOT/FAA's "Concorde Monitoring Summary Report, May 1976 - May 1977"

--DOT/FAA's Notice of Proposed Rulemaking entitled "Civil Supersonic Airplanes--Proposed Noise and Sonic Boom Requirements"

As stated in our September 15, 1977, report, we believe permitting the Concorde's introduction into the United States is counter to the thrust of the national noise abatement effort. Noise, however, was not the only determinant in the Administration's decision as to whether or not to permit Concorde operations in the United States. Decisions concerning this aircraft are considered to have important implications affecting the economy of this Nation and its international relations.

BACKGROUND

On February 4, 1976, the Secretary of Transportation authorized British Airways and Air France to make limited scheduled commercial Concorde flights into the United States for a period not to exceed 16 months, subject to certain limitations and restrictions. The two airports selected for the test were Dulles International Airport near Washington, D.C., and John F. Kennedy International Airport in New York, New York. Concorde operations were initiated at Dulles on May 24, 1976, but due to court actions involving the Port Authority of New York and New Jersey (the operator of Kennedy), and the French and British airlines, commercial operations did not begin at Kennedy until November 22, 1977.

As part of the trial, Concorde operations were monitored to provide the Secretary with technical, operational, and community response information. FAA also contracted with the National Academy of Sciences to review, interpret, and assess the scientific adequacy of data collected

during the trial on noise levels and community reactions. Reports were requested for both of these activities to assist the Secretary in determining whether the Concorde should be granted permanent landing rights in the United States.

The National Academy of Sciences' report and the summary FAA Concorde monitoring report were released on September 23, 1977. Subsequently, on October 11, 1977, the Secretary, DOT, issued the Notice of Proposed Rulemaking for supersonic aircraft. DOT/FAA officials have stated that the final rule will be issued in April or May 1978.

NOTICE OF PROPOSED RULEMAKING

The current notice is the third proposal that has been prepared by the Federal government for regulation of noise created by supersonic aircraft. The first two proposals were submitted to the FAA by the Environmental Protection Agency (EPA) pursuant to the Noise Control Act of 1972.

The FAA's October 11, 1977, proposal entitled "Civil Supersonic Airplanes--Proposed Noise and Sonic Boom Requirements" discusses three types of supersonic aircraft--the present Concorde; future production or derived versions of the Concorde with flight time after January 1, 1980; and future design supersonic aircraft.

The permissable noise level of the present Concorde would be set at a level which is technologically practicable and economically reasonable Since there is no known technology available for reducing present Concorde noise, its allowable noise level would be its current noise output rather than noise levels required for subsonic aircraft, which the Concorde cannot meet. The Concorde's current noise level is twice as loud on take-off as a Boeing 707, four times as loud as a Boeing 747, and eight times as loud as a McDonnell-Douglas DC-10. This noise level would be allowed for all Concordes with flight time prior to January 1, 1980. Based on previous production decisions by the British and French manufacturers, it is expected that 16 Concordes would come under this criteria. All other commercial supersonic aircraft would have to meet the same noise standards that existing subsonic aircraft are required to meet by 1985. Given the current state of technology, this section of the proposed rule would ban from U.S. airports all but the expected 16 Concordes discussed above.

FAA proposed no noise standards for future design supersonic aircraft, citing as a basis the unavailability of adequate technical information for establishing such standards. However, as stated in the proposed rule: ". . . it is FAA's intention not to permit operations in the United States of any future design supersonic aircraft unless the airplane utilizes the latest noise reduction technology which, at a minimum,

will enable these airplanes to meet [noise levels for existing subsonic aircraft]."

Although the proposed rule would establish Federal supersonic aircraft noise limits it would not change the existing legal authority of each airport proprietor to regulate the noise at his airport in a manner which is not "unjustly discriminatory" and not "unduly burdensome" on interstate and foreign commerce. Thus, under the proposed rule, the local proprietor is told he can limit or prohibit Concorde operations provided the noise regulations meet the above criteria. The proposed rule did not, however, give any specific guidance as to what actions could be considered as not "unjustly discriminatory" and not "unduly burdensome" to commerce.

In testimony before your Subcommittee on October 26, 1977, DOT stated that each case will depend on the specific situation involved and whether the noise standard could be considered truly non-discriminatory. DOT stated that FAA will advise airport proprietors in developing noise rules and "At the request of a proprietor, the FAA is also prepared to review airport use restrictions rules and to advise whether they are unjustly discriminatory or constitute an undue burden on interstate or foreign commerce."

DEFICIENCIES IN THE PROPOSED RULE

In developing the final rule, we believe there are two areas deserving additional consideration by FAA--the local option issue and noise standards for future design supersonic aircraft. FAA should, at the outset, provide general guidance as to what constitutes a rule which is neither discriminatory nor unduly burdensome. Of the 13 existing airports being considered for Concorde operations, 9 are already considered "noise sensitive." Although regulation of aircraft noise has been slow in the past, FAA's recent retrofit/replacement rule will bring all subsonic aircraft into compliance with Federal standards by 1985. This is a progressive step forward in controlling aircraft noise. However, under this proposed rule, local airport proprietors who wish to ban supersonic aircraft will be required to develop a standard which is not discriminatory nor unduly burdensome for an aircraft that is twice as loud as the noisiest subsonic aircraft and which cannot be modified to meet Federal subsonic noise standards.

In commenting on the proposed rule at a public hearing held on December 15, 1977, EPA also expressed concern about the viability of the local option issue. EPA stated that:

". . . during the past several weeks we have begun to have some concern that one of the cornerstones of the FAA policy--namely,

> the local option--may not be viable. The recent experience of the Port Authority of New York and New Jersey raises serious doubts whether, practically speaking, a local proprietor can impose a non-discriminatory rule which would ban or curtail the Concorde, even when its adverse noise impacts on the airport's neighbors are clear."

EPA recommended that FAA give airport proprietors the technical assistance and guidance necessary for non-discriminatory rules to make the local option a viable method of regulating Concorde noise.

Without such guidance the local option may not in fact be a viable method of regulating Concorde noise. It seems logical that in view of the long legal battles waged by the Port Authority of New York and New Jersey to ban operations at Kennedy that FAA should provide this guidance so that other airport proprietors will not face the same problems.

Our other area of concern with the proposed rule is its failure to provide noise regulation for future design supersonic aircraft. FAA cited inadequate technical information as a basis. FAA's goal is to have future design supersonic aircraft meet standards then applicable to subsonic airplanes unless it is "technologically infeasible" to produce such an aircraft. FAA stated that it would then consider setting a standard less stringent than existing subsonic rules. It is FAA's intention, however, to have such future design supersonic aircraft meet at least existing subsonic standards.

We believe the Federal government should provide some criteria to industry as to the noise levels that would be acceptable for future aircraft rather than letting the development of future technology control the noise levels that will be established. This type of regulatory control is neither effective nor does it provide all manufacturers with adequate lead time to adjust their design and production schedules. If specific noise standards are not developed into the design stage of future supersonic aircraft, there is no assurance that noise will be given adequate consideration.

In commenting on the proposed rule at the public hearing, EPA criticized FAA's approach to new design supersonic aircraft because it did not establish any "enforceable noise levels" for these aircraft and recommended that new design supersonic aircraft be required to meet the same noise levels as new design subsonic aircraft. EPA commented that a:

> ". . . goal stated in the preamble [to this proposed rule] which will not even be printed in the Code of Federal Regulations, much less enforceable, will not, in our view, be effective."

EPA stated also that:

> ". . . If future SSTs are to substitute for some subsonic aircraft now using our Nation's airports, then they must be compatible with the noise abatement needs of those airports. Simply because new technology is involved is no reason to abandon the requirements for environmental compatibility which we now are imposing on subsonic aircraft. To do otherwise is to discriminate in favor of supersonic aircraft and against subsonic aircraft.

RECOMMENDATIONS TO THE SECRETARY OF DOT

We recommend that the Secretary, DOT, provide general guidelines in the final noise rule for civil supersonic airplanes as to what constitutes a standard which is non-discriminatory and not unduly burdensome on interstate and foreign commerce. In addition, the Secretary should direct that the final noise rule require new design supersonic aircraft to meet the same noise levels as new design subsonic aircraft.

CONCORDE FINAL MONITORING REPORT AND NATIONAL ACADEMY OF SCIENCES REPORT

As part of the Concorde decision, the Secretary of DOT directed FAA to monitor and assess the noise effects of Concorde operations. In its Concorde monitoring summary report released on September 23, 1977, FAA had the following major conclusions concerning Concorde noise:

- --Noise levels are consistent with the predictions set forth in the Concorde Supersonic Transport Final Environmental Impact Statement issued in November 1975. Compared to the loudest jet subsonic transports, the Concorde is twice as noisy on take-off and approximately the same on approach.

- --Noise-induced vibration impact is less than predicted in the Final Environmental Impact Statement. Measured vibration levels in nearby structures due to Concorde operations are higher than the levels due to other aircraft, but less than the levels due to routine household events such as door and window closings.

- --Based on public opinion surveys, Concorde has gained in acceptance during the trial period. However, there were 1387 Concorde complaints during the demonstration period.

We agree with the first two conclusions. We do not, however, agree with the conclusion that "Based on public opinion surveys, Concorde has gained in acceptance during the trial period." In our September 15, 1977, report on the Concorde we examined the FAA monitoring program at

Dulles Airport. To determine the subjective community reaction to actual Concorde operations at Dulles, the FAA conducted three separate phases of community response monitoring: (1) community opinion surveys; (2) monitoring of complaints about Concorde, and (3) a media content analysis.

The community opinion survey consisted of three separate series of telephone interviews of residents near Dulles. The surveys were held at three points in time, once before the start of Concorde operations, once after approximately 6 months of exposure, and once after a year of operation. The first survey was used as baseline data to measure the amount of change in community attitudes resulting from Concorde operations. Our analysis of the community opinion survey disclosed serious weaknesses in the sampling plan, questionnaire design, interviewing technique, and processing of the actual response data. We concluded that the results of the community opinion surveys are questionable and recommended they not be used in formulating policy on future Concorde operations. This subject was discussed in detail in our September 15, 1977, report.

The complaint monitoring phase was a mechanism by which the public could express its views about Concorde operations at its convenience. As stated in our earlier report the number and types of Concorde noise complaints are significant. Although Concorde operations accounted for less than one percent of the total Dulles operations during the trial period, the 1387 Concorde complaints represented 79 percent of the total complaints. During this same period, 375 complaints about noise from aircraft other than Concorde were received. As pointed out in the National Academy of Sciences' report, this amounts to 225 complaints for every 100 Concorde operations as compared to less than 1 complaint for every 100 scheduled operations for subsonic aircraft. We believe the number and type of Concorde noise complaints are significant and indicate a general negative response to this aircraft.

The media content analysis monitored the quantity and characteristics of Concorde information available to the public through the media during the Concorde trial period. The media content analysis concluded that Concorde complaints resulted primarily from actual Concorde exposure rather than from other less direct influences such as stories about the Concorde in the media. This indicates that the public's complaints about the Concorde were valid.

The National Academy of Sciences concluded that:

". . . in spite of some shortcomings in the monitoring program. . . several important findings can be derived from the data gathered by the [FAA] during the one-year trial period of the Concorde. . ."

However, the Academy stated that the overall monitoring program at Dulles was:

> ". . . necessarily begun in haste and, therefore, suffered from lack of a well-specified, well-conceived plan to integrate its components. Such a plan was not developed and well documented later, when there was time. Questions exist as to both the choice of surveying methods and the precision with which they were used. Nevertheless, the data [from the total Concorde monitoring program] can be used to describe changes in the noise environment and to provide rough estimates of people's reactions to those changes."

The Academy's assessment of the community opinion surveys discussed some of the same problems as were mentioned in our prior Concorde report including deficiencies in sampling design and in the actual execution of the survey. According to the Academy's report:

> "The primary design shortcoming in the Dulles Survey was in the sampling. The survey respondents around Dulles are not a probability sample of the population surrounding that airport. . . . Although it may be appropriate to select towns that are expected to be most heavily affected by the Concorde, some flexibility in analysis is thereby lost: the existing data cannot be aggregated to give estimates for the population around Dulles. . . . The survey data can be used to give estimates for the population in each community, not the entire population around Dulles. Moreover, the samples in some communites are too small to give reliable estimates of the responses of the populations in those communities."

The report also stated:

> "In the opinion of the Committee, the standards of performance of the organizations that were contracted to design and draw the sample and to conduct the surveys could have been higher. Making generous allowance for the pressure of time in the pre-Concorde survey, the Committee finds shortcomings in the execution of the surveys."

Consequently, in view of our analysis and that of the Academy, we find no valid basis for FAA's statement that "Based on public opinion surveys, Concorde has gained in acceptance during the trial period."

ENCLOSURE ENCLOSURE

CONCORDE TRIAL PERIOD AT
KENNEDY AIRPORT

Commercial Concorde operations began at Kennedy on November 22, 1977, after over a year of litigation between the Port Authority of New York and New Jersey and the British and French Airlines.

The FAA implemented a Concorde monitoring program at Kennedy, and will issue monthly reports on the results of the monitoring program. To date only two monitoring reports have been issued. These monitoring reports have stated that the average Concorde noise levels on departure at Kennedy were much lower than the noise levels recorded at Dulles. This was attributed to several factors. Immediately upon take-off from the major runway used, the Concorde makes a left turn over Jamaica Bay and away from the monitors. Also, the noise monitors at Kennedy are not at Federal Aviation Regulation part 36 measuring points as they were at Dulles. Consequently, their results are not comparable. In addition, the Concorde is taking off with 23,000 pounds less fuel than required at Dulles. This is accomplished by reducing the fuel reserve which allows the aircraft to climb faster with less power, making take-offs quieter.

FAA is interviewing Kennedy area residents and maintaining a centralized noise complaint center to determine community response to Concorde operations. The first opinion survey has been completed, but the results are not yet available.

However, based on the first 40 days of Concorde operations, the Kennedy area residents have complained more than the residents near Dulles. Through December 31, 1977, there have been 113 commercial Concorde operations. FAA has received 452 complaints about these operations, which amounts to 400 complaints for every 100 Concorde operations as compared to 225 complaints for each 100 operations at Dulles. This is probably due to the fact that the Kennedy area is much more populated than the Dulles area and therefore is classified as a "noise-sensitive" airport, whereas Dulles is not.