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Aviation

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# STATE OF ALASKA

JAY S. HAMMOND, GOVERNOR

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

DEPUTY COMMISSIONER - DESIGN AND CONSTRUCTION

POUCH Z  
JUNEAU, ALASKA 99811  
(907) 465-3900

March 9, 1981

200H-

Re: Request for Information  
by House Transportation  
Committee

The Honorable Bette M. Cato, Chairman  
House Transportation Committee  
Alaska House of Representatives  
Pouch V  
Juneau, Alaska 99811

Dear Representative Cato:

Following is information requested during the February 13, 1981 House Transportation Committee Hearing on our Aviation Design & Construction Budget.

- 1) Priority listing on intended useage of the \$4,719,000 appropriation for airport lighting under Ch 50/SLA 80.

The enclosed "Executive Summary" from the Rural Airport Lighting Report by Wince Corthell, Bryson, Freas, provides the requested information.

- 2) Delays incurred in obtaining permits and clearances.

There are a variety of Federal and State laws and regulations that must be complied with in gaining approval to proceed with construction. Those most often impacting schedules on state funded aviation projects are wetlands permits (Clean Water Act - Public Law 95-217), permits for activities affecting navigable waters (River and Harbor Act of 1899 - 30 Stat. H51; 33 USC 403) and archeological clearance (AS 41.35.070). The wetlands permits and navigable waters permits are issued by the Corps of Engineers and typically take 4 to 6 months to process. During this period the permit application is circulated among various state and federal agencies and given public notice. Objections are frequently raised, and it takes time to resolve them. We are making a concerted effort to expedite this process.

- 3) List of Federal ADAP funded projects that may not be advertised due to no Federal ADAP Funding.

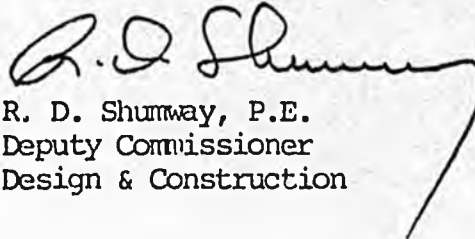
This list is being submitted by our Planning & Programming Unit.

March 9, 1981

- 4) A status report on plans to improve the terminal area at Anchorage International Airport.

It is our understanding that our Planning & Programming Unit will furnish a response to this request.

Sincerely,



R. D. Shumway, P.E.  
Deputy Commissioner  
Design & Construction

Attachments

cc: John Bates  
Deputy Commissioner  
Planning & Programming

Clayton Hueners  
Director  
Aviation Design & Construction

Riley Snell  
Planning & Programming

RDS/sh

## EXECUTIVE SUMMARY

### I. INTRODUCTION

Pursuant to the mandate of Chapter 50, SLA 80 that the 33 designated rural, general aviation facilities be equipped with airport lighting, the Department of Transportation and Public Facilities contracted with Wince-Corthell-Bryson-Freas Consulting Engineers in association with Arctic Consulting Engineers for the professional services of performing this Resources and Conditions Inventory Report. The report develops a site-specific scope of work for each facility, evaluates potential power sources, defines specific components of the airport lighting system, and identifies factors which may either enhance or deter the implementation of the Chapter 50 mandate at each location.

Five village airports designated in Chapter 50; Kiana, Noorvik, Selawik, Arctic Village, and Ruby have received lighting systems concurrent with the formulation of this report.

### II. SELECTION OF LIGHTING SYSTEM AND POWER SOURCES

Criteria for the selection of a lighting system:

1. Must provide not less than the minimum required lighting, with the requisite reliability.
2. Must be composed of sturdy, durable, and maintainable components of standard manufacture and having assured availability on a long-term basis.
3. Must be amendable to future upgrading with maximum utilization of original components.

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4. Must be designed to afford optimum protection to the various components from damage caused by maintenance activities, illicit vehicle traffic, and vandalism.

The important variables of the airport lighting system are fixture type, location, spacing and the arrangement of circuitry, conduits, and conductors. The use of local electrical power sources has several desirable aspects; it eliminates the burdens of maintenance and supply of separate power sources by the State, and benefits the utility at each location by contributing to its economic viability. Where public or privately owned power sources are not currently available or cannot now be economically extended to a particular airport, an independent power source is required on an interim basis until reliable, economical utility service becomes available.

### III. CONCLUSIONS

Reliability is one prime consideration for determining airport lighting system components and methods of operation. Failure of lighting system components must be minimized; however, vandalism is a major variable effecting reliability which, in some cases, could inhibit the maintainability of the lighting system. Lengthy outages of a local utility are not tolerated for reasons of public dependence, and similarly, since other facilities served by the utility cannot tolerate a prolonged outage, having the airport lighting powered by the local utility can be regarded as dependable and thus reliable.

Standardization is another major consideration for determining lighting system components and methods of operation. Lighting fixtures of a standard type and system configuration reduce initial design and construction

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costs and also lessen supply and maintenance problems with system components. The best system of lighting components and circuitry for the rural, general aviation airport is the FAA standard medium intensity runway lighting (MIRL) system. Having the lighting system controlled by activation on pilot demand reduces energy consumption as well as provides a standard method for operation of the system.

### IV. RECOMMENDATION

The airports in this report should be grouped in the following prioritized categories:

1. Construction plans and contract documents should be prepared for 1981 construction of the airport lighting system.
  - A. Airports north of  $66^{\circ}$  latitude except those listed under C.
  - B. Airports south of  $66^{\circ}$  latitude except those listed under C.
  - C. Airports which may require reconstruction or relocation.
2. Construction of the lighting system should be either deferred until the planned major runway improvements have been completed or preferably, included with the contract for the other major improvements.
  - A. Airports North of  $66^{\circ}$  latitude except those listed under C or D.
  - B. Airports South of  $66^{\circ}$  latitude except those listed under C or D.
  - C. Airports which require school electrical power or completion of village electrification.
  - D. Airports requiring an independent power source.

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Since the total of all the cost estimates included for each location is more than the amount allocated for this work, the allotted funds will be expended on this prioritized basis. Also due to the shortness of funds and the lack of engineering and maintenance experience with the Visual Approach Slope Indicator (VASI) system in rural areas, the VASI's will only be installed in the following prioritized locations:

1. Chevak
2. Huslia
3. Emmonak
4. Ambler
5. Grayling
6. Noatak
7. Kipnuk
8. Hoonah, Skagway, Haines

Provisions will be made when installing other lighting system components to provide for the simplified installation of VASI's at all other listed airports if future funding becomes available.

It is recommended that the airports which will have lighting systems installed in 1981 be combined so that from three to five airports are grouped for advertising as one contract. This will provide for the most cost effective method of accomplishing these installations in a timely manner.

A service arrangement with the local utility (Alaska Village Electric Cooperative or individual village agency) should be established which includes provisions for the utility to assume ownership and maintenance of all distribution line extensions constructed to serve the airport

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lighting systems. A portion of the initial capital cost of the distribution line extensions constructed to serve the airport lighting systems. A portion of the initial capital cost of the distribution line extensions should also be rebated the State by the utility lowering the charge per kilowatt-hour of electricity consumed while operating the lighting system. Right of entry or easements must be obtained from local land holders prior to the construction of the distribution line extensions. As the location of these extensions are generally fixed, processing of these permits or easements should begin immediately. Also a line extension should not introduce materials, voltages or construction methods which differ significantly from those of the existing local utility system.

It is anticipated that the scheduled airport lighting system can be designed and advertized for construction bids prior to June 15, 1981, but the lead time required for the supply of the hardware is three months or more for most of the components. In order to accomplish a major portion of the Chapter 50 mandate during the 1981 construction season it is imperative that the State purchase all the hardware of the lighting system prior to actual contracting for the installation of the lighting system at each site. Along with accomplishing the goal of having these airports lighted in 1981, a major maintenance benefit is derived by having State-supplied materials for the contractors which accomplishes another goal of standardized components within all the lighting systems.

Operating funds for maintenance of those lighting systems which have been budgeted for FY81, but which will not be installed until early FY82, must now be added to the FY82 budget. Operating funds should also be budgeted as projected for the estimated yearly maintenance costs of

\*Pending the availability of funding

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each location. A large overall statewide increase in operating budget for rural airports must be anticipated, for not only are the lighting systems causing additional direct maintenance costs such as utility bills, fixture replacements and general lighting system work, but also indirect costs such as increased snow removal and grading work are incurred.

In synopsis, the recommendations contained in this Resources and Condition Inventory Report for Rural Airport Lighting should be adopted and implementation should begin immediately.