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GREINER ENVIRONMENTAL SCIENCES INC BALTIMORE MD
ENVIRONMENTAL IMPACT STATEMENT FOR FREEDOM AIRPORT, SOUTHEAST, --ETC(U)
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FINAL rept.

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ENVIRONMENTAL IMPACT STATEMENT

for

FREEDOM AIRPORT Southeast, America

(Model Environmental Impact Statement No. 2).

Number

Pursuant to Section 102(2)(C) of the National Environmental Policy Act (P.L. 91-190, as Amended), Section 16(c)(4) of the Airport and Airway Development Act (P.L. 91-258, As Amended), and Section 4(f) of the Department of Transportation Act of 1966 (P.L. 89-670, As Amended).

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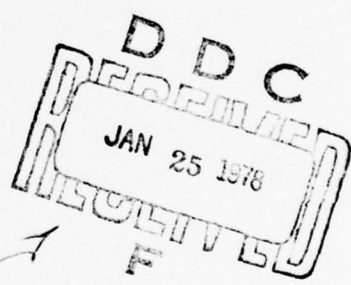
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FINAL REPORT



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Prepared for
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Office of Airports Programs
Washington, D.C. 20591

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Technical Report Documentation Page

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		15. Supplementary Notes The document is one of four model environmental impact statements which illustrates the guidance presented in Report Nos. FAA-AP-77-1 and -1A, dated March 1977, and entitled "Environmental Assessment of Airport Development Actions" and Appendix Volume.			
16. Abstract This model covers site selection and development of a new general aviation airport to serve as a reliever for a major air carrier airport in a metropolitan area. The environmental impact statement includes sections on the project itself and its purpose, a summary of the site selection process and related actions, and an assessment of fifteen impact categories. The document also describes alternatives considered in the process and measures to be taken to minimize adverse effects. Office of Management and Budget Circular A-95 coordination results are included, as are the results of Federal agency review of a draft.					
<p>This hypothetical airport project involves development of a site which requires filling in a portion of a bay and displacement of a mobile home trailer park. Emphasis is placed on marine biology, recreational uses of the bay, and coastal zone considerations.</p>					
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DATE: **NOTE: THIS ILLUSTRATES KEY INFO. TO BE PRESENTED TO THE DECISION
IN REPLY REFER TO: MAKER INCLUDING WHAT THE ACTION IS, POINTS OF LAW, ETC. FROM THE
ACCOMPANYING MODEL EIS. YOU ARE CAUTIONED NOT TO USE THIS MATERIAL
VERBATIM OR OUT OF CONTEXT IN AN ACTUAL SITUATION.**

SUBJECT: Decision Paper for New General Aviation Reliever Airport,
Freedom County, Southeast, America



FROM: Chief, Airports Planning Division, AAP-400

TO: AAP-1

PROPOSED ACTION. The proposed action is approval of the final environmental impact statement (EIS) for a new general aviation airport in Freedom County to serve as a reliever for Southeast International Airport (SIA). The Federal action is site approval and financial participation in Phase I of development. Phase I development includes acquisition of a 725-acre site on Miller's Point, construction of a 5,400-foot Runway 5-23, parallel taxiway, apron, terminal, and related development as described in Section I of the EIS. Subsequent Phases 2 and 3 are also described in the EIS but will require appropriate environmental assessment and FAA approval prior to construction. Phase I includes construction of 35 acres of fill into Thompson Bay. Future phases, as now planned, would require an additional 40 acres of fill. Otherwise, the initial proposed site will also accommodate intermediate and long-range development.

The relieved airport, SIA, serves the greater Lee City area of some 1.5 million people--a major transportation center of the southeastern United States and principal transfer point for passengers traveling between other U.S. cities and foreign countries. The proposed new Freedom Airport will divert general aviation from SIA, relieving the total demand which is approaching theoretical capacity with the existing configuration at SIA.

BACKGROUND. In December 1971, a report was issued which presented the results of a feasibility study on alternative means of accommodating increased demands at SIA. This report recommended the development of a new reliever airport. It was presented to the Coastal Counties Regional Planning Commission in January 1972 and served as the basis for a recommendation by the Southeast Aviation Authority to the Freedom County Board of Supervisors in March that a site be located in Freedom County.

In April 1972, the County endorsed the proposal by formal resolution. A site selection committee was established with representatives of the Airport Commission, the Regional Planning Commission, and the Freedom County Planning Department. The committee considered three sites in terms of both suitability to fulfill the need and environmental impacts. The public was informed of the recommendation of the committee in open meetings in March and April 1973. Expressions of both support and objection were registered at that time and became input to subsequent more detailed environmental and other studies of the proposed site at Miller's Point.

At a public information meeting in October 1974, residents of nearby areas raised concerns about relocation of the Trailer Park on the site, potential noise impacts, and effects on recreation and waterfowl in Thompson Bay. At the formal public hearing in June 1975, duly advertised in local papers six weeks in advance, the principal issue raised by a few of the some 100 persons in attendance related to the effect of the project on the Bay and adjacent wetland. Section VIII of the EIS summarizes the public hearing results as well as the results of the Office of Management and Budget Circular A-95 review by the regional and State clearinghouses. Section VIII also includes responses to questions raised in this review process.

There was some concern by the Governor's Committee on Recreation and Parks about mitigating the effects of the project on the adjacent beach areas. The State's Department of Natural Resources-Coastal Zone Management Agency (DNR-CZMA) pointed out the requirement for submission of a formal permit application prior to construction. Regional and County agencies indicated that the proposed project was consistent with their plans for the area. No expressions of objections to the project or significant consequences were received from the State and local level.

Pursuant to the requirements of Sections 16(c)(1)(A), 16(c)(3), and 16(d) of the Airport and Airway Development Act of 1970 (P.L. 91-258), as amended, we find that the project is consistent with the plans of cognizant planning agencies, that the public hearing opportunity was provided, and that fair consideration has been given to the interests of communities in the area. We are also confident that the certifications by the State relative to air and water quality required by Section 16(e) will be obtained prior to project implementation.

The draft EIS was coordinated with the Department of the Interior, Environmental Protection Agency, and several other Federal agencies which were expected to have an interest in the project in accordance with the provisions of the National Environmental Policy Act of 1969 (P.L. 91-190) and Section 16(c)(4) of P.L. 91-258. The list of agencies which responded are included in the summary. The letters themselves are incorporated in this EIS after the appendices. FAA's responses follow each letter and are cross-referenced to specific paragraphs for ease in review.

The comments received covered a wide range of subjects requiring, in some cases, new material to be added or revisions to be made in the text. The responses offer clarification where appropriate and references to sections of the text where the subject was discussed. As might be expected, many of the comments related to the effects of the project on the marine biology and uses of the Thompson Bay area into which the project extends. The National Oceanic and Atmospheric Administration and the National Marine Fisheries Service of the Department of Commerce,

as well as the U.S. Coast Guard and Department of the Interior, each commented in this regard. Our review of the documentation indicates that the required coordination yielded a number of useful remarks which led to improvement in the analyses presented in the impact statement and that the issues raised have been addressed satisfactorily.

PRINCIPAL ENVIRONMENTAL IMPACTS. The noise analysis in Section III of the EIS includes a projection of cumulative noise exposure using the Noise Exposure Forecast (NEF) methodology. This analysis indicates that, even with ultimate development (through Phase 3), no existing noise sensitive areas will be exposed to levels greater than NEF 30. A portion of Thompson Bay and the beach area to the north will receive such exposure ultimately, but the recreational boating and swimming activity in this area would not be significantly affected by such exposure.

Immediately to the south of Miller's Point is a State designated wetland. Just beyond the wetland is a currently undeveloped area which has been shown on the County's long-range Land Use Plan for residential development-- as has the site of the airport itself. The EIS outlines the changes in proposed land uses which would be necessary. The Freedom County Commissioners went on record at the public hearing as supporting these changes, including the establishment of a special airport use zone for the site and prevention of residential development in areas within the future NEF 30 contour. This commitment will be implemented if Federal funds are received and will fulfill the requirement of Section 18(a)(4) of P.L. 91-258 relative to compatible land use.

The change to airport use of the Miller's Point site involves the necessity to relocate ten mobile homes presently occupying the Thompson Bay Trailer Park. Several other trailer parks are located within a ten-mile radius with adequate capacity for the dislocated units. All those people displaced, including the trailer park owner, will receive full benefits allowed under the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Impacts on Thompson Bay will be minimized through construction techniques which will prevent siltation from the fill into the Bay. Design of the drainage system and waste disposal controls during operation of the airport will reduce adverse effects and protect the marine environment. The only effect on the wetland area bordering the site on the south will be disturbance of a small quantity of marsh vegetation by the construction of light standards for the approach lighting system. The EIS includes extensive analysis of the project's impact on both terrestrial and marine flora and fauna. While much of the vegetation and wildlife on the site itself will be destroyed, no endangered species will be affected; and the total effect on the regional biotic resources will be negligible.

The proposed development has been coordinated with the DNR which established the CZMA and a Statewide coastal management program pursuant to the Coastal Zone Management Act of 1972 (P.L. 92-583). The Thompson Bay and wetland areas adjacent to the site were identified as Priority II (sensitive) by the DNR-CZMA. The Phase I airport development and the mitigation measures to be imposed have been found consistent with the State's program. Formal application to the CZMA for approval will be required before actual construction begins.

DOT SECTION 4(f). The construction and operation of the proposed Freedom Airport will affect the use of a portion of Thompson Bay and adjacent beaches which are public recreation areas. Such use is limited essentially to the reduction of Bay area by the filling of 35 acres initially and an additional 40 acres ultimately. There will also be some intrusion of aircraft noise which will slightly diminish the leisure use of these areas. Construction controls will minimize disruption during construction. The size of the Bay area reduced is small compared to the overall area available for recreational boating and will be offset by the improvements in the pleasure craft navigational channel through dredging of fill material for the project. (The dredge and fill operation will require a Corps of Engineers permit which will be obtained prior to construction. Reference Department of the Interior Comments 44 and 45 and FAA responses thereto.)

A separate Section 4(f) discussion is included in the impacts section of the EIS. Our review supports the finding below that there is no feasible and prudent alternative to the use of such lands and that the adverse effects will be minimized.

ALTERNATIVES. Section V of the EIS contains a detailed discussion of alternatives considered in the formulation of this project. Neither alternative modes nor the no action alternative would reasonably fulfill the basic purpose of the project to provide a reliever facility for general aviation traffic using the area's major air carrier airport, Southeast International. Site constraints prevented serious consideration of expansion of SIA. Three alternative sites for the proposed airport were examined in detail by a site selection study committee. Reasons for elimination of the other two sites (the Roberts Plantation and the Hash Property) are explained in Section V. Alternative configurations on the selected site were limited by its size and the desire to avoid impacting the tidal marsh wetland as a tradeoff to extending the airport into the Bay. The proposed configuration will also reduce the amount of planned residential area which would be noise impacted.

ASSURANCES. Approval of the proposed action includes the condition that measures summarized in Section IV of the EIS to minimize the adverse effects of the project will be undertaken and that applicable permits will be acquired prior to construction.

OPTIONS AVAILABLE. The proposed action may be approved with respect to environmental requirements. There is also the disapproval option.

FEDERAL FINDING. After careful and thorough consideration of the facts contained herein and following consideration of the views of those Federal agencies having jurisdiction by law or special expertise with respect to the environmental impacts described, the undersigned finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101(a) of the National Environmental Policy Act of 1969. It is also determined that there is no feasible and prudent alternative to the proposed action and to use of land covered by Section 4(f) of the Department of Transportation Act of 1966, as amended; and further, the proposed action includes all possible steps to minimize any adverse effects and all possible planning to minimize harm to such 4(f) land. Having met all relevant requirements for environmental consideration and consultation, the proposed action is authorized to be taken at such time as other requirements have been met and subsequent to expiration of waiting periods established to inform the Council on Environmental Quality and the public of this action.

RECOMMENDATION. I recommend that you approve the environmental impact statement with respect to environmental requirements.

NOTE: This action involves a new airport serving a metropolitan area and as such is subject to concurrence by TES and approval by AAP-1 as required by paragraph 64.c., Order 1050.1B, Appendix 6. The action also involves DOT Section 4(f) and therefore also requires concurrence by TGC. The decision paper for this type action would be signed by the Chief, Airports Planning Division, AAP-400, and would include the following signature blocks:

CONCUR: _____ DATE: _____
Assistant Secretary for Environment,
Safety, and Consumer Affairs, TES-1

CONCUR: _____ DATE: _____
General Counsel, TGC-1

CONCUR _____ DATE: _____
Deputy Assistant Administrator, Office
of Airports Programs, AAP-2

APPROVED: _____ DATE: _____
Assistant Administrator, Office of
Airports Programs, AAP-1

DISAPPROVED: _____ DATE: _____
Assistant Administrator, Office of
Airports Programs, AAP-1

NOTE: The file copy grid would include a space for initialing by the Office of the Chief Counsel, AGC-1, to signify his review for legal sufficiency. It should not be assumed that either AGC, TES, TGC, or AAP would necessarily concur or approve without further modification.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FINAL ENVIRONMENTAL IMPACT STATEMENT

Model Environmental Impact Statement No. 2
Freedom County, Southeast, America

Summary Sheet

For additional information contact:

Mr. Elliott B. Perrett, Jr., AAP-410
Federal Aviation Administration
800 Independence Avenue, S. W.
Washington, D. C. 20591
(Telephone: 202-426-3263)

1. This action is Administrative Legislative
2. Proposed Action: Endorsement of site and construction of a new general aviation reliever airport in Freedom County, Southeast, America. The airport will serve to divert general aviation traffic from Southeast International Airport, which is approaching saturation. This action covers Phase I development only. However, potential impacts of future phases are identified.
3. Summary of Environmental Impacts and Adverse Environmental Effects: Principal impacts are as follows: acquisition of a 725-acre site on Miller's Point, relocation of a ten-unit trailer park, reclamation of 35 acres (ultimately 75 acres) of Thompson Bay and related loss of Bay waters for recreational purposes.
4. Summary of Major Alternatives Considered: Expansion or replacement of the Southeast International Airport to accommodate projected demand were considered. When these were found not to be feasible, three potential sites for a reliever airport were studied. Alternative runway configurations on the selected Miller's Point site were considered to minimize impacts. Alternative modes and the no project alternative were also examined.
5. List of Agencies from Which Comments Have Been Received:* Environmental Protection Agency; Department of Agriculture, Department of Transportation (Office of the Secretary); Department of Health, Education and Welfare; Department of Commerce; U. S. Coast Guard; Department of the Interior; and the Department of Housing and Urban Development.
6. Date Final Statement Made Available to CEQ and the Public*:
7. Date of Public Hearing:* June 13, 1975.

*This summary sheet accompanies a Model Environmental Impact Statement prepared under contract with FAA based on a hypothetical situation. The A-95 process and public hearing were simulated to add realism. Normal distribution of the draft statement to state and local agencies which had commented earlier or announcement of its availability to the general public either directly or through CEQ, therefore, is not appropriate in this case.

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**SECTION I
PROJECT DESCRIPTION**

SECTION I: PROJECT DESCRIPTION

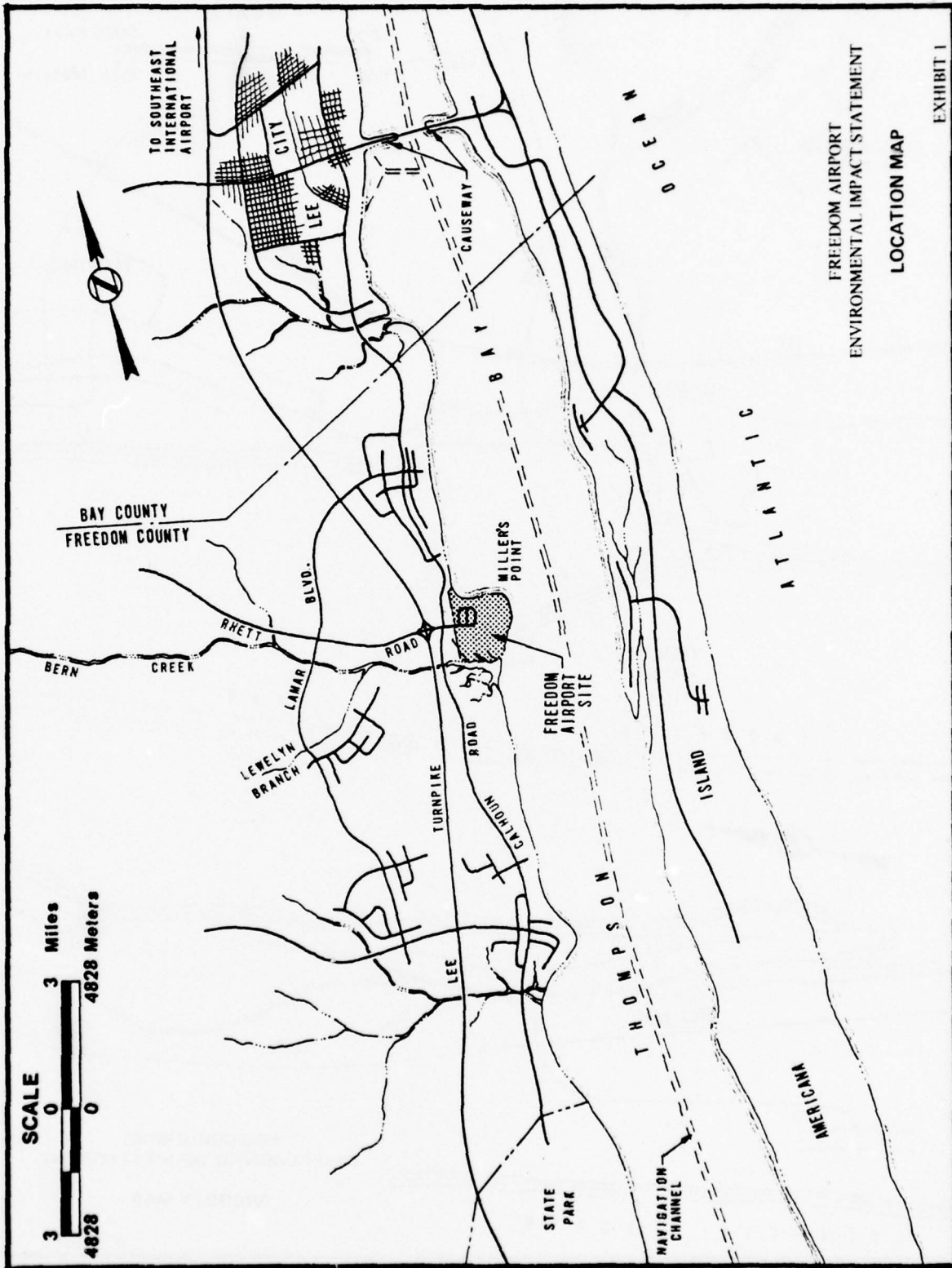
DESCRIPTION OF PROPOSED ACTION

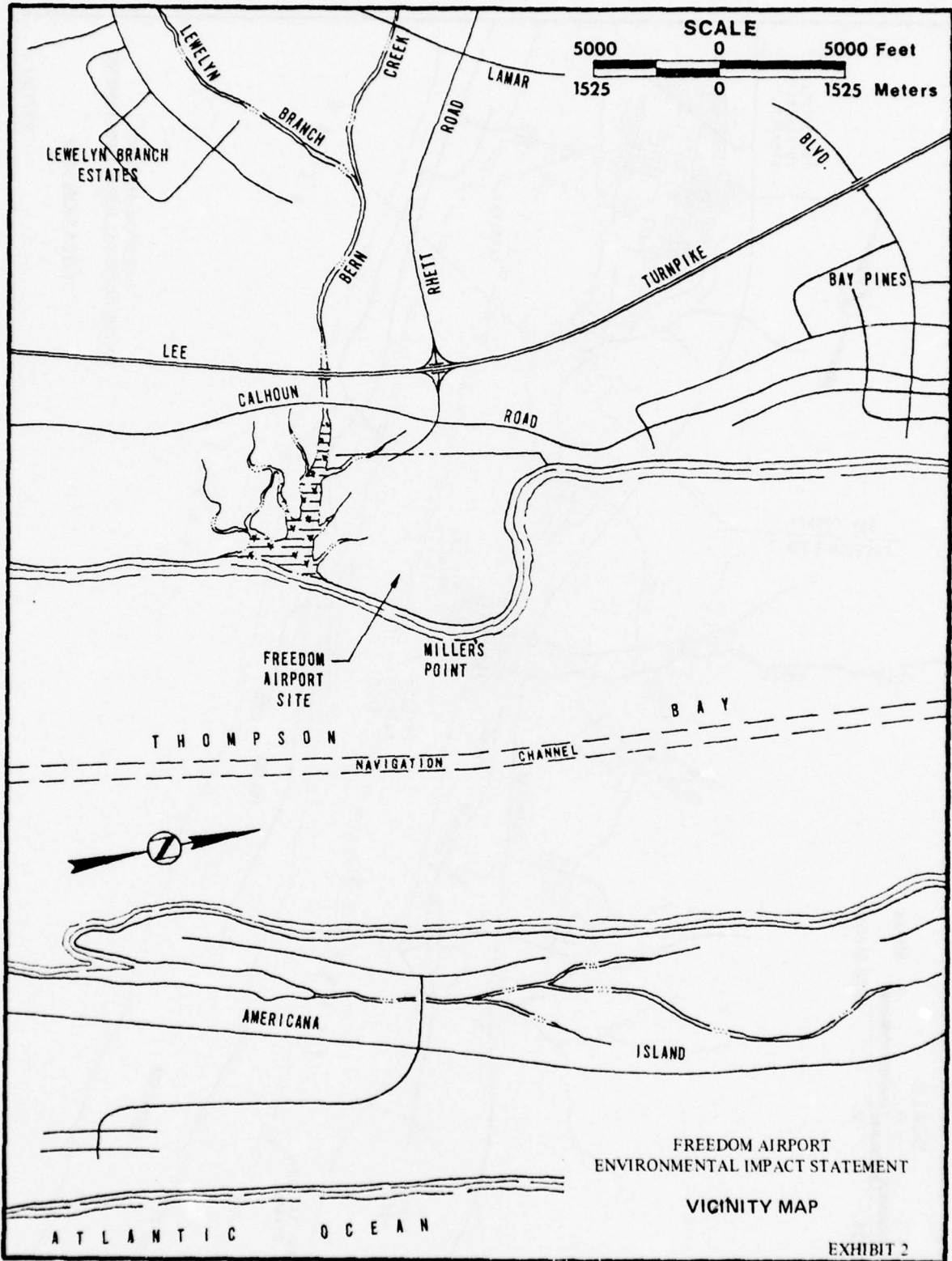
The Southeast Aviation Authority proposes to build a new general aviation airport in the Miller's Point area of Freedom County, ten miles south of Lee City on Thompson Bay. Exhibit 1 is a location map of the proposed project site in relationship to the greater Lee area. Exhibit 2 is a vicinity map of the Miller's Point area.

The project is conceived as a reliever airport. That is, it will have the primary function of relieving congestion at the Southeast International Airport by diverting the latter's general aviation component. Development of Freedom Airport is planned for three separate phases. Exhibit 3 shows Phase I development while Exhibit 4 shows ultimate development. Conditional approval is being sought for the complete airport layout plan. This assessment report addresses specifically the site location and Phase I improvements, and identifies potential impacts associated with later phases of development.

Phase I development includes the following elements:

- . Acquisition of a 725-acre site on Miller's Point.
- . Reclamation of 35 acres of bay bottom through the placement of hydraulic fill material.
- . Construction of a 5,400-foot by 150-foot paved runway (designated 5-23) with parallel taxiway.
- . Construction of terminal building, fuel facilities, and hangar buildings.
- . Construction of two aircraft parking aprons.
- . Construction of an airport access road and auto parking area.
- . Installation of a Category I instrument landing system (CAT I-ILS) for runway 5, a medium intensity approach lighting system (MALSR) and high intensity runway lighting.

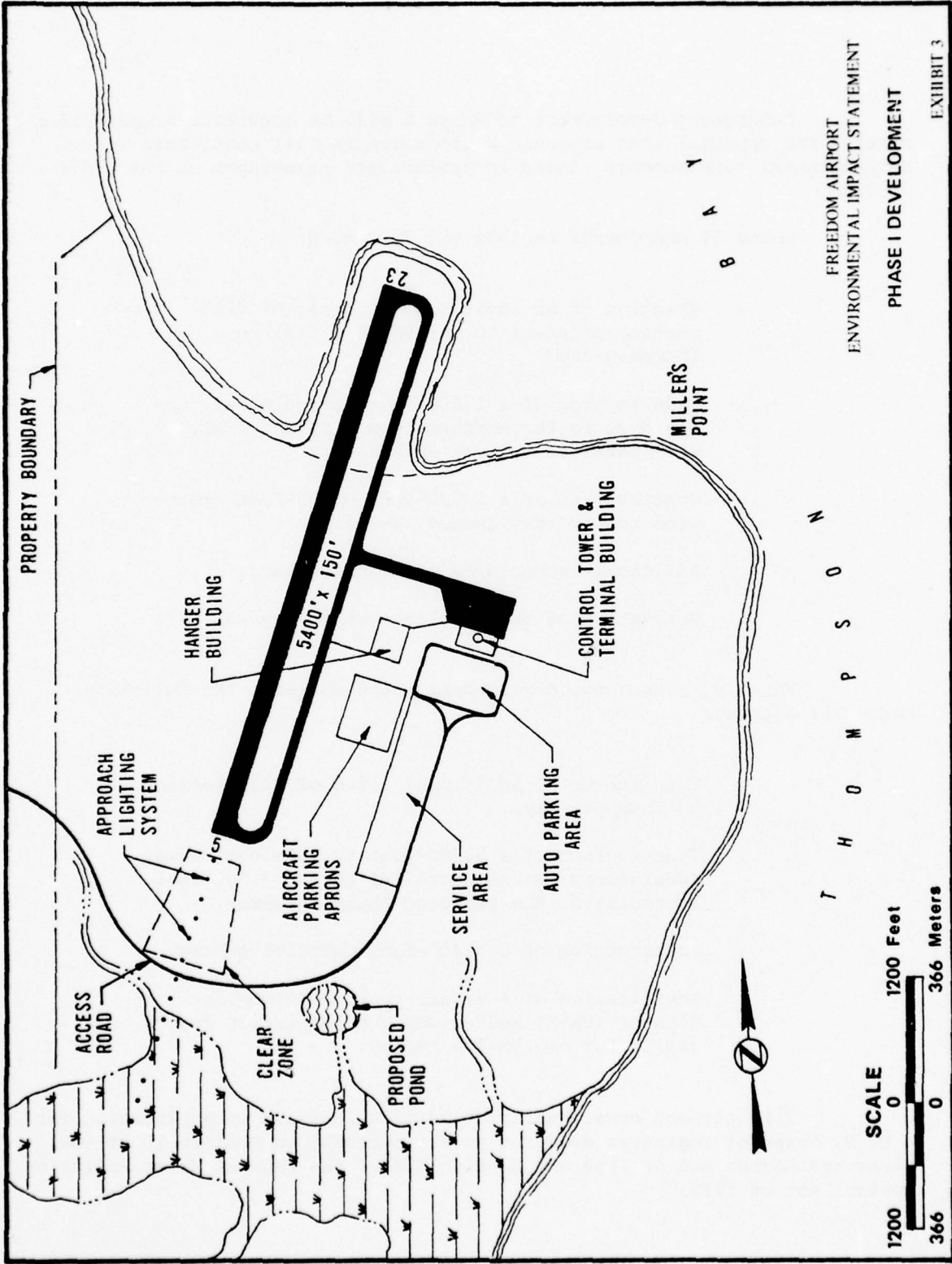




FREEDOM AIRPORT
ENVIRONMENTAL IMPACT STATEMENT

VICINITY MAP

EXHIBIT 2



Subsequent development to Phase I will be conditional upon prior written FAA approval that proposed actions are in full compliance with environmental requirements stated in appropriate paragraphs of FAA Order 5050.2B.

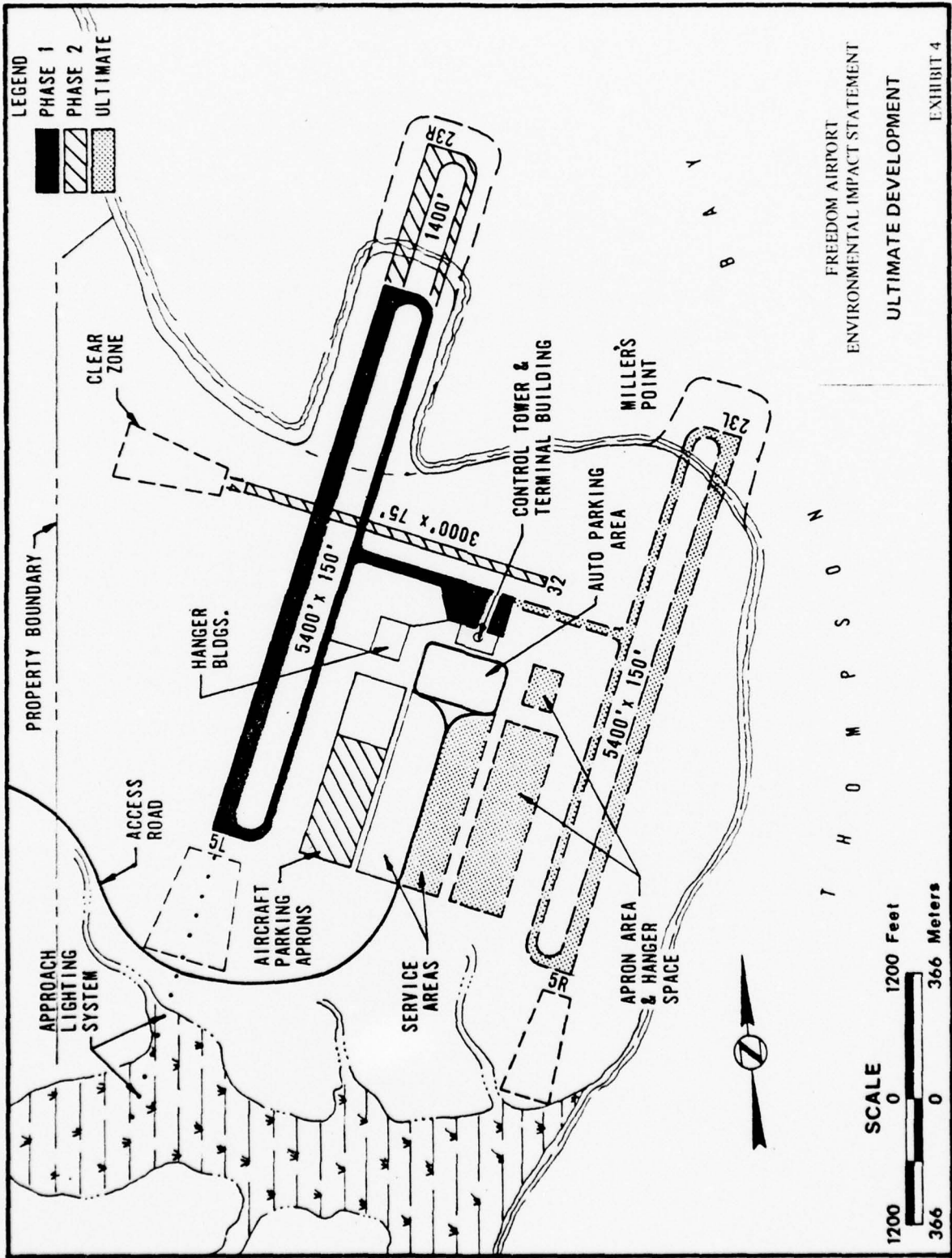
Phase II components include the following:

- . Creation of an additional 20 acres of fill section adjacent to the Phase I fill in Thompson Bay.
- . Construction of a 1,400-foot extension of runway 5-23 to the northeast on fill material, with parallel taxiway extension.
- . Construction of a 3,000-foot by 75-foot cross-wind runway (designated 14-32).
- . Additional apron area and hangar space.
- . Relocation of the localizer on runway 23.

Finally, long range development plans envision the following Phase III elements:

- . Creation of 20 additional acres of fill section in Thompson Bay.
- . Construction of a 5,400-foot by 150-foot runway (designated 5R-23L) parallel to and 3,500 feet southeast of the proposed Phase I runway.
- . Construction of a 5,400-foot parallel taxiway.
- . Installation of a visual approach slope indicator (VASI) and runway end identifier lights (REIL) for new 5R-23L runway.

This airport development action also involves an application for a U. S. Corps of Engineers dredging permit pursuant to Section 10 of the River and Harbor Act of 1899 and Section 404 of the Federal Water Pollution Control Act of 1972.

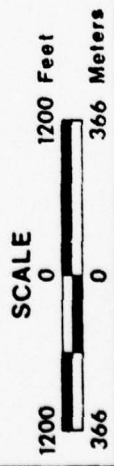


LEGEND

- PHASE 1
- PHASE 2
- ULTIMATE

FREEDOM AIRPORT
ENVIRONMENTAL IMPACT STATEMENT
ULTIMATE DEVELOPMENT
EXHIBIT 4

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PROJECT PURPOSE

Freedom Airport will serve the entire region as a reliever facility to divert general aviation traffic from Southeast International Airport (SIA) which is approaching its operational capacity under its present configuration. Diversion of small aircraft from SIA will not only provide for a more efficient operation but a safer one for the general public.

The need to accommodate expanded operations at SIA was recognized as early as 1970. Lee City has traditionally served as a major transportation center for the southeastern United States. Southeast International not only provides commercial carrier service for the 1.5 million residents of greater Lee but acts as a primary connection point for passengers traveling between other U. S. and foreign cities.

In recognition of increased commercial carrier demand, the Southeast Airport Authority in conjunction with the Coastal Counties Regional Planning Commission launched a feasibility study to explore alternatives to expand facilities to accommodate increased demand at SIA. The report, published in December 1971, recommended development of a reliever airport. This study showed that diversion of general aviation operations would be the most cost-effective means to permit expansion of commercial carrier service.

General aviation activity at Freedom Airport is forecast to increase from 50,000 annual operations in 1977 to 135,000 annual operations in 1990. Annual instrument operations are anticipated to increase from 700 in 1977 to over 2,000 by 1990. By 1990 the parallel runway will increase the practical annual capacity of the airport to meet projected demands. Without diversion of these flights, SIA will be subject to increasing congestion, delay and ultimate saturation.

Congestion creates delay as planes are stacked in the air waiting clearance to land. Further, emissions from aircraft circling in the air or idling on taxiways waiting takeoff clearance on the ground increase air and noise pollution. Circling and idling also increase unnecessary fuel consumption. When SIA reaches its operational capacity, regional economic opportunities and development will reflect this restriction as private income and public revenues fail to reach their potential.

Thus, the project, while small in scale, has large implications in terms of the continued safety, health, convenience and economic well-being of the Coastal Counties service area.

The proposed project is the end product of many years of study. As previously noted, an initial feasibility study to expand SIA was conducted between 1970 and 1971 by the Airport Authority and its consultants. The forecasted activity as reported in the study is shown in Table 1. These forecasts have been reviewed and updated and are in agreement with the current FAA Terminal Area Forecast for SIA. The 1971 study developed forecasts using multiple regression analysis* based on projections of population and income levels as well as a review of historical aviation activity trends in the region. It should be noted that the forecasts presented in the 1971 report were unconstrained, that is, they were developed without consideration of capacity limitations at SIA. Calculated capacity indicated the practical annual capacity (PANCAP) of the existing airfield to be 400,000 operations per year and that this level of activity would be reached shortly after 1977.

To accommodate the forecasted activity three SIA expansion alternatives were evaluated and rejected (see Section V, Alternatives to the Proposed Action).

These included:

- . Construction of additional runways within SIA's present site. This alternative was rejected due to runway/taxiway separation criteria and airspace restrictions.
- . Expansion of SIA through acquisition of adjacent off-site acreage. This alternative was not cost-effective since it involved relocation of a major interstate highway and a 350-acre industrial park. Further, this action contradicted the County Comprehensive Land Use Plan which concentrated industrial development in the SIA area.
- . The concept of constructing an entirely new international airport. This was unacceptable both in terms of economic feasibility and the Coastal Counties Comprehensive regional development plan.

* For details of forecasting techniques, see referenced Feasibility Report.

TABLE 1
 FORECAST OF AVIATION ACTIVITY
 SOUTHEAST INTERNATIONAL AIRPORT
 UNCONSTRAINED ACTIVITY
 (WITHOUT FREEDOM AIRPORT)

	1977	1980	1985	1990
Trunk Domestic	125,200	150,000	175,000	200,000
Trunk Intern.	55,150	60,000	70,000	75,000
Commuters	19,800	20,000	22,000	25,000
Military	5,000	5,500	6,000	6,500
General Aviation	<u>145,000</u>	<u>175,000</u>	<u>200,000</u>	<u>225,000</u>
TOTAL	350,150	410,500	473,000	531,500

Source: SIA Feasibility Study, Expansion Alternatives
 by GAA Planners, Inc. for Southeast International
 Airport and Coastal Counties Regional Planning
 Commission, December, 1971. Updated figures by
 GAA Planners, Inc., July 15, 1974.

Construction of a reliever general aviation facility was recommended as the only viable alternative.

Forecasts of activity for the proposed general aviation facility are shown in Table 1-A. These forecasts were developed using the methodology as described above and represent a diversion of activity from SIA. Considering the capacity of SIA to be a 400,00 PANCAP, the diversion of general aviation to the proposed Freedom Airport will relieve SIA and allow all air carrier, military, commuter and a portion of general aviation to continue at SIA through 1990. Activity at SIA as shown in Table 1 will be reduced by the amount of general aviation activity shown in Table 1-A.

Subsequent to the publication of the 1971 report, the Southeast Aviation Authority decided to undertake a site feasibility study for the recommended reliever facility. The site selection study extended over a six month period in 1972. Three sites were located with sufficient contiguous acreage, adequate drainage and subsurface conditions to support the proposed development. Subsequent site selection analysis indicated the following:

- . A 1,000-acre tract, known as the Roberts Plantation, was available in north central Freedom County. However, this site was 25 miles from the Lee central business district and would have required significant access road improvements. Distance plus access costs eliminated this site as a viable alternative.
- . A 750-acre tract, known as the Hash property, was available due east of the Turnpike bordering Hammonds Inlet. However, portions of this site lay within a designated State wetland conservation zone and there was potential noise impact on residences within the Estuary Estates Subdivision bordering Hammonds Inlet. Consequently, this tract was also eliminated from consideration.
- . A 725-acre tract was also available on Miller's Point. This site offered the advantages of proximity, good access and noise impact partially over water. Consequently, it was selected for the proposed project.

Table 1-A
Forecast of General Aviation Activity

<u>Annual Activity</u>	<u>1977</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
General Aviation				
Local	37,500	56,160	74,900	91,800
Itinerant	<u>12,500</u>	<u>21,840</u>	<u>32,100</u>	<u>43,200</u>
Total	50,000	78,000	107,000	135,000
<u>Instrument Operations</u>	700	1,200	1,700	2,200

<u>By Category</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
C	7,500	15	18,190	17	25,650	19
D	12,500	25	29,960	28	36,450	27
E	<u>30,000</u>	<u>60</u>	<u>58,850</u>	<u>55</u>	<u>72,900</u>	<u>54</u>
Total	50,000	100%	107,000	100%	135,000	100%

Typical Day Operations

	<u>1977</u>	<u>1985</u>
Turbo Prop	2	10
DC 3	10	0
Lear Jet, Grumman Gulfstreams, etc.	11	46
Aero Commander, Beech Twin Bonanza, etc.	34	62
Cessna 140, Aeronca Champion, etc.	86	161

Source: "SIA Feasibility Study, Expansion Alternatives", GAA Planners, Inc. for SIA and CCRFC, December, 1971. Updated figures by GAA Planners, Inc., July 15, 1974.

The alternate sites are discussed in more detail in Section V.

On February 14, 1973, the results of the site selection study were published, and subsequent to local and regional approval, preliminary planning began for the reliever facility. On July 15, 1973 the Southeast Aviation Authority retained the consulting firm of GAA Planners, Inc. to prepare preliminary plans for the project. These were completed on July 15, 1974, and the preparation of the environmental impact assessment was begun.

PROJECT SETTING

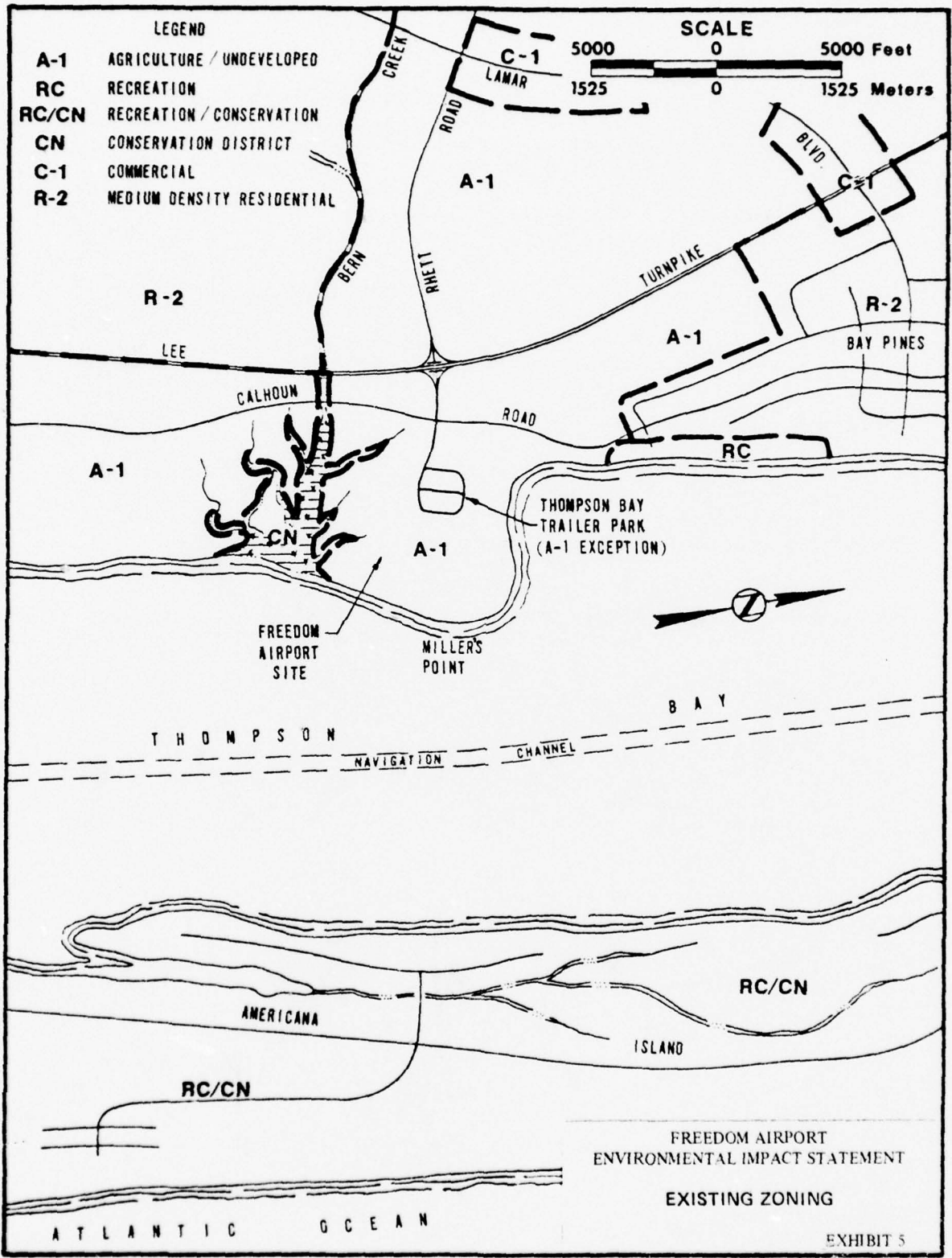
The proposed Freedom Airport site is located on Miller's Point adjacent to Thompson Bay. The Lee Turnpike, a four-lane divided, controlled access highway, is located one-mile west of the site. Exhibit 1 provides a location map relating the site to key features of the region.

The project site topography is generally flat with elevations ranging from 0 to +15 feet above mean sea level. Miller's Point is a small peninsula bordered by the mouth of Bern Creek on the south and Thompson Bay on east and north. With the exception of a ten-unit mobile home park, the Point is totally unoccupied and the site area covered by lowland brush and other typical indigenous vegetation.

Thompson Bay and the entire site area is within the State's designated Coastal Management Zone. The bay is considered a valuable recreational resource and includes a navigational channel for small craft boating. Numerous public beaches border the Atlantic Ocean to the east.

This entire area, once occupied by the Sypejay Indians, remains sparsely developed. The closest housing developments are the Lewelyn Branch Estates, located three miles west of the proposed site, and the Bay Pines subdivision, bordering the west shore of Thompson Bay, three miles north of the site. In addition, clusters of beach houses are located on the Atlantic Ocean beach.

The balance of the site area is virtually unoccupied or used for agricultural purposes. Intensive land use is not encountered within a five-mile radius of the site. Existing county zoning is shown in Exhibit 5.



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ENVIRONMENTAL IMPACT STATEMENT

EXISTING ZONING

EXHIBIT 5

The site is located in that portion of the state lying in the physiographic province called the Atlantic Coastal Plain and is about 110 miles east of the fall line that separates the plain from the Piedmont Plateau. The soils of the area are relatively clean sands with small areas of sands and silts with shell fragments. The sediments are relatively well consolidated and are generally more than one mile thick. Beneath the sediment is crystalline rock that dips to the east at a rate of about 100 feet per mile. The sediment was deposited mainly in a marine or shallow water environment.

The soils of the area are recent age beach deposits of the Woodstown-Fallsington Association which are well to moderately drained.

SECTION II
PROJECT BACKGROUND INFORMATION

SECTION II: PROJECT BACKGROUND INFORMATION

The initial SIA expansion study report was presented to the Coastal Counties Regional Planning Commission (CCRPC) at its regularly scheduled monthly meeting on January 21, 1972. The media was invited to attend this meeting and substantive recommendations of the study were reported in local and regional media.

In March 1972, the Southeast Aviation Authority presented a proposal to the Freedom County Board of Supervisors that the reliever airport site be located in Freedom County and that the Authority assume responsibility for a site selection study. Public response to this proposal included letters of support and interest in participating on a site selection study committee. At their April 1972 open meeting, the Freedom County Board of Supervisors passed a formal resolution endorsing this proposal and guaranteed staff support through the County Department of Planning and Zoning.

In May 1972, the Coastal Counties Regional Planning Commission gave approval to the site selection study contingent upon the inclusion of representatives from the Airport Authority, the Regional Planning Commission staff and the Freedom County Planning Department on the selection committee.

On February 14, 1973, the site selection committee submitted its recommendation to the Southeast Aviation Authority. Subsequently, the report was officially presented at open meetings of the Freedom County Board of Supervisors (March 1973) and the Coastal Counties Regional Planning Commission (April 1973).

Public reaction generally was mixed and included letters of support from the Freedom County Chamber of Commerce, the Freedom County Jaycees, the Lee Chamber of Commerce and Jaycees, as well as positive editorials in the Lee City Clarion and Freedom County Register.

However, some letters of objection were received from residents of the Bay Pines community, the Freedom County Conservation League and the Governor's Citizen Committee on Recreation and Parks. All correspondents received letters assuring that their concerns would be specifically investigated as part of the preliminary planning and environmental study process. Further, they were assured that they would be provided opportunities to contribute ideas, review preliminary plans, and environmental study results.

Community involvement during the environmental study process included personal interviews with leaders of local special interest groups and a public informational meeting held on October 13, 1974 in the Bay Harbor School Auditorium.

Those attending were primarily residents of the Thompson Bay Trailer Park, the Bay Pines subdivision and Lewelyn Branch Estates. Principal concerns voiced at the meeting dealt with relocation of mobile home residents and noise impact on homes and sensitive areas in proximity to the project.

Mobile home residents were reassured that relocation provisions would be made to their satisfaction. As a result of the meeting, a twenty-four hour acoustic monitoring program was established to measure ambient conditions at Bay Harbor School, the St. John's Church and the Bay Pines subdivision. Finally, the question was raised as to impact of the project on recreation and waterfowl in Thompson Bay.

The consultant noted that the study was intended to result in recommendations of measures to minimize impact on both residences and wildlife, and that personal interviews with representatives of the Freedom County Conservation League, the Governor's Committee on Recreation and Parks, local branches of the Audobon Society and Sierra Club were anticipated to result in positive solutions to potential problems.

The formal public hearing for the project was held on June 13, 1975 and was advertised in local newspapers, on radio and television. A total of twenty-three citizens spoke during the hearing. Questions or objections raised dealt with the fully developed (Phase III) project's impact on recreational opportunities, water quality of Thompson Bay, and waterfowl protection. A summary of the public hearing issues is provided in Section VIII of this report.

**SECTION III
PROBABLE IMPACT ON THE ENVIRONMENT**

SECTION III: PROBABLE IMPACT ON THE ENVIRONMENT

NOISE

Prior to reviewing this section, it may be helpful to read the brief report entitled, Impact of Noise on People. This report includes an explanation of noise and its measurement and discusses public reaction to various levels of aircraft-generated acoustic noise. The report is available for review at the Southeast Aviation Authority's office and the FAA Airports District Office, and is contained in the Appendix Volume of the FAA publication, "Environmental Assessment of Airport Development Actions."

Existing Conditions

Prior to determining the impact of noise from the proposed Freedom Airport, the following steps were taken to evaluate existing conditions:

- . Measurement of ambient conditions
- . Review of existing land use patterns
- . Identification of noise sensitive areas

Ambient noise conditions were measured on and around the proposed site and were found to be relatively low. Only in areas influenced by the turnpike were noise levels high. The remainder of the area was influenced predominantly by local traffic, motor boating and normal community activities.

At the request of the local community, twenty-four hour monitoring was conducted for the school and residential area locations. It should be noted that the monitoring location at the school was in the playfield and measurements were conducted on a weekday school holiday. Therefore, outdoor school activities did not influence noise readings. Also, the monitoring site within the community was located in an open field approximately 150 feet from two local roadways. Although the site was chosen as being typical within the community, some variance in noise levels would occur within the community, depending upon location with respect to local traffic and other noise generators.

The noise-sensitive areas monitored, together with the monitoring results, are provided in Table 2. The location of these sites is presented in Exhibit 6.

Table 2
Field Noise Monitoring Results (dBA)*

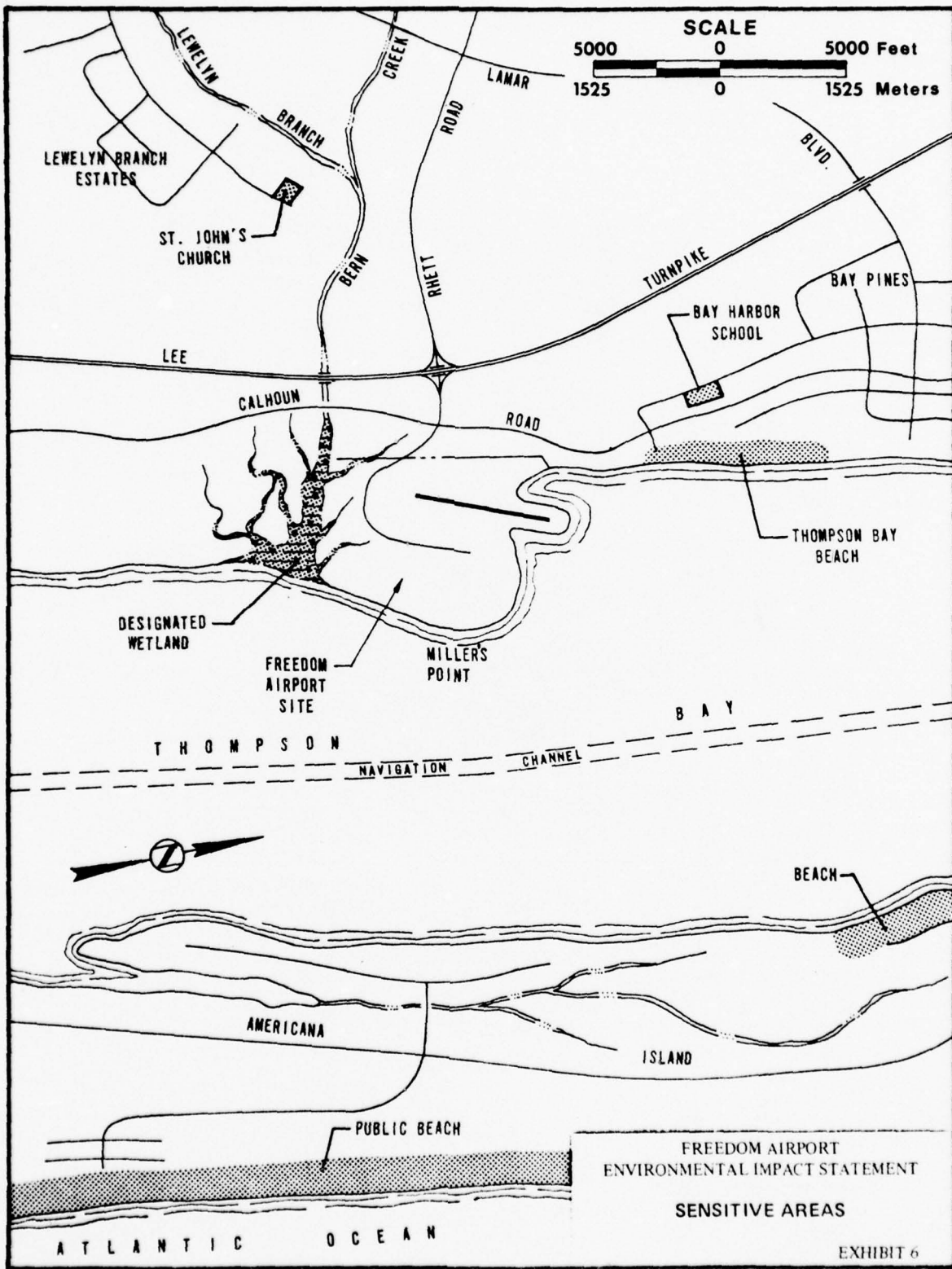
<u>Sensitive Area</u>	L_{10}		L_{50}		L_{dn}^{***}
	Day**	Night	Day	Night	
Bay Harbor School	67	62	64	57	67
St. John's Church	56	52	51	45	56
Bay Pines Residential Area	56	52	51	45	56

*The L_{10} and L_{50} noise levels are those exceeded 10 and 50 percent of the time, respectively. The L_{dn} level is the 24 hour A-weighted equivalent sound level, with a 10 decibel penalty applied to nighttime levels.

**Day 0700-2200
Night 2200-0700

*** L_{dn} levels were calculated from measured L_{50} levels and corresponding standard deviations.

Initial field investigations were conducted to determine the extent of local development and the forms of land use occurring within the proposed airport site's vicinity. Sensitive areas were identified and possible existing and future land use conflicts were reviewed. With these background conditions established, the probable impacts of the proposed project were then evaluated using the Noise Exposure Forecast (NEF) methodology. The NEF was also used to relate to L_{dn} levels and established criteria. In addition, peak noise levels associated with aircraft anticipated to use the facility were identified. A discussion of the noise methodologies is contained in the Appendix. Computations for the NEF contours were based on the methodology found in the Handbook for Developing Noise Exposure Contours for General Aviation Airports, developed by Bolt, Barenek, and Newman, Inc. in October, 1975. Worksheets used in this analysis are also contained in the Appendix.



Project Impact

Phase I Development (1977)

The initial phase of development consists of the construction of a 5,400-foot runway (5-23), together with a terminal building and other supportive facilities.

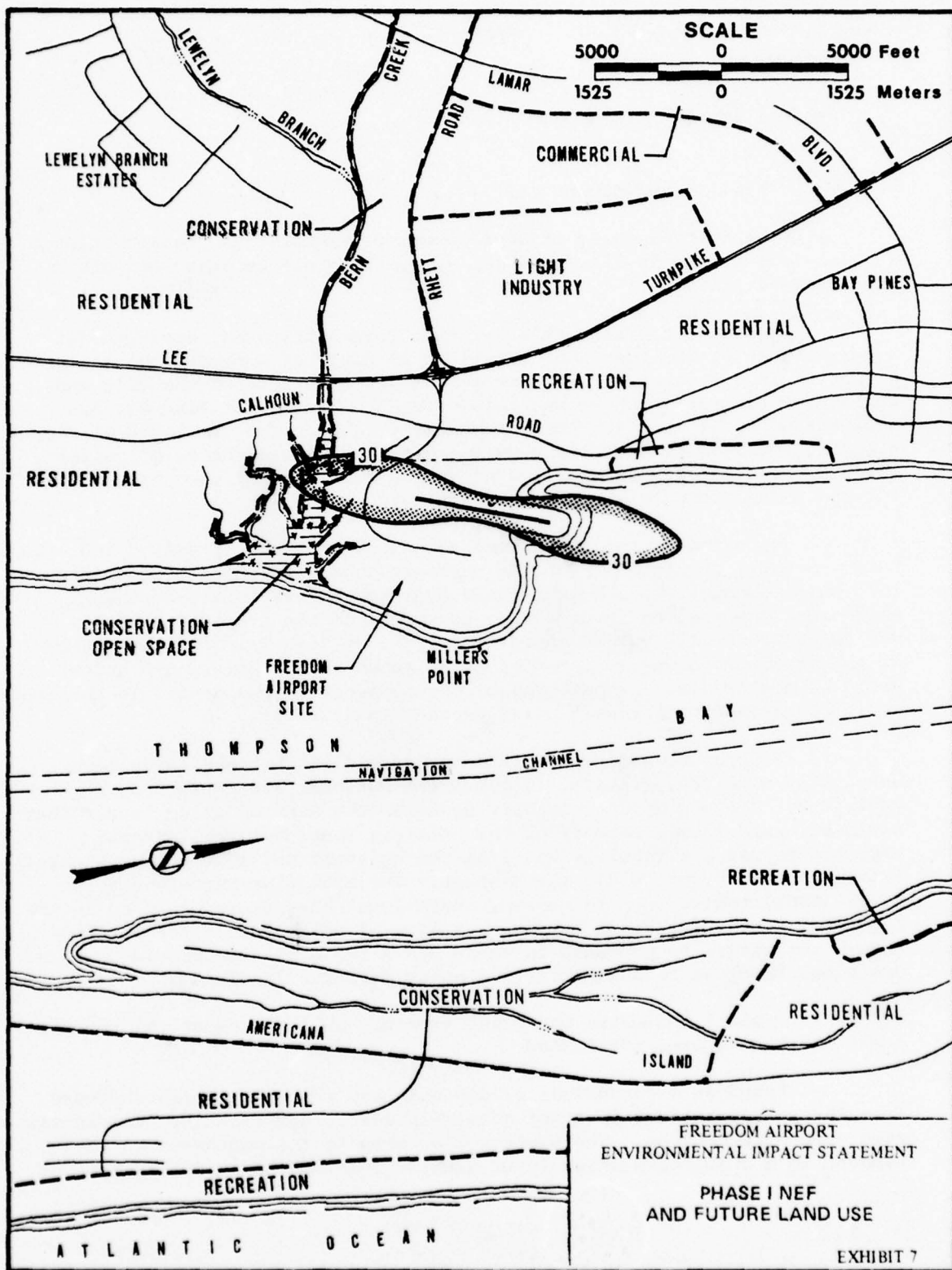
Based on the airport's aviation forecasts, small business jet aircraft such as the Lear and Gulfstream II could be expected to use the airport. In addition, twin-engine piston aircraft such as the DC-3 and turbo prop aircraft such as the Twin Otter and Beechcraft King Air are anticipated to be used for local commuter flights. The remainder of the aircraft would consist of light twin-engine and single-engine propeller craft. The aircraft mix anticipated at the facility and used as a basis for the noise study is shown in the Appendix.

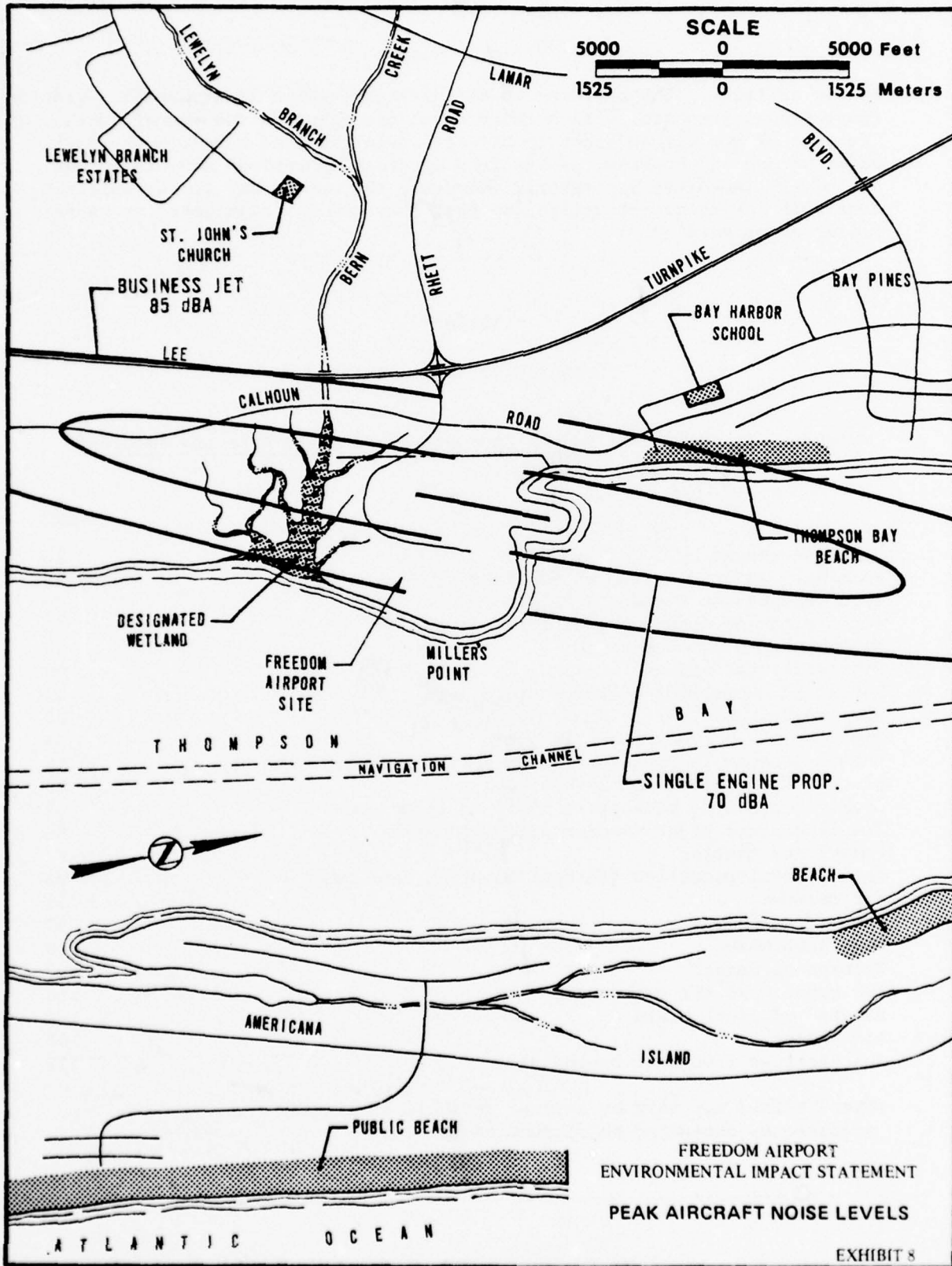
With the use of this data, the noise model was prepared and noise contours developed. The NEF contours shown in Exhibit 7 indicate that noise exposure will be generated over bay waters to the northeast area over conservation lands to the southwest of the proposed airport. NEF 30 contours will extend approximately 5,000 feet from the thresholds of the proposed runway. Since the existing on-site trailer park units would be acquired as part of project development, no residences in the area would be exposed to aircraft noise greater than NEF 30.

To provide additional information concerning peak noise levels associated with the aircraft, single event contours are presented in Exhibit 8. These contours visually describe the maximum noise levels that would be heard from a takeoff of the noisiest (business jet) aircraft expected to use the facility and from the quietest and most common aircraft (single engine prop) to use the airport. The Effective Perceived Noise Level (EPNL) tables used to generate peak level curves are provided in the Appendix. For comparative purposes, a list of noise levels for various common activities is provided in Table 3. A table is also provided which describes land use compatibility and noise exposure (Table 4).

Table 5 indicates the noise exposure anticipated at the sensitive areas which have been identified.

Based on a comparison of contours and criteria, noise exposure from Phase I operations does not adversely affect any existing residential area or public beaches. The conservation area to the southwest which is exposed to a cumulative noise level greater than NEF 30 is not an area of





FREEDOM AIRPORT
 ENVIRONMENTAL IMPACT STATEMENT
 PEAK AIRCRAFT NOISE LEVELS

public activity. The bay area to the northeast which is exposed is used for recreational purposes, with primary usage occurring in the summer months. The area of the bay adjacent to Miller's Point is used occasionally for water skiing and boating. Noise from aircraft operations may discourage use of the immediate bay waters. However, the entire bay is suitable and available for these activities, so that they are not eliminated as recreational opportunities.

Table 3
Comparative Noise Levels

Typical Decibel (dBA) Values Encountered in Daily Life and Industry

	<u>dBA</u>
Rustling leaves	20
Room in a quiet dwelling at midnight	32
Soft whispers at 5 feet	34
Men's clothing department of large store	53
Window airconditioner	55
Conversational speech	60
Household department of large store	62
Busy restaurant	65
Typing pool (9 typewriters in use)	65
Vacuum cleaner in private residence (at 10 feet)	69
Ringling alarm clock (at 2 feet)	80
Loudly reproduced orchestral music in large room	82
Printing press plant (medium size automatic)	86
Heavy city traffic	92
Heavy diesel-propelled vehicle (about 25 feet away)	92
Air grinder	95
Cut-off saw	97
Home lawn mower	98
Turbine condenser	98
150 cubic foot air compressor	100
Banging of steel plate	104
Air hammer	107
Jet airliner (500 feet overhead)	115

(These values may vary by several decibels in similar situations, depending on circumstances)

Table 4

Land Uses Adjacent to Airports
and the Relationship to NEF Contours

<u>Noise Exposure Forecast (NEF) Values</u>	<u>Remarks</u>
20-30	Few activities will be affected by aircraft sounds, although building designs for especially sound-sensitive activities, such as auditoriums, churches, schools, hospitals, and theatres should consider sound control in areas close to the airport. Detailed studies by qualified personnel are recommended for outdoor amphitheatres and similar places of public assembly in the general vicinity of the airport.
30-40	Activities where uninterrupted communication is essential should consider sound exposure in design. Generally, residential development is not considered a suitable use, although multi-family developments where sound control features have been incorporated in building design might be considered. Open-air activities and outdoor living will be affected by aircraft sound. The construction of auditoriums, schools, churches, hospitals, theatres, and similar activities should be avoided within this zone where possible.
>40	Land should be reserved for activities that can tolerate a high level of sound exposure, such as some agricultural, industrial, and commercial uses. No residential developments of any type are recommended. Sound-sensitive activities such as schools, offices, hospitals, churches, and similar activities should not be constructed in this area unless no alternative location is possible. All regularly occupied structures should consider sound control in design.

Source: *Airport Master Plans*, Federal Aviation Administration AC150/5070-6 (Washington, D. C.: Government Printing Office, 1971), Table 3, p. 47.

Table 5
Exterior Noise Exposure at Sensitive Areas
(1977 Operations)

<u>Sensitive Area</u>	<u>NEF</u>	<u>LdN (db)</u>	<u>Peak Noise Level (dBA)</u>
Bay Harbor School	<30	<65	84
St. John's Church	<30	<65	80
Bay Pines Residential Area	<30	<65	84
Thompson Bay	30-40	65-75	80-95
Thompson Bay Beach	<30	<65	86
Americana Island	<30	<65	80

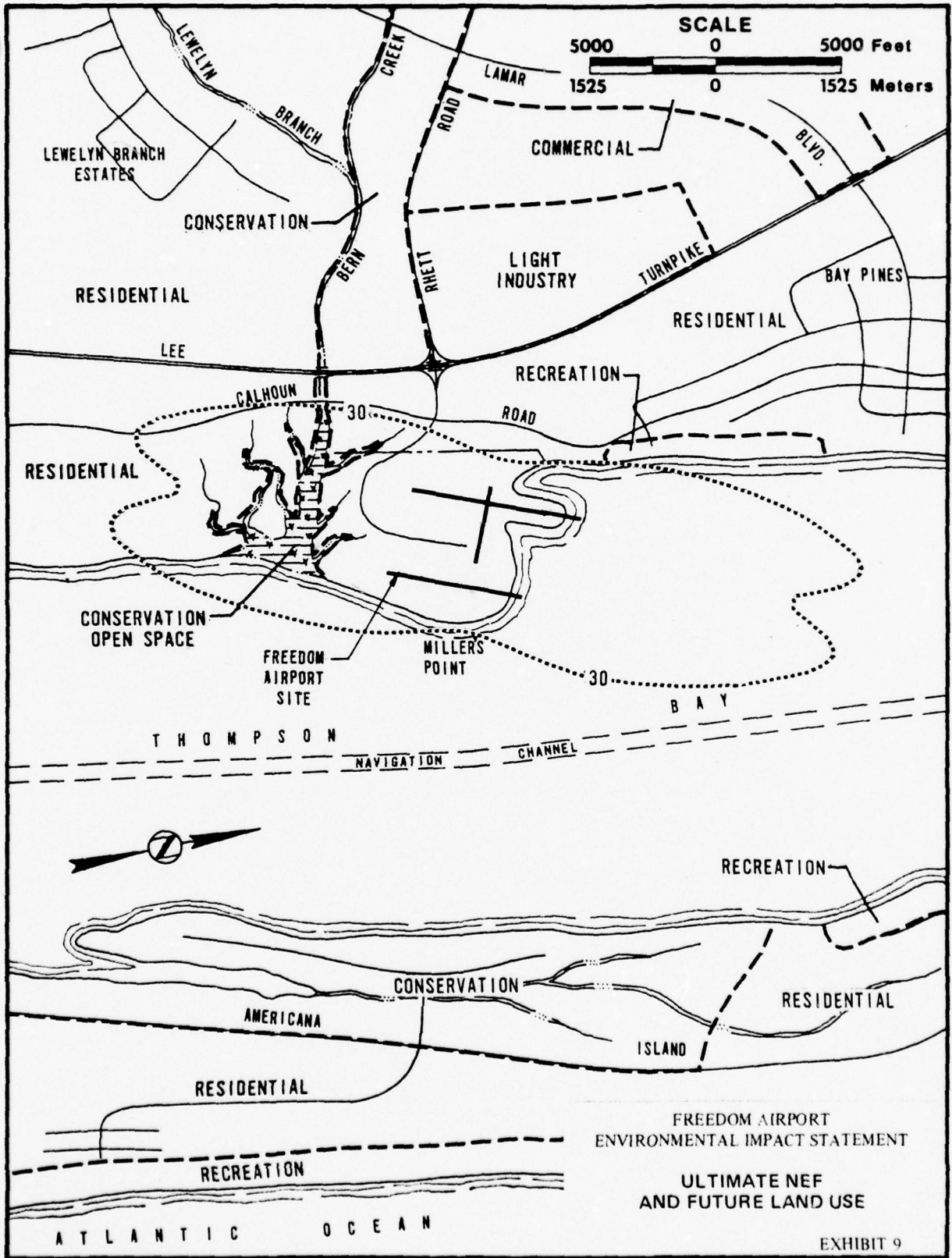
Only one of the areas identified above experiences cumulative noise exposure greater than NEF 30. It is estimated that daily aircraft noise greater than 85 dBA would total from 1 to 10 minutes over portions of Thompson Bay.

Ultimate Development

Ultimate airport development anticipated involves the extension of the Phase I runway (5-23), construction of a crosswind runway (14-32), and a parallel runway (5R-23L).

In order to identify possible future noise impacts, NEF contours were prepared for the ultimate configuration and are shown in Exhibit 9. Information on future operations and runway usage is contained in the Appendix. The contours illustrate expected usage of the parallel runway system. The crosswind runway would be only 3,000 feet in length, thereby limiting its use to only light single and twin-engine prop traffic. Peak noise levels in the parallel runway direction will be similar to those shown for Phase I operations but will occur more often.

Table 6 summarizes projected noise exposure for sensitive areas for ultimate airport development.



Ultimate development and operation of Freedom Airport will create noise exposure in excess of NEF 30 in areas to the southwest, which are designated to be residential areas in future land use plans. Noise exposure between NEF 30 and 40 can be undesirable for residential use, depending on the type and quality of construction. However, it is recommended that the contours, as shown, be used as a planning tool to establish boundaries of a compatible land use zone to the southwest of the airport.

Table 6

Projected Exterior Noise Exposure at Sensitive Areas
(Ultimate Development)

<u>Sensitive Area</u>	<u>NEF</u>	<u>Ldn</u>	<u>Peak Noise Level (dBA)</u>
Bay Harbor School	<30	<65	84
St. John's Church	<30	<65	80
Bay Pines Residential Area	<30	<65	84
Thompson Bay	30-40	65-75	85-90
Thompson Bay Beach	<30	<65	86
Americana Island	<30	<65	85

LAND USE

The project site is subject to multiple land use controls. Since it lies within a State designated Coastal Management Zone, it is subject to particular development constraints established by the State program. However, the site is not within a prescribed critical recreation or wildlife refuge area which might preclude development.

The site is also subject to Freedom County zoning ordinances and influenced by County and Regional Comprehensive Master Plans. The relationship of land use within and adjacent to the site to these controls is discussed first in terms of existing conditions and then in terms of potential alterations resulting from the project.

Existing Conditions

Miller's Point, the site of the proposed project, is presently unoccupied, with the exception of the ten-unit Thompson Bay Trailer Park.

The site is bordered on the north and east by Thompson Bay. Americana Island lies east of the site, separating Thompson Bay and the Atlantic Ocean. The island is largely undeveloped, but has experienced recent development in the form of residential units, condominiums, and resort-related commercial services.

The area immediately south of the site is a State designated wetland area.

Much of the shoreline immediately north and further south of the site is undeveloped, with intermittent patches of tidal vegetation and beach; and is used for recreational activities.

Two residential developments - Lewelyn Estates to the southwest and Bay Pines to the north - exist in relative proximity to the project site. Commercial development is concentrated along sections of Lamar Boulevard, approximately three miles west of the site. Remaining land use on the mainland involves agricultural activities. Exhibit 10 shows existing land uses in the project area.

Existing land use is fairly consistent with existing Freedom County zoning designations (See Exhibit 5). The proposed project site is primarily zoned A-1, the general classification for open, undeveloped land or agricultural areas. Within the A-1 zoning, other uses may be allowed by way of a special exception permit from the County Board of Zoning Appeals. This was the case for the Trailer Park on Miller's Point.



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 ENVIRONMENTAL IMPACT STATEMENT

EXISTING LAND USE

EXHIBIT 10

Most of Americana Island in the vicinity of the project is zoned RC-CN, Recreation - Conservation. The site's adjacent wetland area is zoned CN, which indicates a conservation district.

The two residential areas in proximity to the site have a R-2 designation for medium density residential development. Commercial zoning has been granted for sections of Lamar Boulevard.

The County's Future Land Use Plan (1995) for the airport vicinity is shown in Exhibit 11. The entire airport site is shown to be in an area designated for medium density residential development. Much of the other presently undeveloped area is shown to be devoted either to residential use or to light industrial use, as in the case the tract of land immediately west of the turnpike. Usage on Americana Island shows a more definite separation of recreation, residential and conservation uses.

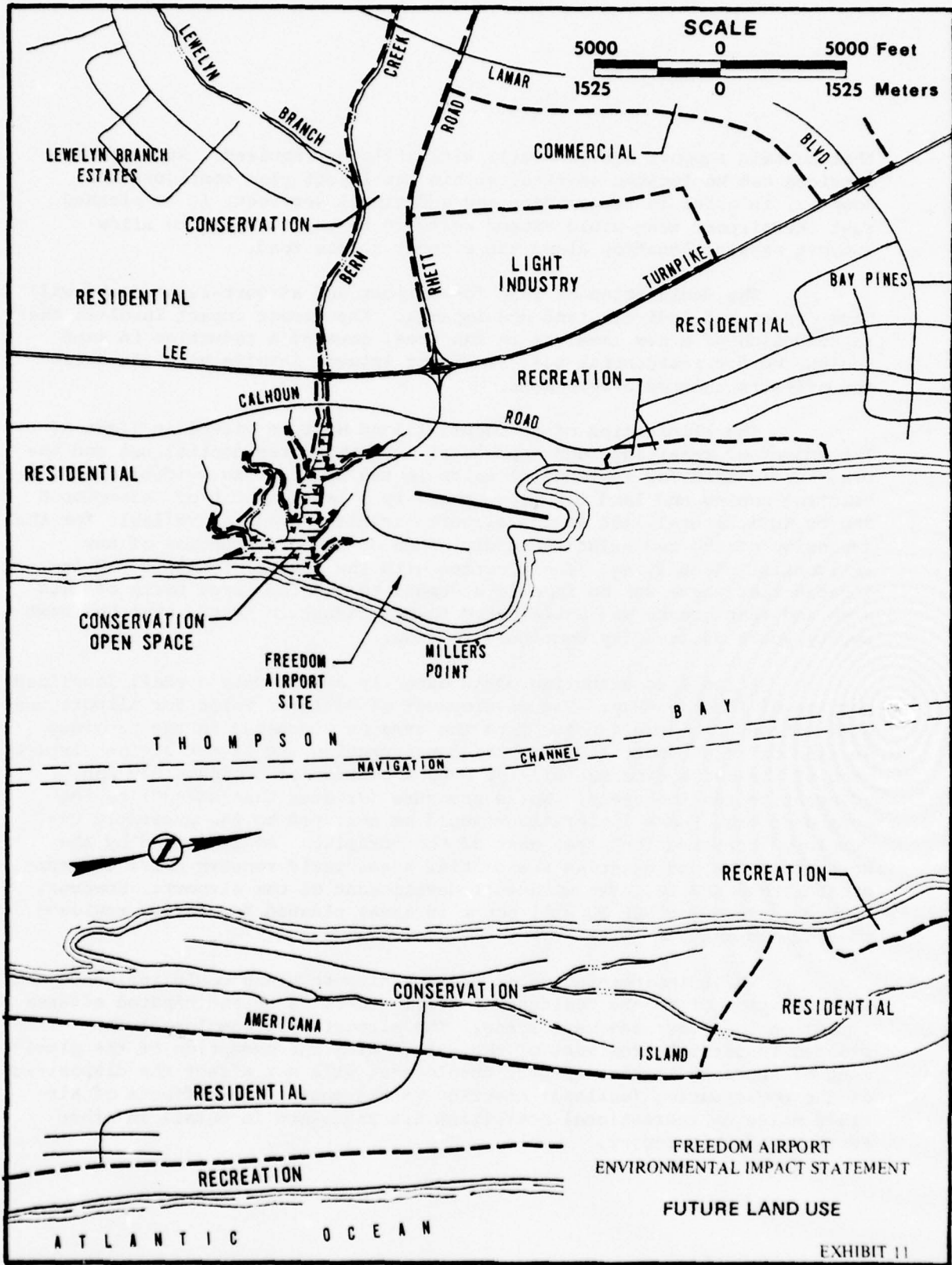
The Regional Comprehensive Plan, developed by the Coastal Counties Regional Planning Commission, also shows the proposed project site as future residential area.

The Coastal Zone Management Agency (CZMA) of Southeast, America is under the jurisdiction of the State Department of Natural Resources (DNR). The DNR has overall responsibility for the development, management and conservation of Thompson Bay and other tidal waters. The specific goals of the State's CZMA include the identification and development of mechanisms to protect critical or sensitive coastal areas. During their first year of operation, they have identified and classified biological recreational, and historical areas which are of particular significance in the coastal region. These areas have been designated by the CZMA to be either critical (Priority I) or sensitive (Priority II). Priority I areas include designated wildlife refuges, known historical or archaeological sites and some wetlands. Priority II areas include smaller wetland areas which show evidence of influence of surrounding land development and/or do not serve as major wildlife feeding areas. The wetland area immediately south of the site and portions of Americana Island are classified as Priority II areas by the CZMA.

Project Impact

A permit for a zoning exception to the existing A-1 designation will be required. The exception would be in the form of a special airport use zone.

Since the airport is planned as the facility which will handle the majority of the region's general aviation component, it is anticipated



that certain support services will ultimately be required. Many of these services can be located on-site, within the layout plan configuration. However, in order to accommodate any additional services, it is planned that the airport zone would extend westward to the turnpike to allow support service location along the airport access road.

The designation of land for airport and airport-related use will have direct and indirect land use impacts. The direct impact involves the introduction of a new land use in the area, causing a reduction in land designated for residential use. Indirect impacts involve off-site noise and off-site induced development.

The elimination of residential land must be viewed in light of the amount of remaining land capable of supporting residential use and the projected demand for residential units in the region. As evidenced by the existing zoning and land use maps, there is a large amount of undeveloped and/or agricultural land in the airport vicinity which is available for the expansion of the two existing subdivisions or the construction of new residential communities. Consultation with the Coastal Counties RPC indicated that there was no immediate demand to develop large parts of this area and that growth was anticipated to be gradual in nature over the next twenty years as Lee City continued to grow.

Airport construction would directly affect only a small localized portion of Thompson Bay. The development of Miller's Point for airport use will introduce aircraft noise into the area as discussed in the previous section of this report. Due to the configuration and layout of the airport, much of the noise exposure will be over a portion of Thompson Bay and adjacent recreation areas. Noise exposure (greater than NEF 30) to the southwest from Phase I operations would be confined to the presently undeveloped conservation areas east of the turnpike. As indicated by the noise contours, no existing residential areas would receive noise exposure greater than NEF 30, even with full development of the airport. However, exposure exceeding NEF 30 will occur in areas planned for future residential development.

While implementation of present airport plans could influence the redesignation of future residential areas, there is no anticipated adverse impact on the other adjacent areas. The airport will complement the planned industrial area west of the site. With the exception of the placement of approach lights, airport development will not affect the disposition of the conservation (wetland) district to the south. The effects of aircraft noise on recreational activities are discussed in detail in other sections of this report.

In summary, project development is anticipated to result in the following land use alterations:

- . Elimination of potential residential use of Miller's Point.
- . Creation of demand for support services close to the site.
- . Generation of noise exposure in planned residential and recreation areas in the airport vicinity.

In planning for airport development, consideration should be given to the following:

- . Establishing a special airport use zoning designation for the site which would extend to the turnpike.
- . Provision for modifications to the County's Future Land Use Plan to prevent incompatible residential development in areas to the southwest which would be exposed to future aircraft noise in excess of NEF 30.
- . Incorporation of land use controls (county zoning, coastal zone permits) to implement revised future plans.

Consultation between the Aviation Authority and the County has addressed rezoning of Millers Point and the impact of the proposed airport on the Comprehensive Plan. At the public hearing on June 13, 1975, the Freedom County Commissioners went on record as supporting the necessary changes to the zoning and Comprehensive Plan, if the project received Federal funding and was found to be environmentally acceptable.

VEGETATION AND WILDLIFE

The study area includes three distinct types of habitat--terrestrial, marsh, and marine. The environmental study included literature search and field reconnaissance to identify and inventory each habitat type within the study area. In cooperation with the State Department of Natural Resources (DNR), Fish and Wildlife Administration, sampling of aquatic species in Thompson Bay and Bern Creek was performed. The following sub-sections describe present conditions and project impact on the terrestrial, marsh and marine ecology in the study area.

Existing Conditions

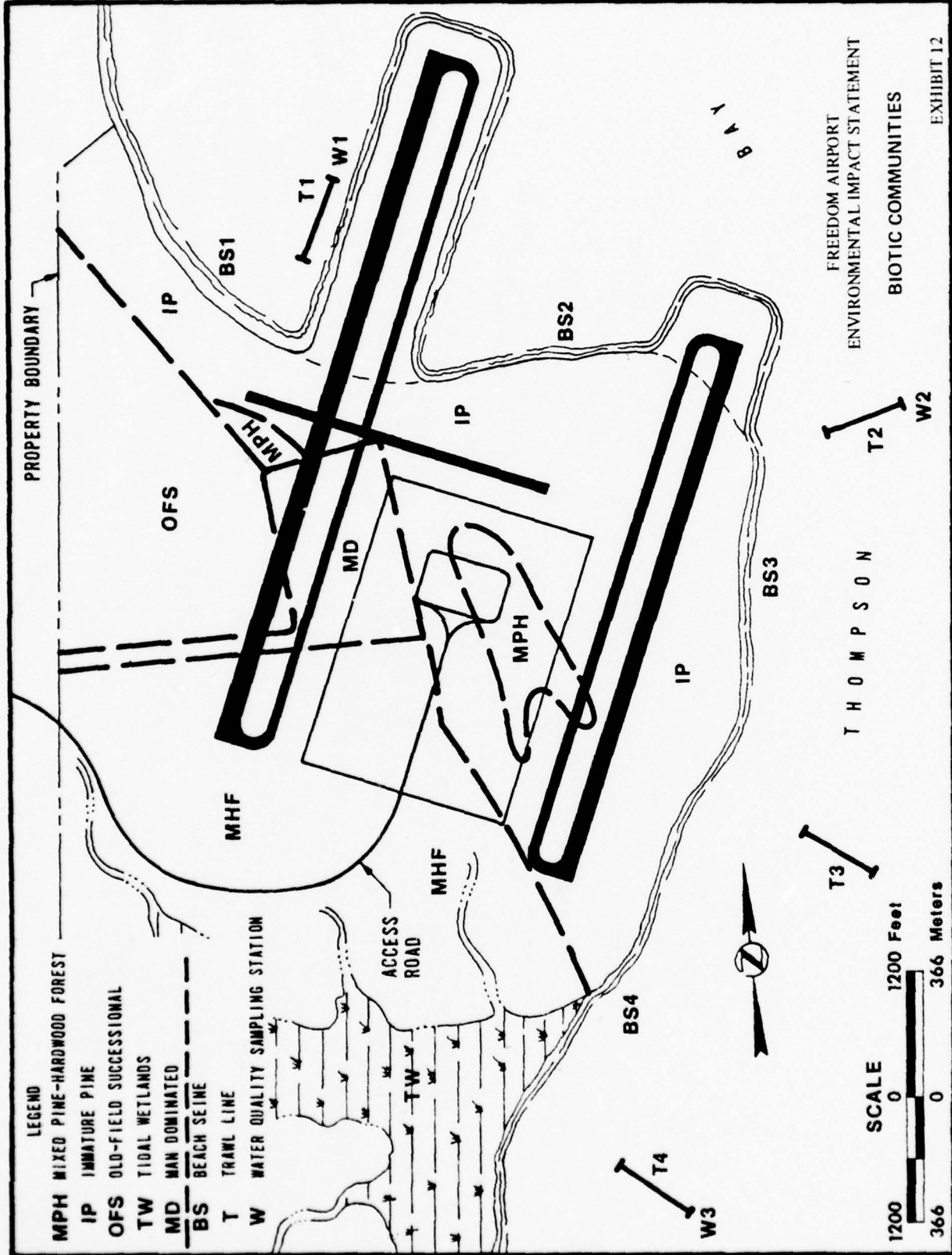
Terrestrial and Marsh Ecology

The study area includes all of Miller's Point bounded by the proposed airport property line on the west, Bern Creek on the south, and Thompson Bay on the east and north. Five dominant biotic communities were defined on the basis of existing vegetation patterns, characteristic plant species, and human intervention in the Thompson Bay Trailer Park area. Exhibit 12 locates dominant communities within the study area. Detailed species lists for study area habitat are provided in the Appendix.

The five major communities are:

- . Mixed Hardwood-Pine Forest
- . Immature Pine
- . Old Field Successional
- . Tidal Wetlands
- . Man Dominated

While species of animals and plants do not necessarily demonstrate rigid conformity to community boundaries, general characteristics described for each vegetation association have been verified by literature search and field reconnaissance.



Mixed Hardwood-Pine Forest

This biotic community includes a large section of the study area in the southern portion of the site. In addition, small stands of this community also are scattered among the immature pine type. The most abundant tree species are sweetgum (Liquidambar styracifula), red maple (Acer rubrum), water ash (Fraxinus caroliniana), willow oak (Quercus phellos), water oak (Q. nigra), swamp chestnut oak (Q. michauxii), Southern magnolia (Magnolia grandifolia), longleaf pine (Pinus palustris), and loblolly pine (Pinus taeda). Other tree species also occurring sporadically within the understory include: laurel oak (Quercus laurifolia), live oak (Quercus virginiana), Virginia pine (Pinus virginiana), hackberry (Celtis laevigata), slippery elm (Ulmus rubra), ironwood (Carpinus carolineana), and water hickory (Carya aquatica). Young pine trees, intolerant to shade, are conspicuously absent from the understory.

There is a notable lack of woody shrubs and tree seedlings, due to the dense canopy. Only on the open edges of the type do shrub species and saplings become common. Besides saplings and seedlings of the above-mentioned tree species, flowering dogwood (Cornus florida), bladdernut (Staphylea trifolia) and alder (Alnus serrulata) are also found as edge species. Cross vine (Anisostichus capreolata), grape (Vitis spp.), sawbrier (Smilax glauca), and blackberry (Rubus spp.) are also common.

Few shade-tolerant herbs inhabit the forest floor. Bedstraw (Galium pilosum), pipsissewa (Chimaphila maculata), and bush clover (Lespedeza repens) can be found scattered throughout. More species of herbs are present on the forest edge. Along with herbs mentioned above, species found in the Old Field Successional type are also common in the transition zone along the forest edge.

The most common species of birds observed here were the blue jay (Cyanocitta cristata), redbellied woodpecker (Centurus carolinus), downy woodpecker (Dryobates pubescens pubescens), hairy woodpecker (Dryobates villosus villosus), and the brown-headed nuthatch (Sitta pusilla). Mammals associated with the type include eastern gray squirrel (Sciurus carolinensis), raccoon (Procyon lotor), eastern fox squirrel (Scuirus niger), southern flying squirrel (Glaucomys volans), golden mouse (Onychomys nuttalli), and the shorttail shrew (Blarina brevicauda).

Immature Pine

The area covered by this type has progressed through field successional stages to achieve this level of natural regeneration.

Presently, immature loblolly pine (Pinus taeda) saplings dominate the type, being more dense near the source of seed (the Hardwood Pine Forest) and more widely spaced as distance from the source increases. Because loblolly pine is intolerant of shade, it is not an understory species and only does well with its crown exposed. The loblolly pine is one of the first tree species to invade abandoned land in this area, usually appearing five to eight years after abandonment.

Crown height averages approximately eleven feet. Deciduous trees have not yet invaded the area in appreciable numbers. A few specimens of dogwood (Cornus florida), sweetgum (Liquidambar styraciflora), red maple (Acer rubrum), and slippery elm (Ulmus rubra) are found sparsely scattered through the type. Shrubs and vines are also part of this plant association: trumpet creeper (Tecoma radicans), blackberry (Rubus spp.), sawbriar (Smilax glauca), and poison-oak (Rhus taxicodendron). Herbaceous species common to the type include thoroughwort (Eupatorium hyssopifolium), broomsedge (Andropogon spp.), bedstraw (Galium pilosum), pipissewa (Chimaphila maculata), brush clover (Lespedeza repens), and Bermuda grass (Cynodon dactylon).

The most common avian species found to occupy this habitat include field sparrow (Spizella pusilla pusilla), towhee (Pipilo erythrophthalmus), and pine warbler (Dendroica pinus).

Mammals most commonly observed in association with this habitat include shorttail shrew (Blarina brevicauda), pine mole (Pitymys pinetorum), white-footed mouse (Peromyscus spp.), striped skunk (Mephitis mephitis), gray fox (Urocyon cinereoargenteus), and the eastern cottontail rabbit (Sylvilagus floridanus).

Old Field Successional

Once agricultural land, this community has been permitted to revert through natural successional trends. Presently, herbaceous plant species dominate the type. Broomsedge (Andropogon spp.) assumes dominance; the most common species is Andropogon virginicus with A. elliotii and A. ternarius occurring in lesser numbers. Crabgrass (Digitaria sanguinalis), horseweed (Leptilon canadense), wild aster (Aster ericordis), and ragweed (Ambrosia artimisiifolia) also occur as important species scattered through the Old Field Successional type.

The Old Field Successional areas are valuable to birds and mammals preferring more open areas for breeding and feeding. Birds commonly utilizing this habitat include: killdeer (Charadrius vociferus), bobwhite quail (Colinus virginianus), common meadowlark (Sturnella magna), and field sparrow (Spizella passerina).

Mammals associated with this type area are: the least shrew (Cryptotis parva), meadow moles (Mycrotus pennsylvanica), hispid cotton rats (Sigmodon hispidus), house mice (Mus musculus), eastern moles (Scalopus aquaticus), and eastern cottontail rabbits (Sylvilagus floridanus). Other species of birds and mammals also utilize the area during seasonal migration or as part of their home ranges.

Tidal Wetlands

Marsh communities occur in the extreme southern section of the study area. This section is of some value to songbirds, waterfowl, shore birds, and wading birds as breeding, feeding, and/or wintering habitat.

The plant zone nearest the Bay is dominated by cord grass (Spartina alterniflora), salt grass (Distichlis spp.), and black rush (Juncus spp.). This zone is 10 to 14 feet wide. Some Spartina is very impressive in this zone, reaching 12 feet in height.

The next zone inland from the Bay (substratum rise of 8 inches) is predominantly salt-meadow grass (Spartina pratensis) with the shrubs marshelder (Iva frutescens), and groundsel-tree (Baccharis halimifolia) scattered about the zone. Tall growths of herbaceous species are characteristic in this zone also.

Areas of open water are scattered through the second marsh zone providing feeding areas for waterfowl during the winter. Several other herbaceous species of plants are common to the Spartina - Distichlis - Juncus zone and the salt-meadow grass - shrub zone: marsh bind-weed (Convolvulus sp.), marsh morning-glory (Ipomota sagittata), glasswort (Salicornia virginica), and seaside goldenrod (Salidago virginica).

Further inland, the third zone occurs as the substratum rises 14 inches or more. Salinity is further reduced. Sweetgum (Liquidumber styraciflora) and oaks (Quercus sp.) are the predominant species here. From this point on, there is a steady rise in substrate and transition to the bordering Mixed Hardwood-Pine Forest.

Mammals common to the wetlands include: rice rat (Oryzomys palustris), cotton mouse (Peromyscus gossypinus), eastern harvest mouse (Reithrodontomys humulis), raccoon (Procyon lotor), shorttail shrew (Blarina brevicauda), least shrew (Cryptotis parva), the longtail weasel (Mustella frenata), muskrat (Ondatra zibethica), and nutria (Myocastor coypus).

Open areas commonly associated with tidal wetlands provide benthic habitat for clams (Rangia spp.) and other invertebrates such as amphipods (Hyalella spp.), shrimp larvae (Palaemonetes spp.), mud crabs (Panopaeus spp.), and Eurypanopeus spp.), and the salt marsh mosquito (Aedes spp.). These animals forage on the detritus that is continually being washed away from the salt marsh vegetation, and in turn, serve as food for shore birds during low tide and for fish that can visit these areas during high tide. The fish most frequently encountered was the top minnow (Cambusia affinis).

Considerable amounts of detritus are carried from the tidal marshes by ebbing tides. This nutrient source is then available to the shallow, near shore marine ecosystem which is often an important nursery area for immature fish and shellfish that can take advantage of the abundant food and protective cover.

Man Dominated

Man dominated communities are kept at a constant point in succession by human intervention. Within the study area, this type is limited to the trailer park and its access roadway and includes paved areas, mowed roadsides and lawns, and a few ornamental shrubs and trees.

Man dominated areas afford little in the way of habitat for wildlife. However, house sparrows and starlings which are very tolerant of humans are found in these areas. Garbage cans may attract the Norway rat (Rattus norvegicus), while the dwellings themselves may serve as homes for the house mouse (Mus musculus).

Herbaceous species found here are tolerant to mowing activities. Grasses, sedges, dandelion (Taraxicum spp.) and plantain (Plantago spp.) dominate mowed areas. Ornamental shrubs and trees are scattered sparsely throughout the area.

Marine Ecology

The marine ecology of Thompson Bay in the vicinity of Miller's Point was established by a benthic survey and fish sampling program conducted with the cooperation of the State DNR.

Benthos

The benthic survey revealed that densities of benthic macroinvertebrates were low in offshore areas near Miller's Point. The Department reports that the low numbers of benthic organisms are due to the unstable nature of the littoral habitat. Tidal currents have a slight scouring effect on the bottom of the estuary in the Miller's Point area.¹

The most common organism taken during sampling was the epibenthic shrimp (Neomysis americana). Cumacean shrimp (Cylaspis varians) and sea cucumbers (Chiridotea nigrescens) were encountered at all sampling stations in the area. Ten other genera occurred sporadically over much of the study area and probably represented the random distribution pattern often associated with low population densities. Low densities were expected due to the presence of sediments primarily comprised of packed sand and which was nearly devoid of organic matter.

Plankton

Data obtained from the DNR indicates high plankton populations in Thompson Bay. These densities reduce light penetration in nearshore areas adjacent to Miller's Point.

Organisms observed in phytoplankton samples include blue-green algae (Anabaena spp., Oscillatoria spp., and Spirulina spp.), Euglena, and diatoms (Synedra spp.). Zooplankton samples revealed many protozoa, rotifera, and crustacea, including shelled amoebae (Arcella spp. and Diffugia spp.), rotifers (Asplanchna spp.), fish lice (Argulus spp.), barnacle larvae (Balanus spp.), and Calanoid and Cyclopoid copepods (Copapoda).

Fish

No commercial fishing occurs in Thompson Bay. Sportsmen, however, do take bait fish and some larger species from the Bay.

A fish sampling program adjacent to Miller's Point indicated diverse species but low total populations. Nearshore sampling with beach seines proved most productive.

¹ Benthic Survey of Thompson Bay, State Department of Natural Resources - Fish and Wildlife Administration, 1973.

Trawls were used to sample offshore locations. A variety of sport fish and non-sport fish were taken, but total numbers were very low. Information on species and numbers collected is given in the Appendix.

Fish sampling areas were chosen to coincide closely with areas sampled for benthos by the DNR. Exhibit 12 shows the sampling locations.

A total of eight species of fish were collected at four beach seine locations. There was no significant difference in either the mean total number of fish or the number of species collected. Sheepshead minnow (Cyprinodon variegatus), longnose killifish (Fundulus similis), and gulf killifish (F. grandis) are characteristic species in nearshore habitats of Thompson Bay.

Seven species of fish were collected during offshore trawl sampling. Redfish (Sebastes marinus) and the hogchoaker (Achirus fasciatus) were collected at each offshore station (the hogchoaker was taken only during bottom trawls). Again, there was no significant difference in either the mean total number of fish or the number of species collected at offshore stations.

The limited fish population in the area is attributed mainly to the absence of large sources of forage.

Endangered or Threatened Species

Literature search and field surveys disclosed no endangered or threatened species within the study area's terrestrial, marsh or marine habitat. Therefore, Section 7 of the Endangered Species Act of 1973 is not applicable to this project.

Project Impact

Terrestrial and Marsh Ecology

Phase I construction will eliminate mostly Immature Pine and Old Field Successional habitat from Miller's Point. However, a small section of Mixed Hardwood-Pine Forest will be taken. Phase II will require additional taking of Immature Pine and Mixed Hardwood-Pine Forest communities, while Phase III will ultimately require elimination of a considerable portion of the site's Immature Pine and an additional quantity of Mixed Hardwood-Pine Forest.

Impact on tidal wetlands associations will be limited to the installation of landing light piers or poles, requiring minimal destruction of vegetation.

Resident wildlife will be forced to relocate, with greater numbers affected by each successive development phase. Smaller, less mobile species will inevitably perish and even the more mobile mammals will encounter competition as they attempt to relocate in adjacent habitats. Transient mortality among territorial species is anticipated to occur. Subsequent to development, only man-tolerant species will inhabit the site.

Table 7 indicates the acreage loss of habitat type for each development phase. In percentage terms, loss is significant for the study area, but on the broader perspective of the regional biotic community inventory, this loss is not significant.

Special consideration has been given to impact on waterfowl populations. Normally, loss of forage area would be undesirable. However, in the case of airport development, habitat reduction contributes to the reduction of birdstrike hazards.

The few birdstrike accidents in the region have involved starlings, gulls, and whistling swans. There are no starling-grackle roosting areas near the study site. Although starlings and grackles are found here, their numbers are not high. Gulls are indigenous to the site and surrounding area but are not abundant. Gull populations have been noted around inland urban garbage disposal sites. The nearest landfill site lies seven miles to the southwest of the site.

Although whistling swans are not found in the area, other species of waterfowl are common in the wetlands at the south end of the site. Both diurnal and nocturnal flights occur during spring and fall migrations, thereby creating the most hazardous time for birdstrike conditions.

Measures are available to minimize birdstrike hazards, and the following steps are proposed for the development and operation of the airport site.

- . The project's landscape plans will exclude vegetation which would provide food or shelter for birds.
- . Wastes which would attract gulls and other birds will be disposed of in covered containers prior to transport to off-site landfills.

Table 7

Biotic Community Alteration Resulting From Airport Development

Vegetation Type	Existing Area (Acres)	Alteration				Total (% Change)	Post Project Area (Acres)
		Phase I (Acres)	Phase II (Acres)	Phase III (Acres)	(Acres)		
Mixed Hardwood-Pine Forest	344	-49	-19	-51	-119	-35	225
Immature Pine	360	-53	-18	-115	-186	-52	174
Old Field Successional	126	-5	-5	0	-10	-8	116
Tidal Wetlands	145	0	0	0	0	0	145
Man Dominated	56	+107	+42	+166	+315	+562	371
Reclaimed Land	0	+35	+20	+20	+75	-	75
Totals	1,031	+35	+20	+20	+75	+75	1,106

Observation by airport operational personnel
for flocks near the runway areas.

Marine Ecology

Phase I reclamation will destroy sedentary benthic organisms inhabiting the affected 35 acres of bay bottom, but will, in turn, provide protective cover and feeding areas for marine life once the riprap protection is placed for the runway embankment.

Indirect impacts such as destruction of benthic invertebrates, reduction of light penetration and plankton growth, and disturbance to fish will be caused by increased turbidities, but will be temporary in nature.

Dredging of the navigational channel to provide fill for the airport reduces the overall impact on the bay's marine ecology since it has a dual purpose. Continuous maintenance dredging in support of recreational and commercial boating activity has severely degraded the channel's marine environment. Its alteration will not constitute the loss of valuable habitat that would occur if borrow was obtained from previously undisturbed areas.

Further, extensive sedimentation controls are planned to prevent the escape of fine silts and colloidal clays. Those measures are explained in detail in the Water Quality Section of this report.

The combined use of channel bottom for borrow and water quality controls will confine impact on marine ecology to acreage reclaimed for project construction and the immediate dredge area. Subsequent to project completion, transient increased turbidities will rapidly diminish.

Summary

Construction and operation of Freedom Airport will have the following impacts on the study area natural systems:

- . Terrestrial biotic communities on Miller's Point will be almost totally removed by project construction.
- . Wildlife dependent upon site terrestrial habitat will be forced to relocate. Less mobile species will perish and mortality will occur.

- . Impact on valuable tidal wetland communities will be minimal, since the alteration would be confined to the placement of approach lighting piers.
- . A total of 35 acres of marine environment will be eliminated by Phase I reclamation and future contemplated development could ultimately eliminate an additional 40 acres of marine environment from the bay bottom. The total 75 acres which will ultimately be reclaimed represents only a fraction of the bay bottom's total area. In addition, construction of the embankment into Thompson Bay and the riprap protection used on the sides of the fill will replace much of lost area with valuable feeding areas and protective cover for a variety of marine life.
- . Due to use of the navigational channel for fill, extensive silt containment and water quality controls, impact on the remaining bay will be confined to increased turbidities during the construction period. The project poses no long-term hazards to marine ecology within the remaining Bay waters.

WATER QUALITY

Surface waters in the area of the proposed airport construction, except for Bern Creek, are marine waters of Thompson Bay. The State Department of Natural Resources has classified these marine waters according to their designated "best usage" (State Department of Pollution Control, Chapter 17-3) which are defined as follows:

Class A - For primary contact recreation

Class B - For propagation of desirable species of aquatic life and secondary contact recreation; navigation.

All coastal areas of Thompson Bay are classified either Class "A" or "B." The immediate Miller's Point area falls into the Class "B" category. Water quality criteria for Class "B" waters are contained in Appendix B.

Existing Conditions

The quality of waters near the shoreline of Thompson Bay and Miller's Point is influenced directly by inputs from public sanitary effluents near Lee City, channel maintenance dredging, pleasure craft activities, runoff from residential areas along the shoreline, and fine sediments transported by runoff. Although these sources represent considerable potential for excessive water quality degradation, their effects are limited in magnitude and area by the proximity of affected waters to open seas at both extremities of Thompson Bay, which affords a periodic flushing cycle. The flushing action provided by the sea currents acts to dilute and disperse polluting materials, preventing the excessive accumulation and concentrations of nuisance and noxious substances.

In order to quantify the water quality parameters in the project area, three sampling stations were established to determine ambient conditions (see Exhibit 12). This monitoring program was conducted over a three-month period with samples collected for analysis by the State Health Department Laboratory on a weekly basis. The samples were taken daily at a depth of three feet. Appendix B contains a summary of the monitored data for the three sampling stations. Analyses of these data and comparison to the Water Quality Standards for the State show that the three areas fall within the designated criteria for Class "B" waters. The decreased water clarity which was evident during site visits is produced by suspended particulate and colloidal materials which both reflect and scatter light rays,

effectively limiting light penetration and visibility. Reduced water clarity also results from algal blooms in the nearshore nutrient-enriched waters. Salinity records show only a slight variation between sampling stations, due to the freshwater input from Bern Creek.

Project Impact

Two distinct types of impacts to water quality will occur as a result of the project. The first involves sediment transport and an increase in turbidities resulting from construction operations. The second deals with potential hazards resulting from daily airport operations.

Construction Impacts

An increase in turbidity caused by the transport of fine silts and clays will result from dredging operations in Thompson Bay.

Portions of the sediment cores taken from within the proposed dredge site in the channel area were analyzed for several chemical parameters. These tests were performed to facilitate an assessment of the types of materials that would be suspended and dispersed in the water near dredging and filling operations. Parameters measured include organic and inorganic oxygen demand, toxic and nuisance materials which could seriously impact the quality of waters in the vicinity of dredging operations, and hydraulic fill overflow discharges.

Results of the laboratory analyses (Appendix B) show both samples to be of excellent chemical quality for dredge material. All measurements are well within accepted limits recommended by the U. S. Corps of Engineers. Exposure and supervision of these materials in the water column would be expected to have a minimal impact on the biota and quality of water in the areas adjacent to and downstream from the hydraulic fill area.

The amount of settleable solids, of significant importance to the suitability of materials for dredging, is high, which indicates that with a program of retention, only a fraction of the dredged silts would remain suspended. Organic content, expressed as volatile solids, shows levels which are considered low and acceptable.

Sediment transport will be controlled by two methods: a plastic filter screen which will form a sand transport barrier for the runway fill will enclose the embankment area. A floating weighted blanket will be anchored to the bottom 100 feet outside of the embankment area to completely

surround the fill area and trap fines which pass through the filter screen during the hydraulic fill operation. The extension area will initially be filled to an elevation above +2.0. Material will be moved by dozers to form the 4:1 slopes. The filter screen will be laid against the fill slope and either heavy riprap or bags filled with a sand-cement mixture will cover the slope to a depth of two feet. Throughout the entire fill operation, the weighted blanket will be maintained in place to prevent the escape of high turbidity-causing suspended solids.

Airport Operation Impact

The disposal of aircraft-oriented wastes is a major concern. Petroleum wastes or spills can occur in the following ways:

- . Leaks and spills in hangar and apron areas where repairs and maintenance operations are conducted.
- . Leaks and spills from tank trucks and hoses in apron service areas.
- . Leaks, spills and ruptures around fuel storage areas above and below ground.
- . Accidental spills and ruptures of fuel and oil from trucks and aircraft.

The most efficient method of treating petroleum wastes is containment by barriers at the source, before they spread or are carried to receiving waters by storm water runoff. In most cases, quantities are small and removal can be achieved by absorbent chemicals or mechanical means.

Leaks and spills occurring on apron service areas from tank service trucks will be contained through the use of absorbents. A storage area for petroleum absorbent material will be provided on-site in order to be readily available for this use. The resulting solid mass will be collected into containers for solid waste disposal.

Apron service areas will be constructed to manage spills and to preclude storm water runoff from adjacent areas entering the apron area. Apron drainage outfalls near the edge of the apron will contain oil separators

to trap all residue oils and fuels not absorbed by petroleum absorbents from spills occurring just before or during a rainfall. Oil collected by separators will be pumped into salvage vehicles on a regular basis.

New hangars and aprons used for repairs and maintenance of aircraft will be constructed to contain wastes from routine aircraft maintenance and cleaning. These wastes contain grease, oils, some heavy metals, strong detergents and sediments. Every effort will be made to contain heavy metals at each source, to be disposed of in solid waste containers.

Fuel storage tanks will be surrounded by concrete or earthen enclosures to contain any leaks or ruptures that will occur in these areas. Suitable valving will be installed to draw off oil and water separately. Underground fuel tanks will be constructed of coated metal designed to prevent corrosive type leaks that account for the many occasions that fuels find their way into sanitary and storm drains.

The most difficult oil waste to contain and plan for is the accidental spill from the rupture of tank trucks and aircraft as a result of mechanical breakdown or collision. In order to prevent fuel spills or airport related runoff from directly entering receiving waters, a system of inlets and storm sewers will be provided and will incorporate FAA design criteria.

Water quality degradation in the cove north of the site and the Phase I embankment is not anticipated to occur as a result of lack of water circulation. However, the construction of the runway extension in Phase II could affect nearshore circulation. A hydrographic study should be incorporated into future airport expansion plans.

HYDROLOGY

The proposed airport facility is to be located on the site known as Miller's Point. The site is generally bordered by Thompson Bay on the north and east, a wetland area and Bern Creek to the south, and the properties fronting on Calhoun Road on the west. Bern Creek originates approximately five miles west of the site.

Rainfall statistics for the area show that the mean annual rainfall is 46.13 inches. However, annual rainfall has varied from as low as 30.21 inches to a high of 65.62 inches over the past 61 years. The maximum 24-hour rainfall recorded is 12.11 inches, which occurred in July, 1960.

The hydrology of the project vicinity was fully investigated, as referenced below, with all major drainage areas identified. See Exhibit 13.

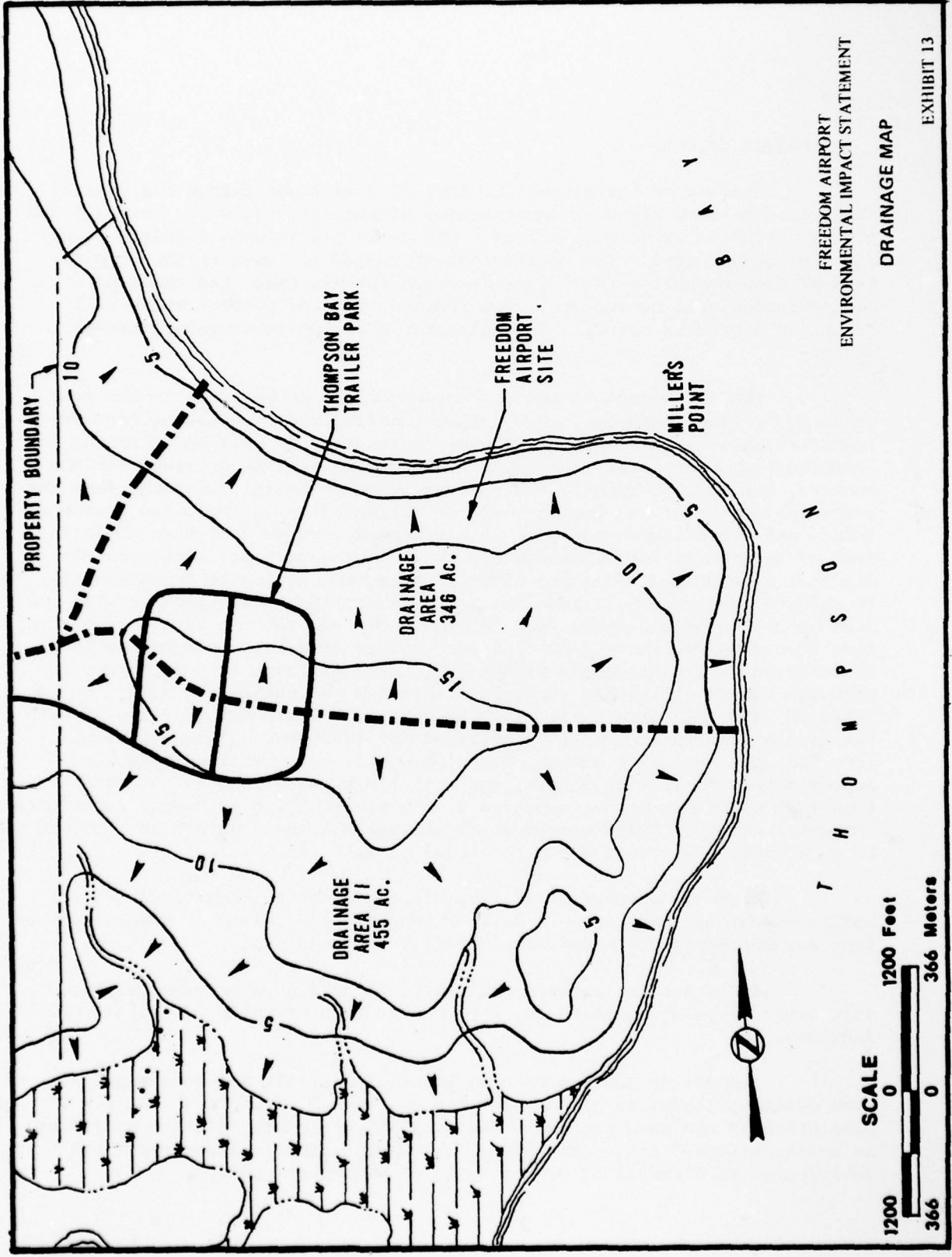
Sources of information for the hydrologic study included local climatological data recorded by the U. S. Weather Bureau and reports of the U. S. Geological Survey.

Existing Conditions

Storm runoff from the present site is uncontrolled and follows natural drainage swales before emptying directly into Thompson Bay or Bern Creek. There is evidence of erosion and sedimentation in some of the natural drainage courses and the Bern Creek wetland area due to previous periods of unusually high rainfall.

Existing flows from the drainage areas were calculated by the Rational Formula. Using this method, the expected flow (Q) is obtained by multiplying the coefficient of runoff by the rainfall intensity in inches per hour, and then multiplying their product by the drainage area in acres. The major drainage flows on the proposed airport property are directed towards Thompson Bay and Bern Creek.

The estimated existing storm water runoff for the northern half of Miller's Point (346 acres) for a design storm of 10 years, is 642 cfs, discharging directly into Thompson Bay. The existing runoff for the southern half (455 acres) of the peninsula for a design storm of 10 years is estimated to be 796 cfs, discharging into Bern Creek, thence flowing through the wetland area to Thompson Bay.



FREEDOM AIRPORT
 ENVIRONMENTAL IMPACT STATEMENT
 DRAINAGE MAP
 EXHIBIT 13

T H O M P S O N

SCALE
 0 1200 Feet
 0 366 Meters

Project Impact

Grading on the airport project site will not change the general drainage patterns, although construction of runways, taxiways, terminal and general aviation areas will effect a change in the rate of rainfall runoff for the project area. The coefficient of runoff (C) used in the computation of flow quantities will increase; and in this case, the times of concentration will be reduced. The reduced times of concentration will result in a greater rainfall intensity for the same recurrence interval storm.

The net effect of these changes will be an increase in the peak quantity of flow. However, rather than runoff directly entering the wetlands and bay, as before construction, storm drainage will be collected in a closed system of inlets and storm sewers which will be provided for the runways, taxiways, terminal, and general aviation areas. Drainage from the northern section of the project will be collected in the proposed system of inlets and storm sewers and will be discharged through a 30-inch outfall east of the runway into Thompson Bay, where the waters are approximately six feet in depth and adequate tidal flushing and mixing of the discharge is assured. Storm runoff from the southern section of the project will also be collected and discharged through a 36-inch culvert into a five-acre, five foot deep wet storage/holding pond before release. This pond will be constructed in a swale south of the new runway drainage to Bern Creek, so that the runoff will first empty into the pond for settlement before being released into the marsh area. In this manner, the cleansing action of both the pond and marsh area will be utilized for treatment before discharge into Thompson Bay. The outlet of the pond will be controlled by a weir approximately 50 feet in length, and will limit peak flows to not greater than that which may now be expected from a storm having a 10-year recurrence interval. A total of 16 acre-feet of storage will be provided in the pond to an elevation 3.2 feet above the level of weir lip.

Areas in which fuel will be dispensed, or in those areas where spills may occur, interceptors will be installed in inlets or sewers to prevent any discharge of undesirable material into the bay.

It is not anticipated that any major drainage problems will result from, or be encountered in, the construction of the proposed airport facility.

Insofar as construction of Phases II and III are concerned, the same design criteria is planned for use as Phase I, along with the installation of the same protective devices as previously defined, including an additional pond site. Therefore, no adverse impacts from runoff are anticipated as a result of construction of subsequent phases.

FLOOD HAZARD EVALUATION

Existing Conditions

The project site, due to its east coast location, is susceptible to damage from tropical storms. Records of extreme water levels attributed to hurricanes or tropical storms have been collected near the project site at Bennett's Lookout since 1892. These records indicate that, in the 83 years of record, two tropical storms have hit the area and have caused considerable flooding and wind damage. These were in 1933 and 1962.

Gaging work to determine tidal variations in Thompson's Bay was initially undertaken by the U. S. Geological Survey (USGS) and more recently has been taken over by the U. S. Department of Commerce (NOAA). Mean low water at Bennett's Lookout is based on 25 years of record (1949-1974) reduced to mean levels. Utilizing mean low water as a datum, other tide planes are as follows:

	<u>Feet</u>
Mean high water (M.H.W.)	0.62
Mean tide level (M.T.L.)	0.30
Mean low water (M.L.W.)	0.00

Based on the historical data available, the U. S. Geological Survey, along with concurrence from NOAA and the Corps of Engineers, have recommended 100-year flood elevation design values for the Thompson Bay Area. In the vicinity of Miller's Point, a 100-year flood elevation of 6.5 feet is the recommended minimum elevation. Previous investigations by the Corps have cited evidence of a three-foot wave height near the proposed site. Maximum daily current due to tide is approximately 0.6 knots.

Project Impact

That portion of the proposed runway's supporting embankment which will extend into Thompson Bay will be constructed from material dredged from the navigation channel under the presently programmed Corps of Engineers channel widening operations. The embankment will be constructed to a minimum elevation of +10.0 with the runway placed at an elevation of +12.0. The embankment slopes will be protected by the use of a plastic filter screen and covered by heavy riprap or sand-cement filled bags to an elevation of +9.5. This will insure against damage from wave action during high tides, as well as periods of intense rainfall during tropical storms.

The project site is protected from direct ocean wave action by Americana Island to the east.

WETLANDS AND COASTAL ZONE IMPACTS

The Federal Coastal Zone Management Act of 1972 (P.L. 92-583) established a national policy to "preserve, protect, develop, and where possible, to restore or enhance the resources of the Nation's coastal zone." The act also provided funds and administrative channels to assist coastal states in development and implementation of their own regulatory programs.

As a result of funding provided under Section 305 of the Act, the State Department of Natural Resources (DNR) initiated a state management planning program for the coastal counties, including Freedom and Bay Counties. A Coastal Zone Management Agency (CZMA) was established within the DNR to identify critical areas (Priority I) which would require protective measures to preserve their values and sensitive areas (Priority II or III) which need regulations to facilitate rational development.

Cognizant of this State effort, the Southeast Aviation Authority contacted the DNR during the site feasibility study phase of project planning. Thus, consultation and coordination, required under Federal law and by the State program, has been a continuing process.

At the time of initial consultation, the Aviation Authority informed the DNR-CZMA that Miller's Point was considered the optimum site for project development. The CZMA noted that while final priorities had not been established, Thompson Bay and its surrounding shoreline would lie within a designated coastal management zone and, therefore, directed the Aviation Authority to incorporate provisions to protect the marine and wetland environment in their planning process. Subsequent events are detailed in the following sub-sections.

Existing Conditions

On October 9, 1974, the DNR published the statewide Coastal Management Program, including designated areas with priority classifications.

Thompson Bay was given a Priority II classification, establishing use of the waterway for propagation of desirable aquatic species; secondary contact recreation and navigation. Alteration of bay bottom is allowed, so long as it is consistent with Priority II criteria and objectives, and approved by the DNR-CZM Agency.

Tidal marsh areas were assigned either Priority I or Priority II classifications. Priority I is reserved for those most critical marsh areas identified as waterfowl refuges and aquatic species breeding and resting grounds. Priority II indicates importance of overall ecological

balance but does not preclude limited compatible use. The tidal marsh area at the outfall of Bern Creek, south of Miller's Point, was designated within the Priority II category.

The terrestrial and benthic environments of the marsh area have been described in the Vegetation/Wildlife Section.

Project Impact

Phase I construction will completely alter 35 acres of Thompson Bay bottom. Material required to reclaim the 35 acres will be obtained by dredging to deepen and widen the bay's navigational channel. Future contemplated development will ultimately reclaim an additional 40 acres of the Bay.

Poles or piers for the proposed runway 5 approach lighting system will be placed in the tidal marsh area of Miller's Point.

The following effects are anticipated as a result of Phase I development:

- . Reclamation of 35 acres of bay bottom will totally eliminate aquatic environment in this area. However, construction of fills into Thompson Bay and the riprap protection used on the sides of the fill will replace much of the lost area with valuable feeding areas and protective cover for marine life.
- . The Bay's water quality in the fill and dredge areas would be affected by a short-term elevation in turbidities.
- . Placement of piers in the tidal marsh for the approach lighting system will not significantly diminish or degrade the unique ecological systems of the tidal marsh area which provides natural flushing and purification processing of storm runoff before entering Thompson Bay. After the limited disruption caused by pier construction, marsh communities will be re-established around the structures.

- . A benthic survey of waters surrounding Miller's Point indicated low densities of benthic macro-invertebrates. Low densities were attributed to the unstable nature of the littoral habitat and presence of sediments primarily comprised of packed sand which was nearly devoid of organic matter. Due to the low densities of benthic communities, only slight impacts are anticipated as a result of project development.
- . The limited fish population in the area around Miller's Point will experience minimal impact due to a temporary increase in turbidities during construction.

All study efforts were coordinated with the DNR-CZMA and results transmitted both verbally and through written reports. The DNR-CZM Agency has indicated that Phase I development appears consistent with the State's Coastal Zone Management program. Comments received from the DNR-CZM Agency are contained in Appendix C. Upon final approval of the environmental statement, the Aviation Authority will submit a formal application to the DNR-CZM Agency to begin Phase I development.

Based upon the impact analysis results and consultation with appropriate agencies, the proposed development with its measures to minimize harm is consistent with the program for coastal zone management.

DIRECT SOCIOECONOMIC IMPACTS

Existing Conditions

The project area is generally undeveloped. With the exception of the ten-unit Thompson Bay Trailer Park, Miller's Point is unoccupied. Only two housing subdivisions are located in proximity to the site. The Bay Pines subdivision, bordering Thompson Bay north of Miller's Point, is a 400-unit, single-detached and townhouse development with housing costs ranging from \$90,000 for custom-designed homes on waterfront lots to \$30,000 for townhouse units bordering Calhoun Road. The community has a relatively developed infrastructure, including a small shopping center bordering the Lee Turnpike-Lamar Boulevard intersection and the Bay Harbor School. In addition, the community utilizes the beach on Thompson Bay and maintains an eighteen-hole golf course and seven tennis courts--the Bay Pines Golf and Tennis Club, located on the northwest quadrant of the Lamar Boulevard-Driftwood Road intersection.

Lewelyn Branch Estates is a 200-unit subdivision, east of Lamar Boulevard and south of the Lewelyn Branch floodplain, four miles southwest of the site. Housing types include single-detached units, townhouses, and garden apartments. Construction of Lewelyn Branch Estates began in the mid-1960's, with the subdivision planned to reach an ultimate 1,000 units. However, rising construction costs, interest rates, and a softening in the housing market caused the developer to declare bankruptcy after building the present 200 units. Nonetheless, the entire area east of Lamar Boulevard and south of Rhett Road is zoned and planned as part of Lewelyn Estates. Open space is provided along the Lewelyn Branch and Bern Creek floodplain; and a 12-acre public park is planned west of their confluence. Housing costs in Lewelyn Branch Estates range from \$35,000 for a single family detached unit to \$14,000 for a garden apartment condominium.

Residents in both subdivisions are generally middle aged or older with a middle to upper income. A significant number of retired persons have moved into Lewelyn Estates in recent years. Virtually all residents who are employed work in the greater Lee area and commute to work by private vehicles, since no public transportation is available in the study area.

Social Impact

Construction on the Miller's Point site will require relocation of the ten mobile homes within the Thompson Bay Trailer Park. A survey of several other trailer parks within a ten-mile radius of the site revealed

adequate capacity to accommodate the displaced units. The new sites would be considered equal in terms of proximity to Thompson Bay and in terms of accessibility to metropolitan amenities. Those persons who will be displaced by the project, including the trailer park owner, will be provided all of the benefits set forth in the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970."

Both the Bay Pines and Lewelyn Estates subdivisions are too remote from the project site to be disrupted by either Phase I construction or subsequent operations. Noise exposure forecasts for Phase II and III development also show that both developments are outside the NEF 30 contour.

The shift of general aviation operations from SIA to Freedom County will affect workers presently assigned exclusively to the general aviation sector of SIA. Since SIA is served by the Lee Metropolitan Transit Authority and the Miller's Point site is not, workers were surveyed to determine their degree of dependence on public transit. Results showed that only ten percent of the workers scheduled to be relocated used the local bus system to commute to SIA. All others traveled in car pools or their own vehicles. The Southeast Aviation Authority has considered the development of a car pool program which will enable most workers to relocate at the Miller's Point site.

Economic Impacts

The project will have a positive impact on the local economy. Construction will stimulate the local building trades industry, providing numerous short-term employment opportunities. Operation of the airport will provide some new jobs for skilled, semi-skilled, and unskilled labor.

In addition to the general aviation employees transferred from Southeast International Airport, expanded operations at the Miller's Point site will require permanent new jobs in a diversity of classifications, including administrative personnel, unskilled custodial workers, and skilled and semi-skilled maintenance and repairmen.

Further, the project will generate sales and employment in off-site support industries. This encompasses a wide range of categories-- office supplies, lighting fixtures, cleaning supplies, maintenance equipment, parts replacement, and fuel for aircraft and maintenance vehicles. Support services range from solid waste pickup to all types of equipment repair not able to be handled by airport personnel.

The provision of new jobs and increased sales will have the effect of a positive multiplier, benefitting the private and public economy by generating additional disposable and taxable income.

Revenue and expenditure forecasts for the project indicate that the proposed airport will be self-supporting, and net revenues (after expenses) will yield a small but positive contribution to the local tax base.

Traffic Access

Estimates of site-generated traffic included vehicle-trips associated with daily general aviation aircraft operations and daily airport employee vehicle-trips. It was estimated that average daily traffic (ADT) from the site will increase from approximately 700 vehicles per day (vpd) in 1977 to approximately 1500 vpd in 1990. Assuming a peak hour factor of 10% of the daily traffic, traffic during the heaviest hour would range from 70 vehicles per hour (vph) in 1977 to 150 vph in 1990.

It is proposed that site development will include construction of a four-lane access road from the site terminal area to the limit of airport property. This access road will connect to Calhoun Road and the adjacent turnpike interchange via the existing Rhett Road extension to the trailer park.

The existing turnpike interchange has a diamond configuration, providing fully directional vehicle access and egress. Both the turnpike and Calhoun Road are four-lane facilities which are shown in regional transportation plans and will be able to accommodate the site-generated traffic as discussed above.

Public Utilities and Services

The impacts on public services are discussed in a separate section of this impact statement.

INDUCED (SECONDARY) SOCIOECONOMIC IMPACTS

The project is not anticipated to induce significant new development into the study area. The scale of operations forecast for the airport will not require or stimulate any significant location or relocation of support industries in proximity to the airport.

A limited amount of commercial development is anticipated to occur as a result of the project. This includes a car rental agency outpost, a filling station, and a convenience or food store. All of this development can be accommodated adjacent to the site, within the proposed airport zoning area bordering the airport access road. Consequently, the project will not induce incompatible land use which would adversely impact existing or planned residential areas.

Further, this small amount of induced development will positively affect the local economy by creating new jobs and expanding the local tax base. Noise exposure forecasts show that project operations will not adversely impact residential or beach areas. Thus, there will be no adverse effects on property values or social and recreational opportunities.

Construction of a reliever airport in Freedom County will not, cause significant change in the region's socioeconomic infrastructure. However, the project will provide more efficient, expanded commercial operations at SIA. This, in turn, will stimulate regional economic growth. Thus, indirectly, by enabling expanded commercial operations at SIA, the project will induce positive economic development throughout the region.

AIR QUALITY

Existing Conditions

The principal air pollutants resulting from airports and aircraft operations are:

- . Carbon Monoxide (CO)
- . Hydrocarbons (HC)
- . Nitrogen Oxides (NO_x)
- . Photochemical Oxidants (Ozone)
- . Sulfur Dioxide (SO₂)
- . Particulate Matter

The Freedom Airport is located in Freedom County and is within the Southeastern Shore Intrastate Air Quality Control Region (AQCR). This AQCR is composed of all of the southeastern shore counties. The region is classified as Priority III for all pollutants (CO, HC, NO_x, SO₂, Photochemical Oxidants, and Particulate Matter). The Priority III classification indicates pollution levels well within national and state standards. A summary of the emission inventory for Freedom County is shown in Table 8.

The region is not classified as an Air Quality Maintenance Area (AQMA). An AQMA is any area or region that has the potential for exceeding any national ambient air quality standards because of present air quality and/or projected growth over the ten-year period, 1977 to 1987.

The Federal Clean Air Act of 1970 (Public Law 90-140) provided the authority for the Environmental Protection Agency (EPA) to issue national standards to protect ambient air quality. These standards apply to pollution from all sources, including aircraft. The ambient air standards were published and promulgated in Federal Register (36[84]) April 30, 1971. The EPA also established Emission Control Standards and Test Procedures for aircraft-generated pollutants. These regulations were published in the Federal Register July 17, 1973. The promulgated emission standards are based on new aircraft classifications adopted by EPA. The fuel venting and smoke number requirements issued by the EPA became effective on February 1, 1974, as published by the EPA in the Federal Register December 28, 1974. The Primary and Secondary National Ambient Air Quality Standards are listed in Table 9.

Table 8

Emission Inventory Summary for Freedom County
(Tons/Year)

	CO	HC	NO _x	SO ₂	Particulates
Fuel Combustion	1.86	1.12	9.75	5.58	3.83
Power Plants	0	0	0	0	0
Process Emissions	0	0	9.88	0	0
Solid Waste Disposal	2.2	0	0	0	1.60
Transportation	13501.50	2767.40	2492.40	52.00	74.98
Miscellaneous Area Sources	7097.10	1425.70	147.60	0	1254.20
Total	20602.66	4194.22	2659.63	57.58	1334.61

Source: State Implementation Plan
(Data given for 1973)

Table 9

National Ambient Air Quality Standards

<i>Pollutant</i>	
Carbon monoxide (Primary and secondary standards are the same)	- 10 milligrams per cubic meter (9 ppm), maximum 8-hour concentration not to be exceeded more than once per year.
	- 40 milligrams per cubic meter (35 ppm), maximum one-hour concentration not to be exceeded more than once per year.
Nitrogen dioxide (Primary and secondary standards are the same)	- 100 micrograms per cubic meter (0.05 ppm), annual arithmetic mean.
Hydrocarbons (non-methane) (Primary and secondary standards are the same)	- 160 micrograms per cubic meter (0.24 ppm), maximum three-hour concentration (6-9 a.m.) not to be exceeded more than once per year. For use as a guide in devising implementation plans to meet the oxidant standards.
Particulate matter Primary standard	- 75 micrograms per cubic meter, annual geometric mean.
	- 260 micrograms per cubic meter, maximum 24-hour concentration not to be exceeded more than once per year.
Secondary standard	- 60 micrograms per cubic meter, annual geometric mean, as a guide to be used in assessing implementation plans to achieve the 24-hour standard.
	- 150 micrograms per cubic meter, maximum 24-hour concentration not to be exceeded more than once per year.

Table 9--Cont'd.

<i>Pollutant</i>	
Sulfur dioxide Primary standard	- 80 micrograms per cubic meter, annual arithmetic mean.
	- 365 micrograms per cubic meter, maximum 24-hour concentration not to be exceeded more than once per year.
Secondary standard	- 1,300 micrograms per cubic meter, maximum three-hour concentration not to be exceeded more than once per year.
Photochemical Oxidant (Primary and secondary standards are the same)	- 160 micrograms per cubic meter, maximum one-hour concentration not to be exceeded more than once per year.
National Primary Standards:	The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
National Secondary Standards:	The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effect of a pollutant.

Source: Environmental Protection Agency, "National Primary and Secondary Ambient Air Quality Standards," Federal Register, 36 (84), April 30, 1971 p. 8187

The application of EPA emission standards to aircraft engines, assuming that these standards are met on time, will create a significant reduction in aircraft-generated pollutants during the next ten years.

Other pollutant sources in the area are the stationary sources and vehicular traffic traveling on the adjacent roadways. Federal standards are also being applied to vehicular traffic and will help to reduce ambient conditions by the first operation year (1977) of the Freedom Airport. Table 10 shows the ambient air quality conditions estimated for the proposed airport site.

Table 10
Estimated Ambient Air Quality Conditions

<u>Pollutions</u>	<u>Ambient Conditions (1975)^a</u>
Carbon Monoxide (ppm)	0.65 (1 hour period)
Hydrocarbons (ppm)	0.025 ^b (1 hour period)
Nitrogen Oxides (ppm)	0.003 (Ann. Arith. Mean)
Sulfur Dioxide (ppm)	0.0015 (Ann. Arith. Mean)
Particulates ($\mu\text{g}/\text{m}^3$)	35 (Ann. Arith. Mean)

^a SO₂ and particulate ambient conditions obtained from Freedom County Bureau of Air Quality. CO, NO_x and HC ambient conditions were determined for the middle of the site for peak hour vehicular traffic in the area.

^b Excluding background methane.

Factors Affecting Air Quality

The total volume of the atmosphere available for air contaminant dispersion is significantly influenced by local meteorological and topographical factors. The meteorological and topographical factors in this area prevent any general long-period pollution conditions.

Mixing depths provide a measure of the volume within which pollutants may mix without restriction. In the subject region, pollutant dilution is most restricted during the morning and least restricted during summer afternoons. The U. S. Environmental Protection Agency publication, "Mixing Heights, Winds and Potential for Urban Air Pollution Throughout the Contiguous United States," indicates a mean annual morning mixing height of 500 meters and a mean annual afternoon mixing height of 1800 meters in the area.

The temperature structure determines the stability of the atmosphere. Observations obtained at the Southeast International Airport within the period of 1963 and 1974, show that average temperatures vary between 51° F in winter to 90° F in summer.

In addition to the transport and dilutions of pollutants, precipitation also has an effect on ambient conditions. Rainfall in the area is well distributed throughout the year with maximum precipitation occurring in summer.

A summary of climatological data collected by the National and Atmospheric Administration Environmental Data Service between 1963 and 1974 at Southeast International Airport is contained in Appendix D. This table provides average, highest, and lowest monthly and annual rainfall in inches, normal monthly average, highest, and lowest recorded temperatures, and monthly average, prevailing wind directions, and speeds. Additional tables in Appendix D provide information on historical wind data and air stability class F.

Project Impact

Both short-term construction and operation of the airport will affect ambient air conditions.

Maximum impact of the airport operation will occur in 1977, in the first operational year of the airport. After 1980, as Federal exhaust emission standards on automobiles and aircraft become effective, the airport impact will be reduced.

Air pollution during the construction period will be generated primarily by open burning of cleared material and construction equipment operations. Open burning operations are subject to ordinances and regulations set by the State and Freedom County authorities. Burning is only permitted during favorable weather conditions, which facilitate maximum dispersion of pollutants. Burning would represent isolated episodes of extremely brief duration subject to rigid controls. Thus, any open burning operations which may be permitted will not affect the health or safety of human, plant, or animal life. Air pollution produced by construction operations is minimal and will terminate at the completion of the project.

Table 11 shows total pollutional loadings projected for 1977, the first operational year of Freedom Airport. Pollution sources in the table are separated into two categories, airport-related and non-airport related. The airport-related category reflects the aircraft traffic, vehicular traffic related to the airport, and service vehicles.

A pollutant dispersion analysis was conducted to determine the carbon monoxide, sulfur dioxide, and particulate concentrations resulting from airport activities. Hydrocarbon and Nitrogen Oxide concentrations are not included, because there are no approved dispersion methods available. This is due to the highly reactive characteristics of these pollutants. In order to conduct the dispersion analysis, a finite line source model has been developed to disperse emissions from runways and roadways. A discussion of the line source model and its input data is presented in Appendix D. EPA's area source model has been used to project parking area emissions.

In order to obtain maximum pollutant concentrations, Pasquille stability classification "F" and one meter/second wind speed have been used in the computations. However, Appendix tables show that occurrence of stability class "F" is only 4.5 percent and, therefore, occurrence of the pollutant concentrations that are reflected by the computations are remote.

Table 12 shows the projected carbon monoxide, sulfur dioxide, and suspended particulate concentrations that are generated by airport-related activities during a peak hour of operation. The receptor points used are the nearest accessible locations to airport operations and, therefore, reflect the points of maximum human exposure. For the first year of operation, the maximum CO concentrations were found to be 21.83 ppm, which is 62 percent of the Federal and State CO standards of 35 ppm for a one-hour period. Maximum SO₂ and particulate concentrations were found to be 0.017 ppm (0.031 mg/m³) and 49.58 µg/m³ respectively. Although there is no one-hour standard for these pollutants, they were compared with 24-hour standards and found to be 8 percent and 33 percent of these standards.

Table 11
 1977 Air Pollution Sources and Emissions
 from Freedom Airport
 (Emissions - lbs./day)

<u>Sources</u>	CO	HC	NO _x	SO ₂	Particulates	Total
Airport-related aircraft traffic	1607	161	20	6	3	1797
Airport-related vehicular traffic	147	15	29	.7	1.1	192.8
Airport service vehicles	132	30	8	.1	0.2	170.3
Total	1886	206	57	6.8	4.3	2160.1
Non-airport vehicular traffic	7435	718	1467	46	58	9724

Daily aircraft operations are given in Appendix A.

Total site generated vehicular traffic = 715 vehicles/day.

The emission rates for aircraft and autos were computed using EPA publication AP-42, September, 1973.

Ground service vehicles include belt loaders, fuel trucks, water and food trucks, and tow tractors. Ground service vehicle emission rates were computed using "An Air Pollution Impact Methodology for Airports - Phase I (APTD-1470)," J. E. Norco et. al., 1973.

Table 12
1977 Air Pollution Concentrations
at Freedom Airport

<u>Location</u>	<u>Pollution Concentrations</u>		
	<u>CO</u> <u>(ppm)</u>	<u>SO₂</u> <u>(ppm)</u>	<u>Particulates</u> <u>($\mu\text{g}/\text{m}^3$)</u>
300 feet from the* downwind edge of the runway	21.83	.017	49.58
50 feet from the edge** of the runway	3.34	.006	7.72
Parking Area	3.31	.001	1.18

* For parallel wind
** For 22.5° wind direction

Although computations are not extended to the fifth and tenth years of the airport operation, it is expected that both total daily pollutional loadings and carbon monoxide concentrations will reduce significantly due to the restrictions that will be imposed by the Federal Aircraft Standards.

Anticipated reduction in pollutants from vehicular traffic is shown in Table 13. Reduction in aircraft emissions will vary with the type of aircraft, type of pollutant, and size of the airport. These reductions are reflected in the Federal Register, July 17, 1973.

Table 13
Reduction in Vehicular Pollutants
by the Application of Emission Standards

<u>Pollutants</u>	<u>Reductions* in Percentage</u>	
	<u>1980</u>	<u>1985</u>
Carbon Monoxide	38	53
Hydrocarbons	38	30
Nitrogen Oxides	28	43

* 1977 is taken as base year

SECTION 4(f) PUBLIC LANDS

Section 4(f) of the DOT Act of 1966 states that approval will not be given for projects requiring use of publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge, or any land from an historic site unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such area.

Thompson Bay and adjacent beaches are public recreation areas which will be affected by the construction and operation of the proposed reliever facility. The 4(f) Statement for Thompson Bay and adjacent beaches has been prepared as part of this environmental statement and is provided in this section of the report. The statement discusses the "use" of the areas through an identification of impacts, addresses alternatives, and describes measures to minimize harm.

Project Description

A three-phase development plan is proposed to construct a new general aviation airport in Freedom County. Phase I of the plan involves acquisition of land in an area known as Miller's Point and reclamation of approximately 35 acres of bottom in adjacent Thompson Bay to construct a 5,400-foot by 150-foot runway and parallel taxiway.

Phase II expansion involves creation of an additional 20 acre fill section in Thompson Bay to construct a 1,400-foot extension to the Phase I runway; a 3,000-foot by 75-foot crosswind runway and additional apron area and hangar space.

Phase III contemplated development would require reclamation of another 20 acre fill section from Thompson Bay to construct a second 5,400-foot by 150-foot runway and taxiway parallel to and 3,500 feet southeast of the proposed Phase I runway.

These actions will reduce the area of Thompson Bay. Fill required for the project will be obtained by deepening and widening the pleasure craft navigational channel in the Bay to a depth of 12 feet and a width of 75 feet. Leisure use and enjoyment of certain areas of the Bay and bordering beaches will be diminished by noise from aircraft operations.

Description of Thompson Bay and Beaches

Thompson Bay is an inland waterway extending from the Hammond's Inlet in Freedom County on the south to the Burnside Inlet in Bay County on the north. The shoreline of the Bay is characterized by intermittent tidal marsh which separates stretches of beach front. Bern Creek empties into the Bay immediately south of the proposed project site. Exhibit 6 shows Thompson Bay and public beaches in the study area.

The eastern coastline of the Bay is bordered by Americana Island which is approximately forty miles in length by two miles in width. A causeway south of the Burnside Inlet provides access to and from the western shore. The island contains public beach in the Atlantic Ocean, numerous summer homes, some resort subdivisions and conservation areas.

Due to the region's moderate year round climate and proximity to a large metropolitan area, the Bay represents a major recreational resource for the region. Activities include motor boating, sailing, fishing, water skiing and limited swimming. A navigational channel follows a north-south alignment through the center of the Bay. The U. S. Coast Guard has requested that the U. S. Army Corps of Engineers place the widening of the channel on the District's priority project list. However, the State Department of Natural Resources (DNR) has requested delay of the dredging project, pending location of a proper disposal site for dredged spoil material.

According to the U. S. Coast Guard, as many as 32,000 pleasure craft trips are chartered on the bay annually. While boating and fishing seasons are year round, peak use occurs between March and October with maximum concentrations between Memorial Day and Labor Day.

That portion of Thompson Bay which borders the site (Miller's Point) is used primarily by water skiers and sailors who anchor in the cove north of the site. Though Miller's Point is private property, fishermen occasionally cast from its banks.

Thompson Bay Beaches

There are two public beaches on the Bay. Thompson Bay Beach, owned and operated by Freedom County is located one mile north of the site. This facility includes a sand beach, a public bath house, picnic tables, bar-b-que pits and playground equipment. The Freedom County Department of Recreation and Parks estimates that over 10,000 persons use this regional facility annually.

The second public beach bordering the Bay is located on the western shore of Americana Island, northeast of the site. Owned and operated by Freedom County, this five-acre park consists almost entirely of beach front. Facilities include a bath house, picnic tables and public boat ramp and rental area. Annual use of this community scale park is estimated to be 6,000 persons--primarily families who use the area to rent or launch their own boats. The Freedom County Department of Recreation and Parks indicated that use of the beach is limited due to preference for Atlantic Ocean beaches on the island's eastern shore.

There are no organized activities on either beach. However, both public facilities are considered significant components of the local recreational land inventory.

All other beaches bordering the Bay are privately owned and maintained. Two additional public boat ramps are located on the northeast and northwest shores of the Bay, both approximately seven miles from the site.

Relationship to other Local, State or National Parks

There are no National Parks within a 50 mile radius of the project area. All Atlantic Ocean beachfront is considered public land by virtue of a 1926 State Coastal Conservation Act which reserves the beach along the Atlantic as a public easement. Responsibility for the waterfront property is divided between the State DNR and county governments which are charged with routine maintenance and security. This, the forty mile Atlantic shoreline of Americana Island may be considered a state and local facility.

Atlantic Ocean Beaches

A total of 800 summer homes, 40 motels and approximately 150 commercial structures are located along the Atlantic Ocean Beach. In addition to residents and motel guests, the State Division of Recreation and Parks estimated 300,000 persons use the beach annually.

State Parks

Merrimac State Seashore, a 2,800 acre State Park, is located in Freedom County, ten miles south of the project site. This facility includes public bath houses, campsites, picnic and bar-b-que areas, over

two miles of beach front supported by adequate parking, boat launches, and active and passive recreation areas. Merrimac Park also serves as a wild-life and waterfowl refuge. Annual use of the facility is estimated in the area of 500,000 persons.

Municipal and County Parks

The closest inland regional scale park to the project is Lee City Park and Zoo, a 178 acre facility in southeast Lee, 8.5 miles north of Miller's Point. In addition to the zoo, the Park has twenty tennis courts, seven ball fields and eighteen multi-purpose courts. Operated by the Lee municipal government, approximately 100,000 persons are estimated to visit the zoo or use the park facilities annually.

Bay County also operates three local parks in the southern metropolitan Lee City area. These are Traveler Park, 7.2 miles northwest of the project site; Stuart Road Park, 6.0 miles north of the project site and Tracy School Park, 8.4 miles northeast of the project site. Each of these facilities is under ten acres and considered strictly a neighborhood park.

The Bay Harbor School, operated by the Freedom County Board of Education, is a twenty acre facility on Calhoun Road, approximately two miles from the project site. The school includes grades 1-6 with a 1974 enrollment of 400 students, serving the communities of Bay Pines and Lewelyn Estates.

Approximately half of the school property is developed for recreation activity. Facilities include two baseball fields, two tennis courts, and two multi-purpose courts. In addition to little league baseball, community residents use the facilities at nights and on weekends.

There are no other local inland parks within a five mile radius of the site. However, the Freedom County Comprehensive Plan calls for development of a twelve acre neighborhood-scale park, in the floodplain area west of Lewelyn Branch-Bern Creek confluence in conjunction with future residential development.

Project Impact

Noise

As discussed previously in the section on Noise, a portion of Thompson Bay in the immediate vicinity of the site will experience noise exposure from aircraft during Phase I operations, which is greater than NEF 30.

Though the recreation areas of Thompson Beach and the Americana Island Beach will be exposed to peak noise levels during individual aircraft operations, these areas, as well as all other public lands discussed previously will not be exposed to a cumulative noise level greater than NEF 30.

Noise from airport operations may discourage persons from anchoring their boats in the cove between the airport site and Thompson Beach, but should not affect activities of water skiers.

Air Quality

Dispersion model analysis shows that while aircraft operations will increase pollutional loadings in the study area, pollutant concentrations will not exceed state and regional air quality standards.

Due to the distance of public beaches to the site and the dispersion characteristics of the area, alterations over ambient conditions will not be significant.

Marine Impact

The project's long-term impact will not be to degrade water quality so much as to diminish area of recreational water within the Bay. Phase I will reduce the Bay by 35 acres. Phase II by 20 acres and Phase III by another 20 acres. Thus, ultimate development could result in the loss of 75 acres of recreational waters. This represents only approximately two-tenths of one percent of total Bay waters.

However, it is proposed that airport development will provide a site for the disposal of dredged material obtained from improvement of the bay's navigational channel. Thus, while overall area for recreational use is reduced slightly, safety and additional area for use by larger pleasure craft will be increased.

Recreational use of bay waters in proximity of the project site will be temporarily disrupted by construction activities which will increase turbidities to a level making other areas more desirable for fishing and water skiing. However, upon completion of development, turbidities are anticipated to be restored to pre-construction levels.

Numerous erosion and water quality controls planned for the project will assure that long-term water quality conforms to the present State standards applying to the site area. Consequently, in terms of water quality, the project will not effect the range of recreational activities currently available in the Miller's Point area of the Bay.

It is also noted that improvements to the navigational channel, facilitated by the project, will induce larger pleasure craft into the Bay. This may indirectly have an adverse effect on water quality. However, stringent policing by State Department of Conservation and Coast Guard authorities should eliminate code violations.

Steps to Minimize Damage

Steps are planned to reduce the project's impact on public lands include:

- . Extensive erosion and dredge spoil management controls to minimize siltation and sedimentation hazards.
- . Comprehensive water quality controls to prevent oil, grease, detergents or other airport wastes from reaching adjacent waters without treatment.

Specific details regarding measures to minimize damage are given in Section IV and the Noise, Hydrology, Coastal Management and Water Quality sections of this report.

A mitigation plan will be developed through further agency consultation and involvement by the local project sponsor.

Alternatives

Two previous planning studies evaluated alternatives to the proposed project. The initial feasibility study* (1971) evaluated expansion concepts at SIA, to include additional on-site runway construction, expansion through land acquisition, and construction at a new site.

Construction of an additional runway on-site was not feasible due to spatial constraints. Site expansion was restricted by extensive urban development and sensitive wetland areas. Construction of an entirely new international facility could not be justified in economic terms. The feasibility study concluded that demand at SIA could be met through construction of a reliever facility to handle the general aviation operations.

A site selection study** was undertaken to find the optimum location for a reliever airport in the region. The initial basic criteria used to identify potential sites were sufficient undeveloped contiguous acreage, adequate drainage, and acceptable subsurface conditions.

Three available contiguous tracts feasible for airport development were located and evaluated. These included the Millers Point site and two other properties.

The Roberts Plantation (Site 1) is a 1000-acre tract located in north central Freedom County, 25 miles southwest of Lee City. While the property was ideal in terms of topography, sub-surface conditions and drainage, it presented access problems. The tract is located twenty miles west of Lee Turnpike. Existing access is provided via Jarvis Road, a two lane unimproved road which intersects with State Route 212. Traffic analysis showed that improvements would be required for both Jarvis Road and State Route 212 including a new interchange to Lee Turnpike. Therefore, improvement of this access road to the Lee Turnpike was recommended to provide adequate surface transportation for general aviation users. Costs associated with purchase of the land, additional access road right-of-way acquisition and road construction made development on this site financially not feasible.

* "SIA Feasibility Study, Expansion Alternatives,"
GAA Planners, December, 1971.

** "Site Selection Study - SIA Reliever Airport,"
GAA Planners, 1972.

The site was found to be abundant with wildlife and a breeding ground for the threatened red-cockaded woodpecker. Local conservation groups had already lodged a protest with the County zoning office to obstruct proposed residential development in proximity to this breeding area.

The Hash property is a 750-acre tract which had been designated for residential development. Upon further investigation, it was found that over one-third of the tract lay within a designated wetland area. Airport construction within this portion of the site would have eliminated approximately 120 acres of valuable tidal marsh communities.

In addition, a large residential sub-division known as Estuary Estates is located south of the site. Operations to the southwest would expose homes within Estuary Estates to noise levels greater than NEF 30 and operation to the northeast would increase noise exposure in the State Park.

Public opposition to this site was identified. The DNR indicated that airport development on this tract would not be consistent with the State Wetlands Management objectives. The Estuary Estates Community Association registered a strong objection with the Southeast Aviation Authority.

A summary of relevant project impacts and costs associated with the sites is presented in Table 14.

The proposed site offered multiple advantages in terms of access, proximity to downtown Lee City and compatible land use. However, airport development on this site involved a trade-off between impacting tidal wetland areas to the south or filling Thompson Bay to the north.

The alternatives available within the proposed site were to locate the configuration as proposed requiring filling of Thompson Bay or to shift the entire orientation to the south thereby impacting the tidal marsh area. The impacts associated with filling a small area of the Bay bottom were not considered to be as severe as filling of the tidal marsh area. The shift of the runway configuration to the south would have also brought a larger amount of undeveloped land planned for residential use within the NEF 30 contour. This would have created an increased conflict with County comprehensive plans.

Table 14

Summary of Alternative Site Impacts

Site	Impacts			4(f) Lands
	Noise Exposure	Vegetation/Wildlife	Access	
Roberts Plantation Site 1	No residences exposed to NEF > 30	Impact on habitat of threatened species	Major access requirements	---
Hash Property Site 2	Thirty residences exposed to NEF > 30	Filling of wetland areas	Turnpike interchange improvements	Increased noise exposed in State Park
Millers Point Site - Proposed Project	No residences exposed to NEF > 30	Loss of bay bottom; light pole placement in wetlands	No major improvements required	Loss of Bay area by runway fill; increased noise exposure on Bay

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ENVIRONMENTAL IMPACT STATEMENT FOR FREEDOM AIRPORT, SOUTHEAST, --ETC(U)
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Conversely, filling the Bay constituted only a minor loss of the region's extensive recreational water inventory and minor impact on fish species, since only limited populations occur in the Miller's Point area.

Under the No Project Alternative, congestion at SIA would continue to increase as the airport attempted to accommodate continuously expanding demand. Adverse impacts would be expected to result as overflight was prolonged and more aircraft entered the congested corridor. Air quality would also be adversely affected by emissions from aircraft circling to land or idling on taxiways awaiting takeoff clearance. Congestion would also cause unnecessary fuel consumption.

Under the No Project Alternative, congestion at SIA would steadily produce an undesirable situation. Ultimately, SIA would reach its operational capacity when no further flights could be accommodated, thus hampering expansion of new market areas. Both consequences would restrict sales of regional goods from reaching optimum potential. This, in turn, would restrict growth of local industry, employment, consumer income and public revenues.

Based on the above analysis, it is concluded that there is no feasible and prudent alternative to the proposed action, and that all measures to minimize harm to Thompson Bay have been identified and will be incorporated into the project.

HISTORICAL AND ARCHEOLOGICAL SITES

Contact was made with the State Division of Historic and Archeological Site Preservation, the Freedom County Historical Society, and Coastal Counties Regional Planning Commission to determine whether any known historical or archeological sites existed within or adjacent to the proposed project. Results of interviews and research are presented below.

Existing Conditions

No historical sites or landmarks are located within or adjacent to the Miller's Point area. Correspondence to this effect is found in the Appendix. The closest historical site is the Grover Calhoun Plantation House and slave quarters, approximately six miles northwest of Miller's Point.

While initial interviews disclosed the fact that no archeological sites were known to exist within the study area, the State Archeologist felt the prolonged inhabitation of Sypejay Indians within the coastal counties region warranted at least a preliminary survey of Miller's Point as a potential archeological site.

Consequently, members of the Lee City College Department of Archeology were retained as special consultants to review the project area. The study team, headed by Dr. L. P. Sparks, Chairman of the Archeology Department, spent two weeks on literature research and three days in field reconnaissance. This intensive effort produced virtually no evidence of use or occupancy of the Miller's Point site by the Sypejay Indians. Confirmation of this fact is found in a letter of transmittal to the Aviation Authority and reproduced in the Appendix.

Project Impact

Construction and operation of Freedom County Airport will not in any way impact known historical or archeological sites in Freedom or Bay Counties.

PUBLIC UTILITIES AND SERVICES

Water Supply

Existing Conditions

A 50-foot deep well presently serves the only existing on-site facility, the privately owned Thompson Bay Trailer Park. The exact capacity is not recorded. However, it is known that the capacity of this well can easily serve the 30 persons now occupying the trailer park. The capacity approximation as listed on the permit for the well was for 15 to 20 gallons per minute (gpm), according to the Freedom County Health Department. However, when development of the first phase of the airport project begins, the existing well will be abandoned and plugged.

Project Impact

The following table outlines the projected average daily water demands for the airport. These demands are based on a national daily water usage average rate for airports of about 30 gallons per passenger per day. The range shown is based on the premise that the rate varies from 25 gallons per passenger per day in the winter to 45 gallons per passenger per day in the summer.* Although the 30-gallon figure is the assumed average for large air carrier airports, it is considered a maximum case for a general aviation facility.

	<u>Estimated Maximum Daily Water Demand</u>
1975	4,000 gpd
1980	5,800 gpd
1985	10,000 gpd
1990	15,000 gpd

In order to serve the needs of the proposed project, a new well will be drilled into the Manokin Aquifer about 265 feet deep. Estimates by the U. S. Geological Survey indicate that the aquifer in this area is capable of supplying 650 million gallons per day.

* CLM Systems, Inc., "Airports and Their Environment," NTIS Technical Document PB-219 957 (September, 1972).

Lee City's average daily water requirement of 225 million gallons per day (MGD) is also taken from a system of deep wells penetrating the Manokin Aquifer. As can be seen from the above table, the amount of water required for the airport facility's first phase represents only .001 percent of the total available daily supply. Therefore, based on projected needs and the available capacity, it can be stated that there will be no problems in supplying the facility with its required water demand under the first phase development. Future airport expansion will require the review and evaluation of the available water supply prior to additional development to assure adequate capacity.

Sanitary Sewerage

Existing Conditions

Present sewage facilities at the mobile home site consists of two 1,000-gallon septic tanks. This system will be abandoned prior to construction of the new airport facility.

Project Impact

Sanitary sewerage demands for the airport facilities have been projected based on the assumption that 90 percent of the water used is returned to the sanitary system.* Using the water demands as contained in the Water Supply Section of this report, sewer demands are estimated as follows:

	<u>Estimated Maximum Daily Sewer Demand</u>
1975	3,600 gpd
1980	5,300 gpd
1985	9,000 gpd
1990	13,500 gpd

Sanitary sewerage resulting from the airport development will be handled on-site by three septic tank-tile field systems. It will only be necessary to handle airport sanitary sewage by the on-site septic system until 1980, at which time plans developed by the Lee City Wastewater Commission show an extension of sanitary services to the airport vicinity. The septic system which will be constructed under Phase I will be sized to accommodate the demand through 1980. The clean sands of the area and low water table are ideal for tile field treatment.

* "Airports and Their Environment - A Guide to Environmental Planning," U. S. DOT, September, 1972.

Solid Waste

Existing Conditions

The Thompson Bay Trailer Park, along with the other small residential areas in the vicinity, are provided solid waste collection by collectors licensed by the Freedom County Sanitation Division. Refuse collected by the contractors serving the trailer park is disposed of at the County's sanitary landfill located seven miles from the site. Collection at the trailer park is twice weekly and amounts to approximately 0.5 tons per week.

Project Impact

The construction of the first phase of the new facility will generate approximately 0.84 tons of solid waste per week. Total annual quantities of solid waste for the facility is shown in Table 19. The Airport Authority will contract with one of the private refuse collectors licensed to operate in the County to service the airport. There are two private haulers who have indicated that they would bid to supply refuse collection services to the site. Both use the same 150-acre private sanitary landfill located off Johnson Road. Contact with the Freedom County Health Department indicates that the site has an approved life expectancy of ten years, assuming an average annual rate of 325,000 C.Y./year. As can be seen from Table 15, the amount of solid waste to be disposed of at the above site represents only 0.1 percent of the assumed annual average generation.

Based on the size of the existing site, it is anticipated that the solid waste disposal requirements of the first phase of the project can be easily accommodated.

The Freedom County Planning Commission is in the process of beginning a regional solid waste study which will outline future disposal programs to extend beyond the present sanitary landfill system. Consideration will be given to compaction, recycling, and waste separation techniques. The Airport Authority will coordinate future airport expansion as they relate to solid waste with the Commission.

Table 15

Projected Volume of Airport Solid Waste

	<u>Annual</u>	<u>Daily</u>	<u>Pounds Per Passenger</u>	<u>Tons Refuse Annual</u>	<u>Daily</u>	<u>Daily Cubic Yards Loose²</u>	<u>Compacted³</u>	<u>Annual Cubic Yards in Landfill⁴</u>
1975	49,500	136	1.75	43.3	0.12	2.4	0.69	252
1980	71,000	195	1.75	62.1	0.17	3.4	0.97	354
1985	121,000	332	1.75	105.9	0.29	5.8	1.66	606
1990	180,000	493	1.75	157.5	0.43	8.6	2.46	898

- 1 Assumes project constructed as planned
- 2 Loose refuse in containers at 100 pounds per cubic yard
- 3 Compacted refuse in trucks at 350 pounds per cubic yard
- 4 No further reduction assumed due to landfill operations

ENERGY

Air transportation is the most efficient transportation alternative available to move larger numbers of people between Lee City and national markets. Due to distances involved, railroad or bus transportation is not a competitive cost-effective alternative in terms of time. Use of the individual automobile is not only non-competitive in terms of time, but the most inefficient alternative in terms of energy resource utilization. Thus, expanded flight service is the most energy-efficient alternative to permit expanded economic interaction between Lee City and national markets.

Existing Conditions

Demand for increased commercial carrier service at SIA has built steadily over the last decade. To date, the airport has been able to accommodate this demand without significant delay. However, congestion is inevitable unless expansion occurs and congestion causes totally unnecessary fuel consumption by planes circling for landing clearance or idling on taxiways waiting for takeoff clearance.

Project Impact

The Miller's Point site does not contain any natural energy resources. Project construction will not obstruct exploitation of the region's available energy resource inventory.

The project will increase energy consumption at this site in three ways:

- . Electric power to maintain airport support systems.
- . Fuel used by airport maintenance vehicles; workers, pilots, and passengers commuting to the site.
- . Fuel used by aircraft.

Electric power requirements for the terminal and hangar buildings have been minimized by incorporation of the latest energy reduction techniques. The region's moderate climate enables elimination of heating and air-conditioning systems in hangar/maintenance facilities. Insulating materials planned for the terminal and control tower structures will protect interiors from the influence of extreme temperatures. Zoned heating, air-conditioning and ventilating (HVAC) systems are planned which will confine service to areas of steady occupancy and do not waste energy on corridors, stairways, baggage storage depots, etc.

The greatest increase in fuel consumption over existing conditions occurs in the distance motor vehicles must travel between the Miller's Point site and the Lee central business district (CBD). Southeast International has both limousine and mass transit service available to the site. Freedom County Airport will be ten miles away from the Lee CBD and have neither limousine nor public transit service. Thus, the shift of general aviation operations to the Miller's Point site will result in an increase in motor vehicle fuel consumption.

This increase, however, represents a positive tradeoff against fuel consumption which would result from increased congestion at SIA without the reliever facility. If the general aviation component was not eliminated from SIA, the facility would have to handle these steadily increasing operations plus steadily increasing commercial carrier operations. This, in turn, would result in increased circling and stacking procedures, wasting valuable energy resources.

A second aspect to consider is that construction of Freedom Airport does not constitute a new energy demand so much as a more efficient transfer of energy demand from SIA to the new site. Much of the energy demand which will be required at the new site already exists at SIA.

Thus, the proposed project will optimize the efficient utilization of energy resources at both sites. Existing general aviation aircraft energy consumption will be reduced by the transfer of operations to the new more energy-efficient site. Diversion of general aviation to the reliever facility will also prevent future congestion, therefore, minimizing commercial carrier fuel consumption and optimizing overall efficient utilization of energy resources at SIA.

CONSTRUCTION IMPACTS

Construction operations will cause specific impacts resulting solely from and limited exclusively to the construction period. Construction impacts are distinct in that they are temporary in nature with their degree of adversity steadily diminishes as work concludes.

The following list indicates adverse impacts attributed to construction operations and measures to mitigate their effects:

- . Dredging operations will result in an increase in the turbidity of Thompson Bay. This will be most pronounced in the immediate vicinity of the dredging operation and the fill area itself.
- . Fill operations for the proposed runway embankment will also cause increased turbidities in the area of construction. In order to minimize impacts associated with this work, plastic filter screen will be used to initially contain the dredged material. This screen will be anchored to the bottom and will extend up out of the water and connect to a floating bowl system. In addition, a floating weighted blanket will be anchored 100 feet outside of and completely surrounding the fill area, thereby providing a further safeguard to trap fines which pass through the filter screen or accidentally spilled during construction operations.
- . Recreational use of Thompson Bay in the Miller's Point area will be temporarily restricted by construction operations. While swimming and sunbathing on beaches to the north will still be feasible, water skiing, sport fishing, and boating near the line of work will be prohibited. Signs and marker buoys will be posted to indicate navigational and safety hazards.

- . Distance will attenuate noise from construction operations reaching beach areas, so that only a slight increase in ambient background conditions is anticipated. Further, construction operations will be primarily limited to week days and not on weekends, when the beach and bay are more fully utilized.
- . Attenuation of construction noise due to distance will also prevent residential areas from experiencing increased noise levels from construction operations.
- . Resident terrestrial, benthic and marine species will either be permanently or temporarily dislocated. Some sensitive and non-mobile species inhabiting Miller's Point, adjacent wetlands, and the fill area within Thompson Bay will be destroyed. Mobile species will relocate in adjacent habitat. The influx of dislocated wildlife will heighten competition within each habitat type, and a degree of mortality is inevitable among territorial species.
- . Extensive erosion controls are planned to project wetland communities and the bay waters. Provisions include temporary settlement ponds, straw or brush type barriers, check dams, and sediment traps, temporary grass cover. Further, effort will be made to schedule construction operations to minimize the expanse of excavated areas at any one time, and restore them as soon as possible.
- . Construction equipment required to place piers for the runway lighting system in the wetland area will be selected with consideration to minimizing damage to the area. The access route into the wetland area will be designed to minimize access or disruption to marsh communities. Limits of work will be clearly marked and all activity within the wetland area carefully supervised.

- . A temporary degradation of air quality will result from construction equipment emissions, dust pollution from excavated areas and open burning of cleared materials. The total polluttional load generated from all construction sources is estimated to be less than one percent of total regional pollution.
- . Dust or wind-blown soil pollution will be controlled by treating excavated areas with water. Open burning operations will be limited to days when weather conditions optimize rapid dispersion. Freedom County Open Burning Regulations will be strictly followed and all operations conducted in cooperation with State and County Health Department officials.

Subsequent development phases will result in similar construction impacts to those listed for Phase I.

**SECTION IV
ACTIONS TO MINIMIZE
UNAVOIDABLE ADVERSE EFFECTS**

SECTION IV: ACTIONS TO MINIMIZE UNAVOIDABLE ADVERSE EFFECTS

The following section summarizes unavoidable adverse impacts and measures proposed to minimize their effects for each environmental discipline studied. Construction impacts are deleted, since they were covered in the previous section.

LAND USE

Airport development will eliminate potential residential use of Miller's Point and may induce a small amount of supportive commercial development adjacent to the project site. Noise exposure forecast analysis shows that Phase I operations will not affect existing land use patterns. However, operations resulting from contemplated ultimate development would bring an area south of the site, planned for future residential development, within the NEF 30 contour.

Since the area surrounding the project site is still unoccupied, the following steps are recommended to assure that future land uses and zoning are compatible with the project.

- . Establish a special airport use zoning designation for Miller's Point and acreage to the west extending to Lee Turnpike. This special zoning area would be sufficiently large to accommodate both airport and airport-induced development.
- . The Freedom County Comprehensive Plan should be modified to eliminate the planned residential development to the southwest of the site.

VEGETATION AND WILDLIFE

While project development will almost totally remove terrestrial habitat on Miller's Point, the site layout is designed to protect the Point's tidal wetlands. Impact on marsh communities will be confined to the placement of piers for the approach lighting system.

Phase I runway 5-23 will be constructed on a fill embankment covering 35 acres of Thompson Bay bottom. Subsequent contemplated development could result in the ultimate loss of 40 additional acres of Bay bottom. However, even the total loss of 75 acres represents only a fraction of the Bay's total bottom area.

Further, existing conditions in the Miller's Point area of the Bay show a sandy bottom low in organic content, heavy plankton populations, and small fish populations. The following ameliorative measures planned for the project will minimize impact on marine species.

- . The runway embankment will be formed to establish approximately 4:1 slopes. Heavy riprap or sand bags filled with a sand-cement mixture will be placed over the plastic filter screen to cover the slope areas. This protection will prevent siltation and, in fact, create cover and feeding areas for both benthic and fish species.
- . Erosion and water quality controls will also contribute to the maintenance of both marine and wetland habitat at levels capable of supporting pre-construction populations.

WATER QUALITY

With the exception of increased turbidity during construction, the project is not anticipated to affect water quality in Thompson Bay or Bern Creek.

HYDROLOGY AND FLOOD HAZARDS

While grading will not alter existing drainage patterns, clearing vegetated areas for the project will increase the peak quantity of flow. Airport design and the construction of drainage facilities will prevent flood hazards or significant alterations to off-site hydrology.

WETLANDS AND COASTAL ZONE MANAGEMENT

The runway configuration represents a conscious tradeoff to minimize impact on wetlands. Construction of the runway(s) into the Bay will limit impact on tidal wetlands to the placement of piers for the approach lighting system. The following have been or will be accomplished in order to minimize the impact on the wetland and coastal zone areas affected by project development.

- . Consultation and coordination with the State DNR-CZM Agency has been provided in conformance with Federal and State Coastal Zone Management policies.
- . Special equipment and access are planned to minimize impact on the marsh area during pier placement.
- . The project is consistent with the CZMA Priority II and III development classifications for Miller's Point and Thompson Bay. Improvement to the navigation channel, an established objective of the State management plan, can be accomplished as part of the project.
- . Temporary and permanent siltation controls will minimize impact on bay and wetland ecology.

DIRECT SOCIAL IMPACTS

Dislocated families and the owner of the Thompson Bay Trailer Park will be compensated according to provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

4(f) LANDS

Noise from airport operations may reduce the desirability of anchoring in Thompson Bay waters immediately adjacent to Miller's Point. The Thompson Bay beach north of the site and other public beaches bordering Thompson Bay are outside the Phase I NEF 30 contour. Even under ultimate

Phase III operations, the NEF 30 contour will only include the water area of Thompson Bay. Public beaches on the Bay and Atlantic Ocean will still remain outside the NEF 30 contour.

While the project could eliminate as much as 75 acres of bay bottom, this amounts to only a fraction of total bay waters. Further, this development has the following considerations:

- . Fill for runway embankments will be provided from dredging the Bay's navigational channel. Desired improvement of the channel had been deferred pending location of a suitable disposal site for fill.
- . Heavy riprap planned to protect runway embankments will provide cover and feeding areas for fish and other benthic species.

SECTION V: ALTERNATIVES TO THE PROPOSED ACTION

INTRODUCTION

Alternatives considered for the project included other modes of transport, expansion of SIA, construction of the reliever facility at other sites, an alternative configuration within the selected site, and the No Project Alternate. A discussion of each type of alternative action is provided in the following sub-sections.

ALTERNATIVE MODES OF TRANSPORTATION

Three alternative modes of transportation are theoretically available to the Lee City area. These are:

- . Railroad transport.
- . Highway transport.
- . Water transport.

In order to assess the value of each mode, it is necessary to remember that the purpose of the project is to provide reliever service to the commercial carrier service at SIA. Passengers generally select that transportation mode which represents the most convenient and cost-effective means to achieve their trip objective.

One segment of the total general aviation component is local traffic. Substantially all local flights are for training, either for new pilots or for proficiency training. The itinerant segment is composed primarily of pleasure and business trips. A recent study of itinerant operations showed that approximately 60 percent were for business purposes.

Railroad passenger service is available between Lee City and major national markets. However, limitations of service and distances involved are so great as to eliminate railroad transport as a competitive alternative to the convenience of the general aviation business trip.

While railroad fares are somewhat lower than air fares, the loss in business or vacation time does not justify use of railroads for the majority of business passengers.

Despite an excellent interstate system, distance is too great to make bus or motor vehicle travel competitive in terms of time. Commercial interstate bus carrier service cannot compete in terms of time and would, therefore, not attract enough riders to justify investment in service expansion by the private sector.

Evaluation of sea transport as an alternative mode is a purely academic exercise. Virtually no business passenger service exists due to distances, time and cost limitations. Railroads and shipping will continue to dominate the freight and cargo market, but for the movement of people, commercial air service will continue to be the safest, swiftest, most convenient and cost-effective mode of travel.

EXPANSION OF SOUTHEAST INTERNATIONAL AIRPORT (SIA)

A 1970-1971 feasibility study explored alternatives to expand flight service at SIA. Actions considered included the following:

- . Additional runway construction on-site.
- . Expansion through aquisition of off-site acreage.
- . Construction of a totally new international airport.

Spatial constraints made it impossible to construct additional runways within the existing site. Expansion through aquisition of adjacent off-site property proved equally impossible. The site is bordered on the west by I-295 and on the north by I-97 with a major interchange located immediately northwest of the airport. Effort to expand in either direction would have involved relocation of one or both interstate facilities and the complex interchange.

A 350-acre industrial park borders the airport on the south. Expansion in this direction would have caused economic and employee

dislocation and seriously conflicted with the Bay County Comprehensive Plan which had concentrated industrial development in this area.

A sensitive wetland area precluded construction to the east. Thus, off-site expansion of SIA was blocked in all directions.

The concept of constructing an entirely new international facility could not be justified in economic terms given the relatively limited expansion requirements necessary to meet projected demand. This, the 1970-1971 study concluded, could be achieved by eliminating general aviation operations from SIA through construction of a reliever facility.

ALTERNATIVE SITES

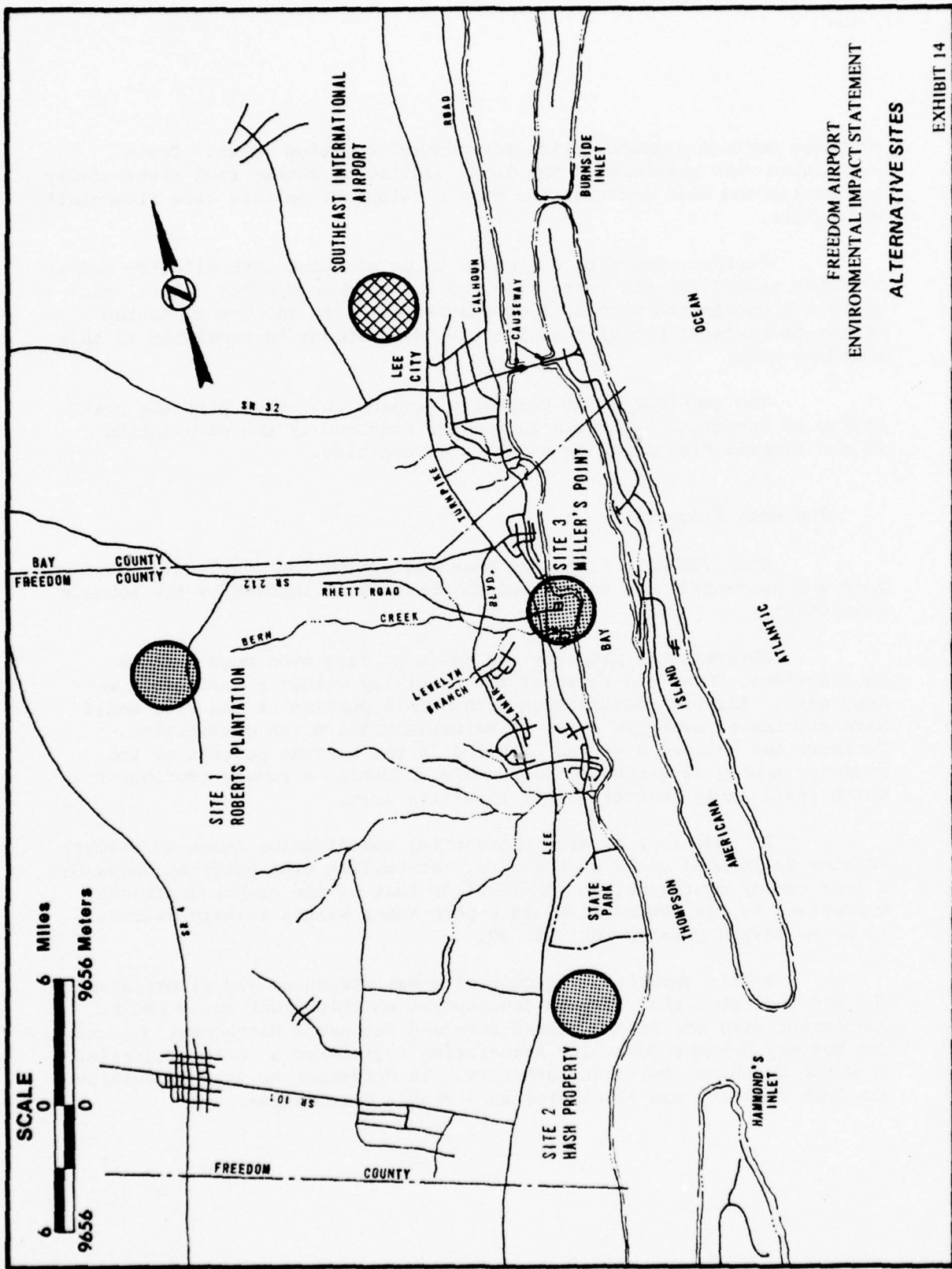
Subsequently, a site selection study was made for the reliever facility. Three available contiguous tracts feasible for airport development were located and evaluated. These were the 1,000-acre Roberts Plantation, the 750-acre Hash property and the Miller's Point site. (See Exhibit 14). The latter was selected and has been described in detail throughout this report. Reasons for rejection of the other alternative sites are summarized below.

The Roberts Plantation

This 1,000-acre tract, known as the Roberts Plantation, is located in north central Freedom County, 25 miles southwest of Lee City. For almost two centuries this acreage had been owned and actively farmed by descendants of the distinguished Roberts family. However, the family petitioned the County for R-2 zoning in order to develop the property as a residential sub-division in 1968.

While the property was ideal in terms of topography, sub-surface conditions and drainage, it presented access problems. The tract is located twenty miles west of Lee Turnpike. Existing access is provided via Jervis Road, a two lane unimproved secondary artery which connects to east-west State Route 212.

Traffic analysis showed that extensive improvements would be required for both Jervis Road and State Route 212 including a new interchange to Lee Turnpike. Therefore, improvement of this access road to the Lee Turnpike was recommended as the only effective means to provide



FREEDOM AIRPORT
 ENVIRONMENTAL IMPACT STATEMENT
 ALTERNATIVE SITES

EXHIBIT 14

adequate surface transportation for general aviation users. Costs associated with purchase of the land, additional access road right-of-way acquisition and road construction made development on this site financially unfeasible.

Further, the site was known to be abundant with wildlife and a breeding ground for the threatened red-cockaded woodpecker. Local conservation groups had already lodged a protest with the County zoning office to obstruct proposed residential development in proximity to this breeding area.

The combination of excessive development costs plus the possibility of impacting a threatened species resulted in the elimination of the Roberts Plantation as a viable alternative.

The Hash Property

This 750-acre tract had been designated for residential development and presented none of the access constraints imposed by the Roberts Plantation.

However, the property was found to have even more serious restrictions. Over one-third of the tract lay within a designated wetland area. Airport construction within this portion of the site would have eliminated over 120 acres of valuable tidal marsh communities. Further, the wetland area was situated in the central portion of the property making it virtually impossible to design a runway configuration which could avoid impacting this sensitive area.

In addition, a large residential sub-division known as Estuary Estates is located south of the site. Prevailing wind patterns suggested a 5-23 runway configuration identical to that of the proposed project. Operations to the southwest would expose homes within Estuary Estates to noise levels greater than NEF 30.

Public opposition to this site was strenuous and diversified. The DNR indicated that airport development on this tract could not be consistent with the State Coastal Zone and Wetland's Management objectives. The Estuary Estates Community Association registered a strong objection with the Southeast Aviation Authority. In deference to this opposition, the Hash property was eliminated as a viable alternative.

ALTERNATIVE CONFIGURATIONS

The Miller's Point site offered multiple advantages in terms of access, proximity to downtown Lee and compatible land use. However, airport development on this site involved a trade-off between impacting tidal wetland areas to the south or filling Thompson Bay to the north.

Prevailing wind patterns required a 5-23 runway orientation. The alternatives available were to locate the configuration as proposed requiring filling of Thompson Bay or to shift the entire orientation to the south thereby impacting the tidal marsh area.

Selection of the proposed configuration was based on three factors.

- . A conscious recognition of the unique functions performed by tidal wetland communities.
- . Extension into the Bay would result in a less significant noise exposure over areas designated for residential development in the County's future land use plan.
- . The impacts associated with filling a small area of the Bay bottom were not considered to be as severe as filling of the tidal marsh area.

The shift of the runway configuration to the south would have brought a larger amount of undeveloped land planned for residential use within the NEF 30 contour. This would have caused an unnecessary conflict with County comprehensive plans.

Conversely, filling the Bay constituted only a minor loss of the region's extensive recreational water inventory and minor impact on fish species, since only limited populations occur in the Miller's Point area.

NO PROJECT ALTERNATIVE

Under this alternative, congestion at SIA would continue to increase as the airport attempted to accommodate continuously expanding demand.

Adverse impacts would result as overflight was prolonged and more aircraft entered the congested corridor. Air quality would also be adversely affected by emissions from aircraft circling to land or idling on taxiways awaiting takeoff clearance. Further, this congestion would cause unnecessary fuel consumption. Thus, the initial impact of the No Project Alternate would be to increase in-flight and overflight hazards; increase air pollution and waste energy resources.

In addition the No Project Alternate would restrict economic development in the region. Economic growth is directly linked with commercial air carrier service which opens national and international market areas to the regional sales force. As commercial flight service expands to new market areas, new sales opportunities are expanded.

Under the No Project Alternate, congestion at SIA would steadily produce an undesirable situation. Ultimately, SIA would reach its operational capacity when no further flights could be accommodated, thus hampering expansion of new market areas. Both consequences would restrict sales of regional goods from reaching optimum potential. This, in turn would restrict growth of local industry, employment, consumer income and public revenues.

It is understood that the No Project Alternative would mean that certain impacts due to airport development would not occur at the Miller's Point site. Those impacts that would not occur include relocation of residents, construction of runway embankments in Thompson Bay, and aircraft noise exposure on Thompson Bay and in areas designated for future residential development.

SECTION VI: RELATIONSHIP BETWEEN SHORT-TERM USE OF
MAN'S ENVIRONMENT AND THE MAINTENANCE
AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Short-term losses are generally confined to the construction period. Long-term productivity represents those gains to the community achieved through project development. This section examines whether short-term adverse impacts represent a valid tradeoff for long-term gains.

The most significant impacts will involve increases in the turbidity of Thompson Bay and temporary restriction of recreational use of waters near the construction area. Ameliorative measures planned for the project should minimize the impact of increased turbidities so as not to adversely impact marine or wetland ecology outside of the limits of work.

Open burning of cleared tree and ground cover on Miller's Point will briefly increase daily air pollution loads in the site area. However, burning operations will be restricted to days when weather conditions optimize dispersion and will also be consistent with all State and local health regulations.

Short-term disruption to the human environment will also involve relocation of the ten families in the Thompson Bay Trailer Park. However, all of the persons displaced by the project will be provided all of the benefits and payments required by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

These impacts are weighed against long-term gains anticipated to result from the project. While construction will temporarily degrade recreational opportunities in the construction areas of Thompson Bay, the project will enhance long-term recreational opportunities in the Bay and maintain regional recreational opportunities for the following reasons:

- . Project construction can be accomplished in conjunction with the dredging of the Bay's navigational channel.
- . While runway embankments will ultimately cover approximately 75 acres of sandy bay bottom, use of heavy riprap or sand-cement filled sand bags will permit regeneration of a marine environment providing cover and forage for fish and benthic species.

A long-term loss which will result from the development of the facility, which may be considered a short-term gain in terms of relieving congestion at SIA, is the use of land which is presently zoned for future residential use but which will ultimately be located within the NEF 30 contour. Rezoning will be required for the affected area.

Finally, construction of the general aviation reliever facility will enhance overall operational efficiency at SIA as well as permit the continued growth of commercial carrier service essential to sustain and stimulate regional economic productivity.

SECTION VII: IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Project development will result in a reduction of terrestrial habitat on Miller's Point. However, there will be no permanent loss of valuable wetland communities south of the site. Phase I construction will cause the permanent removal of 49 acres of mixed hardwood-pine forest, 53 acres of immature pine, and 5 acres of old field successional communities on Miller's Point. Future contemplated development could result in a total loss of 119 acres of mixed hardwood-pine forest, 186 acres immature pine, and 10 acres of old field successional associations. While this represents a significant alteration of site habitat and will cause mortality among resident wildlife, the loss is negligible in terms of region's vast inventory of comparable vegetative associations.

Phase I construction will also eliminate 35 acres of Thompson Bay bottom, while ultimate development would result in a total bottom loss of 75 acres. This constitutes only a fraction of the bay area. Initially, marine communities in the work area will be totally disturbed by development, but over the long-term, some regeneration will occur and embankments are anticipated to provide habitat for both benthic and fish species.

Airport development will require permanent removal of on-site mobile homes and induce a small amount of commercial development adjacent to the project. In addition, noise forecast analysis shows that acreage immediately southwest of the site will be located within the NEF 30 contour projected for Phase III development. Although presently unoccupied, this land is planned for residential use. Consequently, project development may irretrievably alter existing and planned land use patterns in these areas adjacent to Miller's Point. Review of future land use plans should be conducted and residential development prohibited for all acreage within the Phase III NEF 30 contour. Considering the vast unoccupied tracts within Freedom County available for residential development, this loss is negligible and the acreage may still be used for compatible development.

Increased aircraft and motor vehicle traffic emissions induced by the project will contribute to daily regional loadings but will not result in violations of State or Federal standards. Further, project generated pollution will steadily diminish as Federal emissions controls become fully effective.

Extensive erosion, water quality, and storm drainage controls are planned to assure that the project will not significantly alter off-site hydrology or water quality in Thompson Bay or the ecology of Bern Creek and its surrounding marshes. The project will not constitute a flood hazard or conflict with State coastal zone and wetland management objectives.

SECTION VIII: PUBLIC HEARING AND A-95 REVIEW

This section contains the following items:

- . Summary of Public Hearing issues
- . Responses to Public Hearing issues
- . Summary of Regional and Local Clearinghouse Review
- . Responses to Regional and Local Clearinghouse Review
- . Summary of State Clearinghouse Review
- . Responses to State Clearinghouse Review

SUMMARY OF PUBLIC HEARING ISSUES

The draft environmental assessment report was made available to the public on May 1, 1975. Findings of the report were published in local newspapers and copies of the report made available to the public at Lee City, Freedom and Bay County libraries, the Municipal Office Building in Lee, the Freedom County Office Building and the Southeast Aviation Authority Office.

The formal public hearing was advertised on May 1, 1975 and was held in the Bay Harbor School Auditorium on June 13, 1975. Approximately 100 persons attended the meeting. A total of twenty-one persons spoke during the hearing. Ten of the speakers represented the following organizations endorsing the project:

- Bay County Chamber of Commerce
- Bay County Jaycees
- Freedom County Chamber of Commerce
- Freedom County Jaycees
- Greater Lee Chamber of Commerce and Jaycees
- Airline Pilots Association
- State General Aviation Association
- Americana Island Merchants Association
- Coastal Counties Regional Planning Council
- State Department of Transportation

Questions or objections were raised which dealt with both Phase I and Phase III development impacts.

Three of the questions were similar, essentially speculating how development could avoid seriously degrading use of Thompson Bay Beach.

Two questions dealt with land use southwest of the site in the area presently planned for residential development. One speculated as to the impact any commercial development would have on Bern Creek wetlands. The other dealt with impact on property values at Lewelyn Estates.

A representative of the Freedom County Conservation League expressed skepticism concerning the use of filter screen and weighted blanket techniques to control sediment transport.

One local resident speaking for himself, gave a lengthy argument against dredging the navigational channel in Thompson Bay since it would increase boat traffic.

A representative of the local Sierra Club also spoke in opposition to dredging the channel and constructing the project. Both actions he stated would increase traffic and disturb wildlife in the area.

RESPONSES TO PUBLIC HEARING ISSUES

Issue:

Impact on Thompson Bay Beach.

Response:

Though aircraft noise from individual operations will be heard above ambient conditions, the cumulative daily noise exposure from future operations, expressed in NEF values, indicates that noise exposure at the beach will be consistent with recreational uses.

Construction of the runway embankment in part of the bay may discourage use by water skiers or boating enthusiasts. However, these activities can continue at the same level of enjoyment on other portions of the bay.

Water quality controls and proven construction techniques will minimize construction impacts in Thompson Bay Beach.

Issue:

Direct and indirect effects of airport-related commercial development on surrounding areas.

Response:

Much of airport-related support facilities can be accommodated on-site within the ultimate development plan. Additional services may locate along the proposed airport access road. It is proposed that an airport use zoning district be developed to include the site and extend to the turnpike.

The turnpike will act as a barrier which would separate airport land use from the existing and proposed residential development in Lewelyn Estates, thereby protecting the integrity of the development.

Issue:

Sediment transport during construction of runway embankment.

Response:

The construction techniques and ameliorative measures described in the assessment report are consistent with good engineering practice and have been utilized on many previous projects involving offshore airports. Contract specifications for construction can include a separate discussion on environmental control which will insure the measures described herein are incorporated.

Issue:

Direct and indirect impacts of dredging the navigation channel.

Response:

The widening and deepening of the existing navigation channel has been programmed by the U. S. Corps of Engineers and has been recognized as a needed improvement by the Coast Guard and State Coastal Zone Management Agency. The proposed airport action will provide a disposal site for the dredged material in the form of a runway embankment.

Dredging operations will remove existing bay bottom and temporarily increase turbidity. Construction of the airport will not, however, remove any significant wildlife habitat or require fill of any critical bay bottom.

Traffic generated by the airport will be afforded quick regional access due to the site's proximity to the turnpike. The majority of airport traffic will be handled by the turnpike, thereby minimizing impact in local neighborhood streets.

COASTAL COUNTIES REGIONAL PLANNING COMMISSION

August 1, 1975

Mr. Albert B. Richards
Director
Southeast Aviation Authority
Lee City

Re: A-95 Review of Clearinghouse
Control Document 05-07-037
Environmental Assessment:
Freedom Airport

Dear Mr. Richards,

The coastal counties RPC has circulated the refernced document for A-95 review by regional, county and municipal agencies as well as key civic associations.

Specific comments have been submitted by some recipients. These are summarized below for your consideration.

1. The Freedom County Department of Planning and Zoning noted that consideration would be given to the airport use zone and the development of compatible land uses to the southwest. Comment
1
2. The Freedom County Police and Fire Departments both questioned whether the project would require additional personnel and equipment on the part of their departments. Comment
2
3. The Lee City Engineer has asked if contingency planning has been made in case municipal sewer extension is not available as scheduled in 1980. Comment
3

Mr. Albert B. Richards

-2-

August 1, 1975

4. The coastal counties RPC would like more information as to the duration of the construction period and the steps planned to assure pleasure craft access and safety during this period. Comment
4

Comments which indicated consistency with agency plans or no objections were received from the following:

Bay County Planning Department
Bay Pines Civic Association
Coastal County Watershed Authority
Freedom County Board of Supervisors
Freedom County Department of Recreation and Parks
Freedom County Conservation League
Freedom County Historical Society
Freedom County Board of Education
Lee City Executive Department of Administration

Pending transmittal of satisfactory responses, indicating due consideration has been given those comments, this Clearinghouse has no objection to the preparation of an application for Federal assistance for this project.

Sincerely,



Thomas R. Calvin
Coastal Counties RPC Clearinghouse
Officer

Responses to Comments by the
Regional/Local Clearinghouse

Response to Comment 1:

None required.

Response to Comment 2:

On-site provisions are planned for both security and fire emergencies. Access to the airport site will be restricted by chain-link security fencing. Personnel to be employed by the Airport Authority will include a 24-hour security guard detail.

Full fire emergency water supply, pressure, pumping and extinguishing equipment will be provided on-site. Emergency water supply will be pumped from Thompson Bay.

Response to Comment 3:

The septic system proposed to be constructed as part of Phase I is sized to accommodate projected 1980 sewerage treatment demand. Should it become evident prior to 1980 that connection to the planned city extension will not be possible, sufficient space has been allocated to expand the on-site system to accommodate projected 1980-85 treatment demand.

Response to Comment 4:

It is estimated that dredge and fill operations for Phase I will take at least one year. During this time, waters in Thompson Bay between Miller's Point and the existing navigational channel will be periodically restricted for any type of recreational use. Some pleasure craft will be able to travel within the Bay east of the channel.

Safety will be insured by construction of a well-marked and lighted pontoon barrier completely around the embankment site. In addition, signs will be posted at both inlets and at all bay boat ramps indicating restricted areas.

STATE PLANNING DEPARTMENT:
OFFICE OF PROJECT REVIEW AND CLEARINGHOUSE ADMINISTRATION

August 2, 1975

To: Southeast Aviation Authority
Lee City

Attn: Mr. Albert B. Richards, Director

Subject: A-95 Clearinghouse Review
Document 05-07-037/Environmental
Assessment: Freedom Airport

Gentlemen:

This office has completed circulation of and received comments on the above referenced document. Individual comments requiring a response are summarized below and all documents from reviewing agencies are forwarded under separate cover. Your consideration is directed to the following points.

1. The Department of Natural Resources-Coastal Zone Management Agency will require formal submittal of Application Form 3-13 prior to approval of a construction permit for development in Priority II lands. Comment
1
2. The Department of Natural Resources-Fish and Game Division requests information as to whether additional measures to avoid bird-strike hazards will involve the use of low charged noise generation explosives which might disrupt breeding or nesting. Comment
2
3. The Governor's Committee on Recreation and Parks asks what actions will be taken to assure the integrity of beach areas in proximity to the project. Comment
3

Agencies approving or articulating no opposition to the project are:

State Department of Planning
State Department of Transportation

August 2, 1975

State Archaeologist
State Historical Preservation Officer
State Department of Administration and
Economic Development
State Department of Public Safety
State Department of Social Services
State Department of Education

Based on concurrence of the Regional A-95 Clearinghouse and satisfactory response to the above comments, you are hereby advised and authorized to proceed in your application for Federal assistance to implement Phase I of your project. Subsequent contemplated Phases will be subject to review prior to approval, in accordance with provisions under FAA Order 5050.2A.

Sincerely,



Nelson B. Hamilton
State A-95 Clearinghouse Officer

Responses to Comments from
State Clearinghouse Review

Response to Comment 1:

Effort has been made to coordinate all aspects of project planning with the State Department of Natural Resources (DNR) - Coastal Zone Management (CZM) Agency. In accordance with Agency policy, the formal application process was intentionally deferred to enable the Agency to review the draft environmental assessment in the event that objections from the Agency might involve project modification. Since their comments to the Clearinghouse do not call for further investigation or design revision, Application Form 3-13 will be prepared and transmitted to the Agency after approval of the final environmental impact statement.

Response to Comment 2:

It is not anticipated that dispersal procedures such as the firing of cracker shells will be necessary to prevent bird strike hazards. Measures listed in the draft assessment to reduce forage desirability of the site are regarded as sufficient to discourage flock settlement in the project area. These measures include:

- . Limited use of ornamental water, such as reflecting basins, fountains, and other landscape elements.
- . Planting of a cover designed to discourage flocking, roosting and nesting.
- . No use of berry-producing plant materials.
- . No use of ornamental plant materials producing seeds attractive to larger birds.

Response to Comment 3:

Siltation controls planned for project construction (i.e. heavy riprap, plastic filter screen around embankment and weighted blanket procedures) are intended to protect beach areas as well as Bay waters.

Water quality controls incorporated into the project design will assure that no fuel deposits escape the site and are washed onto Bay beaches.

Finally, the runway configuration protects local beaches from disruptive noise exposure. This configuration mandates landing and take-off patterns which avoid beach areas. Thus, there will be no disruptive overflight of recreational beaches. Noise exposure analysis, even under Phase III development operations, shows all recreational beaches are located outside the NEF 30 contour.

List of Appendices

Appendix

- A Noise
- A Discussion of Aircraft Noise
 - Aircraft Operational Data
 - Effective Perceived Noise
Level (EPNL) Tables
 - NEF Worksheets
- B Biological Data
- Fishery Survey Results and Species
Lists
 - Water Quality Criteria and Data
- C Correspondence
- D Air Quality

APPENDIX A

NOISE

A Discussion of Aircraft Noise

Noise Exposure Forecast (NEF)

Field measurement of acoustic noise is recorded in decibels (dB) on an A-weighted scale. The A-scale is a frequency-weighted network which produces a composite value that closely approximates the response of the human ear. The A-weighted sound level is accepted as an accurate and practical measure of acoustic noise, and can be easily determined using any standard sound level meter.

A single-number measure of subjective reaction which can be computed from physical measurements--perceived noise level--is now uniformly employed in describing aircraft noise. This number results from the combination of sound pressure levels in octave or one-third-octave bands to arrive at a single number description of the sound in terms of perceived noise decibels, or PNdB. PNdB is generally specified only for the maximum value of the aircraft noise during a flyover, without corrections for duration or pure-tone effects. To correct for both the presence of discrete frequencies and time history, an effective perceived noise level in decibels, or EPNdB was established. Noise levels expressed in PNdB can generally be converted to dBA by subtracting 13-15 dB.

Discussion, heretofore, briefly centered on acoustic noise resulting from the approach or takeoff of a single aircraft. However, it was necessary to determine a method of combining the effects of noise from a series of aircraft flyovers, and establishing a criteria which would relate the noise exposure to subjective human response. Public objections of aircraft noise increase as the interference with sleep, speech, teaching, recreation, or other activities becomes more frequent.

As a result, a rational method for projecting the extent of aircraft noise has been available since 1962, when the concept of the CNR--Composite Noise Rating--was adopted. Refinements to this approach have resulted from studies to develop the NEF--Noise Exposure Forecast--concept. The basic difference between the two is that the NEF, in addition to utilizing all the data previously used in computing CNR's, also uses correction factors for discrete frequencies (tones) and noise duration.

Although the CNR methodology has been widely used in the past, the use of NEF contour mapping has become more prominent in recent years.

The NEF contours define land areas having different land-use compatibility with respect to aircraft noise; hence, the NEF areas may be used as a guide to land-use planning and zoning and airport development. The NEF contours are based upon the aircraft noise described in terms of effective perceived noise levels (which includes corrections for duration and presence of discrete frequencies) plus adjustments for the number of operations for daytime and nighttime periods. The following table describes suitable land uses adjacent to airports.

Land Uses Adjacent to Airports (Based on NEF or CNR Noise Contours)

<u>NEF Values</u>	<u>CNR Values</u>	<u>CNR Zone</u>	<u>Remarks</u>
20-30	90-100	1	Few activities will be affected by aircraft sounds, although building designs for especially sound-sensitive activities, such as auditoriums, churches, schools, hospitals, and theatres should consider sound control in areas closest to the airport. Detailed studies by qualified personnel are recommended for outdoor amphitheatres and like places of public assembly in the general vicinity of the airport.
30-40	100-115	2	Activities where uninterrupted communication is essential should consider sound exposure in design. Generally, residential developments is not considered a suitable use, although multi-family developments where sound control features have been incorporated in building design might be considered. Open-air activities and outdoor living will be affected by aircraft sound. The construction of auditoriums, schools, churches, hospitals, theatres, and similar activities should be avoided within this zone where possible.
>40	>115	3	Land should be reserved for activities that can tolerate a high level of sound exposure, such as some agricultural, industrial, and commercial uses. No residential developments of any type are recommended. Sound-sensitive activities such as schools, offices, hospitals, churches, and similar activities should not be constructed in this area unless no alternative location is possible. All regularly occupied structures should consider sound control in design.

* Taken from report entitled "Airport Master Plans" prepared by the Federal Aviation Administration, February 1971.

References

Airport Master Plans, Department of Transportation, Federal Highway Administration, February 1971.

Noise Pollution: The Unquiet Crisis, Clifford R. Bragdon, 1971.

Alleviation of Jet Aircraft Noise Near Airports, A report of the Jet Aircraft Noise Panel, Office of Science and Technology, Executive Office of the President, March 1966.

Noise Exposure Forecast Contours for 1967, 1970, and 1975 Operations at Selected Airports, Bolt, Beranek, and Newman, Incorporated, September 1970.

Freedom Airport
Aircraft Operational Data

Average Daily Operations

<u>Aircraft Type</u>	1977		1985	
	<u>Day</u>	<u>Night</u>	<u>Day</u>	<u>Night</u>
Turbo Prop	2	0	9	1
DC-3	9	1	0	0
Business Jet	10	1	40	6
Twin Prop	30	4	56	8
Single Prop	80	6	150	12

AVERAGE RUNWAY UTILIZATION (PERCENT)

	1977			
	Runway 5		Runway 23	
	T/O	L	T/O	L
Jet	90	90	10	10
Prop	75	75	25	25

	1985							
	Parallel 5/23 Runways				Runway 14		Runway 32	
	Runway 5		Runway 23		T/O	L	T/O	L
	T/O	L	T/O	L				
Jet	90	90	10	10	-	-	-	-
Prop	40	40	10	10	25	25	25	25

TABLE A-II-8

TABLATION OF EPNL VALUES FOR DIFFERENT AIRCRAFT*

Distance, ft.	Gates Learjet 24 & 25 Two CJ610-6 Turbojet Eng. Takeoff 155 kt Fn = 2500 lbs.				Business Jet Aircraft				Grumman II Gulfstream II Two SPEY 511-8 Turbojet Eng. Approach 155 kt Fn = 3200 lbs.			
	EPNL, dB		EPNL, dB		EPNL, dB		EPNL, dB		EPNL, dB		EPNL, dB	
	Air to Ground	Ground to	Air to Ground	Ground to	Air to Ground	Ground to	Air to Ground	Ground to	Air to Ground	Ground to	Air to Ground	Ground to
200	123.3	123.3	105.0	105.0	120.3	120.3	102.8	102.8	102.8	102.8	102.8	102.8
250	121.9	121.9	103.8	103.8	119.2	119.2	101.6	101.6	101.6	101.6	101.6	101.6
315	120.4	120.4	102.6	102.6	118.1	118.1	100.3	100.3	100.3	100.3	100.3	100.3
400	118.9	118.9	101.2	101.2	117.0	117.0	99.0	98.9	99.0	98.9	99.0	98.9
500	117.3	117.3	99.8	99.8	115.9	115.7	97.6	97.5	97.6	97.5	97.6	97.5
630	115.6	115.6	98.3	98.2	114.7	114.5	96.1	96.0	96.1	96.0	96.1	96.0
800	113.8	113.7	96.8	96.5	113.5	113.1	94.5	94.3	94.5	94.3	94.5	94.3
1,000	111.8	111.6	95.1	94.8	112.2	111.7	92.9	92.5	92.9	92.5	92.9	92.5
1,250	109.6	109.2	93.4	92.9	110.9	110.1	91.0	90.4	91.0	90.4	91.0	90.4
1,600	107.7	106.7	91.5	90.8	109.3	108.1	89.2	88.4	89.2	88.4	89.2	88.4
2,000	104.7	103.9	89.5	88.5	107.8	106.2	87.5	86.3	87.5	86.3	87.5	86.3
2,500	102.4	101.0	87.2	85.8	106.1	103.5	85.6	83.7	85.6	83.7	85.6	83.7
3,150	100.0	98.0	84.8	82.8	104.3	100.6	83.6	80.8	83.6	80.8	83.6	80.8
4,000	97.6	94.3	82.1	79.3	102.5	97.3	81.5	77.5	81.5	77.5	81.5	77.5
5,000	95.0	90.2	79.5	75.3	100.7	94.3	79.3	73.8	79.3	73.8	79.3	73.8
6,300	92.3	85.7	76.8	71.0	98.5	90.5	76.9	69.9	76.9	69.9	76.9	69.9
8,000	89.3	81.9	74.0	67.6	96.4	86.9	74.3	66.5	74.3	66.5	74.3	66.5
10,000	86.1	77.7	71.0	63.7	94.0	82.8	71.5	62.8	71.5	62.8	71.5	62.8
12,500	82.5	73.2	67.7	59.1	91.5	79.1	68.3	59.7	68.3	59.7	68.3	59.7
16,000	78.5	68.2	63.9	53.6	88.8	74.8	64.9	53.3	64.9	53.3	64.9	53.3
20,000	74.0	62.4	59.7	47.3	85.4	70.0	60.9	47.3	60.9	47.3	60.9	47.3
25,000	69.4	55.4	54.9	39.0	81.8	64.5	56.2	39.8	56.2	39.8	56.2	39.8

*EPNL: Effective perceived noise level.

TABLE A-II-12

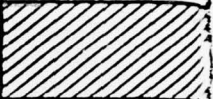

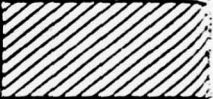
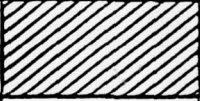



TABULATION OF EPNL VALUES FOR DIFFERENT AIRCRAFT

Aircraft:	2-Engine Piston Aircraft (<12,500 lbs. Max. Gross Wt.)				1-Engine Piston Aircraft (180 hp or less)			
	Takeoff 110 Kt.	Approach 90 Ft.	Takeoff 110 Kt.	Approach 90 Kt.	Takeoff 110 Kt.	Approach 90 Kt.	Takeoff 110 Kt.	Approach 90 Kt.
Distance, ft.	EPNL, dB		EPNL, dB		EPNL, dB		EPNL, dB	
	Air to Ground	Ground	Air to Ground	Ground	Air to Ground	Ground	Air to Ground	Ground
200	97.6	97.6	92.2	92.2	94.6	94.6	89.2	89.2
250	96.5	96.5	91.0	91.0	93.5	93.5	88.0	88.0
315	95.3	95.3	89.8	89.8	92.3	92.3	86.8	86.8
400	94.2	94.2	88.5	88.5	91.2	91.2	85.5	85.5
500	93.0	92.8	87.2	86.9	90.0	89.8	84.2	83.9
630	91.7	91.3	85.8	85.2	88.7	88.3	82.8	82.2
800	90.4	89.9	84.3	83.4	87.4	86.9	81.3	80.4
1,000	89.1	88.3	82.8	81.4	86.1	85.3	79.8	78.4
1,250	87.7	86.5	81.2	79.3	84.7	83.5	78.2	76.3
1,500	86.2	84.6	79.5	76.9	83.2	81.6	76.5	73.9
2,000	84.6	82.3	77.7	74.6	81.6	79.3	74.7	71.6
2,500	83.0	79.6	75.9	71.7	80.0	76.6	72.9	68.7
3,150	81.2	76.3	73.6	68.3	78.2	73.3	70.6	65.3
4,000	79.4	73.0	71.3	64.4	76.4	70.0	68.3	61.4
5,000	77.4	69.5	68.8	60.0	74.4	66.5	65.8	57.0
6,300	75.4	65.9	66.3	54.9	72.4	62.9	63.3	51.9
8,000	73.2	62.1	63.7	49.5	70.2	59.1	60.7	46.5
10,000	70.8	58.1	61.0	44.1	67.8	55.1	58.0	41.1
12,500	68.2	53.8	57.8	37.5	65.2	50.8	54.8	34.5
16,000	65.5	49.0	54.1	28.2	62.5	46.0	51.1	25.2
20,000	62.5	42.6	50.2	18.0	59.5	39.6	47.2	15.0
25,000	58.6	32.5	45.5	8.0	55.6	29.5	42.5	5.0

Airport Name		Airport Model No. 2 - 1977	
Runway Designation		5/23	
Runway Length		5400 FT	
Traffic Pattern (check one) Left Hand <input checked="" type="checkbox"/> Right Hand <input type="checkbox"/>			
		Propeller	Jet
Number of Operations/Year		48180	4015
Runway Utilization	Runway		
	5	75 %	90 %
	23	25 %	10 %
	Total	100 %	100 %
Percentage of Propeller or Jet Operations between 2200 and 0700		9 %	9 %
Twin Engine Operations as Percentage of all Propeller Operations		35 %	
Turbojet Operations as Percentage of all Jet Operations			100 %
Flight Path (check one) Sketch <input type="checkbox"/> Map <input type="checkbox"/> Other <input type="checkbox"/>			
Notes ADJUSTMENT FOR TURBO PROP AND DC3 LIGHT TWIN 12410 2 TURBO PROP 730/yr *9 10 DC-3 3650/yr *4			

FIGURE 2. FORM FOR COLLECTING AIRPORT OPERATIONAL INFORMATION

Source: Handbook For Developing Noise Exposure Contours For General Aviation Airports - FAA/BNN, Oct. 1975

Runway Designation	51 ¹⁰⁷⁷																														
Runway Length	5400 ft.																														
Type of Operation (check one)	Propeller <input type="checkbox"/>	Jet <input checked="" type="checkbox"/>																													
Number of Operations/Year on this Runway (Propeller or Jet)	1/2 operations	2008 (1)																													
Percentage of Operations Between 2200 and 0700	9 %																														
Adjustment Factor from Figure 6		2.4 (2)																													
If Propeller, Twin Engine Operations As Percentage of Propeller Operations	— %																														
Adjustment Factor from Figure 4		— (3)																													
If Jet, Turbojet Operations as Percentage of Jet Operations	100 %																														
Adjustment Factor from Figure 5		1.4 (3)																													
Adjustment for Larger Aircraft or Fleet Projections (Section VI - A, B)*	—	— (4)																													
Total Adjusted Operations (1) x (2) x (3) x (4)		6747																													
From Tables 1-6 Find Contour Code																															
Turn to Contour Set	Circle One From Each Set	From Contour Code Write Down Value of Contour Alongside Letter Code, Where Applicable																													
	<table border="0"> <tr> <td><input checked="" type="radio"/> NEP</td> <td>P</td> <td><input checked="" type="radio"/> 100</td> <td>1</td> </tr> <tr> <td><input type="radio"/> LDN</td> <td><input checked="" type="radio"/> J</td> <td>075</td> <td>2</td> </tr> <tr> <td><input type="radio"/> CNR</td> <td></td> <td>050</td> <td>3</td> </tr> <tr> <td></td> <td></td> <td></td> <td>4</td> </tr> <tr> <td></td> <td></td> <td></td> <td>5</td> </tr> </table>		<input checked="" type="radio"/> NEP	P	<input checked="" type="radio"/> 100	1	<input type="radio"/> LDN	<input checked="" type="radio"/> J	075	2	<input type="radio"/> CNR		050	3				4				5	<table border="0"> <tr> <td>A =</td> <td></td> </tr> <tr> <td>B =</td> <td>20</td> </tr> <tr> <td>C =</td> <td>25</td> </tr> <tr> <td>D =</td> <td>30 - 10,500'</td> </tr> <tr> <td>E =</td> <td></td> </tr> </table>	A =		B =	20	C =	25	D =	30 - 10,500'
<input checked="" type="radio"/> NEP	P	<input checked="" type="radio"/> 100	1																												
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			5																												
A =																															
B =	20																														
C =	25																														
D =	30 - 10,500'																														
E =																															

*See Section VI for Calculation Steps

FIGURE 3. CONTOUR CALCULATION WORKSHEET

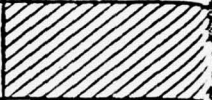
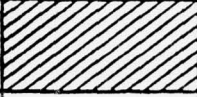

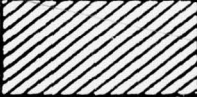
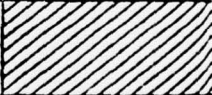
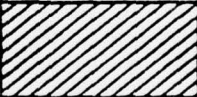
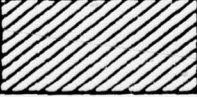
Runway Designation	51																			
Runway Length	5400	ft.																		
Type of Operation (check one)	Propeller <input checked="" type="checkbox"/>	Jet <input type="checkbox"/>																		
Number of Operations/Year on this Runway (Propeller or Jet)	1/2 operations	24090 (1)																		
Percentage of Operations Between 2200 and 0700	9 %																			
Adjustment Factor from Figure 6		2.4 (2)																		
If Propeller, Twin Engine Operations As Percentage of Propeller Operations	52 %																			
Adjustment Factor from Figure 4		2.2 (3)																		
If Jet, Turbojet Operations as Percentage of Jet Operations	%																			
Adjustment Factor from Figure 5		(3)																		
Adjustment for Larger Aircraft or Fleet Projections (Section VI - A, B)*		(4)																		
Total Adjusted Operations (1) x (2) x (3) x (4)		127,195																		
From Tables 1-6 Find Contour Code																				
Turn to Contour Set	Circle One From Each Set	From Contour Code Write Down Value of Contour Alongside Letter Code, Where Applicable																		
	<table border="0"> <tr> <td>NEF</td> <td>P</td> <td>100</td> <td>1</td> </tr> <tr> <td>LDN</td> <td>J</td> <td>075</td> <td>2</td> </tr> <tr> <td>CNR</td> <td></td> <td>050</td> <td>3</td> </tr> <tr> <td></td> <td></td> <td></td> <td>4</td> </tr> <tr> <td></td> <td></td> <td></td> <td>5</td> </tr> </table>		NEF	P	100	1	LDN	J	075	2	CNR		050	3				4		
NEF	P	100	1																	
LDN	J	075	2																	
CNR		050	3																	
			4																	
			5																	
		A = B = 20 C = 25 D = 30 - 3500' ∴ Jet Dominates E = 35																		

*See Section VI for Calculation Steps

FIGURE 3. CONTOUR CALCULATION WORKSHEET

Airport Name		Airport Model 11b.2-1985	
Runway Designation		5/23	
Runway Length		6800 FT	
Traffic Pattern (check one) Left Hand <input checked="" type="checkbox"/> Right Hand <input type="checkbox"/>			
		Propeller	Jet
Number of Operations/Year		44895	16790
Runway Utilization	Runway		
	5	80 %	90 %
	23	20 %	10 %
	Total	100 %	100 %
Percentage of Propeller or Jet Operations between 2200 and 0700		7 %	13 %
Twin Engine Operations as Percentage of all Propeller Operations		31 %	
Turbojet Operations as Percentage of all Jet Operations			100 %
Flight Path (check one) Sketch <input type="checkbox"/> Map <input type="checkbox"/> Other <input type="checkbox"/>			
Notes Jet Dominates → 26% of flights			

FIGURE 2. FORM FOR COLLECTING AIRPORT OPERATIONAL INFORMATION

Runway Designation	51 ¹⁹⁸⁵	
Runway Length	6800 FT ft.	
Type of Operation (check one)	Propeller <input type="checkbox"/>	Jet <input checked="" type="checkbox"/>
Number of Operations/Year on this Runway (Propeller or Jet)	1/2 operations	8395 (1)
Percentage of Operations Between 2200 and 0700	13 %	
Adjustment Factor from Figure 6		3.1 (2)
If Propeller, Twin Engine Operations As Percentage of Propeller Operations	- %	
Adjustment Factor from Figure 4		(3)
If Jet, Turbojet Operations as Percentage of Jet Operations	100 %	
Adjustment Factor from Figure 5		1.4 (3)
Adjustment for Larger Aircraft or Fleet Projections (Section VI - A, B)*		- (4)
Total Adjusted Operations (1) x (2) x (3) x (4)		36434
From Tables 1-6 Find Contour Code		
Turn to Contour Set	Circle One From Each Set	From Contour Code Write Down Value of Contour Alongside Letter Code, Where Applicable
	<p> <input checked="" type="radio"/> NEP <input type="radio"/> P <input checked="" type="radio"/> 100 1 <input type="radio"/> LDN <input checked="" type="radio"/> J <input type="radio"/> 075 2 <input type="radio"/> CNR <input type="radio"/> <input type="radio"/> 050 3 <input type="radio"/> <input type="radio"/> <input type="radio"/> 4 <input type="radio"/> <input type="radio"/> <input type="radio"/> 5 </p>	

*See Section VI for Calculation Steps

FIGURE 3. CONTOUR CALCULATION WORKSHEET

Airport Name		Airport Model No. 2 - 1955	
Runway Designation		14/32	
Runway Length		3000	
Traffic Pattern (check one) Left Hand <input type="checkbox"/> Right Hand <input type="checkbox"/>			
		Propeller	Jet
Number of Operations/Year		41245	— 0
Runway Utilization	Runway		
	14	25% total 50 %	— %
	32	25% total 50 %	— %
	Total	100 %	100 %
Percentage of Propeller or Jet Operations between 2200 and 0700		7 %	— %
Twin Engine Operations as Percentage of all Propeller Operations		28 %	
Turbojet Operations as Percentage of all Jet Operations			— %
Flight Path (check one) Sketch <input type="checkbox"/> Map <input type="checkbox"/> Other <input type="checkbox"/>			
Notes			

FIGURE 2. FORM FOR COLLECTING AIRPORT OPERATIONAL INFORMATION

1985

Runway Designation	14/	32 (same)																			
Runway Length	3000	ft.																			
Type of Operation (check one)	Propeller <input checked="" type="checkbox"/>	Jet <input type="checkbox"/>																			
Number of Operations/Year on this Runway (Propeller or Jet)	1/2 total	20622 (1)																			
Percentage of Operations Between 2200 and 0700	7 %																				
Adjustment Factor from Figure 6		2.1 (2)																			
If Propeller, Twin Engine Operations As Percentage of Propeller Operations	28 %																				
Adjustment Factor from Figure 4		1.62 (3)																			
If Jet, Turbojet Operations as Percentage of Jet Operations	— %																				
Adjustment Factor from Figure 5		— (3)																			
Adjustment for Larger Aircraft or Fleet Projections (Section VI - A, B)*	—	— (4)																			
Total Adjusted Operations (1) x (2) x (3) x (4)		70156																			
From Tables 1-6 Find Contour Code																					
Turn to Contour Set	Circle One From Each Set	From Contour Code Write Down Value of Contour Alongside Letter Code, Where Applicable																			
	<table style="border-collapse: collapse;"> <tr> <td style="text-align: center;">(NEF)</td> <td style="text-align: center;">(P)</td> <td style="text-align: center;">(100)</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">LDN</td> <td style="text-align: center;">J</td> <td style="text-align: center;">075</td> <td style="text-align: center;">(2)</td> </tr> <tr> <td style="text-align: center;">CNR</td> <td></td> <td style="text-align: center;">050</td> <td style="text-align: center;">3</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;">4</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;">5</td> </tr> </table>		(NEF)	(P)	(100)	1	LDN	J	075	(2)	CNR		050	3				4			
(NEF)	(P)	(100)	1																		
LDN	J	075	(2)																		
CNR		050	3																		
			4																		
			5																		

*See Section VI for Calculation Steps

FIGURE 3. CONTOUR CALCULATION WORKSHEET

APPENDIX B
BIOLOGICAL DATA

Appendix Table B-1.

Fishery Survey Conducted at Miller's Point
and Thompson Bay

<u>Date</u>	<u>Location</u>	<u>Sampling Apparatus*</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Number</u>
7/1/73	BS-1	Beach Seine	Sheepshead Minnow	<u>Cyprinodon variegatus</u>	10
			Striped Mullet	<u>Mulgil cephalus</u>	4
			Atlantic menhaden	<u>Borezoortia tyrannus</u>	2
			Longnose Killifish	<u>Fundulus similis</u>	13
			Gulf Killifish	<u>Fundulus grandis</u>	11
7/1/73	BS-2	Beach Seine	Sheepshead Minnow		9
			Striped Mullet		2
			Atlantic Menhaden		1
			Longnose Killifish		13
			Gulf Killifish		6
			Blueback Herring	<u>Alosa aestivalis</u>	1
			Weakfish	<u>Cynoscion regalis</u>	1
7/1/73	BS-3	Beach Seine	Sheepshead Minnow		17
			Longnose Killifish		21

* All samples represent three repetitions.

Appendix Table B-1. (Cont'd)

<u>Date</u>	<u>Location</u>	<u>Sampling Apparatus*</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Number</u>
			Gulf Killifish		19
			Blueback Herring		1
			Silversides	<u>Menidia menidia</u>	4
7/1/73	BS-4	Beach Seine	Sheepshead Minnow		6
			Atlantic Menhaden		4
			Longnose Killifish		11
			Gulf Killifish		12
			Blueback Herring		2
7/2/73	T-1	Trawl	Tarpon	<u>Tarpon atlanticus</u>	1
			Redfish	<u>Sebastes marinus</u>	4
			Weakfish	<u>Cynoscion regalis</u>	2
			Black Drum	<u>Pogonias cromis</u>	2
			Hogchoaker	<u>Achirus fasciatus</u>	12
7/2/73	T-2	Trawl	Tarpon		1
			Redfish		7

* All samples represent three repetitions.

**Trawl sampling repetitions include subsurface, middepth and bottom.

Appendix Table B-1. (Cont'd)

<u>Date</u>	<u>Location</u>	<u>Sampling Apparatus*</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Number</u>
			Hogchoaker		10
			Jackfish	<u>Caranax hippos</u>	3
7/2/73	T-3	Trawl	Redfish		2
			Weakfish		2
			Black Drum		4
			Hogchoaker		9
			Jackfish		2
			Kingfish	<u>Scomberomorus regalis</u>	1
7/2/73	T-4	Trawl	Redfish		6
			Weakfish		4
			Hogchoaker		17
			Jackfish		1
			Blueback Herring		1

* All samples represent three repetitions.

**Trawl sampling repetitions include subsurface, middepth and bottom.

Appendix Table B-2.

Mammals Expected to Occur in the Study Area

<u>Common Name</u>	<u>Scientific Name</u>
Least Shrew	<u>Cryptotis parva</u>
Shorttail Shrew	<u>Blarina brevicauda</u>
Eastern Mole	<u>Scalopus aquaticus</u>
Gray Fox	<u>Urocyon cinereoargenteus</u>
Striped Skunk	<u>Mephitis mephitis</u>
Raccoon	<u>Procyon lotor</u>
Eastern Gray Squirrel	<u>Sciurus carolinensis</u>
Southern Flying Squirrel	<u>Glaucomys volans</u>
Eastern Fox Squirrel	<u>Sciurus niger</u>
House Mouse	<u>Mus musculus</u>
Golden Mouse	<u>Onchomys nuttalli</u>
White-footed Mouse	<u>Peromyscus leucopus</u>
Hispid Cotton Rat	<u>Sigmodon hispidus</u>
Pine Vole	<u>Pitymys pinetorum</u>
Meadow Vole	<u>Microtus pennsylvanicus</u>
Norway Rat	<u>Rattus norvegicus</u>
Eastern Cottontail	<u>Sylvilagus floridanus</u>

Appendix Table B-3.

Reptiles and Amphibians Expected
to Occur in the Study Area

<u>Common Name</u>	<u>Scientific Name</u>
Common Snapping Turtle	<u>Chelydra serpentina</u>
Eastern Mud Turtle	<u>Kindsternon s. suburbum</u>
Eastern Box Turtle	<u>Terrepene c. carolina</u>
Florida Cooter	<u>Pseudemys f. floridana</u>
Yellow-bellied Turtle	<u>Pseudemys s. scripta</u>
Chicken Turtle	<u>Deirochelys reticularia</u>
Green Anole	<u>Anolis c. carolinensis</u>
Fence Lizzard	<u>Sceloporus undulatus</u>
Six-lined Racerunner	<u>Cnemidophorus sexlineatus</u>
Ground Skink	<u>Lygosoma laterale</u>
Five-Lined Skink	<u>Eumeces fasciatus</u>
Broad-Headed Skink	<u>Eumeces laticeps</u>
Eastern Glass Lizard	<u>Ophisaurus ventralis</u>
Slender Glass Lizard	<u>Ophisaurus attenuatus</u>
Red-Bellied Water Snake	<u>Natrix e. erythrogaster</u>
Garter Snake	<u>Thamnophis s. sirtalis</u>
Ribbon Snake	<u>Thamnophis s. sauritis</u>
Eastern Hognose Snake	<u>Heterodon platyrhines</u>
Yellow-Lipped Snake	<u>Rhadinaea flavilata</u>

Appendix Table B-3. (Cont'd).

<u>Common Name</u>	<u>Scientific Name</u>
Southern Ringneck Snake	<u>Diadophis p. punctatus</u>
Eastern Worm Snake	<u>Carphophis a. amoenus</u>
Eastern Coachwhip	<u>Masticophis f. flagellum</u>
Rough Green Snake	<u>Opheodrys aestivus</u>
Corn Snake	<u>Elaphe g. guttata</u>
Yellow Rat Snake	<u>Elaphe obsoleta quadrivittata</u>
Eastern King Snake	<u>Lampropeltis g. getulus</u>
Scarlet King Snake	<u>Lampropeltis d. doliata</u>
Scarlet Snake	<u>Cemophora coccinea</u>
Southeastern Crowned Snake	<u>Tantilla c. coronata</u>
Eastern Coral Snake	<u>Micrurus fulvius</u>
Southern Copperhead	<u>Agkistrodon c. contortrix</u>
Eastern Cottonmouth	<u>Agkistrodon p. piscivorus</u>
Canebrake Rattlesnake	<u>Crotalus horridus atricaudatus</u>
Eastern Diamondback Rattlesnake	<u>Crotalus adamanteus</u>
Southern Dusky Salamander	<u>Desmognathus fuscus auriculatus</u>
Many-Lined Salamander	<u>Stereochilus marginatus</u>
Eastern Mud Salamander	<u>Pseudotriton m. montanus</u>
Three-Lined Salamander	<u>Eurycea longicauda guttolineata</u>
Dwarf Salamander	<u>Manculus quadridigitatus</u>

Appendix Table B-3. (Cont'd).

<u>Common Name</u>	<u>Scientific Name</u>
Eastern Spadefoot	<u>Scaphiopus holbrooki</u>
Southern Toad	<u>Bufo terrestris</u>
Oak Toad	<u>Bufo quercicus</u>
Southern Cricket Frog	<u>Acris g. gryllus</u>
Spring Peeper	<u>Hyla crusifer</u>
Green Treefrog	<u>Hyla cinerea</u>
Pine Woods Treefrog	<u>Hyla femoralis</u>
Squirrel Treefrog	<u>Hyla squirella</u>
Gray Treefrog	<u>Hyla versicolor</u>
Southern Chorus Frog	<u>Pseudacris clarki</u>
Brimley's Chorus Frog	<u>Pseudacris brimleyi</u>
Eastern Narrow-Mouthed Toad	<u>Gastrophryne carolinensis</u>
Southern Leopard Frog	<u>Rana pipiens sphenoccephala</u>

Appendix Table B-4.

Birds Expected to Occur in the Study Area

<u>Common Name</u>	<u>Scientific Name</u>	<u>Relative** Abundance</u>
Common Loon	<u>Gavia immer</u>	U-M
Red-Throated Loon	<u>Gavia stellata</u>	U-W
Horned Grebe	<u>Colymbus auritus</u>	U-W
Pied-Billed Grebe	<u>Podilymbus p. podiceps</u>	U-W
Double-Crested Cormorant	<u>Phalacrocorax auritus</u>	U-W
Great Blue Heron	* <u>Ardea herodias</u>	C-R
Snowy Egret	* <u>Laucophoyx t. thula</u>	U-R
Little Blue Heron	<u>Florida c. coerulea</u>	U-R
Green Heron	<u>Butorides v. virescens</u>	U-S
Black-Crowned Night Heron	<u>Nycticorax nycticorax</u>	U-R
American Bittern	<u>Botaurus lentiginosus</u>	C-R
Least Bittern	<u>Ixobrychus e. exilis</u>	U-S
Wood Ibis	<u>Mycteria americana</u>	U-R
Canada Goose	<u>Branta canadensis</u>	C-W
Brant	<u>Branta bernicola</u>	U-W
Mallard	* <u>Anas p. platyrhynchos</u>	C-W

* Observed or sign observed during field reconnaissance.

**Abundant - A Common - C Uncommon - U Winter - W
 Summer - S Migrant - M Resident - R

Appendix Table B-4. (Cont'd).

<u>Common Name</u>	<u>Scientific Name</u>	<u>Relative** Abundance</u>
Black Duck	* <u>Anas rubripes</u>	C-W
Pintail	<u>Anas acuta tzitzihoa</u>	U-W
Green-Winged Teal	<u>Anas carolinensis</u>	U-W
Blue-Winged Teal	* <u>Anas discors</u>	U-W
Shoveller	<u>Spatula clypeata</u>	U-W
American Scoter	<u>Oidemia nigra americana</u>	U-W
Hooded Merganser	<u>Lophodytes cucullatus</u>	U-W
Red-Breasted Merganser	<u>Mergus serrator</u>	C-W
Turkey Vulture	* <u>Cathartes aura</u>	C-R
Black Vulture	<u>Coragyps atratus</u>	C-R
Red-Tailed Hawk	<u>Buteo jamaicensis</u>	C-R
Marsh Hawk	<u>Circus eyaneus hudsonius</u>	C-R
American Kestrel	* <u>Falco sparverius</u>	C-R
Bob-White	* <u>Colinus virginianus</u>	A-R
King Rail	<u>Rallus e. elegans</u>	C-R
Clapper Rail	<u>Rallus logirostris</u>	A-R
Black Rail	<u>Laterallus jamaicensis pygmaeus</u>	C-S
Florida Gallinule	<u>Gallinula cholropus cachinnans</u>	C-R
Coot	* <u>Fulica americana</u>	C-R
Semipalmated Plover	<u>Charadrius hiaticula semipalmatus</u>	U-M

Appendix Table B-4. (Cont'd).

<u>Common Name</u>	<u>Scientific Name</u>	<u>Relative** Abundance</u>
Killdeer	* <u>Charadrius v. vociferus</u>	C-R
Black-Bellied Plover	* <u>Squatarola squatarola</u>	C-W
Hudsonian Curlew	<u>Numenius phaeopus hudsonicus</u>	C-M
Willet	<u>Catoptrophorus semipalmatus</u>	U-W
Greater Yellow-Legs	<u>Totanus melanoleucus</u>	C-W
Lesser Yellow-Legs	* <u>Totanus flavipes</u>	C-M
Knot	<u>Calidris canutus rufus</u>	C-W
Least Sandpiper	<u>Erolia minutilla</u>	C-W
Black-Banded Sandpiper	<u>Erolia alpina pacifica</u>	U-M
Dowitcher	<u>Limnodromus griseus</u>	C-M
Western Sandpiper	<u>Ereunetes mauri</u>	C-M
Sanderling	<u>Crocethia alba</u>	C-W
Wilson's Phalarope	<u>Steganopus tricolor</u>	C-M
Herring Gull	* <u>Larus argentatus</u>	C-W
Ring Billed Gull	* <u>Larus delawarensis</u>	C-W
Laughing Gull	* <u>Larus atricilla</u>	A-R
Bonapart's Gull	* <u>Larus philadelphia</u>	C-W
Gull-Billed Tern	<u>Gelochelidon nilotica aranea</u>	U-R
Foster's Tern	* <u>Sterna fosteri</u>	C-R

Appendix Table B-4. (Cont'd).

<u>Common Name</u>	<u>Scientific Name</u>	<u>Relative** Abundance</u>
Common Tern	<u>Sterna h. hirundo</u>	C-S
Roseate Tern	<u>Sterna d. dougallii</u>	U-M
Least Tern	<u>Sterna albiformis</u>	C-S
Royal Tern	* <u>Thalasseus m. maximus</u>	C-R
Cabot's Tern	<u>Thalasseus sandvicensis acuflava</u>	U-S
Black Skimmer	<u>Rynchops n. nigra</u>	U-R
Rock Dove	* <u>Columba livia</u>	C-R
Mourning Dove	* <u>Zenaidura macroura</u>	A-W
Long-Eared Owl	<u>Asio otus wilsonianus</u>	U-W
Short-Eared Owl	<u>Asio f. flammeus</u>	U-W
Whip-Poor-Will	<u>Caprimulgus vociferus</u>	U-R
Ruby-Throated Hummingbird	<u>Archilochus colubris</u>	C-S
Belted Kingfisher	* <u>Megaceryle a. alycon</u>	C-R
Common Flicker	<u>Colaptes auratus</u>	C-R
Pileated Woodpecker	<u>Hylatomus pileatus</u>	U-R
Red-Bellied Woodpecker	* <u>Centurus carolinus</u>	C-R
Yellow-Bellied Sapsucker	<u>Sphyrapicus v. varius</u>	U-R
Hairy Woodpecker	* <u>Dendrocopus villosus</u>	C-R
Downy Woodpecker	* <u>Dendrocopus pubescens</u>	C-R
Eastern Kingbird	<u>Tyrannus tyrannus</u>	C-S

WATER QUALITY CRITERIA

Water quality criteria required for Class "B" waters are as follows:

- . Dissolved oxygen levels must not be less than 5.5 mg/l from other than natural sources.
- . The normal range of pH must not be extended at any location by more than ± 0.1 pH units. At no time shall the pH be less than 6.7 or greater than 8.3.
- . Temperature is not to exceed 1.5°F above natural at any time.
- . Fecal coliform bacteria shall not exceed a geometric mean of 70 per 100 ml (MF).
- . Total dissolved gas pressure shall not exceed 110 percent of existing atmospheric pressure.
- . Phosphorus as total "P" shall not exceed 50 mg/l in any coastal waters.
- . There will be no suspended, colloidal, or settleable solids from wastewater sources which will cause deposition or be deleterious for the designated uses.
- . There shall be no residue of oil or floating substances attributed to wastewater nor visible oil film or globules of grease.
- . Total radioactivity shall not exceed:

1,000 picocuries of gross beta per liter in the absence of Sr. 90 and alpha emitters.

3 picocuries of Radium 226 per liter

10 picocuries of Strontium 90 per liter

- . There shall be no taste or odor producing substances in amounts that will interfere with the use for primary contact recreation, potable water supply or will render any undesirable taste or odor to edible aquatic life.
- . Maximum 30-day average of 50 Jackson Turbidity Units (JTU), a maximum of 150 JTU at any time, unless exceeded due to natural conditions.

Summary of Water Quality Data

Parameters	Units	North Miller's Point (W1)*			East Miller's Point (W2)			South Miller's Point (W3)		
		Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
Temperature	°C	28.1	25.2	27.4	28.2	25.2	27.3	28.2	25.1	27.3
Salinity	ppt	34.6	30.2	32.3	35.2	29.9	32.0	30.5	26.5	29.1
Dissolved Oxygen	mg/l	9.1	5.9	7.3	9.0	5.6	7.2	8.9	5.8	7.1
pH		8.1	8.0	8.0	8.2	7.9	8.0	8.0	7.9	8.0
Turbidity	JTU	65	30	44	55	35	42	61	33	46
Fecal Coliform	#100/ml	60	10	20	50	10	15	55	10	20
BOD ₅	mg/l	2.0	0.3	0.7	1.6	0.7	1.0	1.8	1.0	1.2
Total Suspended Solids	mg/l	7.5	1.0	4.3	6.8	1.4	4.1	7.8	2.0	4.4
Total Phosphorus	mg/l	0.15	0.05	0.11	0.18	0.02	0.09	0.19	0.10	0.12
Kjeldahl Nitrogen	mg/l-N	0.34	0.19	0.23	0.48	0.15	0.24	0.37	0.19	0.21
Nitrates	mg/l-N	0.13	0.06	0.09	0.13	0.05	0.08	0.14	0.05	0.09
Chemical Oxygen Demand (COD)	mg/l	45.0	22.0	31.0	66.0	20.0	25.0	51.0	20.0	27.0
Color	APHA	5	5	5	5	5	5	5	5	5
Mercury	mg/l	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1

* Water Quality Sampling Station Designation as shown on Exhibit 12

Chemical Characteristics of Sediment Samples
Taken from the Channel

<u>Parameter</u>	<u>Units</u>	<u>Sample (Boring #)</u>		<u>Corps of Engineers* Maximum</u>
		<u>A-1</u>	<u>A-3</u>	
Volatile Solids	% (wt/wt)	2.50	2.41	6
Chemical Oxygen Demand	% (Wt/wt)	0.50	1.04	5
Total Kjeldahl Nitrogen	% (wt/wt)	0.035	0.036	0.1
Oil & Grease	% (wt/wt)	0.024	0.014	0.15
Mercury	% (wt/wt)	$<6 \times 10^{-7}$	$<6 \times 10^{-7}$	0.001
Lead	% (Wt/wt)	0.0005	<0.0001	0.005
Zinc	% (wt/wt)	0.004	0.002	0.005
Settleable Solids	% (wt/wt-1)	99.62	98.90	--

* Recommended maximum for dredge material; U. S. Army Corps of Engineers, Disposal of Dredge Materials, Technical Report H72-8, November 1972.

APPENDIX C
CORRESPONDENCE

STATE DEPARTMENT OF NATURAL RESOURCES

Division of
Historical and Archaeological Site Preservation

January 10, 1975

Mr. Albert B. Richards
Southeast Aviation Authority

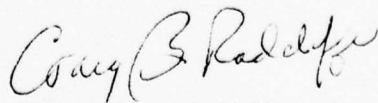
Dear Mr. Richards:

This is to acknowledge receipt of your preliminary plans for Freedom Airport. Review of the facility by Dr. Mason Freehold, State Historic Preservation Officer, disclosed no conflict with sites or landmarks included or proposed to be included in the National Register of Historic Places. In fact, the closest historic site to Miller's Point is the Grover Calhoun Plantation and Slave Quarters -- a good six miles to the northwest.

However, Dr. Ira Swanscott, State Archaeologist, has informed me that the Sypejay Indian tribe frequented the Bay and Freedom County tidal areas. Known Sypejay tribal grounds have been located and are under excavation sixteen miles southwest and twenty-three miles north of Miller's Point. Several other mounds believed to be of archaeological significance have also been discovered along the confluence of local creeks and coastal bays.

We feel that the site should undergo at least a preliminary evaluation and suggest that you contact local archaeological experts based at Lee City College to review this matter.

Sincerely,



Craig B. Radcliffe, Ph.D.
Director

CBR/rc

COASTAL COUNTIES REGIONAL PLANNING COMMISSION
Lee City

April 1, 1975

Southeast Aviation Authority
County Office Building Annex

Gentlemen:

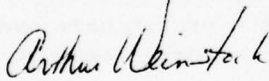
As part of the Coastal Counties RPC's overall review of the proposed Freedom Airport, I have been asked to review possible conflicts with known historical or archaeological sites.

This is to confirm that no historical or archaeological sites are known to exist within or adjacent to Miller's Point. The closest historical site is six miles to the northwest, and the closest archaeological dig is sixteen miles to the southwest.

Consequently, so far as this specific issue is concerned, we have no objection to airport construction.

Sincerely,

HISTORIC, ARCHAEOLOGICAL,
AND PARK PLANNING SECTION



Arthur Weinstock
Supervisor

AW/rb

DEPARTMENT OF ARCHAEOLOGY

Lee City College
1212 Merrimac Hall

April 4, 1975

Mr. Albert B. Richards
Southeast Aviation Authority

Dear Mr. Richards:

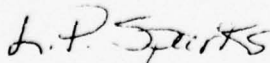
This is to transmit to you our report covering a three-week special study to determine the archaeological value of Miller's Point. Findings in the report represent document research and field reconnaissance of a five-man team -- all either Associate or Assistant Professors of Archaeology, including Dr. Alois Crowther, a nationally recognized authority on Sypejay culture.

Our findings can be summarized quite succinctly. We are confident that the Sypejay tribe did not use, inhabit, or in any way occupy Miller's Point.

Undoubtedly, members of the Sypejay tribe traveled across the property over the centuries to trap or fish or reach other settlement grounds. However, field reconnaissance showed the tract devoid of mounds, markers, or traces indicative of encampment. Concealment of any valuable activity would be almost impossible due to the relatively high water table. Some mound or inexplicable variation in elevation would be present if a settlement had been sustained over a prolonged period.

Thus, you may proceed in your plans to construct an airport on Miller's Point without concern that your actions may in any way preempt a valuable archaeological find.

Sincerely,



L. P. Sparks, Ph.D.
Chairman

LPS/rd

FREEDOM COUNTY HISTORICAL SOCIETY
68 Beauregard Pickett Boulevard

April 18, 1975

Mr. Albert B. Richards
Southeast Aviation Authority

Dear Mr. Richards

We were most appreciative of the visit by your consultant and the opportunity to review preliminary plans for the proposed Freedom Airport.

Please be assured that there are no historical sites within or adjacent to Miller's Point nor within proposed flight paths for the facility.

Sincerely,

FREEDOM COUNTY HISTORICAL SOCIETY


Ramona Treemont (Mrs. Alfred)
President

RT/ra

STATE DEPARTMENT OF NATURAL RESOURCES

Coastal Zone Management Agency

April 2, 1975

Mr. Albert B. Richards
Southeast Aviation Authority

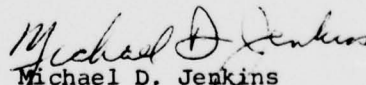
Dear Mr. Richards:

As you know, our interest in this state's coastal zone involves not only protection of our marine resources, but also the orderly development of our coast.

Based on our understanding of the need for a reliever airport facility in our region, and based on our review and understanding of the potential impacts of site development, we feel that the Phase I development appears consistent with the state's Coastal Zone Management program.

We ask that coordination with our office be maintained throughout the permit process and subsequent phases of development.

Very truly yours,


Michael D. Jenkins
Director

MDJ/mnr

APPENDIX D
AIR QUALITY

Climatological Normals, Means, and Extremes
for Southeast International Airport

Month	Temperature				Precipitation				Wind				
	Normal		Extremes 1963-1974		Normal Total	Max. Monthly	Min. Monthly	Max. in 24 Hrs.	Year	Year	Mean Speed	Prevailing Direction	
	Max.	Min.	Record High	Record Low									#
(a)	(b)	(b)	9	9	(b)	26	26	26	26	26	26	14	
J	71.3	51.0	84	1971	202	8.02	1949	T	1950	1953	9.1	N	
F	72.8	52.6	88	1971	148	7.95	1963	0.21	1950	1963	9.7	NE	
M	76.0	56.0	87	1965	102	12.64	1959	0.06	1956	1960	10.0	S	
A	81.4	61.3	92	1970	0	2.84	1957	T	1967	1951	9.7	ENE	
M	87.0	66.6	96	1967	0	7.55	1959	0.47	1953	1971	9.2	N	
J	89.4	71.7	97	1964	0	11.11	1957	1.86	1951	1957	8.5	NE	
J	89.7	73.4	97	1964	0	8.62	1960	2.31	1962	1960	7.7	E	
A	90.3	73.7	97	1970	0	8.24	1949	2.35	1952	1949	7.4	ENE	
S	88.7	72.3	96	1972	0	6.89	1947	1.28	1972	1950	8.5	ENE	
O	83.8	65.6	93	1971	0	2.78	1952	0.25	1961	1968	9.1	NNE	
N	76.8	56.8	90	1970	60	6.12	1963	T	1960	1963	8.9	NNE	
D	72.5	52.1	86	1972	171	1.89	1950	0.21	1956	1969	8.9	N	
Year	81.6	62.8	97	Aug. 1970	683	51.57	20.59	1960	Apr. 1967	12.11	1960	8.9	E

Extremes: Highest Temperature: 97° in June 1964, July 1964, and August 1970; Lowest Temperature: 23° in November 1970, and January 1971.
Maximum Precipitation in 24 hours: 12.11 inches July 1960; Minimum Precipitation Monthly: 0.06 March 1956.

Fastest Wind: 84 Miles Per Hour September 1935.

(a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.

(b) Climatological standard normals (1942-1970).
Trace, an amount too small to measure. Below zero temperatures are preceded by a minus sign. The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.

Source: U. S. Department of Commerce National Oceanic and Atmospheric Administration Environmental Data Service.
Data collected between 1963 and 1974 at Southeast International Airport, Southeast America.

* Normal Heating Degree Days (Base 65°F).

Annual Relative Wind Speed and Direction Frequency Distribution
at Southeast International Airport, Southeast America (1970)

<u>Direction</u>	<u>Speed (Kts)</u>							<u>Total</u>
	<u>0 - 3</u>	<u>4 - 6</u>	<u>7 - 10</u>	<u>11 - 16</u>	<u>17 - 21</u>	<u>>21</u>		
N	1.00	1.68	1.92	1.61	.17	.00	6.38	
NNE	1.54	2.36	1.47	.38	.17	.00	5.92	
NE	1.41	2.95	7.64	7.50	1.37	.07	20.94	
ENE	.63	1.23	1.27	1.10	.14	.00	4.37	
E	0.22	.55	1.54	1.34	.24	.00	3.89	
ESE	.82	1.82	3.02	2.47	.51	.00	8.64	
SE	.48	1.47	1.64	2.05	.21	.03	5.88	
SSE	.72	1.51	1.23	1.13	.27	.03	4.89	
S	1.10	2.12	1.40	.38	.21	.03	5.24	
SSW	.80	1.06	.68	.31	.00	.00	2.85	
SW	1.27	1.68	.86	.27	.10	.00	4.18	
WSW	1.20	2.02	1.16	.58	.03	.00	4.99	
W	.23	.27	.45	.41	.10	.00	1.46	
WNW	1.27	2.09	1.16	1.06	.24	.03	5.85	
NW	.50	.99	1.03	.96	.17	.00	3.65	
NNW	.28	.86	3.53	5.24	.92	.03	10.86	
Total	13.47	24.66	30.00	26.79	4.85	.22		

Total relative frequency of observations = 100.00
Total relative frequency of calms distributed above = 9.35

Annual Relative Frequency Distribution* of
Occurrence of Stability Class "F"
at Southeast International Airport, Southeast America

Direction	Speed (Kts)						Total
	0 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	
N	.0342	.1712	.0685	.00	.00	.00	.2740
NNE	.0959	.0685	.0685	.00	.00	.00	.2329
NE	.0068	.0342	.1027	.00	.00	.00	.1438
ENE	.0205	.1027	.3425	.00	.00	.00	.4658
E	.2055	.2055	.6849	.00	.00	.00	1.0959
ESE	.0137	.0685	.0685	.00	.00	.00	.1507
SE	.0068	.0342	.1370	.00	.00	.00	.1781
SSE	.0205	.1027	.0685	.00	.00	.00	.1918
S	.0548	.0685	.0685	.00	.00	.00	.1918
SSW	.0411	.00	.0342	.00	.00	.00	.0753
SW	.1096	.1370	.0685	.00	.00	.00	.3151
WSW	.0137	.0685	.1370	.00	.00	.00	.2397
WNW	.0616	.1027	.0685	.00	.00	.00	.2329
NW	.0616	.1027	.0000	.00	.00	.00	.1644
NNW	.0753	.1712	.1027	.00	.00	.00	.3493
Total	.8904	1.5753	2.0548	.00	.00	.00	

Relative frequency of occurrence of "F" stability = 4.5205
Relative frequency of calms distributed above with "F" stability = .4110

* In percentages

Finite Line Source Dispersion Model*

This model is developed to treat long line sources and compute air pollution dispersion from mobile sources such as aircraft. The dispersion model is constructed on the basis of a Gaussian-type transport kernel.

In preparation of the model, a "Puff Model" theory is used. This model considers the release from mobile sources as continuous, interacting "puffs," each puff extending over a finite line segment and/or a duration of a time T. For this duration, all meteorological parameters are considered constant. An average of one-hour duration (T = 1 hour) is used in the computations.

In the coordinate system for this model, the origin is taken at the ground level and beneath the point of emission with the x-axis extending horizontally along the line source. The y-axis is in the horizontal plane, perpendicular to the x-axis, and the z-axis extends vertically.

The average concentration for a ground-level horizontal line source at an angle ϕ relative to the wind and at a receptor point (x, y, z) can be expressed as:

$$\chi_i = \frac{q_i}{2 \sqrt{2\pi} (UT \sin \phi \sigma_z)} \exp \left(-0.5 \frac{z^2}{\sigma_z^2} \right).$$

Equation 1:

$$\left[\operatorname{erf} \left(\frac{L \sin \phi - y}{\sqrt{2} \sigma_y} \right) - \operatorname{erf} \left(-\frac{y}{\sqrt{2} \sigma_y} \right) \right]$$

Where χ_i = Average concentrations for i^{th} puff
 q_i = Linear mass density (gm/m - sec)
U = Wind speed (m/sec)
T = Duration period (hour)
 σ_z = Gaussian vertical dispersion coefficient (m)
 σ_y = Gaussian horizontal dispersion coefficient (m)
L = Length of the line (m)

* Source: Airport Vicinity Air Pollution Study, D. M. Rote, I. T. Wang, L. E. Wangen, R. W. Hecht, R. R. Cirillo, J. Pratapas, December, 1973: Report No. FAA-RD-73-113

$$\text{erf}(\chi) = \frac{2\chi}{\sqrt{\pi}} \left[1 - \frac{\chi^2}{1!3} + \frac{\chi^4}{2!5} - \frac{\chi^6}{3!7} \right]$$

Where χ = Downwind distance from source to receptor point

Gaussian dispersion coefficients are a function of downwind distance and are obtained from the "Workbook of Atmospheric Dispersion Estimates" by Turner.

Input for Finite Source Dispersion Model
Peak Hour Operations*

<u>Aircraft</u>	<u>Operations</u>		<u>Total</u>
	<u>Takeoff</u>	<u>Landing</u>	
Turboprop Transport	1	-	1
Business Jet	1	-	1
General Aviation			
Twin-engine + DC-3	3	2	5
Single-engine	5	4	9

* Ten percent of total daily operations (1977).

Wind speed = 1 m/sec

Duration period = 1 hour

DRAFT EIS COORDINATION
COMMENTS AND FAA RESPONSES



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 25 1977

OFFICE OF THE
ADMINISTRATOR

Mr. Elliott B. Perrett, Jr., (AAP-410)
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

RE: FAA Model Draft Environmental Impact Statement #2
Freedom Airport, Southeast, America

Dear Mr. Perrett:

Comment No

The U.S. Environmental Protection Agency (EPA) has reviewed the draft environmental impact statement (EIS) for the above project. While we wish to commend the general scope of the EIS in addressing potential environmental effects, we note aspects of air and water quality as well as noise impacts which warrant further information in the final statement. We also note that further attention needs to be given to project justification and to the potential impacts of completing all three phases of project development. Our concerns in these areas are outlined below.

General

Freedom Airport is being proposed as a reliever facility to divert general aviation (g.a.) traffic from Southeast International Airport (SIA), however, no data is presented documenting the need for this relief. The EIS should present figures showing the current and predicted (1977, a middle year, and 1990) operations at SIA, separating out air carrier from general aviation activity. SIA's operational capacity should also be given. From this forecast data, the projected useful life of SIA both with and without the general aviation traffic should be determined and illustrated. The information generated should indicate whether a general aviation reliever airport as proposed (all three stages) is the best solution (1)

to the anticipated demand, or whether a new international airport handling both air carrier and general aviation traffic would be the best solution. This might be the case if the data shows that SIA would reach capacity without general aviation traffic shortly after the time that the traffic had been removed. Also, all forecasting techniques used should be explained and sources for forecast data given.

Assuming the need for Freedom Airport, however, and assuming the projections of 135,000 operations in 1990 (with the completion of stage III development) are correct (again, forecast technique and data source should be provided in final EIS), attention should be given to the need for improved vehicular access to the proposed site at some time in the future. Information on the capacities and current and projected usages of Lee Turnpike, Calhoun Road, and Rhett Road, both with and without the project, should be presented and analyzed. Highway construction generally requires a long lead time, and early consideration should help ensure the necessary access being in place when needed. (2)

The proposed airport is in an area currently zoned for residential development. This is in accordance both with the County Land Use Plan and the Regional Comprehensive Plan. As admitted in the EIS, a zoning exception and a change in the Comprehensive Plan would be required for the airport to be constructed on the site. The EIS has explored the impacts of such actions, but not their feasibility. These actions should be definite before any Federal commitments are made to the project. (Page III-9) (3)

Air Quality

1. The Federal Motor Vehicle Pollution Control Program deadlines calling for a 90% reduction in emissions (over a base year) have now been extended a number of times. Your analyses, based on the assumption there will be no further delays, may turn out to have under-estimated the projects' air quality impacts if, additional delays are incurred. We, therefore, suggest that to be conservative, your predicted pollutant loadings and air quality concentrations for 1977 as well as for future years be based on the current emission standards, and assume no further tightening. (4)

2. The applicability to the proposed site of the ambient condition estimates for SO₂ and particulates should be explained. (Page III-44) (5)
3. The methodology used to determine the CO, NOx and HC ambient conditions at the middle of the proposed site should be provided. (Page III-44) (6)
4. The section Factors Affecting Air Quality makes reference to mixing heights in the southeast area which is not substantiated in the cited text. According to our information, mean annual morning mixing heights in the southeast Atlantic coast area are approximately 600m not 500m, and the afternoon mean annual mixing heights are 1200m to 1400m not 1800m as cited in the EIS. (Page III-45) (7)
5. Where modeling was used for predictive air quality, identification of the specific model should be made (other than EPA's area source model which you identified) along with identification (in an appendix) of all input data used in the model. This input data should indicate all assumptions and supply descriptions of model verifications. (Page III-49) (8)
6. Table 16 indicates total pollution loadings projected for 1977, however, documentation of each source type, number of sources and emission rates are lacking and cannot be verified. The final EIS should contain this information for both aircraft traffic and related vehicle traffic (including parking facilities) to the airport and airport service vehicles. Presentation of all data utilized in calculating emission for each source should be presented in an appendix so that parallel verification is possible. (Page III-49) (9)
7. The Non-Airport Related Vehicular Traffic category in Table 16 should be footnoted to indicate the geographic area it refers to. In addition, a better heading might be Off-Site Airport Related Vehicular Traffic. (Page III-50) (10)

Water Quality

1. Included in the wastes to be contained should be fire fighting chemicals. A clarifier to remove these should be a part of the storm drain design. (Page III-29) (11)

2. The discussion on sanitary sewage demands for the airport facility assume that 90 percent of the water used will be returned to the sanitary system. The basis for this assumption should be presented in the EIS. (Page III-61) (12)

3. The statement indicates sanitary waste will be treated by on-site septic tanks until 1980. The EIS should present data showing the suitability of the site for septic tanks in terms of soil types and water table depth. Information on the efficiency of the existing mobile home septic tanks would be useful in discussing the site's suitability. (13)

In conjunction with information on the soil conditions as they relate to septic tanks, discussion should be presented on soil types in relation to their ability to support airport construction. (Pages III-61 and VIII-8)

4. The statement is made that all facilities will be protected against the 100-year flood. The final EIS should indicate whether this statement is also applicable to the wastewater treatment and water supply systems. (Page IV-4) (14)

Noise

The draft EIS is thorough in its presentation of the noise impacts of the proposed project and its alternatives. However, the final EIS should indicate the source of the operational data (for both current and forecast conditions), the forecasting techniques used and their margin of error, and a sensitivity analysis indicating the magnitude of change in noise exposure which could be expected given an increase or decrease in projected operations. (15)

Thank you for the opportunity to review this Model draft EIS. Please send us four copies of the final EIS when it is available. You may call Ms. Bond (245-3006) of my staff if these comments require clarification.

Sincerely yours,

Rebecca W. Hanmer

Rebecca W. Hanmer
Director
Office of Federal Activities (A-104)

RESPONSES TO COMMENTS BY
THE U. S. ENVIRONMENTAL PROTECTION AGENCY

Response to Comment No. 1:

Forecasts of aircraft activity at Southeast International Airport (SIA) and a discussion of forecasting techniques have been added to the text of the Final EIS.

Response to Comment No. 2:

A discussion of site traffic generation and highway access has been added to the Direct Socioeconomic Impacts section of the Final EIS.

Response to Comment No. 3:

Discussions between the Aviation Authority and the County Commissioners, and statements by the latter group are referenced in the Final EIS.

Response to Comment No. 4:

The motor vehicle emissions were computed using the emission factors published in the EPA publication AP-42, Supplement No. 2, September, 1973. In December, 1975, Supplement No. 5 to AP-42 was published, reflecting a new schedule for the motor vehicle pollution control program. These revisions would result in an approximate increase of ten (10) percent in the automotive emissions for 1977 as given in the Draft EIS.

It is felt that the latest state-of-the-art techniques and existing applicable standards should be utilized in assessing environmental impact. Since the new supplement to AP-42 does reflect the latest control schedule and does provide a means for obtaining emission factors for future years, it is considered appropriate at this time to utilize estimated emission factors for future conditions.

Response to Comment No. 5:

The estimates for SO₂ and particulates were obtained from the Freedom County Bureau of Air Quality and are the average levels reported for the entire county.

Response to Comment No. 6:

The CO, NO_x, and HC ambient levels were computed based on the existing peak hour vehicular traffic, since automotive emissions were the major pollution source in the project area. The methodology used to determine these concentrations involved the procedures for determining emission factors for light-duty, gasoline-powered vehicles (AP-42, Supplement No. 2, September, 1973) and the highway source model and equations described in FHWA Report No. FHWA-RD-72-36, "Air Quality Manual, Vol. IV, Mathematical Approach to Estimating Highway Impact on Air Quality".

Response to Comment No. 7:

Upon re-examination of the values in the cited text, it was found that the mean annual morning mixing height ranges from 400 meters to 900 meters, while the annual afternoon mixing height ranges from 1,000 to 1,400 meters. This range of mixing heights would not significantly affect the pollutant concentrations shown in the Draft EIS for the receptor points in such close proximity to the emission source.

Response to Comment No. 8:

The specific model is identified and referenced in the text of the Final EIS. Input data and a discussion of the model have been included in Appendix D of the Final EIS.

Response to Comment No. 9:

The source types and numbers used in the estimation of the pollutional loadings are contained in the text of the Final EIS.

Response to Comment No. 10:

The "non-airport vehicular traffic" identified in the referenced table represents other traffic on major roads in the airport vicinity and not off-site airport traffic. The "airport vicinity" in this case extended to include the two major residential developments in the area and the main connecting highways.

Response to Comment No. 11:

Clarifiers to remove fire fighting chemicals and other wastes will be included in the storm drain design.

Response to Comment No. 12:

The assumption that 90 percent of the water used is returned to the sanitary system is a widely-used rule-of-thumb estimate employed in engineering practice. It is discussed in Chapter VI of the reference, "Airports and Their Environment - A Guide to Environmental Planning", September, 1972.

Response to Comment No. 13:

The soils of the area are recent-age beach deposits of the Woodstown-Fallsington association. These soils are well to moderately drained. Subsurface soils are earlier-age estuary deposits of Pliocene or later formation. The local groundwater level varies from seven feet below the surface in the area of the existing trailer park to a few inches below the surface at the edge of the bay. Those areas of the proposed airport property lying above elevation +8.0 are well suited for sewage effluent disposal by the tile field systems. Operation of the mobile home site's present system has been excellent. See Response to DOI Comment No. 3.

Response to Comment No. 14:

The water supply and wastewater treatment systems will be constructed to be protected from the 100-year flood.

Response to Comment No. 15:

A daily operational breakdown of aircraft activity at the proposed site is given in the EIS Appendix for 1977 and 1985 conditions. This daily breakdown is derived from planning data on annual forecasts and from consultation with planning, air traffic, and operations personnel at Southeast International Airport.

Forecasting techniques are discussed and referenced in the Final EIS.

A sensitivity analysis for the NEF criteria shows that noise exposure would increase three (3) units (NEF values) when the number of operations is doubled.

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

Washington, D. C. 20250

JAN 27 1977

Mr. Elliott B. Perrett, Jr.
Contract Technical Representative
Environmental Planning Branch, AAP-410
Federal Aviation Administration
Department of Transportation
Washington, D.C. 20591

Dear Mr. Perrett:

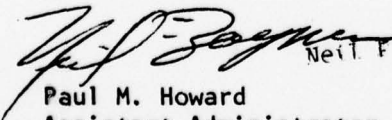
Comment No _____

The Soil Conservation Service (SCS) has been requested to respond to your two letters of January 11, 1977, concerning two model environmental impact statements (EIS). The draft EIS's cover the construction of two hypothetical airport projects.

The SCS believes that the preparation of a model EIS covering a hypothetical federal or federally-assisted action would lead to the development of stereotyped documents of little or questionable value in the decisionmaking process. The spirit and intent of the National Environmental Policy Act (1) of 1969 (NEPA) is a full disclosure of the environmental consequences of each major federal action. Each project usually involves different land uses, demographic patterns, social and economic values, and resources. The chances of overlooking significant environmental impacts would be greatly increased if model EIS's were developed.

We are enclosing a copy of this agency's NEPA procedures for preparing EIS's, for your information. One observation that might be made concerning the two hypothetical EIS's is that the impact of destroying prime agricultural land by constructing the airports is not described. This should be (2) covered in the EIS.

Sincerely,


Neil F. Bogner, Acting
Paul M. Howard
Assistant Administrator
for Field Services

Enclosure



RESPONSES TO COMMENTS BY
THE U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Response to Comment No. 1:

The intended purpose of this entire research effort is to provide additional guidance to those offices in the agency which are responsible for the review and preparation of airport environmental impact assessment reports and statements. This and other model (or "sample") statements are to be used in conjunction with the document, "Environmental Assessment of Airport Development Actions". The latter is a guidance book which details the environmental assessment process for each type of potential airport impact.

It is agreed that each project is different and has its own relevant impacts. However, the documents referenced above can be used as guidelines which show how a particular impact was evaluated or what the assessment for a certain type airport development contained.

Response to Comment No. 2:

Though not specifically identified as a potential impact for this airport situation, the consideration of effects on prime and unique farmland should be made for airport development actions.

Prime farmlands are those whose value derives from their general advantage as cropland due to soil and water conditions. Unique farmlands are those whose value derives from their particular advantages for growing specialty crops.

Section V. F. 16 of the guidance document referenced above deals specifically with the assessment process for prime and unique farmlands.

UNITED STATES GOVERNMENT

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE SECRETARY

Memorandum

DATE: FEB 4 1977

SUBJECT: Model Environmental Impact Statements

In reply
refer to: TES-72

FROM : Director, Office of Environmental Affairs

TO Environmental Planning Branch, FAA/AAP-410
Attn: E. B. Perrett, Contract Technical
Representative

Comment No

We have reviewed the two model draft environmental impact statements (EIS) transmitted by your memoranda of January 11, 1977. The model statements should be quite useful to field units as guides for future EIS preparation.

With respect to the "Bicentennial International Airport" EIS, the model for an air carrier airport, this office provided comments on January 14, 1976. We believe that these (1) comments are still appropriate, and a copy of our memorandum is attached. In addition, we have received a copy of the comments made on that EIS by the Advisory Council on Historic Preservation, and concur with the Council's comments.

We have the following suggestions to offer on the EIS for Freedom Airport, a proposed new reliever facility:

Land Use. The EIS indicates that the current land use plan for the vicinity of the proposed airport includes planned residential land uses which would not be compatible with the noise impacts from the airport. Compatible land uses are recommended; however, the only indication that these recommendations will be considered by the County is included in the A-95 comments. (2) We do not believe that such discussion provides adequate assurance that land uses will be compatible with the airport. We suggest that the discussion of these matters be revised to show that there has been extensive coordination with local planning and zoning officials, and there is reason to believe that compatible land use planning and zoning will be implemented in the near future.

Air Quality. On page III-49, the EIS indicates that a finite line source model was developed to calculate pollutant dispersion. In order to assist reviewers with air quality responsibilities, the EIS should refer to the specific model used, or the appendix should provide information on the model inputs and methodology. (3)

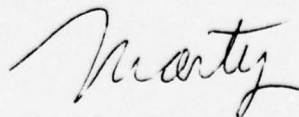
Coastal Zone Impacts. The EIS indicates, on page III-35, that the Phase I development "appears consistent" with the State's coastal zone management program. The EIS should indicate that comments as to consistency have been received from the State coastal zone agency, and that FAA has determined the proposed airport to be consistent with the program, based on the coastal zone agency's comments. (4)

On page III-33, it is indicated that the Coastal Zone Management Act established protection of the coastal zone as a national objective. This Act provides a process for decision making in the coastal zone, to assure orderly development, as well as protection of coastal zone resources. We suggest that the Act be quoted to avoid the impression that its sole purpose is protection of coastal zone resources. (5)

Alternatives. The hypothetical project involves fill in waters significant for recreational purposes; a determination pursuant to section 4(f) is required, as discussed in the EIS. In our opinion, the discussion of alternatives is not adequate to support a determination that there is no feasible and prudent alternative to the recommended site. Of the two alternative sites considered, one was rejected almost solely on the basis of poor access and distance from the population to be served. It does not appear to have been a realistic alternative, and we suggest that any master planning study which investigated other potential sites be discussed. (6)

In addition, since the second alternative site considered was rejected on grounds of noise and wetland impacts, we suggest that maps depicting these impacts be included in the EIS. (7)

We appreciate the opportunity to offer comments on this model EIS.


Martin Convisser

Attachment

AD-A049 300

GREINER ENVIRONMENTAL SCIENCES INC BALTIMORE MD
ENVIRONMENTAL IMPACT STATEMENT FOR FREEDOM AIRPORT, SOUTHEAST, --ETC(U)
NOV 77

DOT-FA75WA-3703

F/G 1/5

UNCLASSIFIED

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343

AD-A049 300



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FILMED
3-78
DDC

RESPONSES TO COMMENTS BY
THE U. S. DEPARTMENT OF TRANSPORTATION
OFFICE OF ENVIRONMENTAL AFFAIRS

Response to Comment No. 1:

See responses to comments on Draft EIS for Bicentennial Airport (Model EIS for an air carrier airport).

Response to Comment No. 2:

See Response to EPA Comment No. 3.

Response to Comment No. 3:

See Response to EPA Comment No. 8.

Response to Comment No. 4:

The comments received from the Coastal Zone Management Agency are referenced in the Final EIS.

Based upon a thorough impact evaluation and continuous consultation with the State Coastal Zone Management Agency, the agency finds that the development is consistent with the coastal zone management program.

Response to Comment No. 5:

The text of the Final EIS has been modified to reflect this comment.

Response to Comment No. 6:

The discussion of alternatives within the section of the EIS on 4(f) Lands has been expanded in response to this comment.

Response to Comment No. 7:

A more detailed discussion of the noise and wetland impacts associated with this alternative site has been added to the Final EIS.



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

OFFICE OF THE SECRETARY

WASHINGTON, D.C. 20201

Mr. Elliott Perrett, Jr., AAP-410
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

Dear Mr. Perrett:

Comment No

We have reviewed the Draft Environmental Impact Statement for the hypothetical Freedom Airport, Southeast, America. Based upon the data contained in the draft, it is our opinion that the proposed action will have only a minor impact upon the human environment within the scope of this Department's review, except for provisions for aircraft accident potential areas.

The airport design should designate aircraft accident potential areas within and around the airfield for the safety of the passengers and civilian population. A study of major accidents combined with a statistical analysis of the location of actual accidents should provide an indication of areas where accidents might occur. These areas should be left clear and/or evaluated for uses other than homes.

(1)

Thank you for the opportunity to review the document.

Sincerely,

Charles Custard
Director
Office of Environmental Affairs

RESPONSES TO COMMENTS BY
THE U. S. DEPARTMENT OF HEALTH,
EDUCATION, AND WELFARE

Response to Comment No. 1:

Airport design does not identify accident potential areas, per se; however, design criteria, including approach and clear zone dimensions, runway lengths, separation of runways and taxiways, etc. have evolved over the years to reflect actual experience and provide for the safe and efficient operation of aircraft in and around the airport.

Compatible land uses are also encouraged to limit residential development and otherwise protect the airport environs.



UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230

March 1, 1977

Mr. Elliott B. Perrett, Jr.
Contract Technical Representative
Office of Airports Programs
U.S. Department of Transportation
Washington, D. C. 20591

Dear Mr. Perrett:

This is in reference to your draft environmental impact statement entitled "Freedom Airport Southeast, America". The enclosed comments from the National Oceanic and Atmospheric Administration are forwarded for your consideration.

Thank you for giving us an opportunity to provide these comments which we hope will be of assistance to you. We would appreciate receiving 4 copies of the final statement.

Sincerely,

Sidney R. Galler
Sidney R. Galler

Deputy Assistant Secretary
for Environmental Affairs

Enclosures:

Memo from Gordon Lill - National Ocean Survey
Memo from George Cressman - National Weather Service
Memo from William Stevenson - National Marine Fisheries
Memo from Douglas Le Comte - Environmental Data Service



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

C52/JLR

FEB 22 1977

FEB 18 1977

TO: William Aron
Director
Office of Ecology and Environmental Conservation

FROM: *Gordon Lill*
Gordon Lill
Deputy Director
National Ocean Survey

SUBJECT: DEIS #7701.12 - Freedom Airport, Southeast, America
(Model Environmental Impact Statement)

Comment No

The subject statement has been reviewed within the areas of NOS responsibility and expertise, and in terms of the impact of the proposed action on NOS activities and projects.

The following comment is offered for your consideration.

It appears that current observations in the navigational channel of Thompson Bay, south of Miller's Point, should be included in the model EIS.

(1)





U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

W11x2/MJA

FEB 14 1977

FEB 1 1977

TO: Dr. William Aron
Director, Office of Ecology and Environmental
Conservation, EE

FROM: George P. Cressman
Director, National Weather Service, W

SUBJECT: DEIS 7701.12 Freedom Airport, Southeast, America
(Model EIS)

Comment
No.

We are pleased to see DOT attempt to develop a model EIS and include critical items.

Section III-32 on FLOOD HAZARD EVALUATION, should be expanded to include riverine flood hazards (from BERN CR shown in exhibit #1). Statements need to be included along these lines:

"Annual floods occur on Bern Creek, and historical data from the USGS and NWS indicate 5 major floods since records began in 1895. These floods reached an elevation of XXX MSL over the airport access road shown in exhibit 4. Flood forecasts are prepared for Bern Creek (near Lee City) by the NWS River Forecast Center in Central City. These warnings emanate from the WSFO in Lee City. Additional coverage is provided for flash floods by the weather radar operated at WSFO Lee City." (2)

On Table 13, page III-46, change the title to "Climatological Normals, Means, and Extremes for Southeast International Airport" to correctly identify the data. Restore heating and cooling degree day data given in the source used to provide data relating to the first paragraph, page III-65. Change the year citation in note (b) to 1941-1970 to exemplify current source data. We'd prefer to replace Table 13 with a direct copy of the current summary for the source used (Local Climatological Data, Tampa, Fla., ca. 1972), adding other relevant weather and climatic data as appropriate to the case. (3)

The model assumes a rather benign climate, avoiding the necessity to develop any possible problems in realistic detail. Actual climate for Tampa shows a fairly high exposure to hurricanes, tornadoes, thunderstorms, and heavy fog constituting some hazard to air operations, and consequently to impact from accidents. These points are nowhere mentioned. Cooling degree days are significant, undercutting the dismissal of energy for air conditioning on page III-65. Also, the incidence of E and F stability classes, and more importantly of air stagnation episodes lasting 4 or more days is moderately high, so that meteorological factors contributing to long-period pollution conditions cannot be dismissed as readily as indicated on page III-45. (4)

We would have to give close attention to these weaknesses in commenting on an actual Draft Environmental Impact Statement.



17 1977

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 Duval Building
 9450 Gandy Boulevard
 St. Petersburg, FL 33702

February 4, 1977

FSE61/WNL

TO: Director,
 Ofc of Ecology & Environmental Conservation, EE

THRU: *for* *Robert L. Schuler* *FEB 10 1977*
 Acting Assistant Director for
 Scientific & Technical Services, F5

FROM: *W* William H. Stevenson *William H. Stevenson*
 Regional Director

Comment
 No. _____

SUBJECT: Comments on Draft Environmental Impact Statement --
 Freedom Airport, Southeast, America (Model Environ-
 mental Impact Statement) (DEIS #7701.12)

The draft environmental impact statement for Freedom Airport, Southeast, America, that accompanied your memorandum of January 17, 1977, has been received by the National Marine Fisheries Service for review and comment.

The statement has been reviewed and the following comments are offered for your consideration.

General Comments:

Statements and data regarding fish and shellfish resources are generally lacking, as indicated in the following specific comments.

Specific Comments:

Section III: Probable Impact on the Environment

Page III-12, Vegetation and Wildlife - Paragraphs 1 and 2 state that aquatic species were sampled in Thompson Bay and Bern Creek and that detailed species lists are provided in the appendix. However, the only species list appearing in the appendix is for fishes taken by seine and trawl in Thompson Bay. (5)

Page III-15, Tidal Wetlands - This section dwells on the importance of tidal wetlands to avifauna and mammals, completely ignoring fish and shellfish resources. It should include a list of fish and shellfish species common to the wetlands, as well as a (6)



discussion of the importance of these wetlands in providing a food source (detritus) and nursery habitat for these resources.

Page III-16 Benthos - Tabular data should be presented to document the statement that densities of benthic invertebrates were low, rather than simply footnoting the 1973 DNR survey report which is not available to the reader. Better yet, the DNR report should be appended to the DEIS, to provide pertinent information on the type of sampling gear used, frequency of sampling, etc. (7)

Page III-17 1st paragraph - Reference to mudflats is confusing in light of the previous paragraph which stated that low densities of benthic organisms were expected "due to the presence of sediments primarily comprised of packed sand and which was nearly devoid of organic matter." The extent to which mudflats occur in the area should be described and depicted on Exhibit 13. (8)

Page III-17 and 18 Fish - Data collected from one day's sampling at four stations in mid-summer is not sufficient evidence to conclude that the fish population in the area is limited. (9)

Page III-21 Marine Ecology - Evidence is needed to support the statement the "Boating activity has severely degraded the channel's marine environment." (10)

Page III-25, 1st paragraph - The three sampling stations for water quality determinations should be described and depicted in Exhibit 13. (11)

Page III-26, Table 8 - At what depths and frequency were the samples taken? (12)

Page III-53, 5th paragraph - The depth and width to which the navigation channel is to be enlarged should be given. (13)

Section IV - Actions to Minimize Unavoidable Adverse Effects
Page IV-4, Wetlands and Coastal Zone Management - The special equipment and access, planned to minimize impact on the marsh area during pier placement, should be discussed. (14)

cc:
F53 (3)



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
ENVIRONMENTAL DATA SERVICE
Washington, D.C. 20235

FILE 2 1077

February 4, 1977

Dx61/DL

TO: William Aron, Director
Office of Ecology and Environmental Conservation, EE

FROM: *Douglas Le Comte*
Douglas Le Comte
Special Projects

SUBJECT: EDS Review of DEIS 7701.12 - Freedom Airport,
Southeast, America (Model Environmental Statement)

Comment
No.

Weather should be an important consideration when planning a site for a new airport. Though meteorological information is provided in Tables 13, 14, and 15, additional information should be provided. The data given are from the airport in current use. How far from this site will the reliever airport be? Are conditions at the current airport applicable to the planned airport? Weather near the coast in the tropics and subtropics often varies considerably over short distances, so any potential differences in weather between the airports should be described. Also, information on visibility and ceilings should be included.

(15)



RESPONSES TO COMMENTS BY
THE U. S. DEPARTMENT OF COMMERCE

Response to Comment No. 1:

The hydrography of Thompson Bay is influenced by winds, tides, currents, and bathymetry. The 0.62 foot mean low water to mean high water range and the shape of the bay produce a maximum current of approximately 0.6 knots.

Response to Comment No. 2:

Where appropriate, an EIS shall address riverine flood hazards as suggested by this comment. In this situation, however, the entire tidal marsh is below the 100-year flood elevation and is subject to tidal flooding. This tidal flooding is higher than the potential riverine flooding.

Response to Comment No. 3:

Changes to the title and content of this table (in Appendix of this Final EIS) have been made in the Final EIS to reflect this comment. Within the context of a model statement, the table as shown approximates the actual climatological table referenced. Where available, the actual current summary of climatological data can be used and referenced in the EIS.

Response to Comment No. 4:

The model has been developed for a specific, though hypothetical site. As such, the climate has been established as indicated and is not meant to reflect that of Tampa, Florida. However, the comment is valid in that it identifies some of the meteorological factors which should be considered in the planning, site selection, environmental assessment, and operation of airports. For example, where cooling degree days are significant, air conditioning requirements would be evaluated in facility design and in energy usage. Where the potential for air stagnation episodes occurs, the air quality analysis of the environmental assessment would include that consideration in the derivation of pollutant concentrations.

Response to Comment No. 5:

Benthic and plankton species identified in the study are found in the referenced State DNR report.

Response to Comment No. 6:

Data on fish and shellfish resources has been added to the section of the Final EIS on tidal wetlands.

Response to Comment No. 7:

Supporting technical information can be appended to or referenced in the EIS. The sampling program was a joint effort of the Airport Authority's representatives and State DNR personnel. A separate DNR report was prepared and is available at the office of the local sponsor and the FAA Airports District Office.

Response to Comment No. 8:

To avoid confusion, the referenced paragraph has been revised and included in the sub-section on tidal wetlands. Reference to "mudflats" has been changed to "open areas".

Response to Comment No. 9:

The evaluation of the fish population was not based solely on results of the sampling program. A thorough literature search and continuing consultation and coordination with the State Department of Natural Resources provided additional information on existing conditions and potential impacts. All species sampled were resident species. No substantial seasonal changes were expected and no spawning runs were known to occur in the area. The sampling was accomplished after the spring spawning season.

The depth of impact analysis was related to the potential level of impact.

Response to Comment No. 10:

The statement has been changed to more correctly read: "Continuous maintenance dredging in support of recreational and commercial boating has

severely degraded the channel's marine environment." This condition was learned through consultation with personnel from the State Department of Natural Resources and the Corps of Engineers.

Response to Comment No. 11:

The location of the three water quality sampling stations have been added to Exhibit 12 in the Final EIS.

Response to Comment No. 12:

The samples were taken daily at a depth of three feet.

Response to Comment No. 13:

The navigation channel will be enlarged to a 75-foot width and a 12-foot depth.

Response to Comment No. 14:

A detailed mitigation plan for the project will be prepared through agency consultation and sponsor participation. See Responses to Department of the Interior's Comments Nos. 38 and 44-46.

Response to Comment No. 15:

The proposed site for the reliever facility is located fifteen miles to the south of Southeast International Airport. The site feasibility study conducted in 1972 considered meteorological data and reported that conditions at the planned site are very similar to those at SIA.



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U. S. COAST GUARD (C-WS/73)
WASHINGTON, D. C. 20590
PHONE: (202) 426-2262

2 MAR 1977

Mr. Elliott B. Perrett, Jr.
Contract Technical Representative
Office of Airport Programs
Federal Aviation Administration
Department of Transportation
Washington, D. C. 20590

Comment No

Dear Mr. Perrett:

This is in response to your letter of 11 January 1977 addressed to the Commandant concerning a Model Environmental Impact Statement.

The following comments are offered. The comments are more detailed than we usually make since this is a model statement.

"a. Page I-1. Settings of actual projects should be indicated on a map of the state in which proposed action is to be implemented to provide reviewers with broader regional familiarity. (1)

"b. Page III-16. Benthic organisms should be described by common as well as generic names, as has been done in previous sections. (2)

"c. Page III-17. Phytoplankton genera should be underlined and followed by 'spp.', i.e., Anabaena spp., and more generally identified, (3) i.e., bluegreen algae, diatom, dinoflagellate. Ulothrix spp. is an attached, multicellular green algae and can hardly be described as a phytoplankter.

"d. Pages III-12 - III-35. What superficially appears to be a thorough ecological investigation does not answer two basic questions: What impacts will the project have on ecological communities in the area, and how can (4) these impacts be mitigated? This problem is common to many EIS's. Extensive information has been gathered from several sources. A thorough ecological description could be provided with a little more information and its correlation and application.

"(1) Table 8, page III-26 is deficient in three major respects. Sampling stations W1, W2, and W3 are not evident on Exhibit 13. Two important parameters, sampling dates and sampling depths, are not included. (5)

"(2) Photographs indicate that Thompson Bay has estuarine characteristics, a freshwater surface flow and a saline bottom flow. These flows occur because of differences in water density, a function of temperature (6) and salinity. Since water temperature varies during the course of the year, sampling dates are important in that water density and flow patterns may also

vary during the course of the year. By including sampling depth in the data, surface and bottom flows can be identified and net water transport defined. Once net transport is described, planners can decide at what depth pollutants may be added to have the least impact on biota downstream from the source.

"(3) Detailed species lists require significant field and laboratory work to prepare, but do not show relationships among species listed. (7) By noting these relationships during field investigations, communities can be more accurately described and their boundaries more accurately delineated.

"(4) Species lists do not indicate what may happen to organisms should certain disturbances occur. An expert biologist is not needed to (8) ascertain this. Generally, species exist in an area where environmental stresses are within their tolerance limits and do not occur in areas where they cannot cope with environmental stresses. Environmental stresses at community boundaries provide significant information as to what these stress limits are. Planners can then decide what effects disturbances will have on species comprising a community and can then take measures to preserve more desirable species.

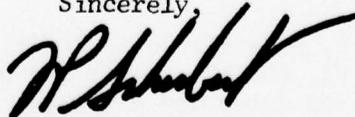
"(5) Diversity indices provide further information as to stresses placed on a community. Low indices indicate substantial environmental (9) stress; high indices indicate less stress. Numbers of individuals have already been counted for some samples. By inserting these numbers into a diversity index formula, planners can determine which areas are already stressed, the relative amount of stress and, thereby, where additional stresses can be placed to have minimum ecological impact.

"(6) Naturally, the more a decision maker knows about an organism's life history and ecology, the better equipped he is to mitigate stresses (10) imposed on it. However, by using the methods described above, a planner need not be an expert biologist nor expend much more effort to obtain a vastly expanded understanding of an area's ecology and to incorporate this knowledge into his decision making.

"e. The model provides a good guideline for future projects. However, it must be kept in mind that each project has unique attributes and that a particular format does not hold in all cases." (11)

The opportunity to review this model environmental impact statement is appreciated.

Sincerely,



F. P. Schubert
Captain, U. S. Coast Guard
Deputy Chief, Office of Marine
Environment and Systems
By direction of the Commandant

RESPONSES TO COMMENTS BY
THE U. S. COAST GUARD

Response to Comment No. 1:

The location of a particular site within a state can be shown as an insert in a Location Map.

Response to Comment No. 2:

The common names of the benthic organisms have been added to the text of the Final EIS.

Response to Comment No. 3:

The text of the Final EIS has been revised to reflect this comment.

Response to Comment No. 4:

The impact evaluation on the area's vegetation and wildlife was considered to be consistent with the project setting and the anticipated level of impact. The environmental study included literature search, field reconnaissance, aquatic species sampling, and agency consultation. No endangered or threatened species were identified within the study area. The impact evaluation was based on the identification and understanding of the habitat types removed by the proposed project and the resultant effect on their respective species. Mitigation measures were outlined in the EIS. The original sampling, surveys, and biotic community identification were performed by qualified biologists as part of the interdisciplinary impact evaluation team.

Response to Comment No. 5:

The locations of the watersampling stations have been added to the subject exhibit. The water sampling dates are the same as those for the fisheries surveys, July 1-2, 1973. The water samples were conducted at a depth of three feet.

Response to Comment No. 6:

Water quality was sampled in close proximity to the proposed site in accordance with Response to Comment No. 5 above. It is proposed that further water quality monitoring during construction will be defined within a project impact mitigation plan to be developed through agency consultation.

Response to Comment No. 7:

See Response to Comment No. 4.

Response to Comment No. 8:

Species lists alone indeed do not relate the full impact picture. However, they do help to establish the existing conditions on which a professional evaluation of impact can be based. Existing environmental stresses are reflected in the description of the present conditions (i.e., "densities of macroinvertebrates were low," "limited fish population in the area is attributed mainly to the absence of forage").

Response to Comment No. 9:

It is agreed that use of a diversity index may be helpful in determining areas of stress. In this case, the continuing consultation with the State Department of Natural Resources has provided the information needed for planning.

Response to Comment No. 10:

It is suggested that planners utilize caution when evaluating impact on strictly a statistical basis. Every potential project has its own unique characteristics and impacts, and should be evaluated on a case-by-case basis.

Response to Comment No. 11:

See Response to Soil Conservation Service Comment No. 1.



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In reply refer to:
(ER-77/47)

MAR 16 1977

Dear Mr. Perrett:

Comment No

This is in response to your request for the Department of the Interior's review and comments on the draft environmental/Section 4(f) statement for Freedom Airport, Southeast, America (Model Draft Environmental Statement No. 2).

Initially, we would note for your information that our Fish and Wildlife Service was delayed in reviewing this statement because of priority reviews of other statements. Hence, this is a partial reply which is being made in response to your telephone request that we send you such comments as appropriate at this time so that your work on the final statement may proceed. You will find that this letter also lacks Section 4(f) comments because of the interrelationship of the Section 4(f) area to the involvement with potential concerns of the Fish and Wildlife Service. Our follow-up letter, which by agreement we hope to provide you by late March 1977, will furnish you our comments on these subjects.

ENVIRONMENTAL STATEMENT COMMENTS

General Comments

As mentioned in our reviews of previous model draft statements the need for and extent of a Section 16(c)(4) determination has yet to be resolved. This model statement, like the others, does not contain a Section 16(c)(4) finding or even any mention of the process. Therefore, we wish to call attention, (1) once again, to our views on this subject (please refer to our previous letters dated October 6, 1975, February 20, 1976, and February 23, 1976). We believe that the concerns expressed therein are still valid, especially since a 16(c)(4) determination is not included in this draft environmental/Section 4(f) statement for Freedom Airport.



Two statements regarding recreational impacts due to aircraft operation noise are inconsistent. It is stated (p. III-57) that "Noise from airport operations...should not affect (2) activities of water skiers." However, in response to public hearing issues (p. VIII-4), the statement is made that "noise levels on part of the bay immediately adjacent to the site may discourage use by water skiers or boating enthusiasts," and it is indicated that these recreationists will simply relocate to another portion of the bay. This contradiction should be resolved by including estimates of the amount of recreational use of the portion of the bay affected by noise and the number of recreationists displaced. In addition, the density of recreational use of the bay should be described, for both the present and the future, following the dredging of the navigation channel. This will establish how many recreationists will be able to relocate and how many will be eliminated from the bay due to the taking by runway fill and aircraft noise.

No information was found on the geology of the 725-acre site, except that an underlying aquifer was identified. In particular, we feel that geologic conditions and the character of surficial deposits or soils should be summarized, including information on their susceptibility to erosion and their suitability as foundation materials for construction of the proposed facilities. If natural foundations are sound and geologic hazards are absent these facts should be stated. Since the hydraulic fill will be placed to an elevation of at least 10 feet, a comparison of exhibits 3 and 14 indicates that about one-half of the runway will be constructed on fill, probably reaching thickness in excess of 15 feet offshore. However, we found little or no (3) information from which we could estimate suitability of the underlying materials to support the fill and the riprap around the new shoreline. In addition, the approximate volume of fill was not specified, although it seems evident that about 750,000 cubic yards would be required.

A proposed artificial pond is shown on exhibit 3, apparently situated in a small tributary immediately upstream from a tidal marsh. Exhibit 14 indicates that the pond would be constructed in an area between 5 and 10 feet above sea level. However, we noted no information in the text on the proposed method of impoundment of the pond, on its proposed depth, or on whether excavation is required. Although general measures for protection of the wetlands have been outlined, the setting of the (4) proposed pond is in such close proximity to the wetlands that more specific information on its design would be helpful.

We suggest that the summary sheet provide a local contact, probably the project sponsor, who could provide additional information about the project. (5)

Exhibit 15 should show the location of the Southeast International Airport since it is one of the alternative sites considered. In addition, this would aid the reviewer in evaluating the distances of the three alternative sites for a reliever facility from Lee City, relative to the distance to Southeast International Airport. A detailed map of this airport would more effectively show the conflicts associated with expansion, as described on pages V-2 and V-3. (6)

Since the statement will be distributed to a broad segment of people, terminology and abbreviations should be defined, where needed, in terms familiar to laymen. (7)

There is no indication if pesticides and herbicides will be used to control insects and vegetation in the airport area. The final statement should clarify this point. (8)

The new airport will require electric facilities and other energy commitments. These should be discussed in the final statement. (9)

Specific Comments

Page i. A general title for each appendix should be listed. (10)

Page I-1. Beginning on this page, a more detailed description of the proposed action is needed. Presently, the reader must piece together many of the details of the proposal which are gradually filled in throughout Section III (Impacts). All the discrete actions involved in each stage of project development, e.g., vegetation clearing, excavation, construction, operation, and possibly abandonment, should be clearly identified at the beginning, with quantification wherever possible. Also, specific ownership of lands to be acquired should be indicated. (11)

Page I-3. The purpose might be stated more clearly as follows: "The purpose of the proposed action is to construct a reliever airport to prevent congestion at SIA and better handle present and projected general air traffic in the Lee City area." The remainder of the section is background material and should be separated from the statement of purpose. (12)

Page I-4, paragraph 5. There should be a clearer distinction between a "new airport" and a "reliever airport." (13)

Page I-4, paragraph 6. The decision to construct a reliever airport should be stated as a fact rather than being stated so it appears to be based on information previously given. Information for a decision has not been given. (14)

Page I-6. Maps showing topography, geology, and soils on the proposed site should be included, along with discussions of these facts sufficient to permit analysis of potential construction problems and impacts. The nature of the soils in the area of the drain fields for the three proposed septic tank and tile systems (page III-61) should be described so that potential impacts of the system can be analyzed. (15)

Page III-1. In Section III (Impacts), the statement includes measures to minimize harm right alongside the identification of impacts, thus leaving the reader with the impression that "everything is taken care of." Potential impacts (beneficial and adverse) should stand alone, clearly identified, in Section III, with measures to minimize harm left to Section IV. It would also be desirable to have a section, following Section IV, which clearly identifies adverse impacts remaining after all measures to minimize harm are applied. (16)

Page III-8. The site is zoned for use as agricultural land. The type and number of acres, if any, in agricultural use should be noted. (17)

Page III-10. If there is present agricultural use, there would be impacts which should be discussed. (18)

Page III-32. Flood hazard evaluation should include a suitable map of the proposed site showing the flood-prone area. Also, the extent of tidal flooding of the Miller's Point site that may result from extreme seasonal high tides in Thompson Bay should be considered. (19)

Page III-37. Under "Economic Impacts," there should be an attempt, based on stated assumptions, to quantify the number of new jobs the proposed development can be expected to create. (20)

Page III-52. The statement that total polluttional loadings and carbon monoxide will reduce significantly must mean that figures in Table 18 are based on 1977 totals. Please refer to Table 1. To achieve the net reduction indicated in Table 18, it appears that the projected uncontrolled carbon monoxide emissions must be reduced about 60 percent in 1980 and nearly 80 percent in 1985. It seems that the total pollution load should be a function of vehicular activity, and the percent reduction should be related on a per-unit basis. (21)

Page III-61. More specific information on water-table conditions and soil characteristics of the proposed sites should be included in order to establish that conditions are suitable for the onsite septic-tank tile-field system to handle the estimated maximum daily demand of 5,300 gallons per day through 1980. (22)

Page III-64. The statement that "It must be remembered that energy consumption is prerequisite to progress" is not relevant to an assessment of the environmental effects of the proposed project, and therefore should be deleted. (23)

Page III-65, paragraph 2. It appears that there should be the same relationship between transit and limousine service for general aviation activity at Freedom Airport as there has been at SIA. The same facilities apparently would be needed. (24)

Page III-65, paragraph 4. If SIA is projected to be at non-congested capacity in 1977, the increased air traffic represents new energy demands. It would seem that the traffic diverted to Freedom Airport in order to allow other traffic at SIA would represent new energy demands. (25)

Page III-65, paragraph 5. Since the statement says that present facilities are adequate until 1977, it is not clear why general aircraft energy consumption would be reduced by the expedient of landing at a different field. An increase may be prevented but a decrease does not seem likely. (26)

Page IV-1. The impact on potential residential use of immediate and adjacent land areas is pointed out. The present land use of 725 acres will be affected immediately. The presentation indicates that mitigation will consist of changing any existing plans of other concerns so there will be no (27) interference with development of Freedom Airport. This hardly constitutes mitigation of impacts on existing land use. The final statement should propose such mitigation or clearly acknowledge that no mitigation will be undertaken.

Page IV-3. Construction of a holding pond with a "10-year storm" capacity would have some impacts. These should be (28) addressed in the final statement.

Page IV-4. Maintenance after construction will also require special access. Access should be planned and controlled to (29) prevent extended impacts, and should be addressed in the statement.

Page IV-6. Previous discussion indicates that circling aircraft and idling engines are not problems at present. The (30) seeming intent of the reliever airport is to prevent such problems rather than reduce them.

Page V-4, paragraph 3. Previously, the Roberts and Hash properties were eliminated merely on the basis of economics. Here the factors of environment and public relations are (31) included. The same reasons would have clarified the previous discussion.

Page V-5, No Project Alternate. This section should also (32) point out adverse impacts that would not occur. Further, it is possible that stabilization of activity at a balanced level may be better than continued expansion to a point beyond resource capabilities.

Page VI-2. We do not see how the item at the top of this page ("Noise forecast...") can be considered long-term enhancement of recreational opportunity, since project development will (33) result in ambient noise levels higher than those that would exist if the project were not constructed.

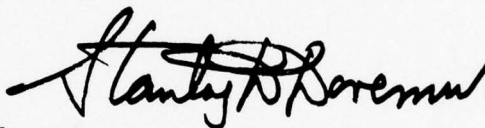
Page VII-2, last paragraph. The stated conclusion seems too positive since it appears that Freedom Airport could be abandoned if adverse conditions develop. (34)

Appendices. A table of contents would be helpful, and each appendix should have a general title. The table of Aircraft Operational Data should note if this information is for Freedom Airport or SIA. (35)

Tables A-11-8 and A-11-12 should explain terms like EPNL, DT, and Fr in a footnote. (36)

Thank you for the opportunity to review this draft statement.

Sincerely yours,



Deputy Assistant Secretary of the Interior

Mr. Elliott B. Perrett, Jr.
Contract Technical Representative
Environmental Planning Branch, AAP-410
Airports Planning Division
Office of Airports Programs
Federal Aviation Administration
Washington, D. C. 20591



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In reply refer to:
(ER-77/47)

APR 1 1977

Dear Mr. Perrett:

Comment
No. _____

This is in further response to your request for the Department of the Interior's comments on the draft environmental/ Section 4(f) statement for Freedom Airport, Southeast, America (Model Draft Environmental Statement No. 2). As we promised in our letter of March 16, 1977, we are providing additional comments on fish and wildlife resources and the project's Section 4(f) involvement.

SECTION 4(f) COMMENTS

Although the document has been circulated pursuant to Section 4(f) of the Department of Transportation Act, as amended, the text does not contain a proposed Section 4(f) (37) determination. However, the Section 4(f) statement, when augmented by additional information contained in other sections of the environmental statement, contains sufficient information to allow us to concur that there is no feasible and prudent alternative to the use of 4(f) lands by the project.

In addition to the measures to minimize harm proposed in the draft statement, we recommend that a satisfactory mitigation plan for the required dredging and filling be developed in (38) consultation with the U.S. Fish and Wildlife Service, and that this plan, to the extent possible, be included in the final Section 4(f) statement. When this is done we would then be in a position to concur that all possible measures to minimize harm have been undertaken.

ENVIRONMENTAL STATEMENT COMMENTS

Fish and Wildlife Comments

We recommend that an attempt be made to quantify the description of existing fish and wildlife resources. Population densities and such population characteristics as age and size composition should be determined and presented in the statement for the (39)



most abundant and/or ecologically significant members of the various communities. At the very least an indication should be given of the relative abundance of species present in the vicinity. Without this quantification it is difficult to correctly assess the impacts that may occur.

The statement should indicate the time of year that field sampling of the fish and wildlife resources was undertaken. (40) Seasonal variation could have a large effect on any inventory of organisms present in the area. Ideally, sampling should have been done throughout at least one seasonal cycle. The statement should also indicate the specific methods used for the collection of fish and wildlife data.

The statement correctly indicates the qualitative nature of the fish and wildlife impacts and quantifies the amount of (41) habitat that would be lost to project implementation. However, we again suggest that a complete impact assessment requires quantitative data for existing fish and wildlife populations on and nearby the proposed airport site.

Although the statement acknowledges that animals displaced by construction would encounter competition in adjacent areas, we suggest that it also acknowledge the high probability that a net loss of fish and wildlife would occur. In the absence (42) of evidence to the contrary, it must be assumed that adjacent lands and waters are already at or near maximum carrying capacity and that they cannot absorb additional animals displaced from the proposed construction site.

The draft statement indicates (page III-18) that no endangered or threatened species will be affected by the proposed project. Accordingly, for the sake of completeness, the statement should indicate that Section 7 of the Endangered Species Act of 1973 does not apply to this project. (43)

Dredging and filling in Thompson Bay for the immediate reclamation of 35 acres of bay bottom, and the ultimate development of an additional 40 acres, will require Section 404/ Section 10 permits from the Corps of Engineers. Under the (44) authority of the Fish and Wildlife Coordination Act the U.S. Fish and Wildlife Service of this Department will review and comment on applications for these required permits. It is the

opinion of that Service that the extent of the proposed dredging and filling in Thompson Bay would require a mitigation plan to avoid or minimize adverse impacts that may occur as the result of project implementation. The Service informs us that unless satisfactory mitigation could be negotiated, they would object to the proposed development

We strongly urge that coordination be undertaken at this time with the U.S. Fish and Wildlife Service with regard to such (45) a mitigation plan, and that the results of this coordination be included in the final statement. The final statement should also indicate that the project sponsors will consult with the Service throughout all phases of project development.

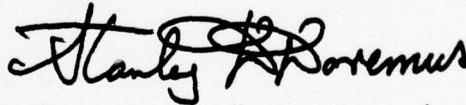
SUMMARY COMMENTS

The Department of the Interior offers no objection to Section 4(f) approval of this project, providing a satisfactory mitigation plan for the required dredging and filling is developed in consultation with the U.S. Fish and Wildlife Service, and that a commitment for the development of such a plan is included in the final Section 4(f) statement.

Requests for coordination and technical assistance relating to fish and wildlife resources should be addressed to Chief, Branch of Environmental Coordination, Division of Ecological Services, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D. C. 20240.

Thank you for the opportunity to review this draft statement.

Sincerely yours,



Deputy Assistant Secretary of the Interior

Mr. Elliott B. Perrett, Jr.
Contract Technical Representative
Environmental Planning Branch, AAP-410
Airports Planning Division
Office of Airports Programs
Federal Aviation Administration
Washington, D. C. 20591

RESPONSES TO COMMENTS BY
THE U. S. DEPARTMENT OF INTERIOR

Response to Comment No. 1:

When Section 16(c)(4) consultation is required and FAA guidelines indicate that Section 102(2)(C) coordination is involved, only one document is prepared. The coordination with respect to 102(2)(C) satisfies the requirements for consultation under 16(c)(4). The finding is not included in the Draft EIS. Conclusions are reached after consultation and are included as part of a final decision.

Response to Comment No. 2:

The response to the public hearing issue of impact on Thompson Bay Beach has been clarified in the text of the Final EIS. Use of the bay areas adjacent to the site by boaters and skiers may be discouraged more by the existence of the runway embankment as a navigation hazard than by aircraft noise. Based on communication with the Freedom County Department of Recreation and Parks and local residents, it is estimated that on a peak summer weekend, approximately 10-20 water skiers utilize the area of the bay adjacent to the proposed runway embankment.

Ultimate airport development would require the loss of 75 acres of bay recreational area. The total area of Thompson Bay from the causeway at Lee City to Hammond's Inlet on the south is approximately 100 square miles. Preliminary estimates indicate that improvements to the navigation channel will increase boating activity on the bay by about 25 percent over the next five years.

Response to Comment No. 3:

Natural foundation conditions are sound. Preliminary subsurface investigations show that underlying materials can support anticipated construction.

Information regarding soils and geology has been added to the Final EIS.

Response to Comment No. 4:

The Draft EIS described the pond, the control structure, the design year storm, the storage provided, and the elevation of flow above the level of weir for the design storm.

Response to Comment No. 5:

The appropriate local contact is an individual in the FAA District or Regional office who is most directly responsible for the particular project. In this case, the contact was the FAA Washington Office representative as indicated.

Response to Comment No. 6:

The location of Southeast International Airport (SIA) has been added to the exhibit depicting alternative sites. A detailed map of SIA is contained in the referenced feasibility study which evaluated expansion alternatives at that site.

Response to Comment No. 7:

An attempt has been made to define necessary abbreviations and to explain or reference technical terms and methodologies.

Response to Comment No. 8:

No herbicides or pesticides are planned for use at the proposed site. Any maintenance of vegetated areas on the property will be accomplished by mechanical means.

Response to Comment No. 9:

The electric power requirements for the proposed site have been estimated based on facility requirements and energy reduction techniques. These power demands have been coordinated with Southeast Power and Light and can be provided on a basis consistent with proposed project phasing.

Response to Comment No. 10:

A separate list of Appendices and their respective contents is contained on one of the introductory pages of the Final EIS.

Response to Comment No. 11:

The description of the project identifies those component items to be constructed. Construction, siting, and/or operational impacts are presented in the discussions of the various impact categories. The land to be acquired is under private ownership of the trailer park owner who will be compensated for the area taken.

Response to Comment No. 12:

The background information provided directly supports the need for reliever action. The forecast and other information is helpful in understanding why the action is being proposed and which other alternatives had been considered.

Response to Comment No. 13:

A "new" airport in this context envisioned a new international facility at another site which could handle the region's entire aviation needs. The "reliever" facility is proposed as a smaller facility which would accommodate the area's general aviation component, thus providing relief to the congestion at SIA, the area's air carrier airport.

Response to Comment No. 14:

The construction of a reliever airport was indeed a recommendation of the referenced SIA expansion feasibility study.

Response to Comment No. 15:

Site topography is shown on the Drainage exhibit. Information on geology and soils has been added to the Final EIS. See Response to EPA Comment No. 13.

Response to Comment No. 16:

Actions taken to minimize environmental effects should be included in the discussion of each appropriate impact category. This discussion can describe how airport planning and design techniques can respond to potential impacts. Section IV was structured to summarize those impacts which could be mitigated and those remaining adverse impacts which would be unavoidable.

Response to Comment No. 17:

Though the site is zoned for use as agricultural land, a special exception permit has been granted for the trailer park. The remainder of the site is undeveloped and is not presently in agricultural use.

Response to Comment No. 18:

If the site had, in fact, been used for agriculture, discussion of local social and economic impacts would have been in order.

Response to Comment No. 19:

A flood hazard map is not available for the airport area. The drainage exhibit contains contours of the area. Flood elevation design values were coordinated and referenced in the EIS.

Response to Comment No. 20:

See Response to HUD Comment No. 8.

Response to Comment No. 21:

The referenced air pollution table deals with surface vehicles only and not with aircraft indicated in earlier operations tables. The Draft EIS acknowledges that reduction in aircraft emissions will vary with the type of aircraft and future airport configuration.

Response to Comment No. 22:

See Response to EPA Comment No. 13.

Response to Comment No. 23:

The referenced statement has been deleted from the Final EIS.

Response to Comment No. 24:

The transit and limousine service at SIA is supported by both general aviation and air carrier passengers and by the larger employment level at an international airport. The Freedom Airport site will accommodate only the area's general aviation component, hence the demand for such services is different.

Response to Comment No. 25:

The increased air traffic at SIA has been identified in projections and would be expected to arrive and be handled in an orderly manner but with delay. Diverting the general aviation aircraft to Freedom Airport would allow the remaining projected aircraft at SIA to operate more efficiently.

Response to Comment No. 26:

General aviation energy consumptions should initially reduce since the general aviation aircraft will be operating at a less-congested, more efficient facility.

Response to Comment No. 27:

It is clear that the immediate site will be committed to airport use. Trailer park residents will be relocated and the rest of the undeveloped Miller's Point will become airport property.

Effects on the bay and adjacent wetlands have been identified and can, to some extent, be mitigated. Any secondary supportive development will be confined to the access road area. Phase I aircraft noise exposure will not affect existing land use patterns.

The mitigation which is discussed in this section deals with long-term compatibility of future land uses with airport operations.

Response to Comment No. 28:

The holding pond will function for storms of all duration. Volume of storage during a 10-year storm will be 16 acre-feet at a depth of 3.2 feet above the weir. A 100-year storm will only increase the depth 0.5 feet.

Response to Comment No. 29:

Access to lighting piers will be accomplished in a manner similar to that utilized during pier construction, consistent with the proposed mitigation plan for project development.

Response to Comment No. 30:

SIA is approaching its operational capacity and delays to all aircraft are being experienced. By the time the proposed project would be constructed and operational, it is expected that the reliever facility will reduce congestion at SIA.

Response to Comment No. 31:

The detailed discussion of alternative sites is found in Section V and in the Section on 4(f) considerations. References to these sites at other points in the statement highlight some of the main factors associated with these areas.

Response to Comment No. 32:

The identification of adverse impacts that would not occur with the no project alternative have been added to this section.

The comment regarding stability is certainly a valid consideration in some cases. In this case, the balanced level of activity at the existing site would be one of congestion. Further, the development of the reliever facility has not shown that expansion would result in over-extension of resources.

Response to Comment No. 33:

The text of the Final EIS has been revised to reflect this comment.

Response to Comment No. 34:

The text of the Final EIS has been revised to reflect this comment.

Response to Comment No. 35:

A title page has been placed at the beginning of each Appendix. The appendices of this statement are of such limited size that an appendix table of contents is not considered necessary. The aircraft operational data contained in Appendix A is for Freedom Airport.

Response to Comment No. 36:

A footnote has been provided on the appropriate appendix tables.

Response to Comment No. 37:

The Final EIS/4(f) Statement contains a 4(f) determination.

Response to Comment No. 38:

The FAA is cognizant of the role of the Fish and Wildlife Service (FWS) in further project planning and in review of any application for the required Department of the Army permit. The coordination with FWS and the Corps of Engineers that has begun with the Draft EIS will continue.

It is felt that the mitigation plan can be developed through agency coordination and would include more detailed information on dredge limits, fill limits, water quality monitoring, and mitigating construction techniques.

Response to Comment No. 39:

In each case, an attempt should be made to develop an impact analysis consistent with the anticipated level of impact. In this case, data on

marine resources was available through a benthic survey and fish sampling program conducted with the cooperation of the State DNR. The results of the benthic survey are contained in a referenced DNR report which is available at the sponsor's office and the District FAA Office.

Response to Comment No. 40:

See Response to Department of Commerce Comment No. 9.

Replicate benthic samples were collected at each of the sampling sites. Samples were collected during the study using a 0.23 by 0.23 meter (0.05 m²) Ponar Grab. Samples were field washed through a wash bucket with a 0.59 mm mesh screen bottom prior to preservation in 10 percent buffered formalin and transport to the lab. The entire contents of each benthos sample were sorted, identified, and the resultant data expressed as numbers of organisms per square meter of bottom area for the various taxa present.

Replicate beach seine samples of fish were collected at each of the near-shore sampling stations in the study area. All fish and invertebrates collected in the beach seine samples were preserved in 10 percent buffered formalin and returned to the laboratory for identification and enumeration. Resultant data was expressed as total numbers of each taxa taken by gear type at each sampling station.

Response to Comment No. 41:

See Response to Comment No. 39 above.

Response to Comment No. 42:

The statement acknowledges that the assumption of adjacent area carrying capacity is valid and that a net loss of wildlife and fish would be expected to occur.

Response to Comment No. 43:

The reference to the applicability of Section 7 of the Endangered Species Act of 1973 has been added to the Final EIS.

Response to Comment No. 44:

The FAA concurs that a mitigation plan developed through agency consultation and the local project sponsor is appropriate. It is felt that this plan can be further developed during the Corps permit application and review phase of the project.

Response to Comment No. 45:

The FAA and the local sponsor will participate in the development of a mitigation plan and will, as appropriate, develop plans and specifications for the project which are consistent with the mitigation measures proposed.



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, D.C. 20410

APR 6 1977

OFFICE OF THE ASSISTANT SECRETARY
FOR COMMUNITY PLANNING AND DEVELOPMENT

IN REPLY REFER TO:

Office of Environmental Quality

CSP

Mr. Elliott B. Perrett, Jr.
Contract Technical Representative
Environmental Planning Branch, AAP-410
Federal Aviation Administration
Department of Transportation
Washington, D.C. 20591

Comment
No. _____

Dear Mr. Perrett:

Enclosed are our comments on the two Model Environmental Impact Statements (EIS) for airports. In summary, the comments address the following areas of concern:

1. Freedom Airport

- (1) The EIS is characterized by a lack of documentation, especially in the areas of socio-economic impact, air quality analysis and land use controls to insure compatibility. (1)
- (2) There are several environmental factors that are conspicuous by their absence, including access and traffic impacts, aquifer recharge, and soils. (2)
- (3) In several sections, a discussion of impacts resulting from Phase II and III expansion is not included. (3)


- (4) The use of multiple noise descriptors (NEF, ASDS, peak levels) as presented is confusing and unless they add to the analysis, the EIS should, we believe, use a single descriptor that takes into account cumulative exposure (NEF, L_{dn}). (4)

2. Bicentennial Airport

See Model
EIS No. 1

- (1) The EIS is much more complete (and with documentation) than the EIS for Freedom Airport.
- (2) A major problem is that the analysis is restricted to 1985.
- (3) There is insufficient discussion of a critical issue in airport planning, that of planning for compatible land use in noise affected areas.

Sincerely,



Richard H. Broun
Director
Enclosure

1. FREEDOM AIRPORT

p. III-7 No documentation of whether plans for residential development in the area within the NEF 30 contour will be changed - Might have included some correspondence with the County Planning Agency. How will restrictions on this land for residential development affect the provision of housing in the surrounding area? (Should be noted that sites lying within the NEF 30 and 40 contour are Unacceptable to HUD for granting of any HUD assistance).

III-37 No facts or figures used to give socio-economic picture of residents of area.

There is no documentation of economic impact. Why are revenue and expenditure forecasts not included as documentation in the appendix?

About how many jobs for skilled, semi-skilled, unskilled labor would there be? Comparison with similar projects would be helpful. How many of the new jobs can use local unemployed residents. How many are too specialized to use them?

III-39 Induced socio-economic impacts section does not address the attraction to the area of commercial and industrial concerns that need the access provided by the airport, and the impact especially in terms of noise and traffic, this will have on surrounding development, both residential and recreational.

No discussion of the induced impact of development pressure resulting from the laying of water and sewer lines needed to service the airport.

III-39 How will development pressure around the airport for industrial and commercial uses affect the planned residential subdivisions and the park that is to be built. What landuse controls does the County employ to deal with this type of problem? Have they been effective in the past?

- III-45 No documentation of how, because of emission standards, airport impact will be reduced. Need to show how emission standards are being complied with in the area. (12)
- 49 Concentrations for SO₂ and particulates are not computed so they are comparable to standards. There are methods for computing 24 hour averaging times. (13)
- Cannot assume that concentrations will decrease enough in 5 and 10 years to comply with standards because of reductions due to national emissions standards. Need to show computations and show how emission standards have been complied with in the past (14)
- Would be helpful to see a table showing peak hour concentration compared to standards, with an indication of the averaging time used. (15)
- III-56 It seems as if ultimate NEF will cause part of Thompson Beach Shoreline to lie within the NEF 30 contour. Peak aircraft noise levels, of 85dBA will impact more than half the shore - No discussion of how often this peak noise would occur or how airport operations could be regulated to minimize its impact. (16)
- III-60 No discussion of Geology or Soils - No discussion of how pumping the aquifer would affect salt water intrusion. (17)
- General In the public utilities and services section there is no discussion of Phase I, II and III impact on community service provision to the airport itself, and potential for decreasing services to existing residents and establishments - (e.g. police, fire). (18)

- III-61 No discussion of future alternatives for addressing the problem of water supply in Phase II and III - Mention of aquifer - No discussion of its recharge potential or whether pumping could create salt water intrusion. (19)
- III-61 What provisions for expansion of on-site septic systems past 1980 if Lee City does not extend sanitary facilities as planned? (20)
- III-65 No documentation that energy saved by reducing congestion is greater than energy spent in additional vehicle miles travelled - No estimates of traffic projection or vehicle miles travelled (vmt) are documented. (21)
- III-67 No documentation of how much distance will attenuate noise from construction "causing only a slight increase in ambient concentrations." (22)
- Very little discussion of Phase II and III construction impacts. (23)
- General There should be a separate section addressing access and traffic impacts. Should include traffic projections. Impact of this traffic on access to recreational areas should be addressed. Impact of increased truck traffic should be looked at in terms of impact on residential neighborhoods. Should include statement on adequacy of roads to accomodate increased traffic. (24)

- IV-1 Minimization of adverse effects regarding land use: No
discussion of impact of redesignating residential (25)
area in comprehensive plan. Should ensure the new
use is compatible with coastal environment.
- No discussion of the land use control process that
would ensure that areas planned residential would (26)
be redesignated.
- IV-5 Under emphasis of the amount of Thompson Bay to
be exposed to >30 NEF. (27)

BICENTENNIAL AIRPORTSee Model
EIS No. 1

- III-1 Residences should be included in the listing of noise
sensitive uses.
- III-7 Why was the impact analysis restricted to 1985?
- III-10 How much of Pierce Park will exceed 70 dBA?
- III-16 Are there adequate housing alternatives for displaced
residents?
- III-34 What is the status of the community in the HUD Flood
Insurance Program?
- III-40 No discussion of where new units will be built -
If in NEF 30-40, will they be required to incorporate
noise attenuation measures? Will renovated units
incorporate attenuation measures if they are in
a >NEF 30 zone?
- III-44 No documentation of how unemployment in area will
be reduced by a sizable amount.

- III-62 Clarifications in the text and the tables are needed to allow relatively rapid review of the document by a non-air pollution specialist. The most needed improvement would be comparison of the product of calculations with the National Standards. In several places the concentrations are indicated in the tables without indication of the averaging time.
- III-79 No discussion of attenuation necessary at Paul Revere Junior High to accommodate the increased noise levels. The same goes for 80 homes that will be within the 30 NEF contour-
- III-81 Unclear how proposed departure procedures could eliminate noise impact when it puts the school within the 30 contour.
- III-90 Solid waste: How close are these landfills to capacity - Any plans for resource recovery?
- III-88 Contradiction as to when Carrollton will extend service - 1980 or 1985?
How will the new plant be paid for - How much will it cost to go to tertiary treatment?
- General What provisions will be made to insure that future residential development in existing residential areas will be discouraged within the 30 NEF Contour? Should be noted that sites within the 30 to 40 NEF Contour will not be eligible for HUD assistance except in special circumstances in which case noise attenuation measures and an environmental impact statement would be required. Sites within the NEF 40 Contour are "Unacceptable" for HUD assistance.
- What provisions will be made to bring about compatibility of existing noise sensitive uses in terms of implementation of noise attenuation measures?

RESPONSES TO COMMENTS BY
THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Response to Comment No. 1:

In response to agency coordination and comment, additional information regarding traffic access, air quality, land use assurances, hydrology, and soils has been added to the Final EIS.

Response to Comment No. 2:

See Response to Comment No. 1 above.

Response to Comment No. 3:

This impact document evaluates the impacts of first phase development and only identifies those of subsequent phases.

Response to Comment No. 4:

In accordance with FAA's environmental guidelines, the ASDS descriptor has been deleted from the Final EIS. The NEF methodology has been retained and indicates cumulative noise exposure, useful in evaluating land use compatibility. The peak level contours were retained in this case to show the range of noise for individual aircraft operations in an area where they had not previously occurred.

Response to Comment No. 5:

See Response to EPA Comment No. 3. The restrictions on this land for residential development should not affect the provision for housing since a large amount of land is available for development and there is no immediate demand for housing in the area.

Response to Comment No. 6:

This type of information has not been collected since the relocation requirements are manageable and limited to the trailer home residents on Miller's Point.

Response to Comment No. 7:

Economic impacts are expected to occur as a result of this project. These have been identified as stimulation of the local construction industry, direct and indirect employment opportunities, disposable income, and taxes.

Response to Comment No. 8:

The EIS indicated that general aviation employees would be transferred to the new site. In addition, it is estimated that approximately thirty new jobs would be created. These would be distributed uniformly among skilled, semi-skilled, and unskilled labor. It is estimated that approximately one-half of the new jobs can be filled by local unemployed residents.

Response to Comment No. 9:

The Draft EIS indicated that the project was not expected to induce significant new development into the study area. Commercial and industrial concerns located in the area need not relocate since the reliever site is only ten miles from the city and since many of the business concerns will continue to utilize air carrier and cargo facilities at Southeast International Airport. Support services are expected to be accommodated on-site and adjacent to the access road east of the Turnpike. Convenient access to the city is provided from the airport.

Response to Comment No. 10:

The water and sewer demands of Phase I of the proposed project can be met on-site by well and septic systems, respectively. After 1980, it is expected that city sanitary systems will be extended to the airport vicinity. This action would occur regardless of airport development on Miller's Point and is based on requirements for the total developed drainage basin.

Response to Comment No. 11:

Support services for aviation will primarily be located adjacent to the airport access road east of the turnpike. The future land use plan (1995) for Freedom County shows areas west of the turnpike designated for future light industrial and commercial uses. These areas are separated from the residential subdivisions by highway facilities and natural features. Requests for development in these designated areas (and in others) will be processed through the comprehensive permit and review procedures of the county and the Regional Planning Commission. These procedures have been effective in successfully establishing a steady growth for the area.

Response to Comment No. 12:

On the regional level, emission standards are being met, as indicated in the discussion of existing air quality in the Southeastern Shore Intrastate Air Quality Control Region. Air quality impacts were evaluated for Phase I development and, by reference to emission standards, potential impacts for subsequent phases were suggested.

Response to Comment No. 13:

The concentrations for these pollutants were computed for the peak hour of operation and represent the highest level during the average 24-hour period (worst case). The SO₂ concentration of 0.017 ppm converts to approximately 0.031 mg/m³.

Response to Comment No. 14:

See Response to EPA Comment No. 4.

Response to Comment No. 15:

This information was presented in the Draft EIS in text form.

Response to Comment No. 16:

Exhibit 9 shows that even with ultimate development, only a small portion of the Thompson Beach shoreline will be exposed to noise levels greater than NEF 30. Peak aircraft noise levels will occur in accordance with

aircraft operational and runway utilization data shown in Appendix A. For example, on an average day during the first year of operation, eleven business jet operations (landings and takeoffs) would be expected to occur at the site. Most of the takeoffs would occur to the northeast over the water and would be heard at the beach. With ultimate development, business jet operations could be handled on the easternmost parallel runway.

Response to Comment No. 17:

A discussion of soils and geology has been added to the Final EIS. The minimal pumping requirement (10 gallons/minute in 1990) will not affect the rate of salt water intrusion.

Response to Comment No. 18:

The development of the airport with the phasing as proposed will closely parallel the County's general growth over the next decade. Services for fire protection and police, etc. will require added personnel due to this growth. It is not anticipated that airport expansion will place a burden on these services. The airport will maintain a security force and fire/rescue staff.

Response to Comment No. 19:

Water supply for future phases of development is not anticipated to be a problem due to the documented availability of water in the aquifer. See Response to Comment No. 17 above.

Response to Comment No. 20:

There would be little difficulty in expanding the airport's septic tank-tile field system well past 1980 should the city's sanitary facility not be expanded on schedule.

Response to Comment No. 21:

Quantification of numbers of gallons of fuel requires many assumptions for aircraft and surface vehicles. The site is only approximately ten miles from the city and is the closest site of the alternatives considered.

Travel times on the turnpike are not excessive. It is suggested that total fuel consumption of circling aircraft exceeds that amount used to allow site-generated traffic to make the daily trips to and from the site.

Response to Comment No. 22:

The closest residential subdivisions are approximately three miles from the site. Construction noise in the range of 95 decibels (dBA) would attenuate with distance to a level less than 70 dBA at either subdivision.

Response to Comment No. 23:

In accordance with the project description, only the evaluation of construction impacts for Phase I development will be contained in this statement.

Response to Comment No. 24:

See Response to EPA Comment No. 2.

Response to Comment No. 25:

See Response to EPA Comment No. 3 and Response to DOT Comments Nos. 2 and 4.

Response to Comment No. 26:

See Response to Comment No. 25 above.

Response to Comment No. 27:

The referenced discussion is based on the noise analysis results as presented in accompanying noise exhibits.

Additional Comments Resulting
From FAA Review

Comments on Model EIS No. 2

Comment
No.

1. Page I-1. The level of activity forecast through 1990 at Freedom Airport is less than the 200,000 annual operations for general aviation airports which is FAA Air Traffic Service criteria for the establishment of an air traffic control tower. It is unlikely that the Southeast Aviation Authority would desire to construct and operate a tower itself. Therefore, this item should be deleted. (1)

2. Page I-3, Third paragraph. The first sentence should read: ". . .to expand facilities to accommodate increased demand at SIA." (2)

The current and projected air carrier and general aviation activity at SIA should be given, as well as a PANCAP figure, to support the statement in the fourth paragraph and the need for diversion of G.A.

3. Page I-4. Either here or by cross-reference to Section V, the reasons for rejection of construction of additional runways within SIA's present site should be explained. (These, it is assumed, are runways in addition to the parallel runway referred to on page I-3 and also would include consideration of a limited length GA runway.) (3)

4. Page II-2. The date that the public hearing was advertised should be stated here and/or in Section VIII. (4)

5. Page III-1. Because of the limited noise impacts in this case, the paper on Impact of Noise on People need not be included in the appendix but may be cited as a reference, including where it is available for review by those interested (e.g., the sponsor's office and FAA Airports District Office, as contained in Appendix Volume of the FAA publication, "Environmental Assessment of Airport Development Actions"). (5)

- | | Comment
<u>No.</u> |
|---|-----------------------|
| 2 | |
| 6. <u>Page III-2.</u> The terms L ₁₀ , L ₅₀ , and Ldn should be explained briefly for the lay reader. | (6) |
| 7. <u>Page III-2.</u> By application of the criteria in Order 5050.2B, paragraph 44a(2), no further analysis beyond the NEF methodology is necessary. The ASDS method has been superceded by a more refined method (not necessary in this case) since this draft was prepared. References to it here and elsewhere should be dropped. | (7) |
| 8. <u>Page III-6.</u> The sentence under Table 5 should refer to all sensitive areas listed and include a maximum estimated number of minutes per day it will reach 80 plus over any of these areas. Similar information should be provided for ultimate development. | (8) |
| 9. <u>Page III-11.</u> The second paragraph should reflect that the factors listed are specific measures the sponsor should cause to be implemented in conjunction with any application for funds under the Airport Development Aid Program. The sponsor is required to identify what actions he has taken to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. | (9) |
| 10. <u>Page III-20.</u> Modify per comment 1, above. | (10) |
| 11. <u>Pages III-23 through -27.</u> The water quality criteria for Class "B" waters and Tables 8 and 9 should be put in an appendix with appropriate reference in the text. | (11) |
| 12. <u>Pages III-45 through -47.</u> Tables 13, 14, and 15 should also be moved to the appendix. | (12) |

3

13. Page III-53ff. In the first paragraph, be more specific about the provisions of Section 4(f).

(13)

The burden of this section of the EIS is first to establish that there are 4(f) lands which may be affected; secondly, to determine whether there is or is not a "use" as defined in paragraph 44f(1) of Order 5050.2B; and thirdly, for such lands that are "used," to provide sufficient information to support a finding that there is no feasible and prudent alternative and that all possible planning is being taken to minimize harm to such lands. The text should be revised as necessary to focus on these factors.

14. Section IV. This section is to summarize only those adverse impacts which remain and measures to minimize the extent of those impacts. It is not necessary to review those impacts which have been mitigated to the point where there will be no adverse effects (e.g., water quality, hydrology and flood hazards, 4(f) lands, public services, energy supply).

(14)

15. Pages V-1, -2. The discussion of alternative modes and expansion of SIA should be specifically directed at the relationship to general aviation. While a diversion of air carrier passengers to other modes could conceivably reduce or eliminate the need for separate facilities for GA now using SIA, the focus should be on alternative ways to provide for general aviation which is contributing to the saturation at SIA and limiting its role as an air carrier airport.

(15)

See Comment 3, above, relative to expansion of SIA.

16. Page VII-2. The last sentence is a questionable conclusion which should be deleted.

(16)

17. Appendices. See Comments 5 and 7, above.

(17)

RESPONSES TO COMMENTS
RESULTING FROM FAA REVIEW

Response to Comment No. 1:

The control tower has been deleted from the project description in response to this comment.

Response to Comment No. 2:

The text of the Final EIS has been revised to reflect the first part of this comment. Additional information on aircraft activity at SIA has been added to the Final EIS (see Response to EPA Comment No. 1).

Response to Comment No. 3:

The reasons for rejection of construction of additional runways at SIA are further identified in the Final EIS.

Response to Comment No. 4:

The date the public hearing was advertised has been added to Section VIII: Public Hearing and A-95 Review.

Response to Comment No. 5:

The report entitled Impact of Noise on People is referenced in the Final EIS.

Response to Comment No. 6:

An explanation of the terms L_{10} , L_{50} , and L_{dn} has been added to the Final EIS.

Response to Comment No. 7:

References to the ASDS noise methodology have been deleted from the Final EIS.

Response to Comment No. 8:

The discussion immediately following the referenced table has been revised to provide a summary of the table's content. All but one of the areas identified experience cumulative noise exposure less than NEF 30. An estimate of the duration of noise above a certain level is provided for only the one site where exposure is greater than NEF 30.

The analysis for ultimate development includes the NEF criteria which can be used in evaluating future land use considerations. This level of effort is consistent with the identification of potential impacts associated with future development (see Description of Proposed Action).

Response to Comment No. 9:

The referenced text has been supplemented with information regarding further land use considerations. In this case, the sponsor developed limits of noise exposure and identified other land impacts, and coordinated its development programs, results, and concerns with both the County and regional planning agencies.

Response to Comment No. 10:

The text of the Final EIS has been modified to reflect this comment.

Response to Comment No. 11:

The referenced tables have been moved to the Appendix of the Final EIS.

Response to Comment No. 12:

The referenced tables have been moved to the Appendix of the Final EIS.

Response to Comment No. 13:

The text of the Final EIS has been revised to reflect this comment. Additional information has been provided regarding impacts of alternatives.

Response to Comment No. 14:

Section IV of the Final EIS has been modified to summarize only those adverse impacts which remain and measures to minimize the extent of those impacts.

Response to Comment No. 15:

The text of the Final EIS has been revised to reflect this comment.

Response to Comment No. 16:

The text of the Final EIS has been revised to reflect this comment.

Response to Comment No. 17:

The Appendix on Noise has been revised to be consistent with the referenced comments.

MODEL STATEMENT
INSTRUCTIONAL GUIDANCE

MODEL STATEMENT INSTRUCTIONAL GUIDANCE

This section of the Model Statement is for instructional purposes only. It is intended to show by comparison the FAA's initial evaluation of a particular impact or other section of the document and the FAA's final evaluation in response to Federal coordination and comments. To do this, selected sections of the impact document prior to coordination are shown side-by-side with the corresponding sections of the document after coordination. The sections selected for this purpose are those which changed significantly as a result of coordination and comment.

The project is the end product of three years of careful study. As previously noted, an initial feasibility study to permit flight operations at SIA was conducted between 1970 and 1971. This report, completed in 1971, forecast annual commercial and general aviation operations through 1990. Table 1 shows general aviation activity, 1975-1990. The 1971 report concluded that SIA could continue to accommodate increased commercial carrier and general aviation demand through 1977. After that time, airport operational capacity would be reached.

Several post-1977 expansion alternatives were evaluated and rejected. These included:

- Construction of additional runways within SIA's present site.
- Expansion of SIA through acquisition of adjacent off-site acreage. This alternative was not cost-effective since it involved relocation of a major interstate highway and a 350-acre industrial park. Further, this action contradicted the County Comprehensive Land Use Plan which concentrated industrial development in the SIA area.
- The concept of constructing an entirely new international airport. This was unacceptable both in terms of economic feasibility and the Coastal Counties Comprehensive regional development plan.

Thus, construction of a reliever general aviation facility was recommended as the only viable alternative.

Subsequent to the publication of the report, the Southeast Aviation Authority decided to undertake a site feasibility study for the recommended reliever facility. The site selection study extended over a six month period in 1972. Three sites were located with sufficient contiguous acreage, adequate drainage and subsurface conditions to support the proposed development. Subsequent site selection analysis indicated the following:

I-4

Prior to Coordination

The proposed project is the end product of many years of study. As previously noted, an initial feasibility study to expand SIA was conducted between 1970 and 1971 by the Airport Authority and its consultants. The forecasted activity as reported in the study is shown in Table 1. These forecasts have been reviewed and updated and are in agreement with the current PMA Terminal Area Forecast for SIA. The 1971 study developed forecasts using multiple regression analysis based on projections of population and income levels as well as a review of historical aviation activity trends in the region. It should be noted that the forecasts presented in the 1971 report were unconstrained, that is, they were developed without consideration of capacity limitations at SIA. Calculated capacity indicated the practical annual capacity (PACAP) of the existing airfield to be 400,000 operations per year and that this level of activity would be reached shortly after 1977.

To accommodate the forecasted activity three SIA expansion alternatives were evaluated and rejected (see Section V, Alternatives to the Proposed Action).

These included:

- Construction of additional runways within SIA's present site. This alternative was rejected due to runway/taxiway separation criteria and airspace restrictions.
- Expansion of SIA through acquisition of adjacent off-site acreage. This alternative was not cost-effective since it involved relocation of a major interstate highway and a 350-acre industrial park. Further, this action contradicted the County Comprehensive Land Use Plan which concentrated industrial development in the SIA area.
- The concept of constructing an entirely new international airport. This was unacceptable both in terms of economic feasibility and the Coastal Counties Comprehensive regional development plan.

* For details of forecasting techniques, see referenced Feasibility Report.

I-4

After Coordination and Response

TABLE 1
 FORECAST OF AVIATION ACTIVITY
 SOUTHEAST INTERNATIONAL AIRPORT
 UNCONSTRAINED ACTIVITY
 (WITHOUT FREEDOM AIRPORT)

	1977	1980	1985	1990
Trunk Domestic	125,200	150,000	175,000	200,000
Trunk Intern.	55,150	60,000	70,000	75,000
Commuters	19,800	20,000	22,000	25,000
Military	5,000	5,500	6,000	6,500
General Aviation	<u>145,000</u>	<u>175,000</u>	<u>200,000</u>	<u>225,000</u>
TOTAL	350,150	410,500	473,000	531,500

None

Source: SIA Feasibility Study, Expansion Alternatives
 by GAA Planners, Inc. for Southeast International
 Airport and Coastal Counties Regional Planning
 Commission, December, 1971. Updated figures by
 GAA Planners, Inc., July 15, 1974.

I-5

Prior to Coordination

After Coordination and Response

Construction of a reliever general aviation facility was recommended as the only viable alternative.

Forecasts of activity for the proposed general aviation facility are shown in Table 1-A. These forecasts were developed using the methodology as described above and represent a diversion of activity from SIA. Considering the capacity of SIA to be a 400,000 PANCAP, the diversion of general aviation to the proposed Freedom Airport will relieve SIA and allow all air carrier, military, commuter and a portion of general aviation to continue at SIA through 1990. Activity at SIA as shown in Table 1 will be reduced by the amount of general aviation activity shown in Table 1-A.

Subsequent to the publication of the 1971 report, the Southeast Aviation Authority decided to undertake a site feasibility study for the recommended reliever facility. The site selection study extended over a six month period in 1972. Three sites were located with sufficient contiguous acreage, adequate drainage and subsurface conditions to support the proposed development. Subsequent site selection analysis indicated the following:

- A 1,000-acre tract, known as the Roberts Plantation, was available in north central Freedom County. However, this site was 25 miles from the Lee central business district and would have required significant access road improvements. Distance plus access costs eliminated this site as a viable alternative.
- A 750-acre tract, known as the Hash property, was available due east of the Turnpike bordering Hammonds Inlet. However, portions of this site lay within a designated State wetland conservation zone and there was potential noise impact on residences within the Estuary Estates Subdivision bordering Hammonds Inlet. Consequently, this tract was also eliminated from consideration.
- A 725-acre tract was also available on Miller's Point. This site offered the advantages of proximity, good access and noise impact partially over water. Consequently, it was selected for the proposed project.

I-6

After Coordination and Response

A 1,000-acre tract, known as the Roberts Plantation, was available in north central Freedom County. However, this site was 25 miles from the Lee central business district and would have required significant access road improvements. Distance plus access costs eliminated this site as a viable alternative.

A 750-acre tract, known as the Hash property, was available due east of the Turnpike bordering Hammonds Inlet. However, portions of this site lay within a designated State wetland conservation zone and there was potential noise impact on residences within the Estuary Estates Subdivision bordering Hammonds Inlet. Consequently, this tract was also eliminated from consideration.

A 725-acre tract was also available on Miller's Point. This site offered the advantages of proximity, good access and noise impact partially over water. Consequently, it was selected for the proposed project.

The alternate sites are discussed in more detail in Section V.

On February 14, 1973, the results of the site selection study were published, and subsequent to local and regional approval, preliminary planning began for the reliever facility. On July 15, 1973 the Southeast Aviation Authority retained the consulting firm of GAA Planners, Inc. to prepare preliminary plans for the project. These were completed on July 15, 1974, and the preparation of the environmental impact assessment was begun.

PROJECT SETTING

The proposed Freedom Airport site is located on Miller's Point adjacent to Thompson Bay. The Lee Turnpike, a four-lane divided, controlled access highway, is located one-mile west of the site. Exhibit 1 provides a location map relating the site to key features of the region.

I-6

Prior to Coordination

The project site topography is generally flat with elevations ranging from 0 to 4.5 feet above mean sea level. Miller's Point is a small peninsula bordered by the mouth of Bern Creek on the south and Thompson Bay on east and north. With the exception of a ten-unit mobile home park, the Point is totally unoccupied and the site area covered by lowland brush and other typical indigenous vegetation.

Thompson Bay and the entire site area is within the State's designated Coastal Management Zone. The Bay is considered a valuable recreational resource and includes a navigational channel for small craft boating. Numerous public beaches border the Atlantic Ocean to the east.

This entire area, once occupied by the Sypejey Indians, remains sparsely developed. The closest housing developments are the Lewelyn Branch Estates, located three miles west of the proposed site, and the Bay Pines subdivision, bordering the west shore of Thompson Bay, three miles north of the site. In addition, clusters of beach houses are located on the Atlantic Ocean beach.

The balance of the site area is virtually unoccupied or used for agricultural purposes. Intensive land use is not encountered within a five-mile radius of the site. Existing county zoning is shown in Exhibit 5.

I-7

Prior to Coordination

The site is located in that portion of the state lying in the Physiographic province called the Atlantic Coastal Plain and is about 110 miles east of the fall line that separates the plain from the Piedmont Plateau. The soils of the area are relatively clean sands with small areas of sands and silts with shell fragments. The sediments are relatively well consolidated and are generally more than one mile thick. Beneath the sediment is crystalline rock that dips to the east at a rate of about 100 feet per mile. The sediment was deposited mainly in a marine or shallow water environment.

The soils of the area are recent age beach deposits of the Woodstown-Fallsington Association which are well to moderately drained.

I-9

After Coordination and Response

Table 5

Exterior Noise Exposure at Sensitive Areas (1977 Operations)

Sensitive Area	ASDS (minutes/day)	NEF	LdN (db)	Peak Noise Level (dba)
Bay Harbor School	2	<30	<65	84
St. John's Church	1	<30	<65	80
Bay Pines Residential Area	2	<30	<65	84
Thompson Bay	1-10	30-40	65-75	80-95
Thompson Bay Beach	3	<30	<65	86
Americana Island	1	<30	<65	80

Noise levels at Thompson Bay Beach from individual takeoff operation of business jets will build up to reach a peak of 86 dbA, but this level will be short-term in nature.

Ultimate Development

Ultimate airport development anticipated involves the extension of the Phase I runway (5-23), construction of a crosswind runway (14-32), and a parallel runway (5R-23L).

In order to identify possible future noise impacts, NEF contours were prepared for the ultimate configuration and are shown in Exhibit 10. Information on future operations and runway usage is contained in the Appendix. The contours illustrate expected usage of the parallel runway system. The crosswind runway would be only 3,000 feet in length, thereby limiting its use to only light single and twin-engine prop traffic. Peak noise levels in the parallel runway direction will be similar to those shown for Phase I operations but will occur more often.

Table 6 summarizes projected noise exposure for sensitive areas for ultimate airport development.

Ultimate development and operation of Freedom Airport will create noise exposure in excess of NEF 30 in areas to the southwest, which are designated to be residential areas in future land use plans. Noise

Prior to Coordination

Table 5

Exterior Noise Exposure at Sensitive Areas (1977 Operations)

Sensitive Area	NEF	LdN (db)	Peak Noise Level (dba)
Bay Harbor School	<30	<65	84
St. John's Church	<30	<65	80
Bay Pines Residential Area	<30	<65	84
Thompson Bay	30-40	65-75	80-95
Thompson Bay Beach	<30	<65	86
Americana Island	<30	<65	80

Only one of the areas identified above experiences cumulative noise exposure greater than NEF 30. It is estimated that daily aircraft noise greater than 85 dbA would total from 1 to 10 minutes over portions of Thompson Bay.

Ultimate Development

Ultimate airport development anticipated involves the extension of the Phase I runway (5-23), construction of a crosswind runway (14-32), and a parallel runway (5R-23L).

In order to identify possible future noise impacts, NEF contours were prepared for the ultimate configuration and are shown in Exhibit 9. Information on future operations and runway usage is contained in the Appendix. The contours illustrate expected usage of the parallel runway system. The crosswind runway would be only 3,000 feet in length, thereby limiting its use to only light single and twin-engine prop traffic. Peak noise levels in the parallel runway direction will be similar to those shown for Phase I operations but will occur more often.

Table 6 summarizes projected noise exposure for sensitive areas for ultimate airport development.

After Coordination and Response

In summary, project development is anticipated to result in the following land use alterations:

- Elimination of potential residential use of Miller's Point.
- Creation of demand for support services close to the site.
- Generation of noise exposure in planned residential and recreation areas in the airport vicinity.

In planning for airport development, consideration should be given to the following:

- Establishing a special airport use zoning designation for the site which would extend to the turnpike.
- Provision for modifications to the County's Future Land Use Plan to prevent incompatible residential development in areas to the southwest which would be exposed to future aircraft noise in excess of NEF 30.
- Incorporation of land use controls (county zoning, coastal zone permits) to implement revised future plans.

III-11

Prior to Coordination

In summary, project development is anticipated to result in the following land use alterations:

- Elimination of potential residential use of Miller's Point.
- Creation of demand for support services close to the site.
- Generation of noise exposure in planned residential and recreation areas in the airport vicinity.

In planning for airport development, consideration should be given to the following:

- Establishing a special airport use zoning designation for the site which would extend to the turnpike.
- Provision for modifications to the County's Future Land Use Plan to prevent incompatible residential development in areas to the southwest which would be exposed to future aircraft noise in excess of NEF 30.
- Incorporation of land use controls (county zoning, coastal zone permits) to implement revised future plans.

Consultation between the Aviation Authority and the County has addressed rezoning of Millers Point and the impact of the proposed airport on the Comprehensive Plan. At the public hearing on June 13, 1975, the Freedom County Commissioners went on record as supporting the necessary changes to the zoning and Comprehensive Plan, if the project received Federal funding and was found to be environmentally acceptable.

III-11

After Coordination and Response

Man Dominated

Man dominated communities are kept at a constant point in succession by human intervention. Within the study area, this type is limited to the trailer park and its access roadway and includes paved areas, mowed roadsides and lawns, and a few ornamental shrubs and trees.

Man dominated areas afford little in the way of habitat for wildlife. However, house sparrows and starlings which are very tolerant of humans are found in these areas. Garbage cans may attract the Norway rat (*Rattus norvegicus*), while the dwellings themselves may serve as homes for the house mouse (*Mus musculus*).

Herbaceous species found here are tolerant to mowing activities. Grasses, sedges, dandelion (*Taraxicum* spp.) and plantain (*Plantago* spp.) dominate mowed areas. Ornamental shrubs and trees are scattered sparsely throughout the area.

Marine Ecology

The marine ecology of Thompson Bay in the vicinity of Miller's Point was established by a benthic survey and fish sampling program conducted with the cooperation of the State DNR.

Benthos

The benthic survey revealed that densities of benthic macroinvertebrates were low in offshore areas near Miller's Point. The Department reports that the low numbers of benthic organisms are due to the unstable nature of the littoral habitat. Tidal currents have a slight scouring effect on the bottom of the estuary in the Miller's Point area.¹

The most common organism taken during sampling was the epibenthic *Neomysis americana*. *Cyrtolus varians* and *Chiridotea nigrescens* were encountered at all sampling stations in the area. Ten other genera occurred sporadically over much of the study area and probably represented the random distribution pattern often associated with low population densities. Low densities were expected due to the presence of sediments primarily comprised of packed sand and which was nearly devoid of organic matter.

¹ Benthic Survey of Thompson Bay, State Department of Natural Resources - Fish and Wildlife Administration, 1973.

III-16

Prior to Coordination

Open areas commonly associated with tidal wetlands provide benthic habitat for clams (*Rangia* spp.) and other invertebrates such as amphipods (*Bythotrephes* spp.), shrimp larvae (*Palaeomonetes* spp.), mud crabs (*Panopeus* spp.), and *Eucypanopeus* spp.), and the salt marsh mosquito (Aedes spp.). These animals forage on the detritus that is continually being washed away from the salt marsh vegetation, and in turn, serve as food for shore birds during low tide and for fish that can visit these areas during high tide. The fish most frequently encountered was the top minnow (*Gambusia affinis*).

Considerable amounts of detritus are carried from the tidal marshes by ebbing tides. This nutrient source is then available to the shallow, near shore marine ecosystem which is often an important nursery area for immature fish and shellfish that can take advantage of the abundant food and protective cover.

Man Dominated

Man dominated communities are kept at a constant point in succession by human intervention. Within the study area, this type is limited to the trailer park and its access roadway and includes paved areas, mowed roadsides and lawns, and a few ornamental shrubs and trees.

Man dominated areas afford little in the way of habitat for wildlife. However, house sparrows and starlings which are very tolerant of humans are found in these areas. Garbage cans may attract the Norway rat (*Rattus norvegicus*), while the dwellings themselves may serve as homes for the house mouse (*Mus musculus*).

Herbaceous species found here are tolerant to mowing activities. Grasses, sedges, dandelion (*Taraxicum* spp.) and plantain (*Plantago* spp.) dominate mowed areas. Ornamental shrubs and trees are scattered sparsely throughout the area.

Marine Ecology

The marine ecology of Thompson Bay in the vicinity of Miller's Point was established by a benthic survey and fish sampling program conducted with the cooperation of the State DNR.

III-16

After Coordination and Response

A benthic survey of waters surrounding Miller's Point indicated low densities of benthic macro-invertebrates. Low densities were attributed to the unstable nature of the littoral habitat and presence of sediments primarily comprised of packed sand which was nearly devoid of organic matter. Due to the low densities of benthic communities, only slight impacts are anticipated as a result of project development.

The limited fish population in the area around Miller's Point will experience minimal impact due to a temporary increase in turbidities during construction.

All study efforts were coordinated with the DNR-CZMA and results transmitted both verbally and through written reports. As a result of continuous consultation, the DNR-CZM Agency has indicated that Phase I development appears consistent with the State's Coastal Zone Management Program. Upon final approval of the environmental statement, the Aviation Authority will submit a formal application to the DNR-CZM Agency to begin Phase I development.

III-35

Prior to Coordination

A benthic survey of waters surrounding Miller's Point indicated low densities of benthic macro-invertebrates. Low densities were attributed to the unstable nature of the littoral habitat and presence of sediments primarily comprised of packed sand which was nearly devoid of organic matter. Due to the low densities of benthic communities, only slight impacts are anticipated as a result of project development.

The limited fish population in the area around Miller's Point will experience minimal impact due to a temporary increase in turbidities during construction.

All study efforts were coordinated with the DNR-CZMA and results transmitted both verbally and through written reports. The DNR-CZM Agency has indicated that Phase I development appears consistent with the State's Coastal Zone Management Program. Comments received from the DNR-CZM Agency are contained in Appendix C. Upon final approval of the environmental statement, the Aviation Authority will submit a formal application to the DNR-CZM Agency to begin Phase I development.

Based upon the impact analysis results and consultation with appropriate agencies, the proposed development with its measures to minimize harm is consistent with the program for coastal zone management.

III-32

After Coordination and Response

The provision of new jobs and increased sales will have the effect of a positive multiplier, benefitting the private and public economy by generating additional disposable and taxable income.

Revenue and expenditure forecasts for the project indicate that the proposed airport will be self-supporting, and net revenues (after expenses) will yield a small but positive contribution to the local tax base.

Traffic Access

Estimates of site-generated traffic included vehicle-trips associated with daily general aviation aircraft operations and daily airport employee vehicle-trips. It was estimated that average daily traffic (ADT) from the site will increase from approximately 700 vehicles per day (vpd) in 1977 to approximately 1500 vpd in 1990. Assuming a peak hour factor of 10% of the daily traffic, traffic during the heaviest hour would range from 70 vehicles per hour (vph) in 1977 to 150 vph in 1990.

It is proposed that site development will include construction of a four-lane access road from the site terminal area to the limit of airport property. This access road will connect to Calhoun Road and the adjacent turnpike interchange via the existing Rhett Road extension to the trailer park.

The existing turnpike interchange has a diamond configuration, providing fully directional vehicle access and egress. Both the turnpike and Calhoun Road are four-lane facilities which are shown in regional transportation plans and will be able to accommodate the site-generated traffic as discussed above.

Public Utilities and Services

The impacts on public services are discussed in a separate section of this impact statement.

III-38

Prior to Coordination

The provision of new jobs and increased sales will have the effect of a positive multiplier, benefitting the private and public economy by generating additional disposable and taxable income.

Revenue and expenditure forecasts for the project indicate that the proposed airport will be self-supporting, and net revenues (after expenses) will yield a small but positive contribution to the local tax base.

Traffic Access

Estimates of site-generated traffic included vehicle-trips associated with daily general aviation aircraft operations and daily airport employee vehicle-trips. It was estimated that average daily traffic (ADT) from the site will increase from approximately 700 vehicles per day (vpd) in 1977 to approximately 1500 vpd in 1990. Assuming a peak hour factor of 10% of the daily traffic, traffic during the heaviest hour would range from 70 vehicles per hour (vph) in 1977 to 150 vph in 1990.

It is proposed that site development will include construction of a four-lane access road from the site terminal area to the limit of airport property. This access road will connect to Calhoun Road and the adjacent turnpike interchange via the existing Rhett Road extension to the trailer park.

The existing turnpike interchange has a diamond configuration, providing fully directional vehicle access and egress. Both the turnpike and Calhoun Road are four-lane facilities which are shown in regional transportation plans and will be able to accommodate the site-generated traffic as discussed above.

Public Utilities and Services

The impacts on public services are discussed in a separate section of this impact statement.

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After Coordination and Response

Table 16
 1977 Air Pollution Sources and Emissions
 from Freedom Airport
 (Emissions - lbs./day)

Source	CO	HC	NO _x	SO ₂	Particulates	Total
Airport-related aircraft traffic	1607	161	20	6	3	1797
Vehicular traffic	147	15	29	.7	1.1	192.8
Service Vehicles	132	30	8	.1	.2	170.3
Total	1886	206	57	6.8	4.3	2160.1
Non-airport related vehicular traffic	7435	718	1467	46	58	9724

Table 11
 1977 Air Pollution Sources and Emissions
 from Freedom Airport
 (Emissions - lbs./day)

Source	CO	HC	NO _x	SO ₂	Particulates	Total
Airport-related aircraft traffic	1607	161	20	6	3	1797
Airport-related vehicular traffic	147	15	29	.7	1.1	192.8
Airport service vehicles	132	30	8	.1	0.2	170.3
Total	1886	206	57	6.8	4.3	2160.1
Non-airport vehicular traffic	7435	718	1467	46	58	9724

Daily aircraft operations are given in Appendix A.
 Total site generated vehicular traffic = 715 vehicles/day.

The emission rates for aircraft and autos were computed using EPA publication AP-42, September, 1973.
 Ground service vehicles include belt loaders, fuel trucks, water and food trucks, and tow tractors. Ground service vehicle emission rates were computed using "An Air Pollution Impact Methodology for Airports - Phase I (APFD-1470)," J. E. Morco et. al., 1973.

SECTION 4(f) PUBLIC LANDS

Construction and operation of the proposed project will affect Thompson Bay and public beaches bordering the Bay. Section 4(f) of the 1966 Transportation Act requires specific disclosure of the impact on public lands. The 4(f) Statement for Thompson Bay and adjacent beaches has been prepared as part of this environmental assessment and is provided in this section of the report.

Project Description

A three-phase development plan is proposed to construct a new general aviation airport in Freedom County. Phase I of the plan involves acquisition of land in an area known as Miller's Point and reclamation of approximately 35 acres of bottom in adjacent Thompson Bay to construct a 5,400-foot by 150-foot runway and parallel taxiway.

Phase II expansion involves creation of an additional 20 acre fill section in Thompson Bay to construct a 1,400-foot extension to the Phase I runway; a 3,000-foot by 75-foot crosswind runway and additional apron area and hangar space.

Phase III contemplated development would require reclamation of another 20 acre fill section from Thompson Bay to construct a second 5,400-foot by 150-foot runway and taxiway parallel to and 3,500 feet southeast of the proposed Phase I runway.

These actions will reduce the area of Thompson Bay. Fill required for the project will be obtained by deepening and widening the pleasure craft navigational channel in the Bay. Leisure use and enjoyment of certain areas of the Bay and bordering beaches will be diminished by noise from aircraft operations.

Description of Thompson Bay and Beaches

Thompson Bay is an inland waterway extending from the Hammond's Inlet in Freedom County on the south to the Burnside Inlet in Bay County on the north. The shoreline of the Bay is characterized by intermittent tidal marsh which separates stretches of beach front. Bern Creek empties into the Bay immediately south of the proposed project site. Exhibit 6 shows Thompson Bay and public beaches in the study area.

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Prior to Coordination

SECTION 4(f) PUBLIC LANDS

Section 4(f) of the DOT Act of 1966 states that approval will not be given for projects requiring use of publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge, or any land from an historic site unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such area.

Thompson Bay and adjacent beaches are public recreation areas which will be affected by the construction and operation of the proposed reliever facility. The 4(f) Statement for Thompson Bay and adjacent beaches has been prepared as part of this environmental statement and is provided in this section of the report. The statement discusses the "use" of the areas through an identification of impacts, addresses alternatives, and describes measures to minimize harm.

Project Description

A three-phase development plan is proposed to construct a new general aviation airport in Freedom County. Phase I of the plan involves acquisition of land in an area known as Miller's Point and reclamation of approximately 35 acres of bottom in adjacent Thompson Bay to construct a 5,400-foot by 150-foot runway and parallel taxiway.

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Phase III contemplated development would require reclamation of another 20 acre fill section from Thompson Bay to construct a second 5,400-foot by 150-foot runway and taxiway parallel to and 3,500 feet southeast of the proposed Phase I runway.

These actions will reduce the area of Thompson Bay. Fill required for the project will be obtained by deepening and widening the pleasure craft navigational channel in the Bay to a depth of 12 feet and a width of 75 feet. Leisure use and enjoyment of certain areas of the Bay and bordering beaches will be diminished by noise from aircraft operations.

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After Coordination and Response

It is also noted that improvements to the navigational channel, facilitated by the project, will induce larger pleasure craft into the Bay. This may indirectly have an adverse effect on water quality. However, stringent policing by State Department of Conservation and Coast Guard authorities should eliminate code violations.

Steps to Minimize Damage

Steps are planned to reduce the project's impact on public lands include:

- Extensive erosion and dredge spoil management controls to minimize siltation and sedimentation hazards.
- Comprehensive water quality controls to prevent oil, grease, detergents or other airport wastes from reaching adjacent waters without treatment.

Specific details regarding measures to minimize damage are given in Section IV and the Noise, Hydrology, Coastal Management and Water Quality sections of this report.

Alternatives

Two site alternatives were considered for the project. The Roberts plantation proved economically unfeasible due to distance and associated access construction costs. Development of the Hash tract would have produced impacts in terms of noise exposure to residential areas and wetland degradation.

The No Project alternative would result in increased congestion of SIA requiring traffic control procedures to handle aircraft waiting clearance to land. Circling patterns would be established that would extend noise exposure to the entire area.

Runway configurations within the Miller's Point site are dictated by prevailing wind conditions. Alternative configurations would not be prudent in terms of aircraft safety. A shift of the proposed runway to the south would decrease the amount of extension in the Bay but would at the same time require construction within the wetland area.

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Prior to Coordination

Alternatives

Two previous planning studies evaluated alternatives to the proposed project. The initial feasibility study* (1971) evaluated expansion concepts at SIA, to include additional on-site runway construction, expansion through land acquisition, and construction at a new site.

Construction of an additional runway on-site was not feasible due to spatial constraints. Site expansion was restricted by extensive urban development and sensitive wetland areas. Construction of an entirely new international facility could not be justified in economic terms. The feasibility study concluded that demand at SIA could be met through construction of a reliever facility to handle the general aviation operations.

A site selection study** was undertaken to find the optimum location for a reliever airport in the region. The initial basic criteria used to identify potential sites were sufficient undeveloped contiguous acreage, adequate drainage, and acceptable subsurface conditions.

Three available contiguous tracts feasible for airport development were located and evaluated. These included the Millers Point site and two other properties.

The Roberts Plantation (Site 1) is a 1000-acre tract located in central Freedom County, 25 miles southwest of Lee City. While the property was ideal in terms of topography, sub-surface conditions and drainage, it presented access problems. The tract is located twenty miles west of Lee Turnpike. Existing access is provided via Jervis Road, a two lane unimproved road which intersects with State Route 212. Traffic analysis showed that improvements would be required for both Jervis Road and State Route 212 including a new interchange to Lee Turnpike. Therefore, improvement of this access road to the Lee Turnpike was recommended to provide adequate surface transportation for general aviation users. Costs associated with purchase of the land, additional access road right-of-way acquisition and road construction made development on this site financially not feasible.

* "SIA Feasibility Study, Expansion Alternatives,"
GAA Planners, December, 1971.

** "Site Selection Study - SIA Reliever Airport,"
GAA Planners, 1972.

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After Coordination and Response

The site was found to be abundant with wildlife and a breeding ground for the threatened red-cockaded woodpecker. Local conservation groups had already lodged a protest with the County zoning office to obstruct proposed residential development in proximity to this breeding area.

The Hash property is a 750-acre tract which had been designated for residential development. Upon further investigation, it was found that over one-third of the tract lay within a designated wetland area. Airport construction within this portion of the site would have eliminated approximately 120 acres of valuable tidal marsh communities.

In addition, a large residential sub-division known as Estuary Estates is located south of the site. Operations to the southwest would expose homes within Estuary Estates to noise levels greater than NEF 30 and operation to the northeast would increase noise exposure in the State Park.

Public opposition to this site was identified. The DNR indicated that airport development on this tract would not be consistent with the State Wetlands Management objectives. The Estuary Estates Community Association registered a strong objection with the Southeast Aviation Authority.

A summary of relevant project impacts and costs associated with the sites is presented in Table 14.

The proposed site offered multiple advantages in terms of access, proximity to downtown Lee City and compatible land use. However, airport development on this site involved a trade-off between impacting tidal wetland areas to the south or filling Thompson Bay to the north.

The alternatives available within the proposed site were to locate the configuration as proposed requiring filling of Thompson Bay or to shift the entire orientation to the south thereby impacting the tidal marsh area. The impacts associated with filling a small area of the Bay bottom were not considered to be as severe as filling of the tidal marsh area. The shift of the runway configuration to the south would have also brought a larger amount of undeveloped land planned for residential use within the NEF 30 contour. This would have created an increased conflict with County comprehensive plans.

None

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Prior to Coordination

After Coordination and Response

After Coordination and Response

Prior to Coordination

None

Table 14
Summary of Alternative Site Impacts

Impacts	Vegetation/Wildlife	Access	4(f) Lands
Noise Exposure	Impact on habitat of threatened species	Major access requirements	---
No residences exposed to NPF > 30	Filling of wetland areas	Turnpike interchanges	Increased noise exposed in State Park
Thirty residences exposed to NPF > 30	Loss of bay bottom; light pole placement in wetlands	No major improvements required	Loss of Bay area by runway fill; increased noise exposure on Bay
No residences exposed to NPF > 30	Loss of bay bottom; light pole placement in wetlands	No major improvements required	Loss of Bay area by runway fill; increased noise exposure on Bay

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Miller's Point
Project
Site - Proposed
Hash Property
Site 2
Roberts Plantation
Site 1
Site

Conversely, filling the Bay constituted only a minor loss of the region's extensive recreational water inventory and minor impact on fish species, since only limited populations occur in the Miller's Point area.

Under the No Project Alternative, congestion at SIA would continue to increase as the airport attempted to accommodate continuously expanding demand. Adverse impacts would be expected to result as overflight was prolonged and more aircraft entered the congested corridor. Air quality would also be adversely affected by emissions from aircraft circling to land or idling on taxiways awaiting takeoff clearance. Congestion would also cause unnecessary fuel consumption.

Under the No Project Alternative, congestion at SIA would steadily produce an undesirable situation. Ultimately, SIA would reach its operational capacity when no further flights could be accommodated, thus hampering expansion of new market areas. Both consequences would restrict sales of regional goods from reaching optimum potential. This, in turn, would restrict growth of local industry, employment, consumer income and public revenues.

Based on the above analysis, it is concluded that there is no feasible and prudent alternative to the proposed action, and that all measures to minimize harm to Thompson Bay have been identified and will be incorporated into the project.

None

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Prior to Coordination

After Coordination and Response

STATE DEPARTMENT OF NATURAL RESOURCES

Coastal Zone Management Agency

April 2, 1975

Mr. Albert B. Richards
Southeast Aviation Authority

Dear Mr. Richards:

As you know, our interest in this state's coastal zone involves not only protection of our marine resources, but also the orderly development of our coast.

Based on our understanding of the need for a reliever airport facility in our region, and based on our review and understanding of the potential impacts of site development, we feel that the Phase I development appears consistent with the state's Coastal Zone Management program.

We ask that coordination with our office be maintained throughout the permit process and subsequent phases of development.

Very truly yours,

Michael D. Jenkins
Michael D. Jenkins
Director

MDJ/mnr

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Prior to Coordination

After Coordination and Response

None

Input for Finite Source Dispersion Model
Peak Hour Operations*

Aircraft	Operations		Total
	Takeoff	Landing	
Turboprop Transport	1	-	1
Business Jet	1	-	1
General Aviation			
Twin-engine + DC-3	3	2	5
Single-engine	5	4	9

None

* Ten percent of total daily operations (1977).

Wind speed = 1 m/sec

Duration period = 1 hour

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Prior to Coordination

After Coordination and Response