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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REPORT

relating to the proposed development of

AIRFIELD PAVEMENTS

at

MACKAY AIRPORT, QUEENSLAND

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

DEVELOPMENT OF AIRFIELD PAVEMENTS AT MACKAY AIRPORT, QUEENSLAND

REPORT

On 14 August 1967, His Excellency the Governor-General in Council referred to the Parliamentary Standing Committee on Public Works for investigation and report to the House of Representatives, the proposal to further develop airfield pavements at Mackay Airport, Queensland.

The Committee have the honour to report as follows:

THE COMMITTEE'S INVESTIGATION

1. The Committee received written submissions and drawings from the Departments of Civil Aviation and Works and took evidence at public hearings in Canberra and Mackay from representatives of these departments and from the Manager of the Mackay District Development Bureau. We inspected the airport facilities at Mackay including the areas in which the proposed works are to be carried out.

THE PROPOSAL

2. The proposal submitted to the Committee comprises:

(a) strengthening the main or 140° runway, taxiways and the apron;

(b) extending the 140° runway by 910 ft to 6,500 ft;

(c) constructing a 200 ft long blast area at each end of the 140° runway; and

(d) widening the taxiways and extending the apron.

The estimated cost of these works is $1,250,000.

MACKAY AIRPORT

3. Existing Pavements Mackay Airport was first developed by the Mackay City Council in 1931 as a grassed field. Improvements to facilities have taken place progressively since then and at the present time the airport has an area of 425 acres. The Commonwealth took over the operation of the airport from the Council in 1941 and the land on which the airport is built became the subject of a 30 years lease to the Commonwealth by the State. The runway pavements now comprise:

(a) the 140° runway, which is 5,590 ft long, of sealed gravel, and capable of taking Viscount aircraft on regular service;

(b) the 50° runway, which is 4,180 ft long, of unsealed gravel, and satisfactory for aircraft up to the Fokker F27; and

(c) the 90° runway which is grassed and suitable for light aircraft only.

4. Terminal Area The apron and terminal facilities north-east of the 140° runway are connected to it by two short taxiways. Three airline aircraft can park on the concrete portion of the apron simultaneously and there is a bituminous surfaced section for light aircraft.

5. The passenger terminal facilities are operated by the airline companies in two small and separate buildings. Lindeman Aerial Services, which operates light passenger aircraft between Mackay and Lindeman Island, share a Commonwealth owned building with Trans-Australia Airlines. The other is owned and occupied by Ansett-A.N.A. In the short term, minor improvements are to be made to the Commonwealth owned building to provide better pilot briefing facilities. The public toilets which are in a separate building and the car park are also to be extended.

6. Although our terms of reference did not embrace a close investigation of the terminal buildings and the associated services,

as these facilities are complementary to the airfield pavements and are essential to the operation of the airport, we feel that the Parliament should be aware of our views on this subject.

7. We consider that the public facilities and services in the terminal area are less than satisfactory for the amount of passenger traffic handled at Mackay. The Committee were told that improvements are being kept to a minimum at this stage pending the relocation and rebuilding of the terminal and associated facilities in an area north-east of the present site, further away from the runway system. The need to relocate the terminal area, including the aircraft apron, is due to these facilities being too close to the main runway to fully comply with modern design requirements. We also noted the advice of the Department of Civil Aviation that there are plans for a new building area to be developed at Mackay Airport "perhaps in the early 1970s".

8. It was clear from our inspection and from the evidence taken at the public hearing that there is a need, now, for much more than a token expenditure to improve conditions for the travelling public. We concluded that the Government should re-examine the timing of the terminal rebuilding programme at Mackay Airport with the idea of accelerating completion of the proposed long term improvements.

9. Department of Civil Aviation The Department has an air traffic control service and a fire and rescue unit at Mackay. The navigational aids consist of a visual aural range (V.A.R.), a non-directional beacon, distance measuring equipment and runway lighting. A visual approach unit is to be installed on the 140° runway and there are plans for the V.A.R. to be replaced with a V.H.F. omni-range.

10. Operational Arrangements Although the 140° runway is only suitable for the unrestricted operation on regular service of aircraft up

to the size of the Viscount, since May 1967 it has been used, under restrictions, by Electra aircraft. These aircraft have not been able to use the north-western end of the runway, a weight limitation on the remaining length has been set at 100,000 lbs and use has been limited to four landings and take-offs daily. These conditions have been set in the expectation that the runway is about to be strengthened and that the airline companies will withdraw Electra services should there be any substantial damage to the pavement.

AVIATION ACTIVITY AT MACKAY

11. At present Ansett-A.N.A. and T.A.A. together operate 20 scheduled services a week through Mackay using Electra, Viscount and Fokker aircraft. There are also ten scheduled services a week from Brisbane which terminate in Mackay. These companies also operate a total of seven services a week to Proserpine, Bowen and Ayr using a Beechcraft Queenair aircraft in the case of T.A.A. and a Piaggio Portofino in the case of Ansett-A.N.A.

12. The growth in the number of passengers carried in and out of Mackay during the past five years is illustrated by the following figures:

Year	Passengers
1962	36,965
1963	41,014
1964	51,294
1965	71,322
1966	71,316

It is forecast that traffic will continue to increase and that by 1975 the number of passengers carried will be about double the 1966 figure.

13. There is also a considerable amount of general aviation activity at Mackay associated with traffic to the Great Barrier Reef and to mainland

centres. Lindeman Aerial Services, Howard Aircraft Pty Ltd., Pioneer Airways and the Northern Flying School all have bases here. In addition, both T.A.A. and Ansett-A.N.A. operate light aircraft services from Mackay. The runways are more than adequate for light aircraft purposes and so is the apron at the present time. This general aviation traffic does not affect the works now being considered by the Committee.

14. The following table of aircraft movements illustrates the growth in activity at Mackay Airport in the past five years, particularly in light aircraft:

	Large Aircraft	Light Aircraft
1962	5,398	10,034
1963	5,660	8,740
1964	5,978	10,122
1965	6,536	13,168
1966	6,998	22,522

PAVEMENT REQUIREMENTS

15. The existing 140° runway can handle aircraft as large as the Viscount on a regular basis. The aim of the proposal submitted to the Committee is to improve this runway, the taxiways and the terminal apron so that DC9 and Electra aircraft can be operated by Ansett-A.N.A. and T.A.A. on regular service on Queensland's north-east coast without restriction and Boeing 727s can be used on an infrequent charter basis or when substituting for other types of aircraft on scheduled services.

16. The weight and tyre pressure of these aircraft compared with those of other aircraft now in use are:

Aircraft	Maximum all-up-weight (lbs)	Tyre Pressure (p.s.i.)
Douglas DC3	26,200	48
Fokker F27	42,000	75
Viscount 800	72,500	100
Electra	113,000	140
Douglas DC9	100,000	120
Boeing 727	160,000	145
Boeing 707-338	336,000	165

17. The Committee were told that tests with a pneumatic tyred roller loaded to simulate the effect of an aircraft have shown that for the satisfactory operation of DC9s and Electras on the coastal service between Brisbane and Cairns, the 140° runway should be strengthened. In addition, for operational purposes, it needs to be extended to 6,500 ft with stopways of 200 ft at each end of the runway. The latter will also serve as blast areas.

18. The proposal also includes strengthening and widening the taxiways and strengthening and extending the terminal apron to meet the needs of the larger aircraft. The latter work will allow the parking and simultaneous operation of three large jet aircraft.

19. Because of the proposal to relocate the terminal and apron area in the future, extension of the apron is being kept to a minimum at this stage. The Committee were informed that the apron, as it is now proposed, will be sufficient to handle traffic at Mackay until the new building area is developed. This assessment is based on the assumption that the major operators will not have both of their northbound and southbound services on the apron at Mackay at the same time.

20. The Committee agree that in view of the impending introduction of DC9 and Electra aircraft on regular service there is a need for the airport pavement works in this reference.

21. Additional Land The lengthening of the 140° runway will require the extension of the airport boundary in a south-easterly direction. To obtain sufficient land for this purpose and to enable extensions beyond 6,500 ft to take place in the future if required, the Commonwealth proposes to acquire 236 acres of land at a cost of about $15,000. The land is generally low lying tidal swamp extending to the high water mark and requiring up to six feet of reclamation in places.

22. International Civil Aviation Operations We noted that although there have been representations from time to time from local interests for direct international services to Mackay, there have been no such approaches from operators. In view of the other international airport facilities available and the limited extent of possible traffic, we agree that it is neither necessary nor practicable at this stage to develop an international airport at Mackay with the high level of expenditure on additional ground facilities in the form of stronger and longer runway pavements, additional navigational aids and other services and processing facilities that this would entail.

PROPOSED WORKS

23. Existing Conditions The airport is located south of the City of Mackay adjacent to a tidal swamp. The site is generally flat and falls gently from west to east. The subgrade soil is black clay.

24. The first major development at the airport occurred during World War II and by 1946 consisted of two 150-ft wide unsealed runways. There was also a sealed apron with taxiway connections to the runways. The pavements generally consisted of seven to nine inches of clay gravel.

25. In 1947 a seven inch concrete apron 312 ft by 100 ft and a 50 ft wide taxiway were built and in the following year the 140° runway was extended to its present length of 5,590 ft with a pavement of nine inches of gravel on a five inch bed of sand. Some 2,100 ft of this runway at its north-west end was then sealed. In 1958, to upgrade the pavements for Viscount aircraft, the original 4,180 ft was strengthened by overlaying it with 12 inches of gravel, the top six inches of which was mixed with fine crushed rock. The taxiways were completely reconstructed and both the taxiways and the strengthened runway were bitumen sealed.

26. The concrete apron was extended at the south-eastern end in 1962 for Viscount aircraft.

27. As the airport area is subject to flooding from time to time, a levee bank system has been constructed to protect the aircraft movement area.

28. Proposed Pavement Works The strengthening work now proposed comprises:

(a) the 1948 extension of the 140° runway is to be overlaid with six inches of fine crushed rock and one inch of bituminous concrete;

(b) the 4,180 ft of runway strengthened in 1958 is to be overlaid with at least two inches of bituminous concrete;

(c) the 1947 concrete apron is to be overlaid with four inches of bituminous concrete;

(d) the 1962 apron extension is to be overlaid with two inches of bituminous concrete; and

(e) the taxiway connections and portion of the apron between the concrete and grassed area will be cement stabilised and overlaid with at least two inches of bituminous concrete.

29. Concurrently with the strengthening, it is proposed to improve the cross section shape of the runway.

30. The soil in the tidal swamp is generally sand. The pavement of the runway extension including the blast area at the south-eastern end will be constructed of one inch of bituminous concrete on ten inches of fine crushed rock on sand fill. The taxiway widening and the apron extension will be similarly constructed. The blast area at the north-western end of the runway and the ten feet wide shoulders along the runway will comprise eight inches of sealed gravel.

31. Associated with the pavement works will be the installation of ducts for electrical and control cables and minor drainage works.

32. The Committee recommend the construction of the works in this reference.

CONSTRUCTION TIMES AND STAGING OF WORK

33. It is estimated that after an approval to proceed is given, documentation of the proposals and letting of a contract will take six months. The construction period is expected to be about 12 months.

34. The runway extension, which can be built without interfering with aircraft operations on the 140° runway, will be constructed first. The Committee noted that subsequent works will need to be staged to limit interference with aircraft traffic, but during the strengthening work, the runway will be closed to traffic between 6.00 a.m. and 12 noon daily for about 14 weeks. The work will not interrupt use by Fokker or DC3 aircraft of the 50° runway.

ESTIMATE OF COST

35. The estimated cost of the work when referred to the Committee was $1.25 million as follows:

	$
Pavement strengthening including runways, taxiways and aprons	700,000
Runway extension including blast areas	550,000
	$1,250,000

RECOMMENDATIONS AND CONCLUSIONS

36. The summary of recommendations and conclusions of the Committee is set out below. Alongside each is shown the paragraph in the report to which it refers.

		Paragraph
1.	THE GOVERNMENT SHOULD RE-EXAMINE THE TIMING OF THE TERMINAL REBUILDING PROGRAMME AT MACKAY AIRPORT WITH THE IDEA OF ACCELERATING COMPLETION OF THE PROPOSED LONG TERM IMPROVEMENTS.	8
2.	IN VIEW OF THE IMPENDING INTRODUCTION OF DC9 AND ELECTRA AIRCRAFT ON REGULAR SERVICE, THERE IS A NEED FOR THE AIRPORT PAVEMENT WORKS IN THIS REFERENCE.	20
3.	THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE WORKS IN THIS REFERENCE.	32
4.	THE ESTIMATED COST OF THE WORK WHEN REFERRED TO THE COMMITTEE WAS $1.25 MILLION.	35

F. C. Chaney

F.C. CHANEY.
Chairman.

Parliamentary Standing Committee on Public Works,
Parliament House,
CANBERRA.

20 September 1967.