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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

*Parliamentary Standing Committee on Public Works*

## REPORT

relating to the proposed construction of the

# PALMERSTON ARTERIAL ROAD

at

## Darwin, Northern Territory

(TWENTY-FIRST REPORT OF 1972)

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

PALMERSTON ARTERIAL ROAD  
DARWIN, NORTHERN TERRITORY

R E P O R T

On 14 July 1972, His Excellency the Administrator in Council referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament, the proposal for construction of the Palmerston Arterial Road, Darwin, Northern Territory.

The Committee have the honour to report as follows:

THE REFERENCE

1. The proposal referred to the Committee involves the construction of an arterial road from Daly Street, near the business centre of Darwin, to Lee Point Road in the northern suburbs, a distance of some 6½ miles.
2. The route proposed by the Northern Territory Administration leads from the intersection of Cavenagh and Daly Streets along Gardens Road and thence by Gilruth Avenue and a coastal alignment along East Point Road, across Ludmilla Swamp, and finally along McMillan's Road between Bagot and Lee Point Roads. In addition, three alternative routes were examined in the departmental submissions.

3. The road is planned initially as a four-lane divided carriageway and provision will be made for widening most of it to six lanes when necessary. Earth works and structures will be constructed to suit the future six-lane width.

4. The work is estimated to cost \$5.4 million.

#### THE COMMITTEE'S INVESTIGATION

5. The Committee received written submissions and drawings from the Departments of the Interior and Works and took evidence from their representatives at a public hearing in Darwin. At that time we also heard evidence from representatives of the East Point Reserve Trustees, the Darwin Conservation Society, the Northern Territory Division of the Institution of Surveyors, Australia, and from several members of the Legislative Council and other individual witnesses. A number of written submissions was also received and examined.

6. We made both aerial and ground inspections of the proposed and alternative routes.

7. The Committee's proceedings will be printed as Minutes of Evidence.

#### PREVIOUS ENQUIRIES

8. Five previous reports of the Committee dealing with urban development in the suburbs of Jingili (1967), Moil (1968), Wagaman (1969), Anula and Wulagi (1972) and in the Dripstone District (1970) have all been critical of the absence of a positive approach to the planning of the arterial road system for Darwin, and in particular, the link between the city area and the suburbs on the north-eastern extremity of the city.

9. The report on the development of Anula and Wulagi on 24 February 1972 commented:

" Some progress has been achieved in that improvements have been effected to Bagot Road and work is advanced on up-grading the Stuart Highway between the Bagot Road intersection and the city. It is, however, regrettable that we are compelled to again report that there is no tangible proof that the protracted planning of the second arterial, the Palmerston Freeway, is bearing fruit. We noted in 1969 that the existing access '... will be capable of handling something in excess of Moil and would be capable of meeting the situation until at least mid 1972.' Despite this recognition that further access would be required to be in use about now, we were told during the present hearing that:

'A considerable amount of survey investigation and sketch design work has been done on the Palmerston route. Careful investigation of a number of alternative routes is required in the Fannie Bay and Ludmilla Creek area and these all involve foundation problems where the road crosses the swamp. These investigations are well advanced.'

Present evidence is that the traffic congestion problems on the Stuart Highway/Bagot Road access continue to grow and the urban development taking place in the north-eastern suburbs is continuing to aggravate these difficulties...

It has been apparent from the evidence at this and previous enquiries that although the Government recognises the nature and extent of the problem, it has failed to heed the Committee's repeated recommendations and to take appropriate action. We have been told of the various studies and surveys being conducted but to date, these have not produced a positive plan or evidence of action which demonstrates that the alleviation of the problem is in sight. We again direct the attention of the Parliament to this serious shortcoming and strongly recommend that immediate attention be given to the planning and construction of the Palmerston Freeway."

10. It is therefore with some sense of satisfaction that we have investigated this reference and submit this report.

#### EXISTING ARTERIAL ROADS

11. The present arterial road system between Darwin's northern suburbs and the city consists of Bagot Road and the Stuart Highway via Daly Street Bridge. An alternative section commences from where the Highway joins Goyder Road, and leads to Gilruth Avenue and Smith Street. A branch off Gilruth Avenue along Gardens Road leads to Daly Street.

12. Bagot Road which runs north from the Stuart Highway to Trower Road is currently being up-graded to a six-lane dual carriageway. The section of the Stuart Highway between Bagot Road and Goyder Road is a dual carriageway with six lanes, and the section from Goyder Road to the Daly Street Bridge is being constructed as a dual carriageway with four lanes plus parking lanes adjacent to developed areas.

Goyder Road is already a six-lane roadway, whilst Gilruth Avenue is a four-lane road until it meets Gardens Road, when with Gardens Road and Smith Street, it becomes a two-lane road.

13. The Committee were told that the Commonwealth Government pays for the capital cost of roads in the Darwin area when they are declared to be vested in the Commonwealth and under the care, control and management of the Administrator. Under this arrangement the maintenance cost of declared roads are shared by the Commonwealth and the Corporation of the City of Darwin on an 80:20 basis. Other roads within the Corporation boundaries are the responsibility of that body.

#### THE NEED

14. Population Between 1954 and 1971 Darwin's population grew at an average rate of more than 9% per annum. Since the middle 1960's, the growth rate has averaged 11.2% per annum and in 1969/70 and 1970/71 the rate was even higher at 12.3% and 11.8% per annum respectively.

15. It is expected that high growth rates will continue particularly over the next four to five years and that by 1980 Darwin's population will be at least 85,000.

16. Growth Areas The Darwin Town Plan provides for the urban expansion of Darwin by the development of the districts of Casuarina, Dripstone and Sanderson to the north-east of the city. Much of the population growth until about 1980 will be concentrated in these areas and their population will grow at a much more rapid rate than that of the total population of Darwin. For example, during 1970/71 the population of the northern suburbs increased from 12,356 to 14,655, a rate of 18.6% per annum, compared to that of the Greater Darwin area which was 11.8%.

17. At present, most employment opportunities are concentrated in the city area and this situation is likely to continue for at least the next four to five years. Beyond then, whilst major employment growth will continue in the city area, substantial opportunities are expected to occur in the Casuarina district centre which is currently being developed. The area immediately south of the airport which lies between the city and the northern suburbs will be developed as the centre for industrial activity and will provide the balance of employment opportunities.

18. Traffic Volume With the installation of traffic signals at the southern end of Bagot Road, the widening of this road to six lanes and completion of other minor road system improvements, the capacity of Bagot Road will be some 35,000 vehicles per day. We were told that this figure has been derived from an examination of peak period conditions and that at this level it should allow operation at such times without unreasonable congestion.

19. Additional traffic lanes in Bagot Road at its intersection with the Stuart Highway would allow a small increase in the Bagot Road traffic flow. However, apart from widening of intersections, it is not practicable to widen Bagot Road itself beyond the six lanes now being provided.

20. Peak traffic on Bagot Road has increased at rates in excess of 15% per annum since 1968 and a test sample taken in March 1972 showed an increase of 37.1% over the previous twelve months. At the same time it has been observed that seasonal variations occur in traffic levels.



Bagot Road traffic already experiences considerable delays in the southbound lanes during the morning peak which spreads from 7.15 a.m. to 8.00 a.m. Some relief has been obtained by the construction of a pedestrian overpass near the Ludmilla School.

21. The Committee were told that Bagot Road's capacity of 35,000 vehicles per day will be reached late in 1974. It is therefore important that relief by means of an alternative arterial road from the city area to the northern suburbs be provided as soon as possible.

22. Committee's Conclusion The Committee concluded that the recent Darwin population growth rates will be maintained sufficiently to justify the estimates of increases in the volume of peak traffic using Bagot Road. In addition, it was clear that the rapid expansion of Darwin's northern residential areas combined with the predominantly city area employment opportunities warrant the provision of a second arterial road between these areas.

#### ROUTE OF THE PROPOSED ROAD

23. Due to the presence of the RAAF Defence Reserve between the city area and Darwin's northern suburbs, there is only a narrow corridor of land in which a second arterial road can be provided. The alternatives for the proposed arterial road submitted by the sponsoring authorities are generally in accordance with that approved in the Darwin Town Plan. In all cases, at the city end, the road is planned as an extension of Cavenagh Street which is the widest of the six parallel streets running from Daly Street into the central business area. The route then follows Gardens Road and Gilruth Avenue to East Point Road.

24. The route proposed by the Northern Territory Administration, identified as route 3, continues from Ross Smith Avenue along the cliff edge at Fannie Bay before swinging east across the golf links and Ludmilla Creek to join a prolongation of McMillans Road at Bagot Road. As part of this proposal, a second carriageway of two lanes initially, will be constructed along McMillans Road east of Bagot Road as far as Lee Point Road near the Sanderson district.

25. A second alternative, route 2, is that shown on the Town Plan. The route turns sharply east across the golf links after leaving the Fannie Bay coastline and then sharply north to cross Ludmilla Creek and finally connects with the prolongation of McMillans Road as planned in the first alternative.

26. Another possible route, route 1, leaves the coastline near the junction of Ross Smith Avenue and East Point Road and passes through a residential area before crossing Ludmilla Creek to join up with the extension of McMillans Road.

27. The final possibility, route 4, follows generally the same line as route 1 except at a point just south of Ludmilla Creek where it diverts slightly to avoid a timbered strip of land to the north-east.

28. In the Ludmilla Creek vicinity all the proposed routes cross over  $\frac{1}{2}$  mile of mangrove swamp. Road embankments across the swamp would be subjected to wave action and from a study of conditions and information on wave heights in the area, the appropriate height for the embankment top and the degree of rock facing protection necessary on each route has been determined. On each route a bridge is necessary over Ludmilla Creek.

29. The Committee were told that of the four routes examined, that proposed on the Darwin Town Plan, route 2, was found to be the least satisfactory due to its poor alignment involving comparatively sharp curves, greater length and no particular advantages over the other alternatives.

30. Route 4 involving the variation to avoid a timbered strip of land to the north-east of Ludmilla Creek would cost \$150,000 more than either route 1 or route 3, as the northern end of its deviation is located on a clay pan which is lower than adjoining ground and road construction would require a greater quantity of filling.

31. We were told that the estimated construction and acquisition costs of routes 1 and 3 are about the same. Due to poorer soil conditions along route 1 in the Ludmilla Creek area, the construction problems of the embankment are less clearly defined than along route 3 and, therefore, further sub-surface investigation would be necessary to refine the cost estimate. In addition, route 1 involves the acquisition of 10 or 11 houses and portion of a recreation area in the Fannie Bay area, the cost of which is difficult to forecast accurately. It would also necessitate an amendment to the Darwin Town Plan and some costs involved in reconstructing recreational and sporting facilities.

32. Route 3 is nearly  $\frac{1}{2}$  mile longer than route 1 which would result in extra road maintenance costs and expense to road users. In addition, between Ross Smith Avenue and the Fannie Bay Hotel, it would pass along a popular and attractive strip of foreshore land between houses and the cliff top.

In places, the space available is insufficient for the road and some widening beyond the cliff face would be required.

33. Both routes 1 and 3 involve an excision from the East Point Reserve. That required for route 1 is 100 acres which represents 11.5% of the Reserve's total area, as against 180 acres or 20.7%, for route 3.

34. The Committee were told that the construction, acquisition and compensation factors relating to routes 1 and 3 show that each would cost \$2.9 million between Ross Smith Avenue and Coconut Grove.

35. Non-official Evidence Some private witnesses suggested at the public hearings that the northern suburbs should be served by a route leading from the city through the Frances Bay area to connect with Bagot Road near its intersection with the Stuart Highway. We noted the advice of the departmental witnesses that the cost appraisal for this general route shows it to be substantially more expensive. In addition, a major road from the city through the Frances Bay area will ultimately be developed to serve the future industrial area planned to the south of the airport.

36. It was suggested by another witness that a more direct route passing through the RAAF Defence Reserve should be selected, whilst some other witnesses pointed to a more efficient public transport system between the northern suburbs and the city as being the answer.

37. Overall however, the weight of private evidence favoured route 1, principally because the cliffs and foreshores in the Fannie Bay area would be retained for recreation and other similar uses.

38. Committee's Deliberations In reaching a conclusion the Committee closely examined all of the evidence and considered that a route through the Fannie Bay area was the only one practicable.

Close attention was given to the effect that route 1 or route 3 would have on recreational and other aspects, and the social disruption which route 1 would cause.

39. We also noted that acquisition proceedings for route 1 might delay road construction by 12 to 18 months resulting in a further period of traffic congestion for users of the one existing arterial route between the city and the northern suburbs.

40. The following is an extract from the minutes of the Committee meeting held on 24 August 1972.

"The Committee debated the evidence taken on this reference.

It was moved Senator Jessop, seconded Mr. Corbett

That the Committee endorse the proposal submitted by the sponsoring authorities so far as it relates to the road between Lee Point Road and Coconut Grove and between Ross Smith Avenue and Daly Street.

Debate ensued.

The motion was put and carried.

It was then moved Senator Jessop, seconded Mr. Corbett

That the route of the road between Coconut Grove and Ross Smith Avenue generally follow route 1 as shown on the departmental drawings.

Debate ensued during which Mr. James expressed disagreement with the motion and supported the routing of the road over this section, as proposed by the sponsoring authorities viz route 3.

The Committee divided.

Ayes

Senator Jessop

Mr. Corbett

Senator Webster

Mr. Kelly

Mr. Johnson

Mr. Fulton

Noes

Mr. James

and so it was resolved in the affirmative."

41. In accordance with this resolution the Committee recommend that

- (1) Between Lee Point Road and Coconut Grove and between Ross Smith Avenue and Daly Street the road should follow the route proposed by the sponsoring authorities; and
- (2) Between Coconut Grove and Ross Smith Avenue the road should generally follow route 1 as shown on the departmental drawings.

42. In reaching these conclusions the Committee noted that whilst route 1 is not as thoroughly documented at this stage as route '3 and is not precisely identified, sufficient is known about it and the design, construction and other matters associated with it for the Parliament to approve the work proceeding without a further reference to the Committee.

#### PLANNING OUTLINE

43. The road will be constructed initially as a four-lane divided carriageway which will be capable of being widened to six lanes for all of its length except for the section from Gardens Road to Daly Street.

Accordingly earthworks and structures will be designed to suit the future six-lane width.

44. Where necessary, service roads 24 feet wide and connecting roads will be constructed. Major intersections will be located at the junctions of the arterial road with Ross Smith Avenue, Goyder Road, Gilruth Avenue and Daly Street. Traffic signals will be installed at the Bagot Road/McMillans Road intersection.

45. In built up areas, landscaping along the road is proposed. Shrubs will be planted in medians and outer separators to provide a screen against headlight glare, a noise buffer and a pleasant appearance.

46. Street lighting will also be provided in built up areas and will consist of 250 watt and 400 watt mercury vapour lamps mounted on steel poles, whilst at intersections 700 watt lamps will be used.

47. Pedestrian overpasses will be located as appropriate.

#### ESTIMATE OF COST

48. The estimated cost of the work when referred to the Committee was \$5.4 million

#### PROGRAMME

49. The Committee noted that construction of the road will be staged to suit funds availability and traffic volume build up. Stage 1 is planned as the section from Bagot Road to Ross Smith Avenue across Ludmilla Swamp. However we noted that the staging is also based on the different time scales necessary to complete each section and that all the work is therefore planned for completion at the same time.

50. Due to possible delays caused by the acquisition of houses along route 1, the date for completion of the work could be some 12 to 18 months later than the mid 1975 date planned by the Northern Territory Administration.

RECOMMENDATIONS AND CONCLUSIONS

51. 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.

	<u>Paragraph</u>
1. AN ALTERNATIVE ARTERIAL ROAD FROM THE CITY AREA TO THE NORTHERN SUBURBS OF DARWIN SHOULD BE PROVIDED AS SOON AS POSSIBLE.	21
2. A SECOND ARTERIAL ROAD BETWEEN THESE AREAS IS WARRANTED.	22
3. BETWEEN LEE POINT ROAD AND COCONUT GROVE AND BETWEEN ROSS SMITH AVENUE AND DALY STREET THE ROAD SHOULD FOLLOW THE ROUTE PROPOSED BY THE SPONSORING AUTHORITIES.	41
4. BETWEEN COCONUT GROVE AND ROSS SMITH AVENUE THE ROAD SHOULD GENERALLY FOLLOW ROUTE 1.	41
5. THE ESTIMATED COST OF THE WORK WHEN REFERRED TO THE COMMITTEE WAS \$5.4 MILLION.	48

  
(G.R. KELLY)  
Chairman.