



1968

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REPORT

relating to the proposed construction of

BEEF ROADS

in the

Northern Territory

(1968 Reference)

BY AUTHORITY

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

CONSTRUCTION OF BEEF ROADS, NORTHERN TERRITORY
(1968 REFERENCE)

R E P O R T

On 19 July 1968, 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 construct the following beef roads in the Northern Territory

- Willeroo to Timber Creek (including Victoria River Bridge); and
- Mataranka to Roper Bar.

The Committee have the honour to report as follows:

THE COMMITTEE'S INVESTIGATION

1. The Committee received written submissions from the Northern Territory Administration and the Department of Works and took evidence at public hearings in Darwin from representatives of these organizations. At the same hearings, evidence was also presented by the President of the Cattlemen's Association of North Australia and by the General Manager of Northern Meat Exporters Pty Ltd. of Katherine. At Kununurra in Western Australia, we also took evidence from the proprietor of the Hotel Kununurra about the benefits to the tourist industry of the Willeroo/Timber Creek beef road.

2. The Committee travelled by road from Kununurra to Katherine traversing en route the unsealed beef road from the Western Australian

border to Timber Creek, the pastoral road between Timber Creek and Willeroo, and the sealed beef road from there to Katherine. We flew over the route of the proposed road between Mataranka and Roper Bar.

THE REFERENCE

3. The work in the present reference is of two parts, viz.

- construction of a sealed beef road from Willeroo through Timber Creek Junction to Timber Creek including a major bridge over the Victoria River.
- The road is 98 miles long;
- construction of 108 miles of sealed beef road from Mataranka to Roper Bar.

The work is estimated to cost \$6.35 million.

BEEF ROADS

4. Existing Roads Since 1962, when approval was first given for the construction of beef roads in the Northern Territory, the following roads have been completed

Alice Springs Area

- Stuart Highway to Yuendumu - 168 miles (unsealed)
- Stuart Highway to Plenty River - 128 miles (unsealed)

Western Barkly Tablelands

- Anthony Lagoon to Barkly Highway - 140 miles (unsealed)

Victoria River District

- Dunmarra to Moolooloo - 135 miles (unsealed)
- Timber Creek Junction to Western Australian border - 132 miles (unsealed)
- Katherine/Willeroo/Top Springs/Wave Hill - 280 miles (bitumen surfaced)

5. Roads under construction at present include -

- bitumen sealing of the gravel surfaced beef road from Anthony Lagoon to Barkly Highway; and
- construction of a bitumen sealed road from Daly Waters to Cape Crawford (168 miles).

Approval has also been given to the construction of a sealed road from Anthony Lagoon to Borroloola through Cape Crawford (162 miles). Tender documents for this work are now being finalised.

6. Approval to proceed with planning the works mentioned in the previous paragraph and the two elements of the present reference was given in 1966 when the Government considered a five to six years programme of beef roads development in the Northern Territory. The Committee's report on the initial roads in this programme was tabled in the House of Representatives on 3 May 1967.

7. Objectives and Benefits The Commonwealth's sponsorship of beef roads development arose primarily from the prospects of increasing export income. It was recognised when the first programme of development was approved in 1962 that there would also be considerable benefits in the form of accelerated economic development of remote northern areas and assistance to other industries.

8. Beef roads aim to provide pastoralists with improved accesses to outlets so that beasts can reach their destinations in better condition and younger than previously. Improved transport facilities resulting from better roads produce immediate gains through the recovery of cattle not previously marketed. It can also be expected that there will be greater

production in the long term through improvements made to properties and stock and through more intensive land use.

9. The basic benefits to the cattle industry of effective communications might be summarised as

- fast delivery of cattle to meat works without much loss of weight compared with droving;
- utilisation of a wider range of cattle including types formerly lost to the industry or not available such as young prime fats, trapped scrub cattle and culled-for-age stock;
- precision in meat works programming;
- extension of the killing season and consequently increased export production;
- flexibility in herd management, particularly in times of drought;
- more efficient integration between breeding and fattening areas.

10. As a direct result of the construction of beef roads, the number of cattle transports based at Katherine, which is the focal point of the area served by beef roads in the "top end" of the Northern Territory, has doubled since 1963 and in addition some stations now have their own transportation units. In the same period, the percentage of cattle moved by road transport grew from 41.7% to 85.2%.

11. A new record gross return to Northern Territory producers was set in 1966-67 at \$13.2 million, of which \$2.6 million was for export beef. The remaining return is represented by live cattle sold interstate or killed for local consumption. The value of export beef was an increase of more than \$1.4 million over the previous year. The unit price for beef has also more than doubled since 1962.

12. Indicative of the development occurring in the industry, due to increasing returns is the spreading development of improved pastures, notably Townsville lucerne. We also noted that phosphate utilisation has doubled in each of the last three years.

13. Direction of Cattle Movement The reports of the Committee on the Top Springs to Wave Hill road (1965) and the Western Barkly Tablelands roads (1967) mention the attraction to the Darwin and Katherine export meat works of cattle turned off properties in the northern part of the Territory. As a further stage in the extension of the beef roads network in this area, the proposed roads are expected to contribute to this flow.

14. Sealing of Beef Roads Until the Committee had investigated the Top Springs/Wave Hill proposal, beef roads in the Northern Territory were being surfaced with gravel. In the examination of that reference, the Committee closely studied the benefits of bitumen sealing and recommended that in that instance the road should be sealed.

15. Since then, new beef roads have been bitumen sealed and the Anthony Lagoon to Barkly Highway road is now being upgraded by sealing.

16. Besides being less costly to maintain, a sealed road results in

- savings in transport charges through lower operating costs;
- lower losses in cattle in transit through bruising, horning and dust asphyxiation;
- improving the possibility of year round access to properties.

17. The Committee are in accord with the policy of constructing new beef roads with sealed surfaces and with the upgrading, as appropriate, of those roads finished initially in gravel.

THE NEED FOR BEEF ROADS

18. Victoria River District A sealed beef road from Katherine south-west through Willeroo to Wave Hill has been completed. The Willeroo/Timber Creek road in this reference will join this road to the gravelled beef road from Timber Creek to the Western Australian border.

19. From a pastoral point of view, the country influenced by the proposed road ranges from fair to good, apart from some 30% of rugged terrain of limited value. Good grazing is available along the Victoria River and its tributaries. Away from the rivers sub-artesian bores sustain cattle. Rainfall varies from 20 in. in the south to 35 in. in northern areas. In the lower rainfall areas good pockets of Mitchell and Flinders grasses occur. Taller grasses predominate where the rainfall is higher.

20. Fourteen properties, whose total area is 23,000 square miles, are expected to benefit from the proposed road. In the past, there has been only limited development of properties but the Committee were told that since the Katherine and Darwin meat works were built, improvements to properties have been accelerated. Four stations have established Townsville lucerne under natural rainfall conditions, whilst others have started small scale irrigation projects and improved stud or herd bulls have been introduced.

21. The cattle population of 112,000 now provides an annual turn-off of nearly 14,000 head valued at \$830,000. The Committee noted that in the short term the turn-off is expected to increase to 16,000 head. After improvement of road communications and the implementation of capital improvements and better management that are expected to follow, the herd population could eventually approach 180,000 and the annual turn-off 32,000.

22. In its present condition, the Willeroo/Timber Creek road which is only lightly gravelled is poor for the transport of cattle. There are few permanent drainage structures and where the road traverses black soil country, it is impassable in wet weather. The section from Victoria River to Timber Creek develops stretches of bulldust in the dry season and is avoided where possible by transport operators and producers because of the high mortality rates among cattle and the greater incidence of bruising.

23. Furthermore, the area in which the main and detour natural-bed level crossings of the Victoria River occur is subject to intensive flooding during the wet season and the crossings can be impassable for more than three months each year. Abnormal rain during 1967-68 resulted in the main

crossing being impassable from December to May while the detour crossing could not be used from January to April.

24. Although producers served by this road have a choice of using the Northern Territory or Wyndham meat works, experience has been that a preponderance of cattle are sent to the former. This pattern is expected to continue. It is not thought that the Ord River development will materially influence the volume or direction of cattle transported on this road although there could be much more traffic in both directions because of it.

25. Roper River Basin Fair pastoral country is encountered and the reliable rainfall ranges from 25 to 32 in. annually. Each property has river frontages and a good proportion of open grassland broken by rough timber ridges and uplands. There is some scope for the improvement of selected areas with Townsville lucerne and other introduced species.

26. Seven properties, which together cover over 9,000 square miles, are expected to use the road for the transport of cattle. Because of their close proximity the district is an important source of supply to Northern Territory meat works, but the poor standard of the pastoral road has been a limiting factor hitherto.

27. The present cattle population of 44,000 is turning off about 3,600 head annually valued at about \$216,000. It is thought that this production can be increased to 5,100 head immediately the beef road is completed. In the longer term, the cattle population is thought to be capable of growing to 155,000 with an annual turn-off of some 28,000 head.

28. The pastoral road is only lightly gravelled and has few permanent drainage structures. A large number of creeks and rivers bisect the road and make it impassable in wet conditions.

29. Tourist Industry The growing importance of the tourist industry in the economic picture of the Northern Territory, was referred to in our 1967 report. Primary spending by the 48,000 tourists who visited the Territory in 1966-67 was estimated at \$14.6 million. On this basis, the industry ranks in importance after the pastoral and mining industries.

30. The Willeroo/Timber Creek road is on the route of bus tours and independent tourists travelling to and from Western Australia including the Ord River. It is also an important side tour from Darwin.

31. The tourist industry in the Roper River area has been restricted so far due to the condition of the road. Upgrading of it is expected to attract tourists to the good fishing available in the Roper River and to the wild life, bird life and unusual scenery in the area.

32. While there is no economic justification for providing the proposed roads for tourist purposes alone, the substantial benefits to tourism from the development of sealed roads are nevertheless important.

33. Fishing Industry The Government has announced its intention to grant preferential processing licences to three Australian firms to handle a minimum of six million pounds of prawns per annum from the waters of the western Gulf of Carpentaria. One such company is seeking a licence to operate in the Limmen Bight area at the mouth of the Roper River. The company's plans have not been finalised but it is thought that they will

involve using processing plant at Katherine. In an operation planned on this basis, the Mataranka/Roper Bar road will provide an important link between Limmen Bight and the plant.

34. The Committee noted that the Northern Territory Administration recognises the possible need for a better road access than presently exists, to serve a fishing base which might be established near the mouth of the Roper River.

35. Other Benefits There is no established mining operation which the roads in this reference will serve directly. However, there has been a considerable amount of prospecting in recent years in the northern part of the Northern Territory. The benefits of an extended system of sealed all-weather roads to this type of activity are obvious.

36. The Mataranka/Roper Bar beef road will greatly facilitate the transport of materials and supplies to two mission stations of the Church Missionary Society. These are Numbulwar Mission, which is located at the mouth of the Rose River north-east of Roper Bar and Roper River Mission, some 20 miles east of Roper Bar.

37. The Committee's Conclusions The Committee received ample evidence that there is economic justification for the two roads in this reference. Not only are the roads required if the full potential of the pastoral industry is to be realised but they are also important in the general context of national development.

38. It is most obvious that the beef roads which have been constructed already are playing a vital part in the development of the northern part of the Northern Territory and in focusing attention on its potential. We believe

therefore that not only should the work in this reference be commenced without delay but the Government should now examine the need for further beef road development.

39. In considering further work, we suggest that priority should be given to sealing the gravelled beef road from the Western Australian border to Timber Creek, not only as it will complete the sealed road from Darwin as far as Wyndham, but because the impending construction of the main dam on the Ord River will make it essential. The cost of this work is expected to be of the order of \$2 million.

CONSTRUCTION OF BEEF ROADS

40. Design In conformity with the practice followed in the construction of other beef roads in the Northern Territory, the roads in this reference will be designed to carry cattle transports and other vehicles conforming to permitted weight and dimensional requirements. Roads will be designed to be generally trafficable at all times except for short periods when the depth of water at floodways makes the road impassable. Alignments will be designed for traffic speeds of 60 m.p.h. with large radius curves and gentle grades except where these standards cannot be economically provided, such as in short hilly sections. Designs will conform to the guides and policies recommended for rural roads by the National Association of Australian State Road Authorities.

41. The new beef roads will generally follow the routes of existing pastoral roads but with deviations where improved alignments and drainage conditions are essential. Temporary side tracks will be provided where necessary. Road formations including the pavement and road shoulders will

have a usable surface of not less than 26 ft. At least 18 ft will be a compacted gravel pavement, the thickness of which will vary between 6 in. and 9 in. depending on the strength of the underlying ground. The central 12 ft of the gravel pavement will be bitumen sealed.

42. The road formation will generally be raised 6 to 12 in. above natural ground level but in flood plains and low lying areas the formation may exceed 12 in. The formation material will comprise local soil compacted and graded to shape. Roadside parking areas will be provided at intervals of about 10 miles.

43. Drainage, Bridges, etc. Permanent drainage structures will be provided in the form of inverts, culverts, causeways or bridges depending on local conditions. As it is not economical to provide, in all cases, drainage structures above maximum flood level, designs will permit occasional flooding of structures and approaches. Flooding is not expected to delay traffic for more than a few days at a time in a normal year except at the Victoria River.

44. The deck level of bridges will be fixed slightly above the flood plain and they will be submersible. Decks will be 14 ft wide for single lane operation but piers and abutments will be designed so that bridges can be widened to two lanes when traffic warrants. Construction will generally be in concrete with steel and/or concrete sub-structures. Stream crossings not involving bridges will be full formation width.

45. Materials Sufficient deposits of suitable naturally occurring gravel exist within reasonable distances of the proposed roads. Water for construction purposes will be provided from natural water holes, streams and earth dams.

46. Willeroo/Timber Creek Road A pastoral road now connects Willeroo to Timber Creek Junction, a distance of 81 miles. The 17 miles from the Junction to Timber Creek is an unsealed beef road.

47. Investigations have indicated that the most suitable route for the new road is generally on the alignment of the pastoral road but with deviations totalling 35 miles. The existing alignment is to be straightened and curves improved where necessary. It will be 98 miles long commencing at the Katherine/Wave Hill road, near Willeroo homestead and terminating near the Timber Creek Police Station. For the first 18 miles the road will be constructed over black soil plains and two bridges will be required. The next 24 miles to the Victoria River has recently been improved and in the main will require only pavement strengthening before sealing. A bridge over Escarpment Creek will be required.

48. At the Victoria River a single lane medium level bridge, sited about one half mile down stream of Sullivan's Creek, is proposed. It will be about 450 ft long and 30 ft above the bed of the river. Investigations suggest that at this level it will be submerged on average for about one week each year. The Committee noted that because of the cross-sectional shape of the river and the adjacent flats which are also subject to inundation, raising the level of the bridge deck would cause a disproportionately large increase in bridge length and cost without a significant improvement in usability.

49. West of the Victoria River the road is to be on a new alignment for 10 miles. This section is in hilly country and is intersected by a number of water courses which will require several major culverts. Over the next 6 miles between Lost and Sandy Creeks, the new road will depart

from the existing alignment for about 4 miles. The succeeding 16 miles will follow the pastoral road, except for a deviation at Skull Creek. For the 8 miles from here to Timber Creek Junction the road is to be on a new alignment through rocky country. The gravel beef road from the Junction to Timber Creek will require pavement strengthening only before sealing.

50. Mataranka/Roper Bar Road The pastoral road is a graded track, parts of which have been gravelled. This route will be generally followed by the new road but deviations totalling 25 miles will be necessary to achieve satisfactory design standards and to improve the grading of the road near Strangways River. It will be 108 miles long commencing at the Stuart Highway, 5 miles south of Mataranka and terminating near the Roper Bar Police Station. Seven single lane bridges will be required as well as a considerable number of large culverts and causeways.

51. Leaving the Stuart Highway, the road will traverse sand-clay country for 14 miles, gravelly country with patches of silt for the next 6 miles, then sand-clay with light earth works for 8 miles. For the next 80 miles the country alternates between black soil, sand-clay, sand and silty areas with a number of rocky ridges near Strangways River and Hell's Gate Creek.

52. The Committee's Conclusions The Committee recommend the construction of the works in this reference.

53. It will have been noted that the bridges proposed in this reference will be wide enough for single lane operation, although they will be constructed so that later widening to two lanes will be facilitated. This applies equally to the major bridge over the Victoria River.

54. As it was suggested to the Committee that it might be better from both the economic and safety points of view to construct bridges two lanes wide from the outset, we closely considered this matter. Our conclusions after studying the evidence were that

- until traffic on beef roads builds up sufficiently the extra expenditure is not warranted; and
- so far as we could judge, providing there is adequate signposting and line of sight at bridge approaches, single lane bridges are as safe as double lane structures.

DESIGN AND CONSTRUCTION PROGRAMME

55. The Committee were told that after an approval to proceed is given, the construction timetable will be:

- Willeroo/Timber Creek Road - Commence early 1969,
completion during 1971;
- Victoria River Bridge - Commence 1969, completion by
late 1970;
- Mataranka/Roper Bar Road - Commence late 1969, completion
by late 1971.

ESTIMATES OF COST

56. The estimated cost of the work when referred to the Committee was \$6.35 million as follows:

<u>Willeroo/Timber Creek Road</u>	\$	\$
Earthworks and formation	250,000	
Pavement	1,000,000	
Drainage including bridges	1,400,000	
Bitumen sealing	600,000	
Miscellaneous items	<u>100,000</u>	3,350,000

Mataranka/Roper Bar Road

	\$	\$
Earthworks and formation	450,000	
Pavements	700,000	
Drainage including bridges	1,250,000	
Bitumen sealing	550,000	
Miscellaneous items	<u>50,000</u>	<u>3,000,000</u>
		<u>6,350,000</u>

WIDTH OF SEALED BEEF ROADS

57. When reporting in 1967 on the Western Barkly Tablelands beef roads proposals, the Committee drew the attention of the Parliament to the need for long term investigations into the capital, maintenance and reconstruction costs of beef roads of various widths and we made a recommendation along these lines. We believed that such investigations would be warranted because of the considerable Commonwealth and State expenditure on beef roads.

58. Although the Government undertook in May 1967 to adopt the Committee's recommendation, we found during our present investigation that almost no action has been taken on it although expenditure on beef roads in the Northern Territory in 1967-68 amounted to almost \$4 million and \$8,585,000 worth of new beef roads are due to be commenced during the present financial year.

59. The Committee are critical of the Government's apparent indifference to whether money spent on beef roads is being used wisely and whether 12-ft wide sealed roads are the most economical alternative for this type of development. We urge the Government to commence without further delay the study recommended in 1967.

RECOMMENDATIONS AND CONCLUSIONS

60. 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

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|----|--|----|
| 1. | THERE IS ECONOMIC JUSTIFICATION FOR THE TWO ROADS
IN THIS REFERENCE. | 37 |
| 2. | THE ROADS ARE REQUIRED IF THE FULL POTENTIAL OF THE
PASTORAL INDUSTRY IS TO BE REALIZED. | 37 |
| 3. | THEY ARE ALSO IMPORTANT IN THE CONTEXT OF NATIONAL
DEVELOPMENT. | 37 |
| 4. | THE GOVERNMENT SHOULD NOW EXAMINE THE NEED FOR
FURTHER BEEF ROAD DEVELOPMENT. | 38 |
| 5. | PRIORITY SHOULD BE GIVEN TO SEALING THE GRAVELLED
BEEF ROAD FROM THE WESTERN AUSTRALIAN BORDER TO
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| 6. | THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE
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| 7. | THE ESTIMATED COST OF THE WORK WHEN REFERRED TO THE
COMMITTEE WAS \$6.35 MILLION. | 56 |
| 8. | THE GOVERNMENT SHOULD COMMENCE WITHOUT FURTHER DELAY
A STUDY OF THE CAPITAL, MAINTENANCE AND RECONSTRUCTION
COSTS OF BEEF ROADS OF VARIOUS WIDTHS. | 59 |

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