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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

R E P O R T

relating to the proposed

DEVELOPMENT OF AIRFIELD PAVEMENTS

at

COOLANGATTA AIRPORT, QUEENSLAND

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

DEVELOPMENT OF AIRFIELD PAVEMENTS AT
COOLANGATTA AIRPORT, QUEENSLAND

R E P O R T

By resolution on 15th September, 1966 the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report, proposals to further develop airfield pavements at Coolangatta Airport, Queensland.

The Committee have the honour to report as follows:

GENERAL

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 Coolangatta from representatives of these departments and of interested local government, commercial and community organisations of the Gold Coast area. We inspected the existing airfield pavements and the areas where the proposed works are to be carried out.

THE PROPOSALS

2. The proposals submitted to the Committee comprise -
- (a) strengthening the existing main runway, main taxiway and terminal apron;
 - (b) extension of the main runway by 500 feet to 4,500 feet;
 - (c) construction of a sealed 200 ft. stopway at each end of the main runway;
 - (d) widening the main taxiway from 50 ft. to 75 ft; and
 - (e) construction of a new 75 ft. wide loop taxiway between the runway and the existing main taxiway.

COOLANGATTA AIRPORT

3. Existing Development The site of the airport at Coolangatta was selected in 1936 and its development as an alternate to Brisbane for use when the latter was closed due to bad weather, was completed in 1939. Little or no change occurred until 1950 when, to cater for increasing Douglas DG.3 operations - mostly local traffic - a new unsealed gravel runway 5,500 feet in length was constructed, together with a taxiway, apron and access road. The pavements were progressively sealed between 1955 and 1956. Development of aprons to meet increasing traffic has continued since then and the runway has been extended.

4. The pavements at Coolangatta now comprise a paved and sealed runway 6,000 feet in length and 150 feet wide with unsealed over-runs of 200 feet at each end. A taxiway 50 feet wide leads to a terminal apron 580 feet by 245 feet. These pavements are strong enough for Viscount 800 aircraft.

5. A secondary grassed loam strip 2,400 feet long and 300 feet wide and a separate apron 400 feet by 180 feet, meet the needs of light aircraft. The apron is joined to the main runway by a lightly sealed taxiway.

6. In addition to a small terminal building, the other facilities at the airport include a control tower and a fire station, both manned by Department of Civil Aviation staff, a non-directional beacon, a V.H.F. Omni Range (V.O.R.) and full night landing facilities.

7. The Site The area owned by the Commonwealth covers 801 acres of which 546 acres is at present in operational use as the airport. It is situated on mostly swampy land among low sand hills and low timbered ridges and is approximately two miles west of Coolangatta. It lies between the Cobaki Broadwater in the south-west and the Pacific Highway on the north-east. The Queensland/N.S.W. state boundary, which passes through the airport, places 269 acres of the airport in Queensland and the remainder in New South Wales. The main operational part of the airport, including the building area, is in Queensland.

8. The Coolangatta Region The use of Coolangatta as an alternate to Brisbane has now decreased greatly with the improvement of navigational aids at Brisbane and the installation of an instrument landing system. The importance of Coolangatta as an airport in its own right has grown with the development of the Gold Coast and northern New South Wales, and the region it serves extends from north of Southport to Mullumbimby and Byron Bay. To the west the area is limited by the coastal ranges but includes most of the Tweed and Albert Shires.

9. The nearest airports served by regular passenger aircraft are Brisbane (56 air miles and 71 road miles distant), Casino (56 air miles and 100 road miles distant) and Warwick (96 air miles and 169 road miles distant).

10. Due to the scattered nature of the region and to the importance of the tourist industry, it is not easy to determine the population served by the airport. The permanent population of the area is, however, of the order of 70,000 and tourists and other visitors are thought to number 120,000 at peak periods.

AVIATION ACTIVITY AT COOLANGATTA

11. At present Ansett-A.N.A. and T.A.A. together run a total of 19 services a week between Sydney and Coolangatta and four services a week between Melbourne and Coolangatta direct. T.A.A. runs two services a week each way between Sydney/Newcastle/Coolangatta/Brisbane and East-West Airlines runs three services a week connecting Coolangatta with Brisbane, Sydney and Tamworth. There are thus 60 scheduled movements a week of regular public transport aircraft at Coolangatta. The number of movements rises to about 150 at peak periods with the maximum daily traffic at these times being about 50 movements. Ansett-A.N.A. and T.A.A. are now generally using Viscount aircraft and East-West Airlines the Fokker Friendship.

12. The following figures illustrate the growth in passenger traffic in and out of Coolangatta in the past five years, and the growth expected in the next ten years.

<u>Year</u>	<u>Passengers (In and Out)</u>
1961	55,491
1962	52,292
1963	58,564
1964	70,549
1965	82,357
1970	130,000 (estimate)
1975	200,000 (estimate)

13. Coolangatta also handles a considerable volume of general aviation ranging from about 40 aircraft movements per day on week days to 75 per day at weekends. Two charter companies, a flying training organisation and an aero club are based at the airport. Light aircraft movements at Coolangatta have grown from 5,000 in 1960 to 13,600 in 1965. In 1966, 17,000 movements are expected and by 1970 it is estimated that the 50,000 figure will be reached.

PAVEMENT REQUIREMENTS

14. Existing pavements are capable of handling aircraft as large as the Viscount 800. The proposal submitted to the Committee is to improve the existing main runway, main taxiway and terminal apron pavements in order that Electra and DC.9 aircraft can be brought into regular commercial service and Boeing 727s used on the infrequent occasions when the other types of aircraft are not available.

15. The loading characteristics of the aircraft to be handled on the pavements together with those of existing aircraft, are as follows:

	Maximum All-up Weight (lbs.)	Tyre Pressure (p.s.i.)	Single Isolated Wheel Load (lbs.)	Payload (lbs.)
Douglas DC.3	26,200	48	12,000	5,300
Fokker F.27	42,000	75	11,500	10,600
Douglas DC.4	73,000	72	16,400	15,300
Viscount 800	72,500	100	17,000	13,500
Douglas DC.9	100,000	120	22,500	25,000
Electra	113,000	140	25,500	24,000
Boeing 727	160,000	145	36,000	29,700

16. The Committee were told that both the Electra and Boeing 727 can operate from the existing runway length of 6,000 feet. The extension to 6,500 feet is required for the DC.9. Both major airlines agree that a length of 6,500 feet with a stopway of 200 feet will meet their operational requirements at Coolangatta. In designing the extension of the runway the possibility of a further extension beyond 6,500 feet is being kept in mind. The runway when lengthened will be more than adequate to meet international standards for landings of the Electra, Boeing 727 and DC.9 aircraft, allowing for a 15% factor for wet and slippery pavements.

17. The new loop taxiway is required to improve the taxiway facilities in keeping with the increased capacity of the runway and the general increase in aircraft movements. The Master Plan for the airport provides that it will eventually form part of a parallel taxiway the length of the runway.

18. The Committee agree that in view of the impending introduction of Electra and DC.9 aircraft on regular services to Coolangatta, there is a need for the improved pavements in this reference.

INTERNATIONAL CIVIL AVIATION OPERATIONS

19. We were informed that although there have been representations from time to time from local interests for direct international services to Coolangatta, there has been no such approach from airline companies. In view of the proximity of Brisbane with its international airport, it is not thought to be necessary, nor practicable, at this stage to develop an additional international airport at Coolangatta with the expenditure on additional ground facilities in the way of stronger and longer runway pavements, additional navigational aids and other services and processing facilities that this would entail.

REPRESENTATIONS FROM LOCAL ORGANISATIONS

20. As the question of the takeover of Coolangatta Airport by the Gold Coast City Council under the local ownership plan is currently still the subject of discussion with the Department of Civil Aviation, there was some disappointment on the part of the Council and interested community organisations and individuals that the scope of the Committee's investigation did not cover this and related issues. Matters relating to the adequacy of the terminal building, the ability of the proposed pavements to take larger aircraft on a regular service basis, or the capacity of the pavements at the time the takeover takes place, were thus not examined.

21. We did, however, consider the capacity of the terminal apron to handle the concentration of aircraft that occurs at peak periods. The apron space now available is generally sufficient for traffic generated by normal scheduled flights and under most conditions of peak traffic, but congestion can occur when more than four aircraft are on the apron simultaneously. The space now available will provide full and complete flexibility of movement for four DC.9 aircraft at the one time when they are brought into service.

22. The Committee were told that the Department of Civil Aviation recognises that congestion does occur on the apron from time to time under present usage patterns, and that this is caused, in part, by the principal airline operators running flights from both Sydney and Melbourne arriving at Coolangatta at about the same time. The Department is not planning an immediate extension of the apron, partly because it is thought that the new loop taxiway in this reference will provide a measure of relief by permitting a number of aircraft ready to depart to be held away from the apron while other aircraft are landing or are approaching the airport. Under existing conditions, only one aircraft can be so held.

23. We noted that the question of the adequacy of the apron at the time the airport is taken over is closely linked with consideration of the local ownership proposals. We also noted that the Department of Civil Aviation is to again examine the matter when the conclusions of the departmental committee currently investigating the effects of parallel airline schedules on the provision of airport facilities are known.

24. The Committee believe that because congestion on the apron does occur from time to time, the adequacy of the aircraft parking facilities should be kept under review to ensure that reasonable operational requirements are met.

THE PROPOSED WORKS

25. Site Conditions The airport is generally located on flattened sand dunes with surrounding low lying swampy ground which contains peat overlying variable depths of peaty sand. The swamp to the east of the airport forms a natural drainage depression which has an outlet to the sea about 3/4 mile east of the terminal.

26. Existing Airfield Pavements The original pavements were built for DC.3 aircraft and consisted of 4" unsealed gravel on 4" sand clay over the sand sub-grade. They were subsequently bitumen sealed in stages. The taxiway construction across the swampy ground east of the runway included a culvert under the taxiway and the depression of 350 feet of the taxiway to act as a flood way to pass large stormwater flows.

27. Since 1956 maintenance on the pavements has included the reconstruction of 1,400 feet of the taxiway in 1957, the maintenance patching of the runway at various times and the reconstruction of 700 feet of the runway south-east of the taxiway in 1962. The latter involved the replacement of unstable peaty sand with a 9" gravel pavement, the top 6" of which was cement stabilised and bitumen sealed. At the same period the runway was extended by 500 feet.

28. The terminal apron has been extended twice - in 1958 and again in 1962. The extensions comprised 8" of cement stabilised gravel which was then bitumen sealed.

29. Proposed Pavement Strengthening When consideration was being given in 1959 to a proposal to operate DC.6 and Electra aircraft into Coolangatta, the strength of the pavements was tested with a pneumatic tyred roller loaded to simulate an Electra aircraft. The study showed that strengthening of the pavements would be required for operations by these aircraft.

30. We were told that the most economical method of strengthening the main runway, main taxiway and terminal apron, is to cement stabilise the existing pavement material and to overlay this with 1" of bituminous concrete. Some areas of pavement are known to have been built on unstable peaty sand and these will require reconstruction. It is proposed to proof-roll the remainder of the pavements with a heavy pneumatic tyred roller in advance of the stabilisation to locate other sections which require the same treatment.

31. The areas of the runway pavement reconstructed in 1962, the portion of the taxiway reconstructed in 1957, the apron extensions constructed in 1958 and 1962, will only require overlaying with 1" of bituminous concrete.

32. Proposed New Pavements The construction proposed for the new aircraft pavements, viz. the runway extension, the 200 feet of stopway at the southern end of the runway over which a further runway extension may be required, the new 75 feet taxiway and the widening of the existing taxiway, will be 1" of bituminous concrete on a base course of 6" of fine crushed rock on a 4" gravel sub-base. The stopway at the northern end of the runway and the shoulders to the runway, the runway extension and taxiways, will be 6" of bitumen sealed gravel.

33. In some of the new pavement areas it will be necessary to replace peaty sand sub-grade with clean sand before construction. In the case of the runway extension which crosses a section of swamp containing peat, the latter will be removed prior to filling with sand. We noted that about 20,000 cubic yards of peat is expected to be removed to avoid future loss of shape of the runway pavement due to settlement.

34. Other works to be carried out will include the clearing of trees on the approach for the runway extension at the southern end, the installation of service ducts under the new pavements and minor drainage works associated with the pavement development.

35. The Committee recommends the construction of the works in this reference.

ESTIMATES OF COST

36. The estimated cost of the works when referred to the Committee was \$1.3m as follows -

(a) PAVEMENT STRENGTHENING			
(i)	Proof rolling and pavement reconstruction	\$200,000	
(ii)	Cement stabilising pavements and overlaying with bituminous concrete, including sealed shoulders	<u>\$500,000</u>	\$700,000
(b) RUNWAY EXTENSION INCLUDING STOPWAYS			
(i)	Earthworks	\$330,000	
(ii)	Pavement, shoulders, drainage and ducts	\$87,000	
(iii)	Approach clearing	<u>\$13,000</u>	\$430,000
(c)	WIDENING EXISTING TAXIWAY		\$50,000
(d)	NEW TAXIWAY		<u>\$120,000</u>
			<u>\$1,300,000</u>

CONSTRUCTION TIMES AND STAGING OF WORKS

37. The construction of the new pavements and strengthening of the existing apron and taxiway will be carried out concurrently with the runway works and should not affect aircraft operations. The runway strengthening work will be executed in stages and will be so arranged as to maintain Viscount aircraft operations for as long as possible before services are necessarily limited to Fokker Friendship aircraft only. The period of the operation of the latter aircraft will be kept to a minimum.


38. The proposed works are expected to be completed in 12 months, during which operations with Fokker Friendship aircraft only will be limited to about four months.

RECOMMENDATIONS AND CONCLUSIONS

39. 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. IN VIEW OF THE IMPENDING INTRODUCTION OF ELECTRA AND DC.9 AIRCRAFT ON REGULAR SERVICES TO COOLANGATTA, THERE IS A NEED FOR THE IMPROVED PAVEMENTS IN THIS REFERENCE. | 18 |
| 2. THE ADEQUACY OF THE AIRCRAFT PARKING FACILITIES SHOULD BE KEPT UNDER REVIEW TO ENSURE THAT REASONABLE OPERATIONAL REQUIREMENTS ARE MET. | 24. |
| 3. THE CONSTRUCTION OF THE WORKS IN THIS REFERENCE IS RECOMMENDED. | 35 |
| 4. THE ESTIMATED COST OF THE WORKS WHEN REFERRED TO THE COMMITTEE WAS \$1.3m. | 36 |


A. A. BUCHANAN
Chairman

Parliamentary Standing Committee
on Public Works,
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11th October, 1966.