

TRAFFIC AUTHORITY OF NEW SOUTH WALES



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TRAFFIC ACCIDENT RESEARCH UNIT

Accident blackspots
at midblock sites on
N.S.W. highways.

by Bronwyn L. Lind B.Sc. (Hons.)
Robert G. Paterson B.A.
Robert I. Ramsay B.Sc.(Hons.)

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Publication

Report prepared by

B. L. Lind
Statistician

R. Paterson
Scientific Officer

A. K. Karsay
Data Analyst

This is the first of two reports which document the 1984/85 Special Road Safety Project, "Midblock Blackspot Identification".

Any views expressed in the report are those of the authors and are not necessarily endorsed by the Traffic Authority.

Reference

LIND, B.L., PATERSON, R. and RAMSAY, R. (1985) "Accident blackspots at midblock sites on N.S.W. highways", Traffic Accident Research Unit Special Report SR 85/126, Traffic Authority of New South Wales.

Abstract

A project aimed at identifying accident blackspots at midblock locations on N.S.W. State highways and freeways is described.

The locations of approximately 20,000 crashes on State highways and freeways, covering a two and a half year period, were assigned numeric grid co-ordinates using the Australian Map Grid. The data were used to identify 20 rural sites with high crash frequency, the sites being defined as 200m lengths of road.

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1. Introduction

In 1984/85, the Authority received a special grant from the State Government for a program of Special Road Safety Projects. Part of these funds were allocated to a project, "Midblock Blackspot Identification". The objective of this project was to identify midblock blackspots on State highways and freeways in N.S.W. using 2 years of crash data. Only State highways and freeways were included because these are the most highly trafficked routes and most likely to have accident blackspots.

To achieve this objective some additional location coding for existing crash records was carried out and these data were analysed.

The purpose of this report is to document the procedures used for coding and analysis of the data and to present the results obtained. It is intended to evaluate the project by assessing the usefulness of both (i) the specific site information presented here, and (ii) this general approach to analysis of crash data. A further report will present this evaluation, discuss in detail the problems encountered in the project and make appropriate recommendations.

2. Background

Accident blackspots are sites where unusually high numbers of crashes occur. In order to identify such sites it is important to have a database of crash information in which locations are recorded using some unique non-ambiguous code. If a location can be described in many different ways it is very difficult to use computer techniques to search for sites with high numbers of crashes.

The Traffic Authority maintains on computer a database of crash data for N.S.W. Details for approximately 65,000 crashes are added to the database each year. The crashes recorded are those which are reported to police and involve either casualty and/or vehicle towaway.

Crash locations are recorded by entering into the computer the name of the streets on which the crash occurred and (i) the name of the cross-street for intersections or (ii) the direction and distance from an identifying object, and the identifying object itself, for non-intersections.

The local government area (LGA) and town or suburb are also recorded. For classified roads the route number and a section number are also recorded. Sections vary in length but in rural areas are usually either 16 km or 32 km.

In the case of non-intersection locations the identifying object may be a cross-street or any significant roadside feature (for example, a bridge or even a motel or cafe).

This system of recording locations makes it difficult to search for accident blackspots. In recent years the Authority has developed quite rigorous procedures for overcoming the problems with uniquely identifying intersection blackspots. The procedures deal with problems such as spelling errors in street names, intersections where more than two streets intersect and intersections on local government area boundaries.

However it is impossible to search for blackspots at midblock locations (that is, non-intersection locations) because it is impossible to list every possible description of such locations.

If crash locations were recorded using numeric grid co-ordinates then computer techniques could easily be applied to identify accident blackspot locations. The advantages of this approach are discussed in detail by Croft and Richmond (1985). Further, Richmond and Schnerring (1984) demonstrated its feasibility. The Australian Map Grid (AMG) was used as the co-ordinate base.

3. Method

3.1 Coding

Crash records for the 2 year period ending 30 June 1984 were selected from the Authority's mass crash database using the following selection criteria:

- (i) the crash was recorded as occurring on a State highway or freeway; and
- (ii) the crash was recorded as occurring not at an intersection.

Students from the University of N.S.W. were contracted (through Unisearch) to code the locations of these crashes with AMG co-ordinates. For approximately half the crashes the students had access to the original (or microfilmed copies of) police reports. For the remaining crashes the location, as coded, was used for assigning the AMG code. More details of the coding procedure and under what circumstances the original police report was provided can be found in Appendix I.

The coding proceeded at a faster rate than had been predicted and an additional 6 months data were coded. The end result was that approximately 20,000 crashes covering the two and a half year period, 1 January 1982 to 30 June 1984, were assigned AMG codes.

3.2 Data capture and editing

The coded data were captured on magnetic tape and entered onto a computer file. The information captured was quarter number, accident number, LGA number and the AMG code. Hence it was possible using the accident and quarter numbers to match with the original crash records for other crash details if required.

The data were edited by checking that the AMG code was within the valid range of AMG codes for the appropriate LGA. Errors detected were corrected.

3.3 Analysis

The database of 20,000 records coded with AMG co-ordinates resulting from the coding process described above allows many different kinds of analysis by varying the parameters used for

searching for blackspots. For example, the length of road searched and the type of crash included (such as wet weather crashes or night time crashes) can be altered.

However, for the purposes of this report the analysis was restricted to searching for blackspots on highways in rural areas, specifically outside the metropolitan areas of Sydney, Newcastle and Wollongong. This restriction to rural areas was for two reasons. There was less likelihood of interaction of midblock sites with nearby intersections (which may well happen in urban metropolitan areas) and it was possible to make use of the computer graphics system developed by the Authority for the study reported by Richmond and Schnerring (1984). For that development study, maps of the rural State highway network were digitised to allow display on a computer graphics terminal.

The specific aim of the analysis was to identify the top 20 midblock sites on highways in rural areas ranked on total recorded crash frequency within a 200 m length of road. The selection of a 200 m search length was arbitrary but seemed to be a reasonable one.

Identification of the midblock sites was made by analysing the crashes for each State highway separately using the following method.

For each crash location a search was made for any crashes which occurred within a 100 m radius of that crash. This meant that a road length of approximately 200 m was covered. If there were at least 5 crashes in the 200 m area, the location was referred to as a blackspot site.

After a blackspot site was identified it was checked against previously identified sites in order to find any sites that intersected with it, that is, to find duplicate sites or sites with crashes in common. Two intersecting sites were resolved by establishing which site had the higher number of crashes.

First, all 200 m length sites with 5 or more crashes in the two and a half year period were identified. There were 31 sites with 9 or more crashes. These 31 sites were checked thoroughly in order to select the top 20 sites. The checking consisted of examining the original police reports of all crashes at or near these sites and correcting any remaining errors in the coded AMG co-ordinates.

One unforeseen aspect of the analysis was the usefulness of the graphical display of the crashes on the digitised maps. The display provided instantaneous indication of incorrectly coded locations not found in the editing process. It also put each blackspot into context by quickly identifying the crash pattern in the vicinity of the particular site in question, as can be seen in the maps presented in Appendix II.

4. Results

The resulting top 20 sites are presented in Appendix II. For each site a copy of the computer graphics map is presented as well as a short summary of the features of the crashes at the sites.

5. Conclusions

The sites identified in this project are clearly sites with some sort of problem. The site descriptions and crash summaries in Appendix II indicate, for example, narrow bridges or curves which are slippery in wet weather or curves which are prone to "loss of control" crashes.

Hence it has been clearly demonstrated that the use of numeric grid references for recording crash locations allows identification of midblock blackspots.

Apart from the 20 particular sites presented here the project has also provided a database which can be used for many other blackspot analyses by varying the search parameters as mentioned earlier.

Furthermore the project demonstrated the value of the graphical display (on a computer terminal) of crash locations overlayed on digitised road networks. This facility greatly enhanced the analysis, interpretation and presentation of data in this project.

References

- Croft, P.G. and Richmond, A. (1985), "Computer mapping of traffic crashes", Traffic Accident Research Unit Research Note RN 1/85, Traffic Authority of N.S.W.
- Richmond, A. and Schnerring, F. (1984), "An investigation of computer graphics techniques for blackspot identification", Traffic Authority internal report (unpublished).

APPENDIX I

Coding Procedure

Initially 16,050 crashes were selected as meeting the specified criteria for location coding. This number increased to 20,459 with the inclusion of a further 6 months of crash data. Location coding, i.e. coding of the AMG co-ordinate, was based on the coded description of the crash location as determined from the original Police Accident Report Form (P4). This information was presented as a one line description for each crash. Crashes were sorted on route number and section of route, with the identifying numbers of the maps covering the particular section of road supplied. A sample printout is supplied as Figure 1.

In some cases, however, this description was insufficient to accurately identify the crash location. A copy of the microfilmed P4 was produced in order to provide more information on the crash location. These crashes were indicated by 'SEE P4' in the location information section on the printout (Fig. 1) and fell into the following two areas:

- (i) The coded description was insufficient to identify the location. Crashes were identified for which at least one of the following codes had been used.

Town or Place : Unknown
 Identifying Object : Unknown
 Direction from Identifying Object : Unknown
 Distance from Identifying Object : Unknown

As a special case, crashes which had

Direction from Identifying Object : On the spot, and
 Type of Identifying Object : Miscellaneous

were selected, as these descriptions usually indicated that a local feature, for example a shop or service station, had been coded. It was hoped that the P4 would provide more information on the location than the coded description.

- (ii) The coded distance range was greater than the measureable distance on the appropriate map. Due to limitations in the codes for Distance from Identifying Object, whereby distances of up to a range of 500 m are grouped together, P4s were obtained for crashes in the following cases.

Distance from Identifying Object:

201 to 500 m, 501 to 999 m, 99 km and over - all map scales
 101 to 200 m - map scales 1:10,000, 1:25,000, 1:50,000
 51 to 100 m - map scales 1:10,000, 1:25,000
 21 to 50 m - map scale 1:10,000.

On this basis 9,934 P4s were manually obtained from microfilms, representing 49% of the crashes selected for AMG co-ordinate coding.

The coding of AMG co-ordinates for each crash location was undertaken by approximately ten University of New South Wales' students under a contractual arrangement through Unisearch Ltd.

For the task, which was undertaken at the University, students were provided with the following materials:

- (i) Set of topographic maps of scales 1:10,000, 1:25,000, 1:50,000 and 1:100,000 covering the State highway network.
- (ii) Additional strip maps of each State highway, directories with detailed town maps, UBD metropolitan street directories and certain other street maps and directories.
- (iii) 1:10,000/1:25,000 and 1:50,000/1:100,000 scale rulers for reading off co-ordinates.
- (iv) Printouts with one line description of each crash and corresponding P4s where necessary.
- (v) Map measuring wheels for measuring longer distances on maps.

Basic training in the assigning of AMG co-ordinates and interpretation of P4 reports was given on the first day. Thereafter, a member of the Authority's staff attended, on average, once per week over the whole eight week period to distribute and collect work and to answer any additional queries.

After the coding was completed by the students, any unidentified locations were then checked by the Authority's staff. There were 2,354 such locations of which 1,106 were able to be identified by further inspection. In total, 19,211 crashes were coded with an AMG co-ordinate.

FIGURE 1

MARCH QUARTER 1982												PAGE

ROAD NAME	TOWN	LOCATION		P4 NO	LSA	COORDINATE						
*****	***	*****		SEE P4	MARKS	*****						
PRINCES	HY KIAMA	SEE P4		MARKS	ST	60101	241	1-1	1-1	1-1	1-1	
PRINCES	HY FOXGROUND	1.0KM N		FOXGROUND	RD	60104	241	1-1	1-1	1-1	1-1	
PRINCES	HY BOMBO	SEE P4		DARIEN	AV	62576	241	1-1	1-1	1-1	1-1	
PRINCES	HY KIAMA	SEE P4		MARKS	ST	62578	241	1-1	1-1	1-1	1-1	
PRINCES	HY KIAMA	40 M N		MARKS	ST	62801	241	1-1	1-1	1-1	1-1	
PRINCES	HY KIAMA	1.0KM S		MARK	ST	64127	241	1-1	1-1	1-1	1-1	
MAPS 0407 0408												
PRINCES	HY BROUGHTON VILL	3.3KM N		TINDALLS	LA	50354	241	1-1	1-1	1-1	1-1	
PRINCES	HY BROUGHTON VILL	2.0KM N		TINDALLS	LA	51354	327	1-1	1-1	1-1	1-1	
PRINCES	HY MT PLEASANT	SEE P4		WATER TOWER	MS	53853	241	1-1	1-1	1-1	1-1	
PRINCES	HY BROUGHTON VILL	SEE P4		THOMPSONS	LA	53854	327	1-1	1-1	1-1	1-1	
PRINCES	HY BERRY	SEE P4		UNKNOWN		55581	327	1-1	1-1	1-1	1-1	
PRINCES	HY BROUGHTON VILL	1.5KM N		TINDALLS	LA	56578	327	1-1	1-1	1-1	1-1	
PRINCES	HY FOXGROUND	4.0KM N		BERRY		64129	241	1-1	1-1	1-1	1-1	
PRINCES	HY FOXGROUND	2.0KM W		TOOLIJOOA	TO	65004	241	1-1	1-1	1-1	1-1	
MAPS 0408 0409												
PRINCES	HY BEWONG	SEE P4		BEWONG	BR	51353	327	1-1	1-1	1-1	1-1	
PRINCES	HY BOMADERRY	SEE P4		ILLAROO	PD	54727	327	1-1	1-1	1-1	1-1	
PRINCES	HY SOUTH NOWRA	20 M S		QUINNS	LA	54730	327	1-1	1-1	1-1	1-1	
PRINCES	HY BOMADERRY	SEE P4		ILLAROO	PD	55128	327	1-1	1-1	1-1	1-1	
PRINCES	HY SOUTH NOWRA	SEE P4		CENTRAL	AV	56102	327	1-1	1-1	1-1	1-1	
PRINCES	HY NOWPA	SEE P4		JUNCTION	ST	58255	327	1-1	1-1	1-1	1-1	
PRINCES	HY NOWRA	20 M N		NORTH	ST	60952	327	1-1	1-1	1-1	1-1	
PRINCES	HY NOWPA	SEE P4		ILLAROO	RD	62802	327	1-1	1-1	1-1	1-1	

APPENDIX II

Site Information

TABLE 1 over contains a list of the 20 identified blackspot sites in rank order of total crash frequency, the site number being equivalent to the rank.

The remaining pages contain summary information for the 20 sites, one page per site. The information contained on each page is as follows:

- (i) a brief description of the site,
- (ii) a computer-generated map showing the general location of the site indicated by a highlighted "window",
- (iii) a computer-generated map of the "windowed" area showing the specific location of the site and the crash pattern in its vicinity,
- (iv) a summary of the types of crashes which occurred at the site.

The legend for each of the computer-generated maps is as follows:

LEGEND FOR MAPS

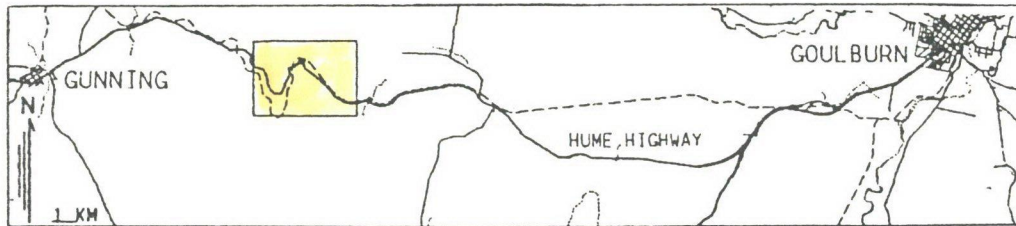
● crash site	----- railway
—— road	~~~~~ water feature (e.g. creek, river, coast)

TABLE 1

TOP 20 RURAL HIGHWAY MIDBLOCK BLACKSPOTS *									
SITE	ROUTE	APPROXIMATE LOCATION	TOWN	LOCAL GOVERNMENT AREA	TOTAL CRASHES FATAL IN JURY	QUARTERS			
						1982	1983	1984	
						M J S D M J S D M J	M J S D M J S D M J	M J S D M J	
1	HUME HWY	500 M N SULLIVANS BRIDGE	CULLERIN RANGE	GUNNING SHIRE	36	1	8	0 4 3 4 6 4 3 6 0	
2	PACIFIC HWY	2.8 KM N WANG WAUK FOREST WAY	OSULLIVANS GAP	GREAT LAKES SHIRE	21		6	3 2 0 5 4 0 2 3 0 2	
3	GT WESTERN HWY	AT COXS RIVER BRIDGE	WALLERAWANG	GREATER LITHGOW CITY	19		6	1 2 0 1 5 1 3 4 1 1	
4	GT WESTERN HWY	250 M W GOVERNORS DRIVE	LAFSTONE	BLUE MOUNTAINS CITY	17		5	3 1 0 1 0 3 3 5 1 0	
5	HUME HWY	AT POST OFFICE	BERRIMA	WINGECARRIBEE SHIRE	16	2	7	1 2 2 0 1 2 3 1 3 1	
6	PACIFIC HWY	1.0 KM S HALF CHAIN ROAD	KOORAINGHAT	GREATER TAREE CITY	16	1	3	0 0 1 1 2 3 1 3 3 2	
7	GT WESTERN HWY	AT PEDESTRIAN CROSSING	WARRIMOO	BLUE MOUNTAINS CITY	15		5	0 2 2 0 2 3 1 3 0 2	
8	PACIFIC HWY	1 KM N SERPENTINE CHANNEL BRIDGE	CHATSWORTH ISL	MACLEAN SHIRE	14		6	0 0 0 1 2 0 2 4 3 2	
9	PACIFIC HWY	AT PUBLIC SCHOOL	BROADWATER	RICHMOND RIVER SHIRE	13	1	5	2 1 2 1 0 0 0 1 4 2	
10	PRINCES HWY	1.5 KM N WANDANDIAN POST OFFICE	WANDANDIAN	SHOALHAVEN CITY	13	1	5	3 1 0 3 3 1 0 2 0 0	
11	PACIFIC HWY	AT RALEIGH BRIDGE	RALEIGH	BELLINGEN SHIRE	12		7	0 2 1 2 1 0 2 1 3 0	
12	PACIFIC HWY	3.0 KM N WANG WAUK FOREST WAY	OSULLIVANS GAP	GREAT LAKES SHIRE	11		4	1 0 1 0 2 2 1 1 1 2	
13	NEW ENGLAND HWY	AT HUNTER RIVER BRIDGE	ABERDEEN	SCONE SHIRE	11		3	0 3 3 1 0 1 2 0 0 1	
14	PACIFIC HWY	400 M N DIRTY CREEK BRIDGE	CORINDI RANGE	ULMARRA SHIRE	11		3	4 1 0 1 1 1 2 0 0 1	
15	HUME HWY	500 M N CENTENNIAL ROAD	CUTAWAY HILL	WINGECARRIBEE SHIRE	10	1	6	4 0 1 0 3 2 0 0 0 0	
16	PACIFIC HWY	50 M N DRY DOCK ROAD	TWEED HEADS	TWEED SHIRE	10		6	1 2 0 2 0 1 0 1 0 3	
17	PACIFIC HWY	50 M S TALAWAHL CREEK BRIDGE	POSSUM BRUSH	GREATER TAREE CITY	10	1	4	0 1 1 0 1 4 1 0 1 1	
18	PACIFIC HWY	100 M S AGNES STREET	TWEED HEADS	TWEED SHIRE	10		4	0 0 0 0 1 5 1 2 0 1	
19	HUME HWY	100 M S SULLIVANS BRIDGE	CULLERIN RANGE	GUNNING SHIRE	9	1	5	0 0 0 0 2 1 2 0 3 1	
20	GT WESTERN HWY	AT RAILWAY OVERPASS	BULLS CAMP	BLUE MOUNTAINS CITY	9		5	1 0 1 1 0 1 0 2 2 1	

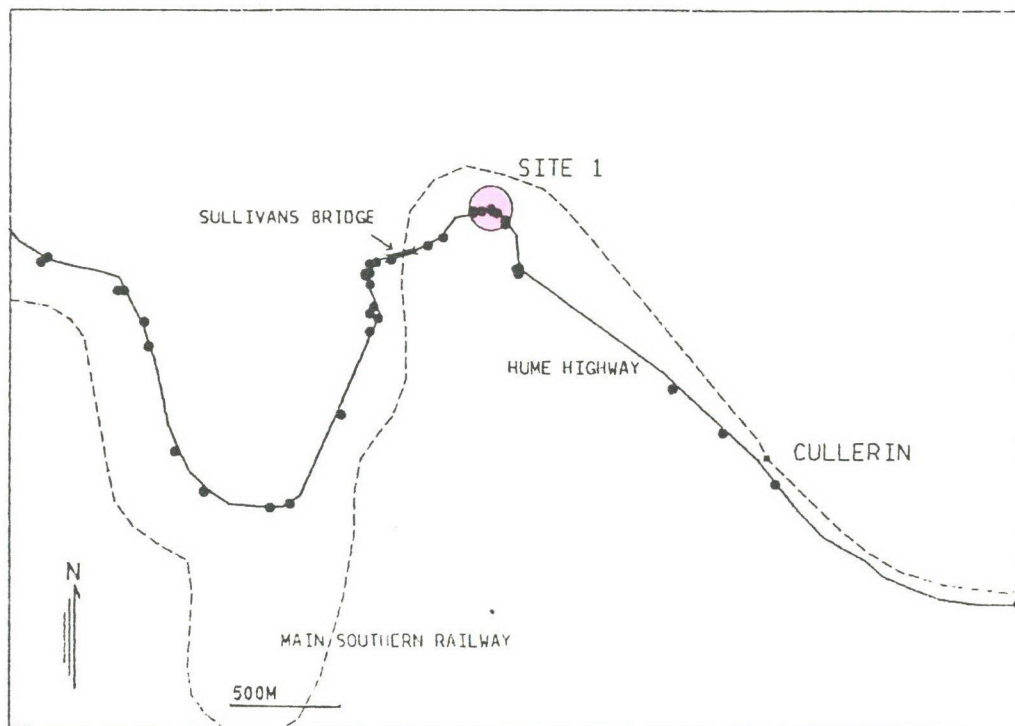
* BASED ON A 200 M SEARCH LENGTH OF CRASHES RECORDED FOR THE PERIOD 1/1/82 - 30/6/84

Site 1 - Hume Highway 500 m north Sullivans Bridge,
Cullerin Range.



DESCRIPTION: The site is a sharp left hand bend for vehicles travelling south approximately 16 km east of Gunning.

CRASHES: 36 recorded crashes : 1 fatal, 8 injury, 27 towaway
12 casualties : 1 killed, 11 injured.



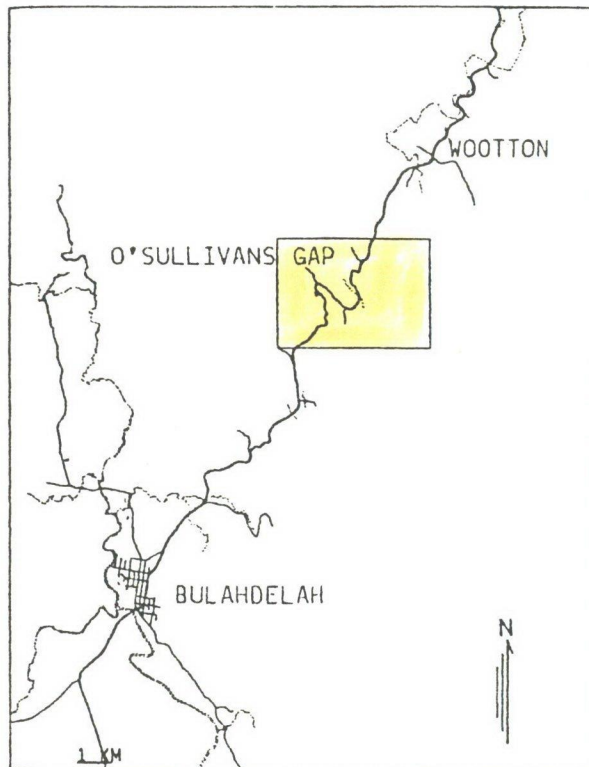
CRASH SUMMARY:

Of the 36 crashes recorded at this site, 29 crashes involved vehicles travelling south. The majority of these (23 crashes) were the result of vehicles losing control on the wet/greasy road surface, including three crashes within an hour. Other southbound crashes involved mechanical failure, in 2 crashes, and losing control after hitting the gravel shoulder, also in 2 crashes.

In the 7 northbound vehicle crashes, 4 vehicles lost control, and a further two crashes involved vehicles forced off the road.

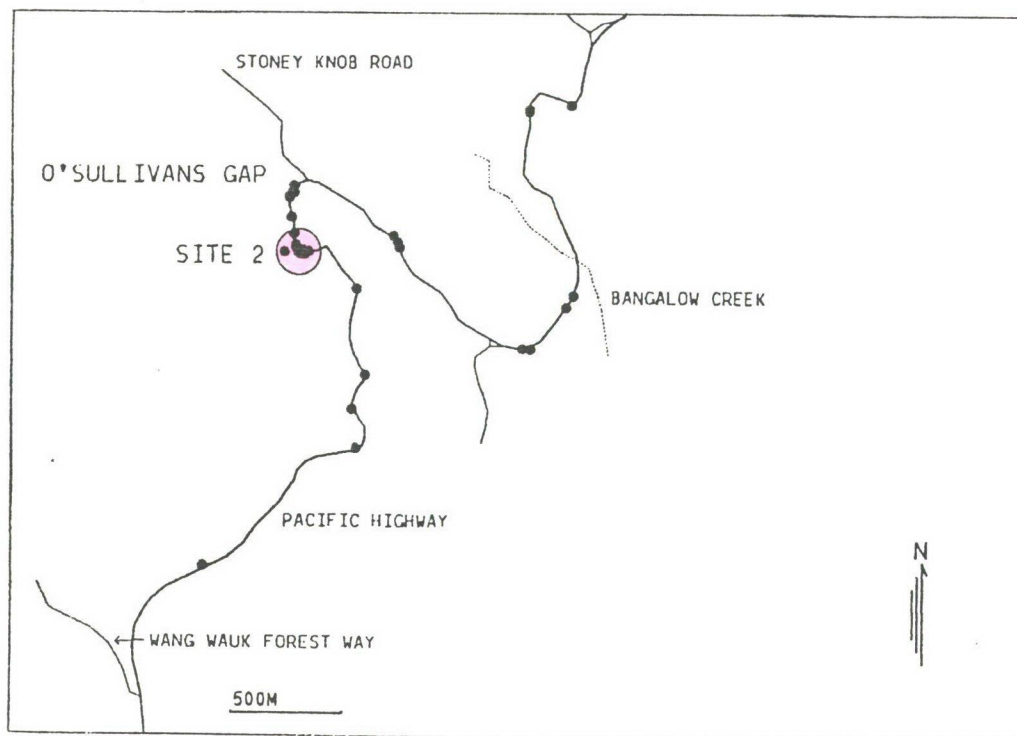
A total of 31 crashes occurred during wet weather or when the road surface was wet. All crashes occurred on or at the approaches to the curve.

Site 2 - Pacific Highway 2.8 km north Wang Wauk Forest Way, O'Sullivan's Gap.



DESCRIPTION: The site is a sharp left hand bend on a steep decline for southbound traffic approximately 12 km north of Bulahdelah.

CRASHES: 21 recorded crashes : none fatal, 8 injury, 15 towaway.
11 casualties : none killed, 11 injured.

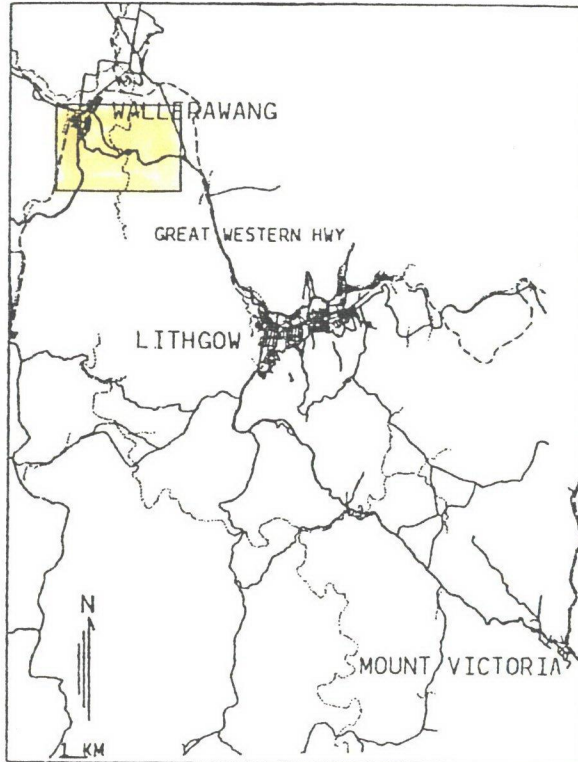


CRASH SUMMARY:

Seventeen crashes occurred in wet weather, 16 of which involved a vehicle losing control on the wet or oily surface. Fourteen of these crashes also involved a vehicle travelling south.

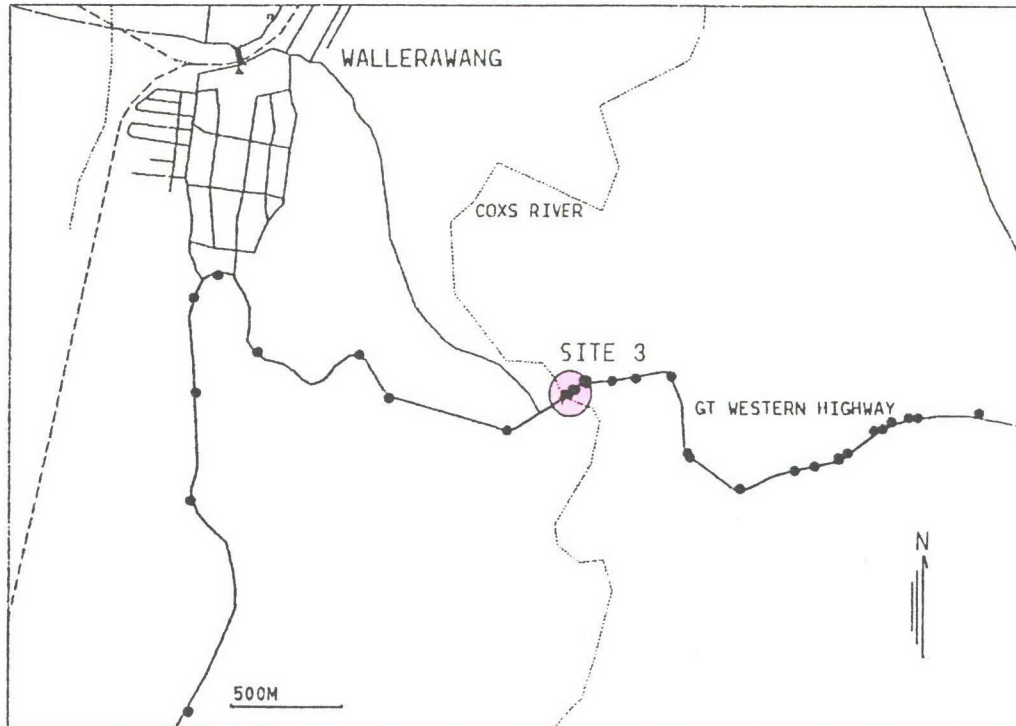
Of the 4 dry weather crashes, 3 involved mechanical failure and in the other crash a southbound vehicle lost control.

Site 3 - Great Western Highway at Coks River Bridge, Wallerawang.



DESCRIPTION: The site is a sharp left hand curve for westbound traffic at the end of a long downhill section of road prior to the Coks River bridge approximately 10 km west of Lithgow.

CRASHES: 19 recorded crashes : none fatal, 6 injury, 13 towaway.
7 casualties : none killed, 7 injured.



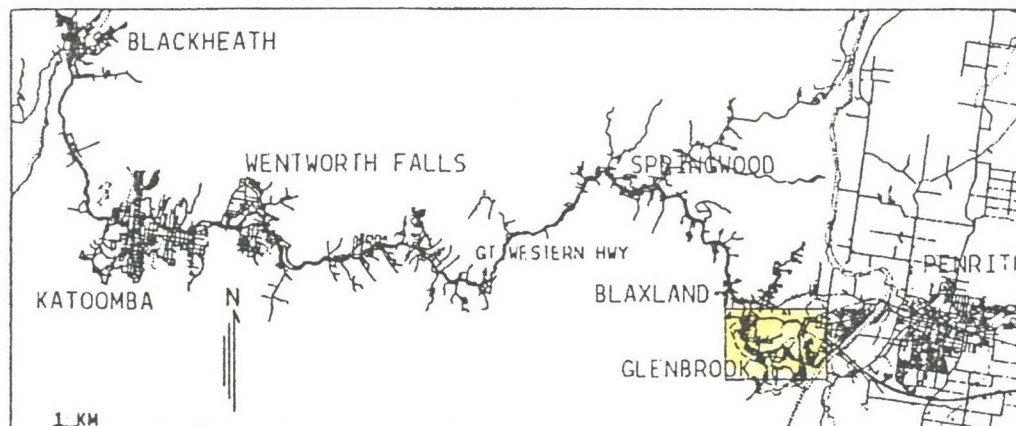
CRASH SUMMARY:

Fifteen crashes occurred in wet or slippery conditions including 1 crash during snow. Twelve of these crashes involved westbound vehicles.

In 12 of the wet weather crashes a vehicle slipped or lost control on the road surface, including 3 crashes where a vehicle hit a torrent of water. The remaining wet weather crashes involved mechanical failure, in 2 cases, and an animal on the road in the other crash.

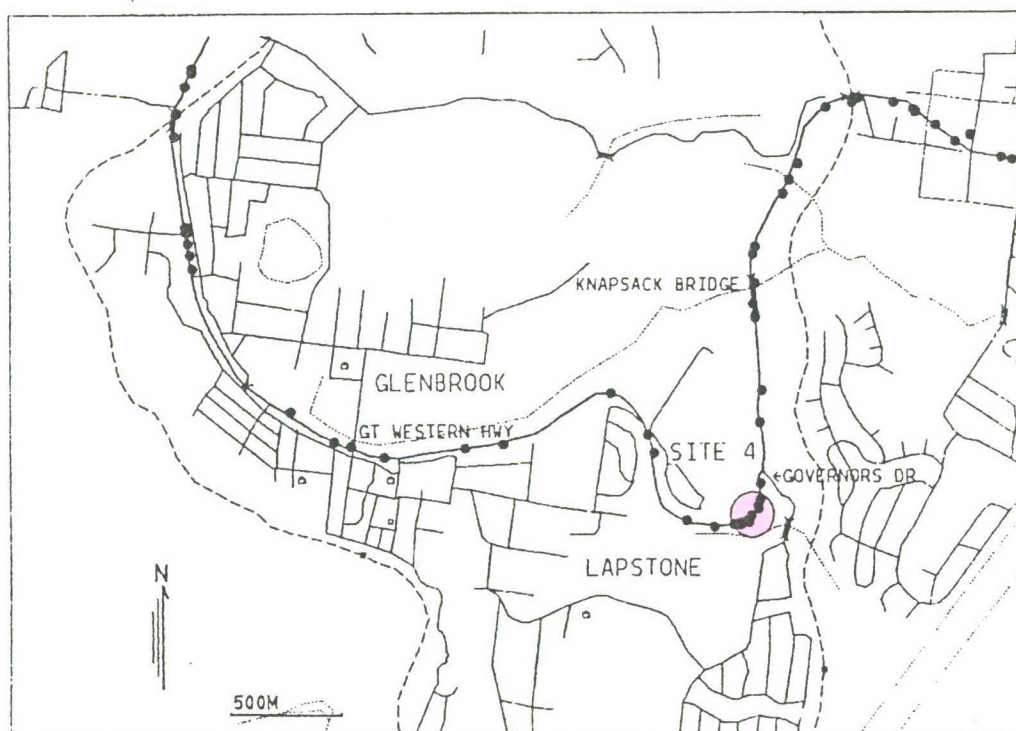
Of the dry road crashes, 2 involved nose-tail impacts in heavy eastbound traffic, one a mechanical failure and the other a vehicle on the incorrect side of the road. All crashes occurred between the eastern approach to the curve and Coks River Bridge.

Site 4 - Great Western Highway 250 m west Governors Drive, Lapstone.



DESCRIPTION: The site is a sweeping left hand curve on a steep decline for eastbound vehicles 2 km east of Glenbrook.

CRASHES: 17 recorded crashes : none fatal, 5 injury, 12 towaway.
6 casualties : none killed, 6 injured.

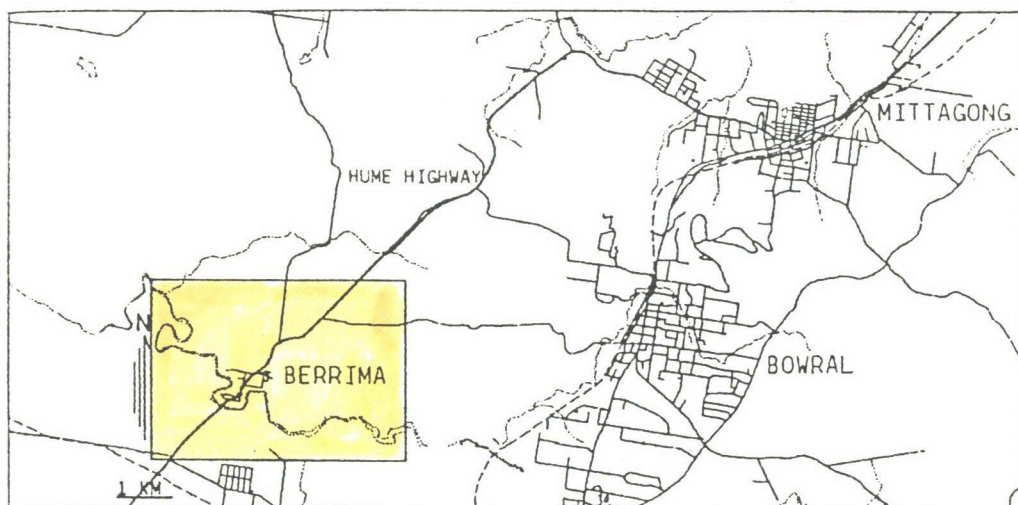


CRASH SUMMARY:

All crashes at the site occurred on the curve. Fifteen of the crashes either solely involved or were precipitated by eastbound traffic. Of these, 13 involved vehicles losing control on the corner (9 crashes in wet road conditions) or vehicles slowing for traffic or roadworks in 4 crashes.

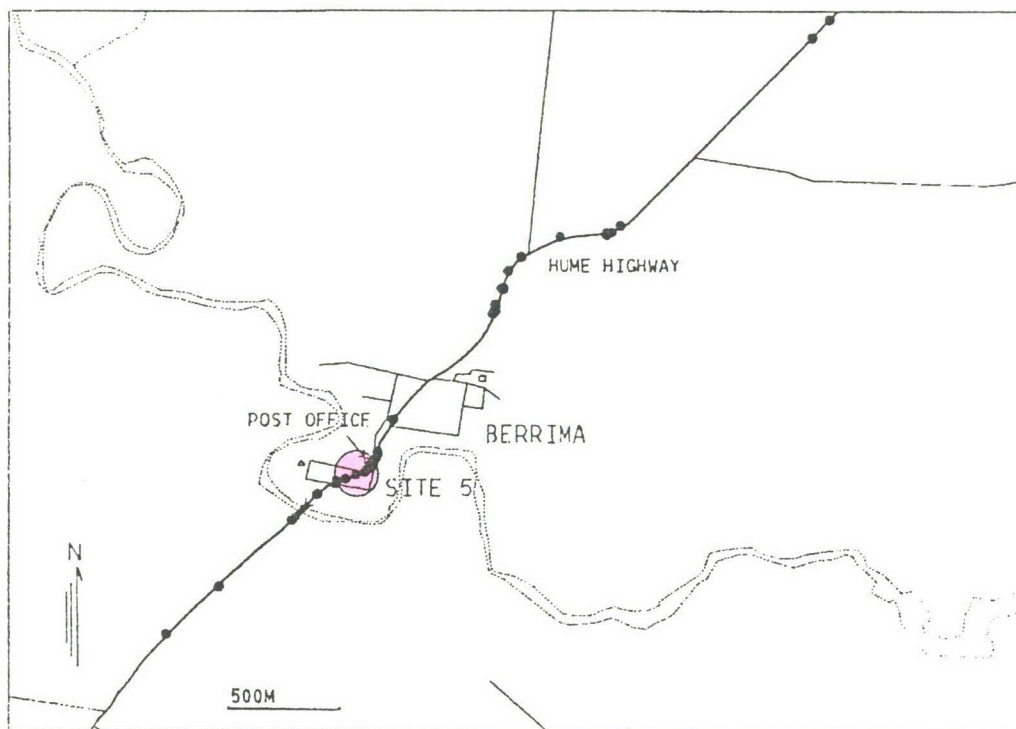
The two westbound crashes included a nose-tail impact with a breakdown, and a vehicle cutting across lanes.

Site 5 - Hume Highway at the Post Office, Berrima.



DESCRIPTION: The site consists of two consecutive bends near the post office at Berrima. Going north there is a slight right hand bend followed by a sharp left hand bend.

CRASHES: 16 recorded crashes: 2 fatal, 7 injury, 7 towaway.
15 casualties: 2 killed, 13 injured.

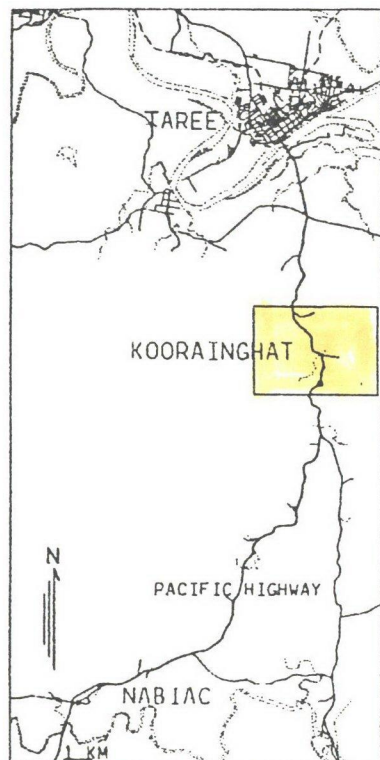


CRASH SUMMARY:

Twelve of the crashes involved a vehicle travelling to the incorrect side of the road on the bend. In 7 of these crashes a semi-trailer failed to negotiate the bend. The road surface was wet in only 3 of the crashes.

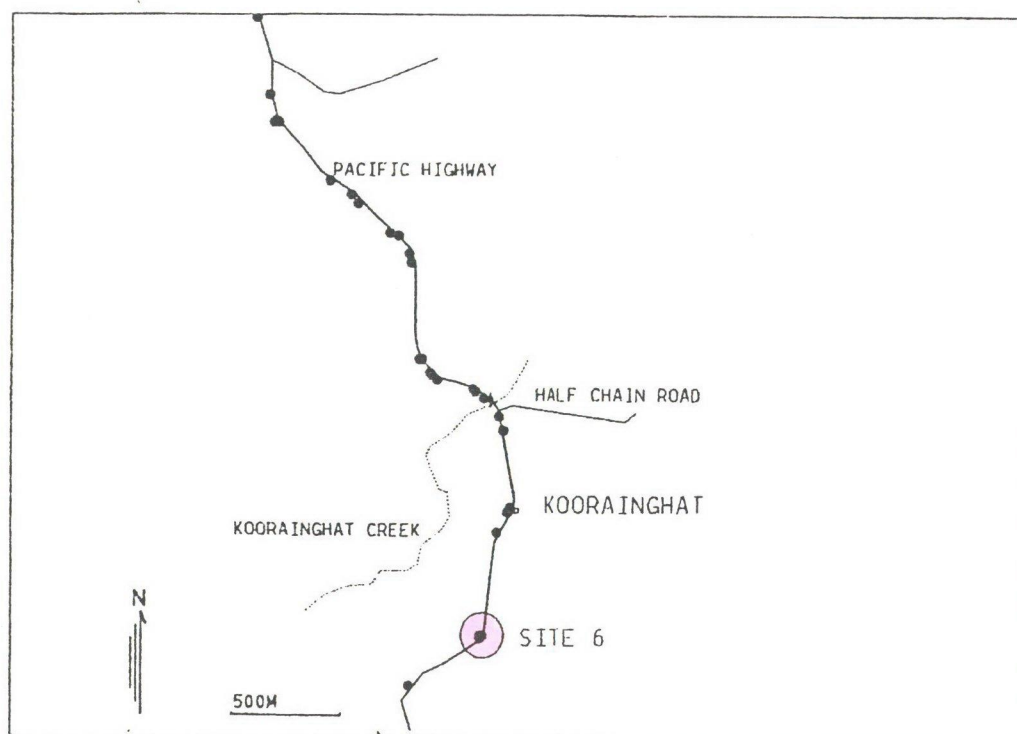
Other crashes involved a semi-trailer losing control; a pedestrian running on to the road; a multiple nose-tail crash and a foreign driver on the wrong side of the road.

Site 6 - Pacific Highway 1.0 km south Half Chain Road,
Koorainghat



DESCRIPTION: The site is a sweeping left bend after a downhill section of road for northbound traffic approximately 10 km south of Taree.

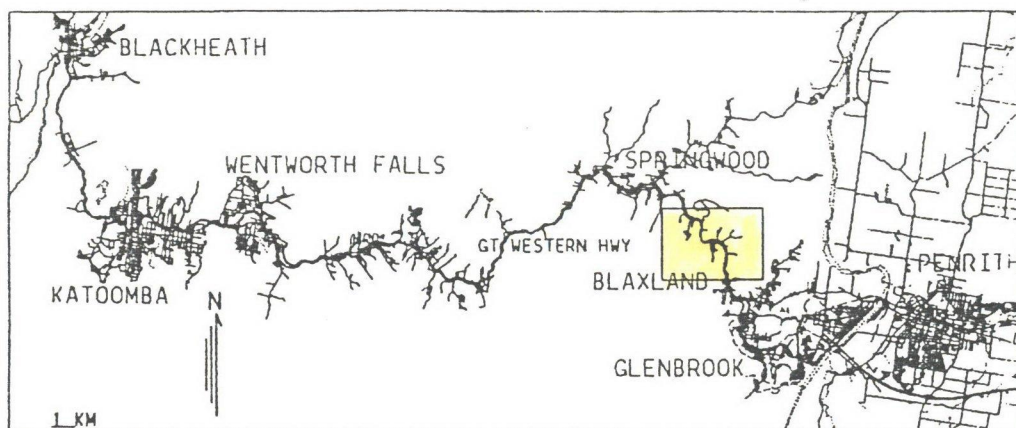
CRASHES: 16 recorded crashes: 1 fatal, 3 injury, 12 towaway.
10 casualties: 1 killed, 9 injured.



CRASH SUMMARY:

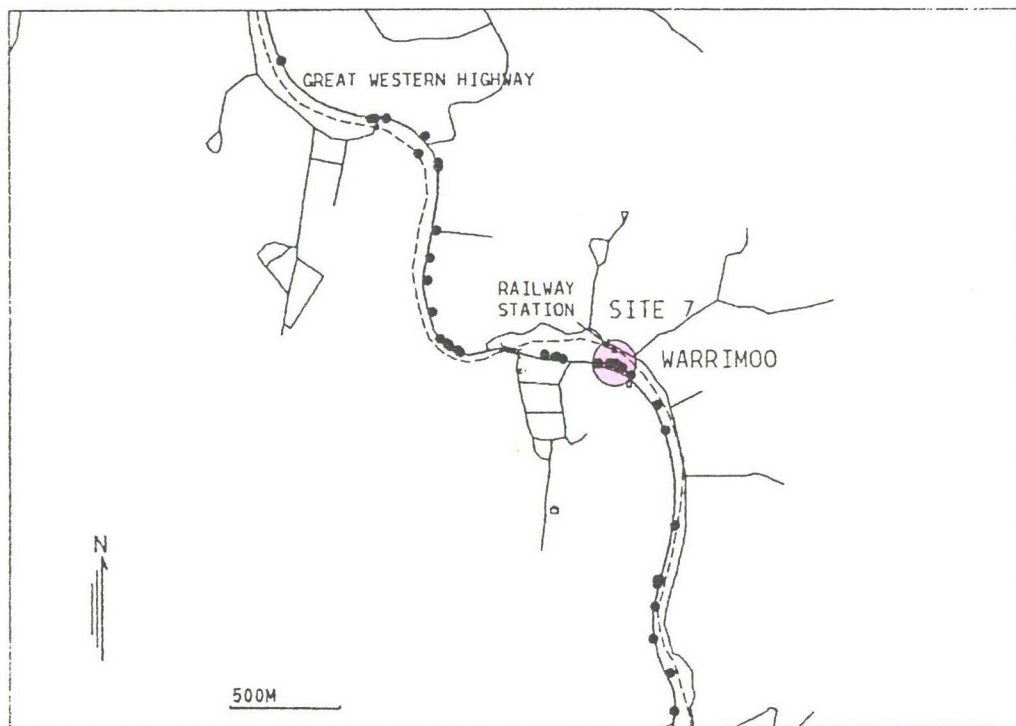
All 16 crashes occurred during wet weather and involved a vehicle sliding, skidding or losing control on the wet or greasy road surface. All but one crash involved vehicles travelling north and only 3 crashes involved more than a single vehicle.

Site 7 - Great Western Highway at pedestrian crossing,
Warrimoo.



DESCRIPTION: The site is on a slight curve at the pedestrian crossing opposite Warrimoo railway station.

CRASHES: 15 recorded crashes: none fatal, 5 injury, 10 towaway.
6 casualties: none killed, 6 injured.



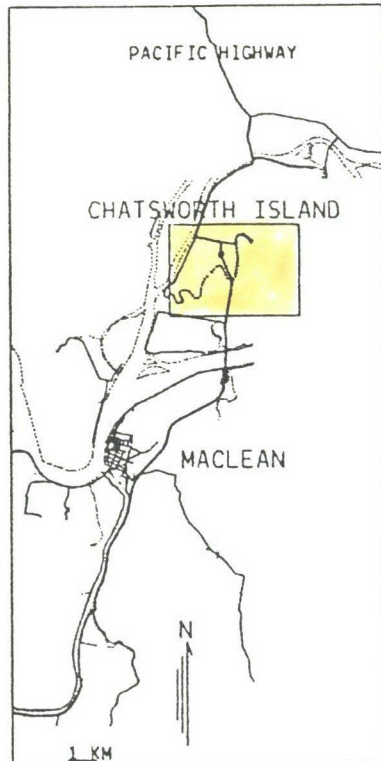
CRASH SUMMARY:

Twelve crashes occurred at the pedestrian crossing. Of these, 8 crashes involved nose-tail impacts with one vehicle stationary at the crossing, four of which occurred before traffic control lights were installed in mid 1983 and four after installation.

Other crashes at the crossing were 3 crashes in which vehicles lost control and 1 crash with a vehicle-pedestrian impact.

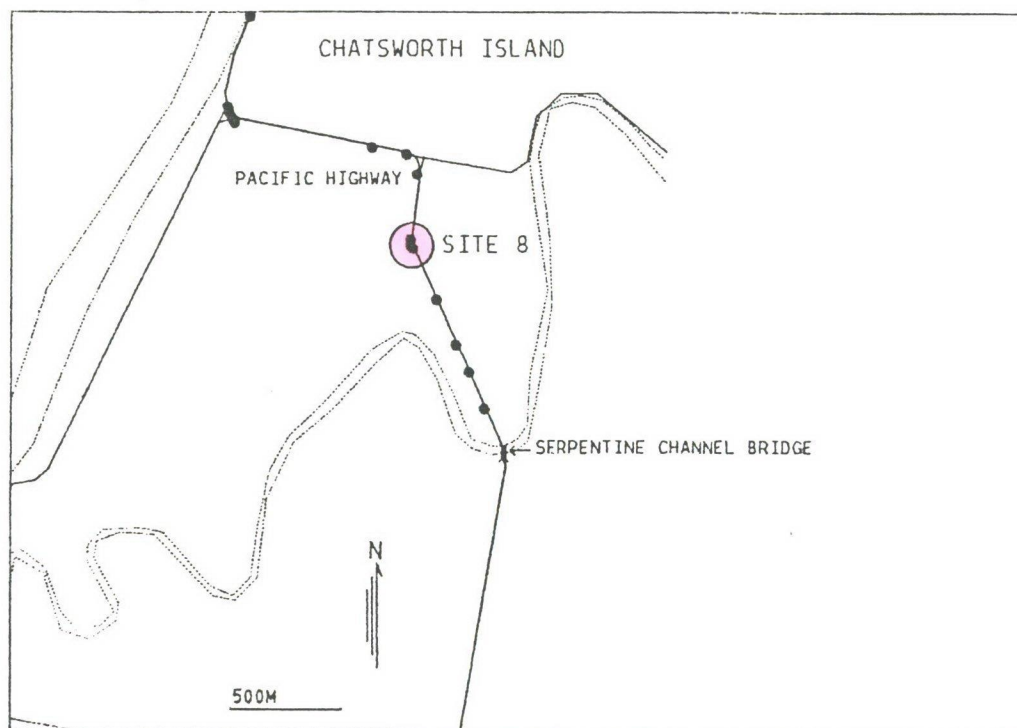
The 3 other crashes at the site were unrelated to the crossing.

Site 8 - Pacific Highway 1.0 km north of the Serpentine Channel Bridge, Chatsworth Island.



DESCRIPTION: The site is a sharp right hand curve for north bound traffic about 9 km north of Maclean.

CRASHES: 14 recorded crashes: none fatal, 6 injury, 8 towaway.
10 casualties: none killed, 10 injured.



CRASH SUMMARY:

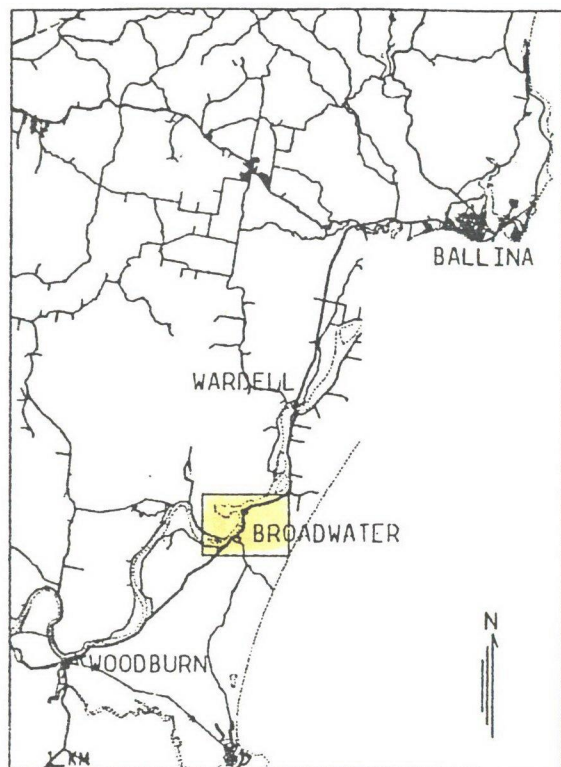
All but one crash involved vehicles losing control on the corner. In the other crash a semi-trailer was forced off the road by an overtaking car.

Twelve of the 14 crashes involved a northbound vehicle and 13 crashes occurred during wet weather.

In 8 crashes the vehicle which lost control came to rest in a 2 m deep drain on the eastern side of the highway.

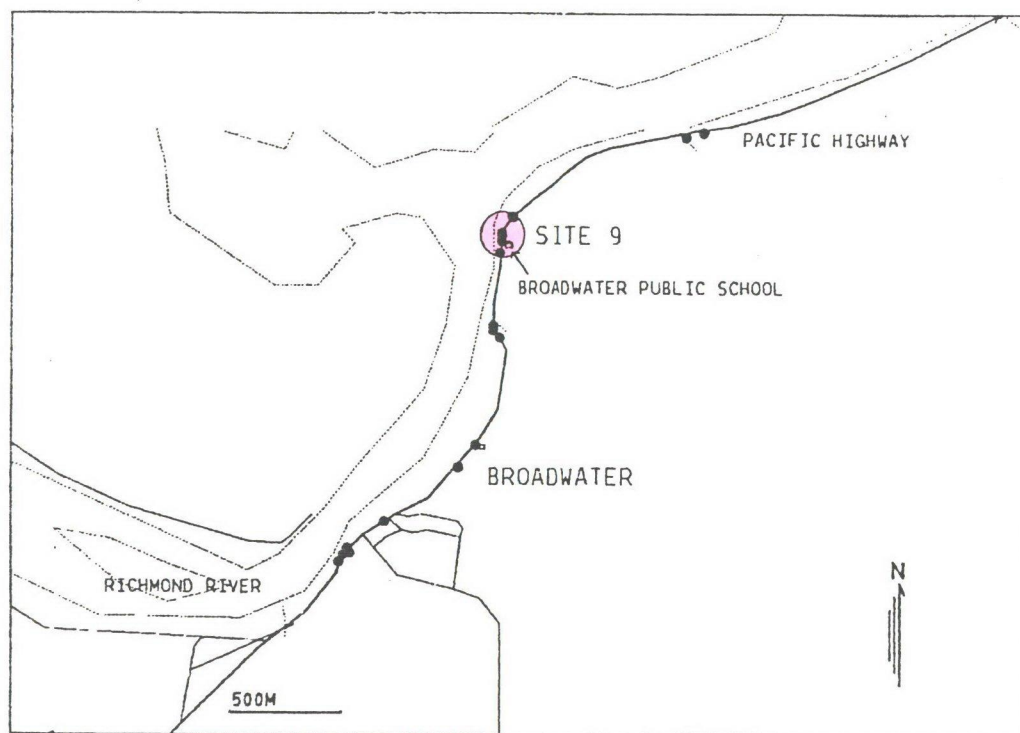
Only one crash occurred during 1982, at the end of December.

Site 9 - Pacific Highway at the Public School, Broadwater.



DESCRIPTION: The site is 1 km north of Broadwater on a left hand bend for vehicles travelling south near the Broadwater Public School.

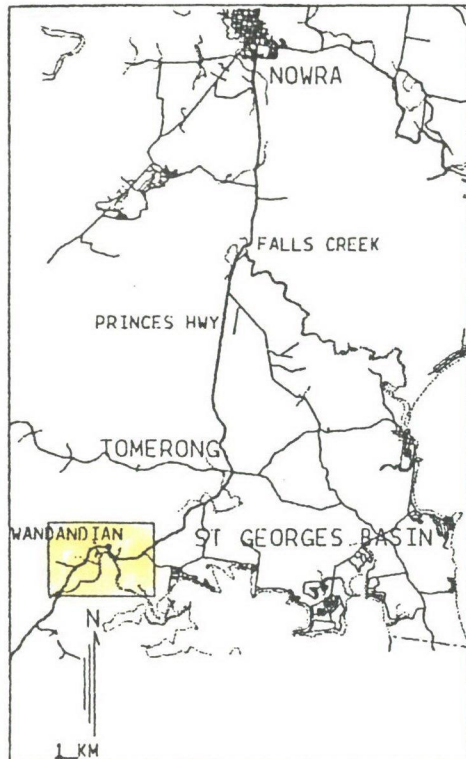
CRASHES: 13 recorded crashes: 1 fatal, 5 injury, 7 towaway.
12 casualties: 1 killed, 11 injured.



CRASH SUMMARY:

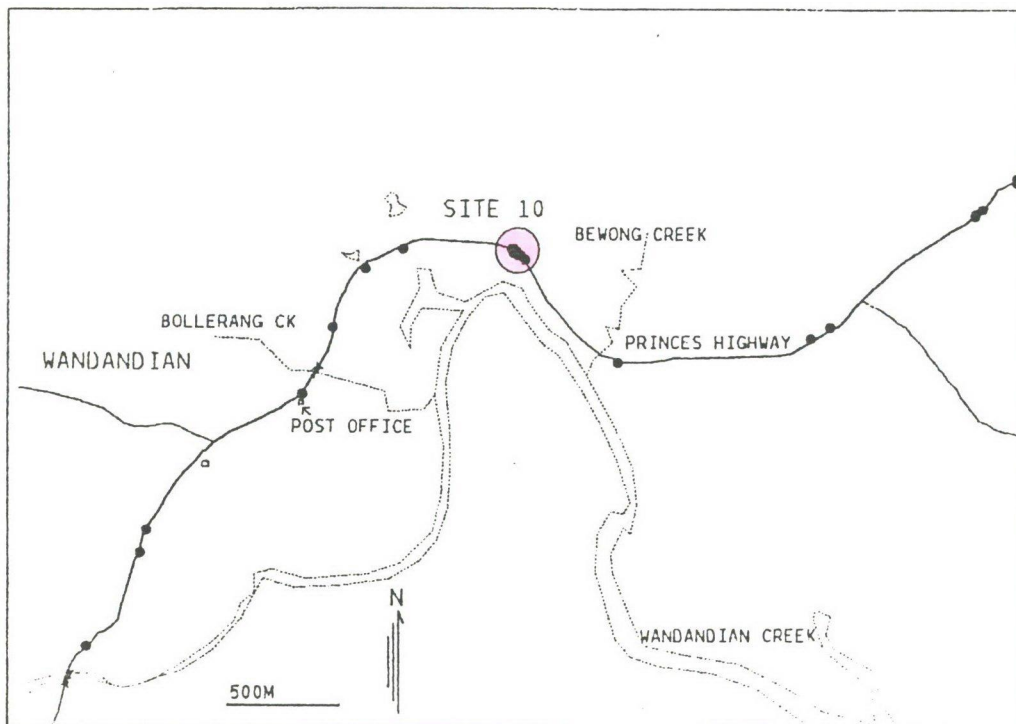
There were five single vehicle crashes all involving vehicles travelling south. Three of these occurred in wet road conditions. Five of the remaining 8 crashes involved vehicles on the wrong side of the road whilst negotiating the curve colliding with opposing traffic. These five crashes occurred in wet road conditions.

Site 10 - Princes Highway 1.5 km north Wandandian Post Office, Wandandian.



DESCRIPTION: The site is a right hand bend for northbound traffic with a slight uphill grade 1.5 km north of Wandandian.

CRASHES: 13 recorded crashes: 1 fatal, 5 injury, 7 towaway
12 casualties: 1 killed, 11 injured.



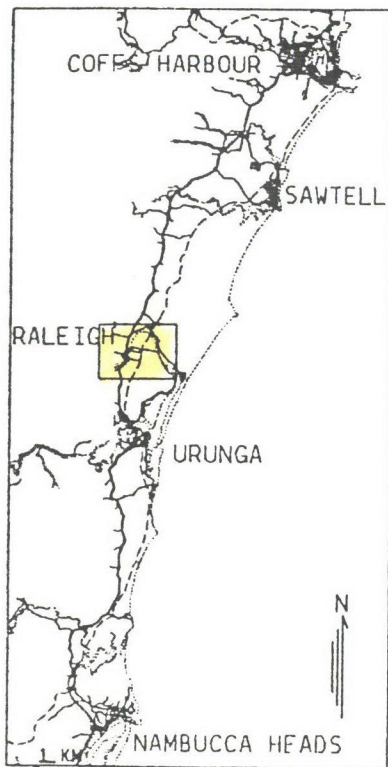
CRASH SUMMARY:

Eleven crashes involved a vehicle losing control on the corner; one crash was the result of a tyre blow out; and in the other crash a southbound vehicle was forced onto the shoulder by a northbound vehicle.

Vehicles losing control on the gravel shoulder contributed to 7 crashes while in a further two crashes a vehicle skidded on the wet surface.

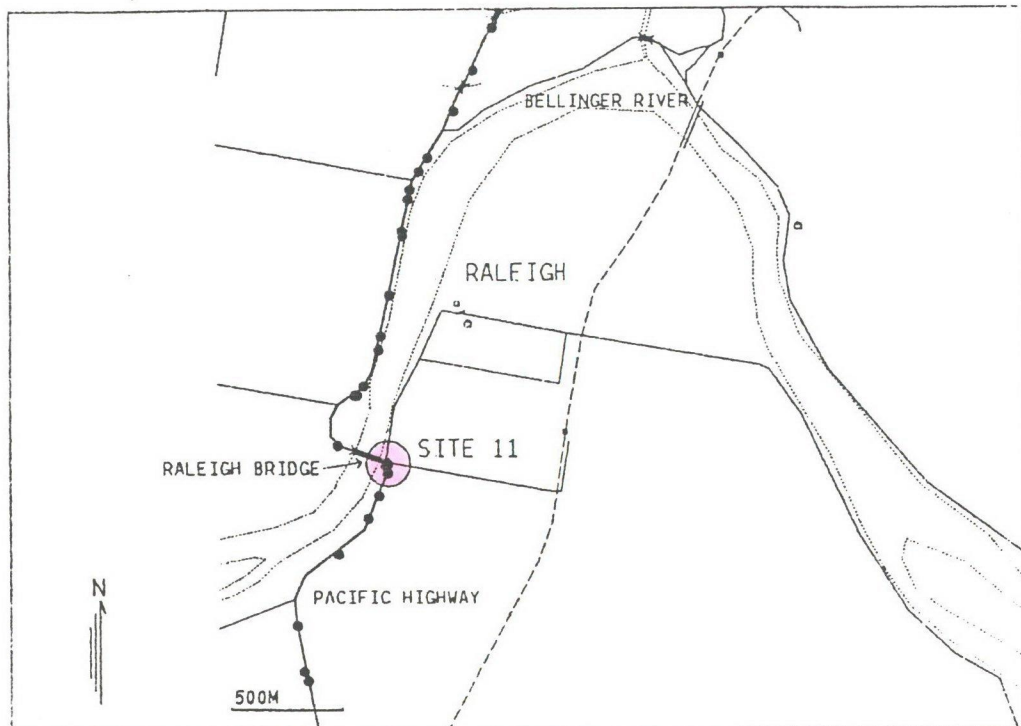
Eleven crashes involved vehicles travelling north.

Site 11 - Pacific Highway at Raleigh Bridge, Raleigh.



DESCRIPTION: The site is a sharp left bend at the southern approach to Raleigh Bridge over Bellinger River, Raleigh.

CRASHES: 12 recorded crashes: none fatal, 7 injury, 5 towaway.
12 casualties: none killed, 12 injured.

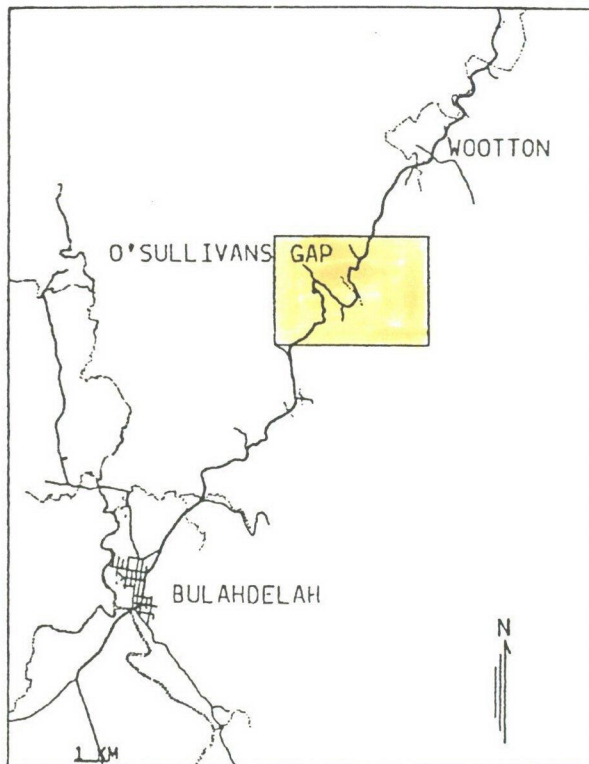


CRASH SUMMARY:

All but one crash occurred at the corner and involved vehicles travelling north and failing to take the left bend. The other crash involved multiple nose-tail impacts on the bridge.

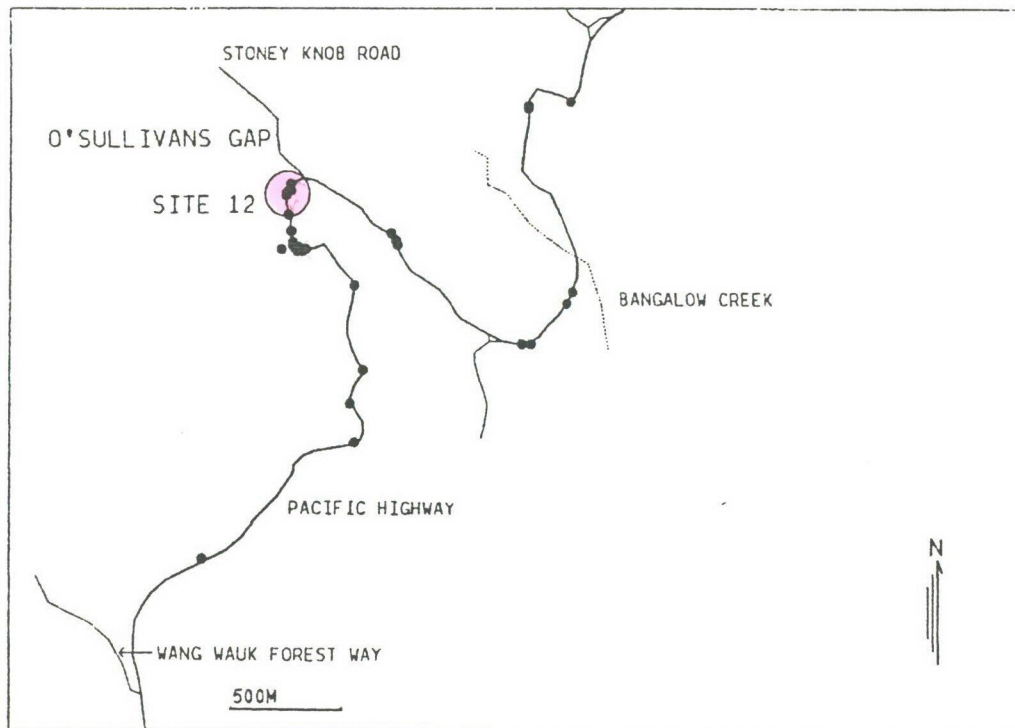
Nine of the crashes occurred during wet weather.

Site 12 - Pacific Highway 3.0 km north Wang Wauk Forest Way, O'Sullivan's Gap.



DESCRIPTION: The site is a sweeping left hand curve for southbound vehicles at the top of O'Sullivan's Gap approximately 12 km north of Bulahdelah.

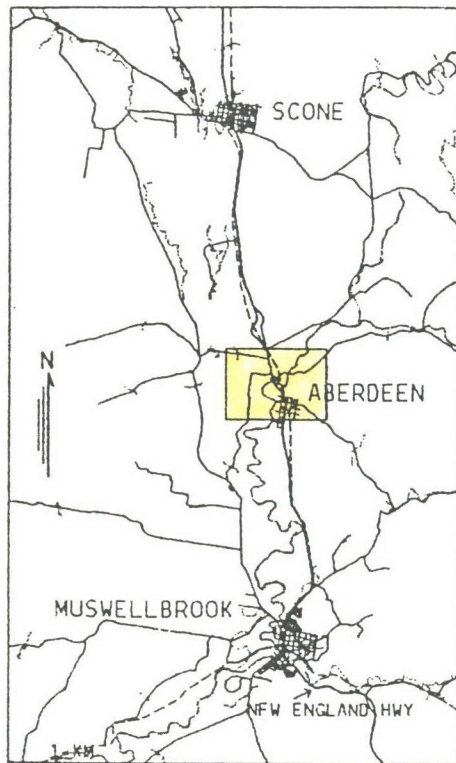
CRASHES: 11 recorded crashes: none fatal, 4 injury, 7 towaway.
10 casualties: none killed, 10 injury.



CRASH SUMMARY:

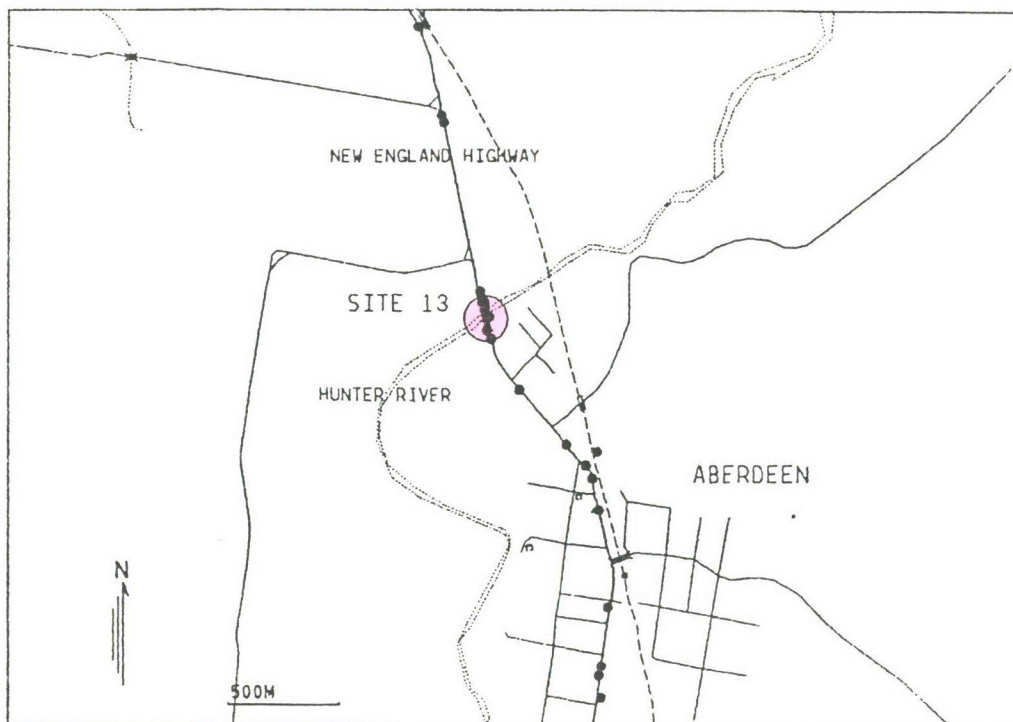
Ten of the crashes occurred during wet road conditions, of which 5 crashes involved vehicles skidding on an oil patch or on the oily road, 4 crashes involved vehicles losing control and the other crash involved a mechanical failure. In the only dry weather crash a vehicle skidded on a patch of oil. In all crashes a southbound vehicle lost control.

Site 13 - New England Highway at the Hunter River Bridge,
Aberdeen.



DESCRIPTION: The site is a narrow 2 lane bridge over the Hunter River on the northern approach to Aberdeen.

CRASHES: 11 recorded crashes: none fatal, 3 injury, 8 towaway.
4 casualties: none killed, 4 injured.

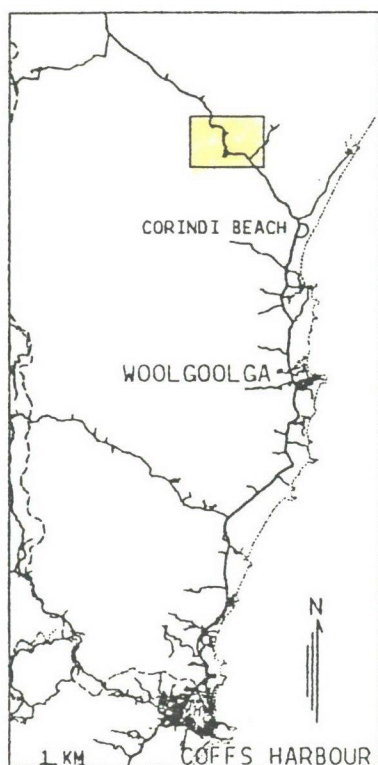


CRASH SUMMARY:

Nine of the crashes involved nose-tail impacts with vehicles stationary at the bridge allowing opposing traffic to cross. Seven of these crashes occurred at the northern approach to the bridge.

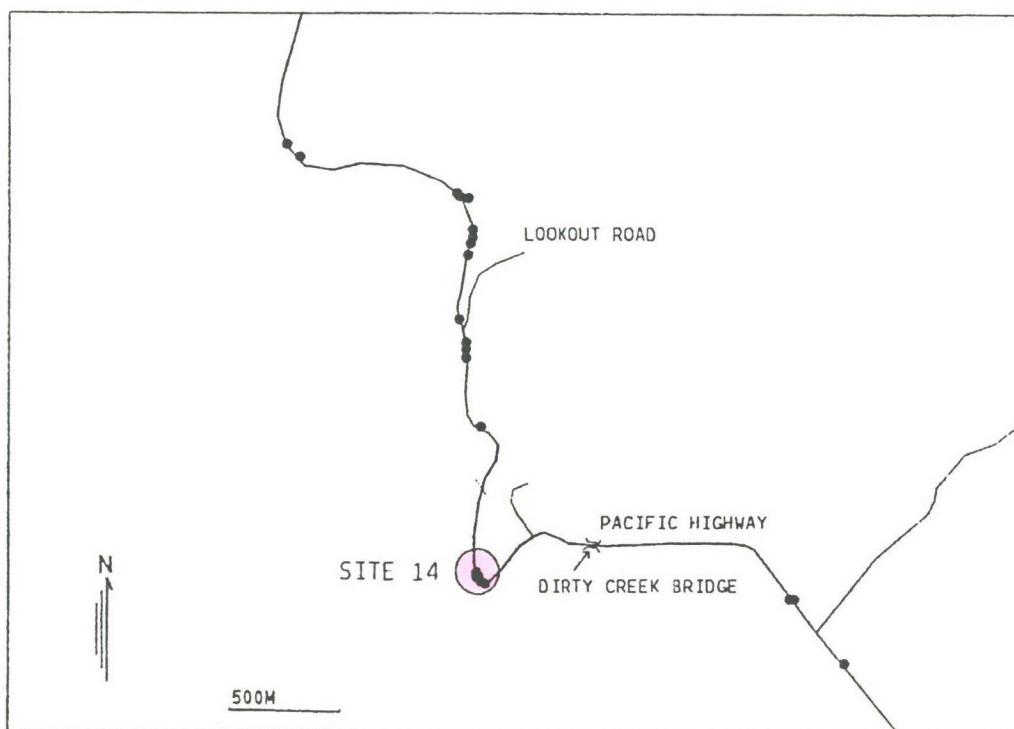
The other two crashes involved a vehicle turning right shortly after the bridge and a vehicle losing control on a corner prior to the bridge.

Site 14 - Pacific Highway 400 m north Dirty Creek Bridge,
Corindi Range.



DESCRIPTION: The site is a right curve uphill for vehicles travelling north, approximately 42 km north of Coffs Harbour.

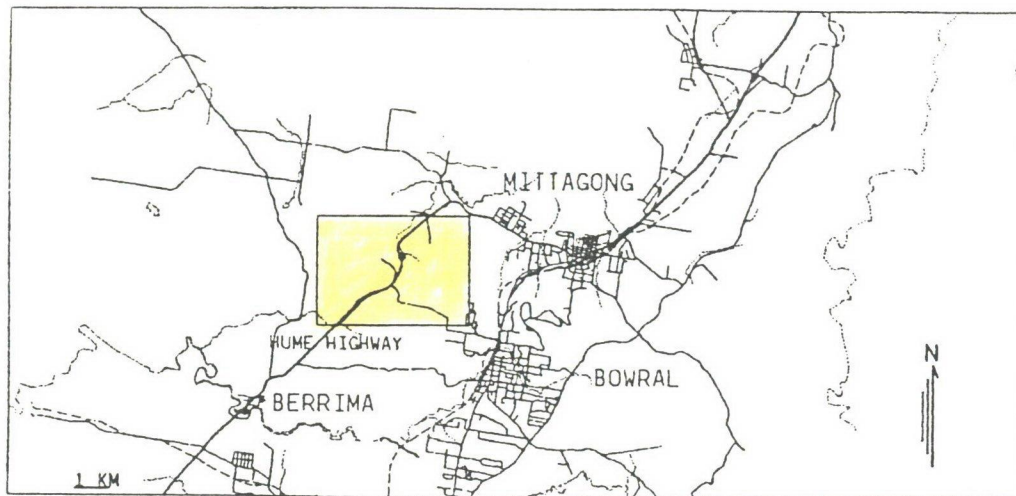
CRASHES: 11 recorded crashes: none fatal, 3 injury, 8 towaway.
3 casualties: none killed, 3 injured.



CRASH SUMMARY:

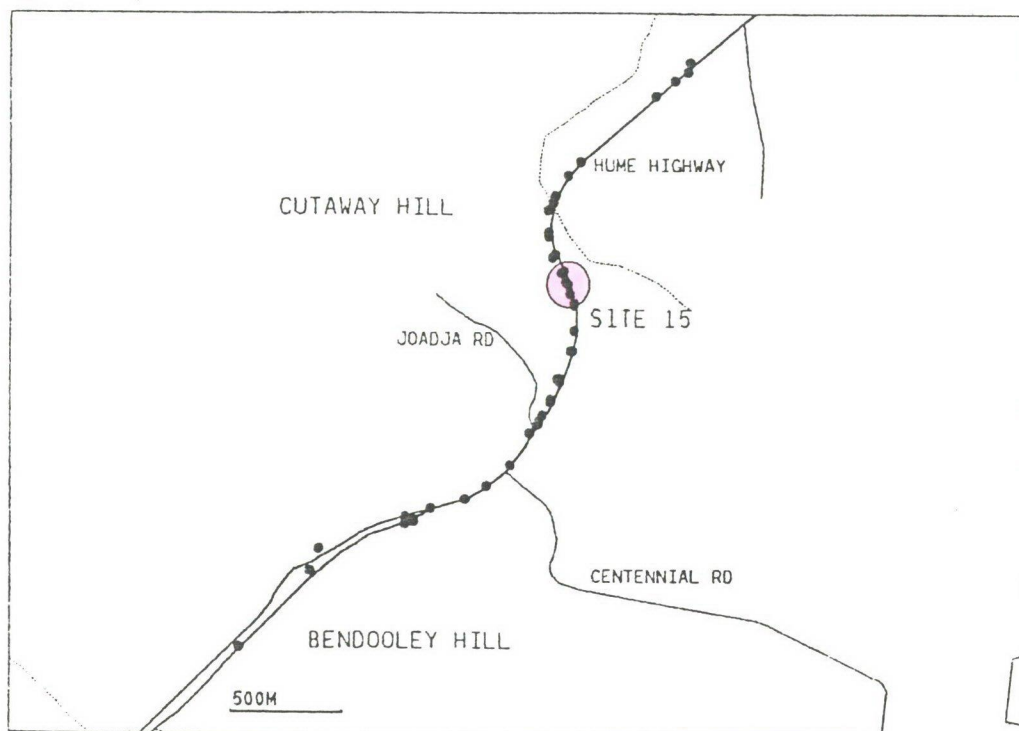
Four of the crashes involved vehicles travelling north losing control on the uphill right hand bend. Three of these 4 crashes were in wet weather. All but one of the remaining 7 crashes involved vehicles on the wrong side of the road on the bend either colliding with opposing traffic or forcing opposing traffic off the road. Six of the crashes were precipitated by southbound vehicles.

Site 15 - Hume Highway 500 m north Centennial Road,
Cutaway Hill.



DESCRIPTION: This site is in the vicinity of a sweeping left hand curve for vehicles travelling north approximately 7 km south of Mittagong.

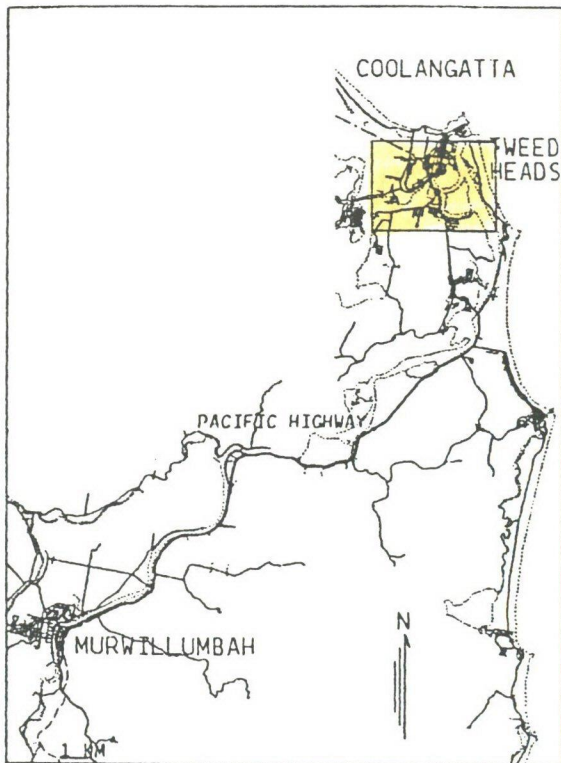
CRASHES: 10 recorded crashes: 1 fatal, 8 injury, 3 towaway.
17 casualties: 1 killed, 16 injured.



CRASH SUMMARY:

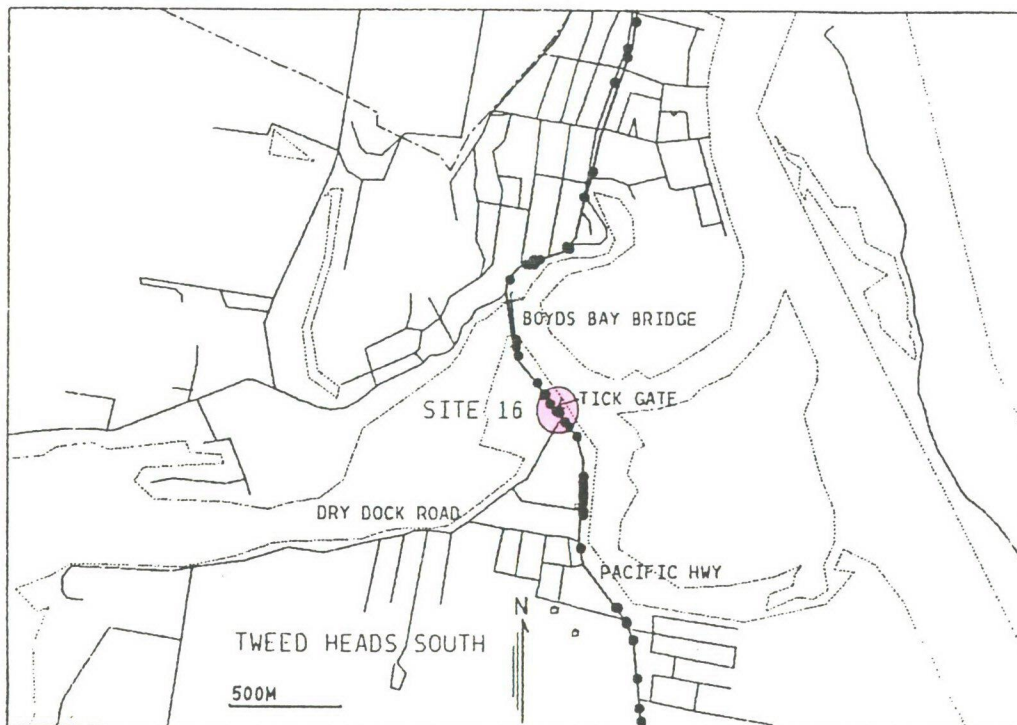
All but one of the crashes at this site occurred in conditions where the road surface was wet. The crash in fine weather was a minor nose-tail crash in a line of traffic. All but one of the remaining crashes were "loss of control" crashes. In all cases a vehicle travelling north precipitated the crash.

Site 16 - Pacific Highway 50 m north Dry Dock Road, Tweed Heads South.



DESCRIPTION: The site is the section of the highway adjacent to the Tweed Heads tick gates extending from 50 m south to 150 m north of Dry Dock Road. (Crashes on the intersection itself are not included.)

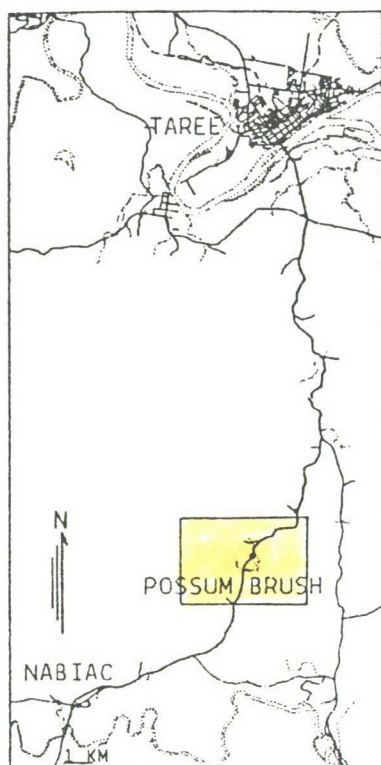
CRASHES: 10 recorded crashes: none fatal, 6 injury, 4 towaway.
7 casualties: none killed, 7 injured.



CRASH SUMMARY:

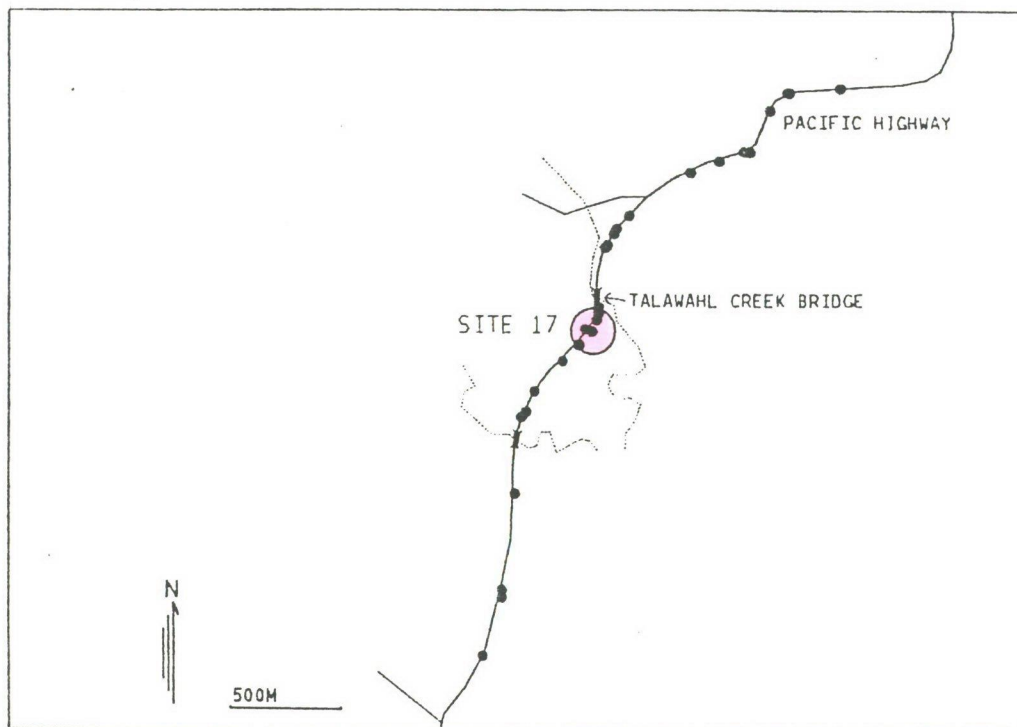
Six of the crashes involved nose-tail impacts; 3 involved vehicles travelling north and 3 south. There was no particular pattern to the remaining four crashes.

Site 17 - Pacific Highway 50 m south Talawahl Creek bridge,
Possum Brush.



DESCRIPTION: The site is a sweeping left hand curve for vehicles travelling north approximately 18 km south of Taree.

CRASHES: 10 recorded crashes: 1 fatal, 4 injury, 5 towaway.
23 casualties: 1 killed, 22 injured.

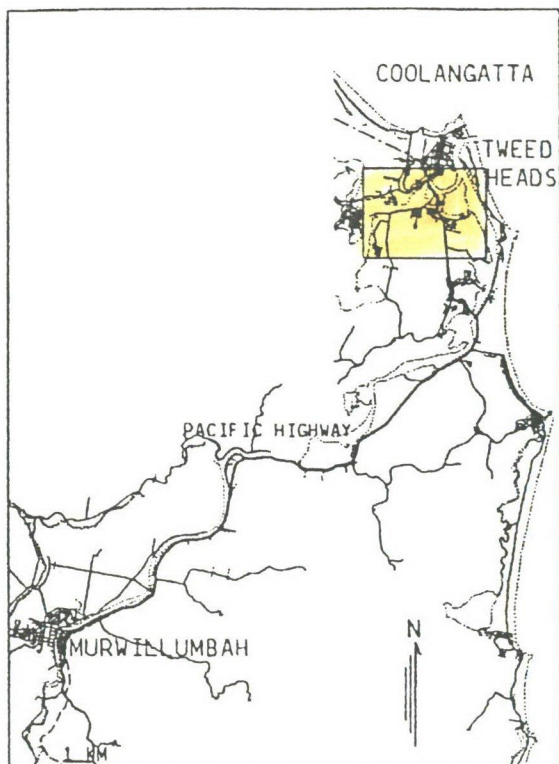


CRASH SUMMARY:

Six of the 10 crashes involved vehicles travelling north in some way losing control on the left hand bend. Two others involved vehicles veering off the road to avoid opposing traffic on the wrong side of the road.

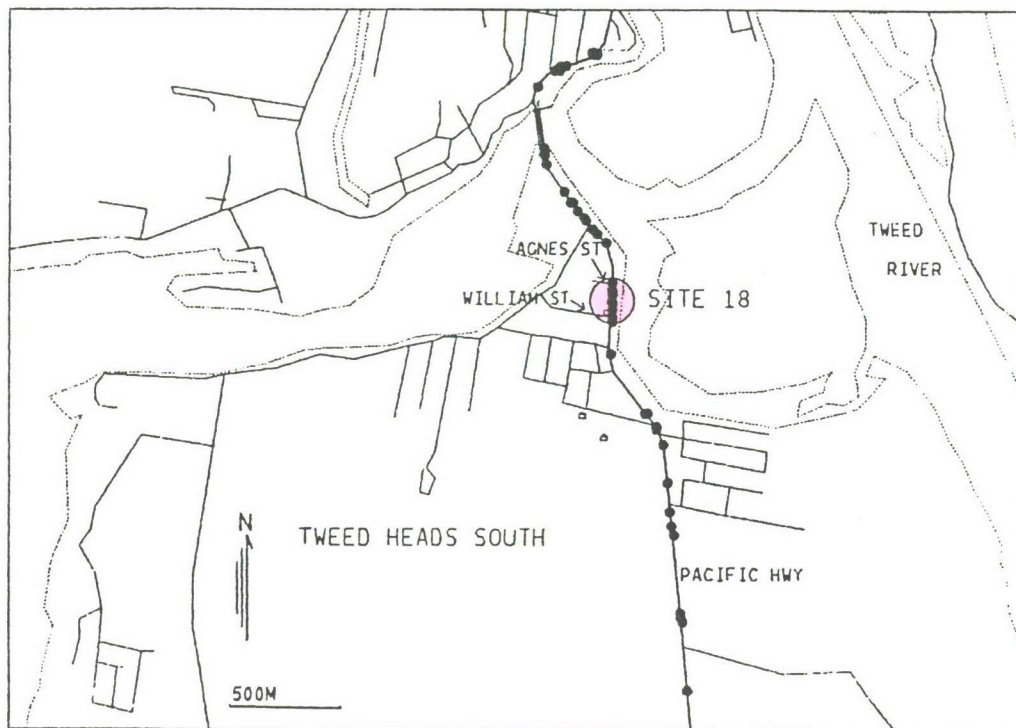
Seven of the 10 crashes occurred in wet road conditions.

Site 18 - Pacific Highway 100 m south Agnes street, Tweed Heads South.



DESCRIPTION: The site is the midblock section of the Pacific Highway between William and Agnes streets in Tweed Heads South.

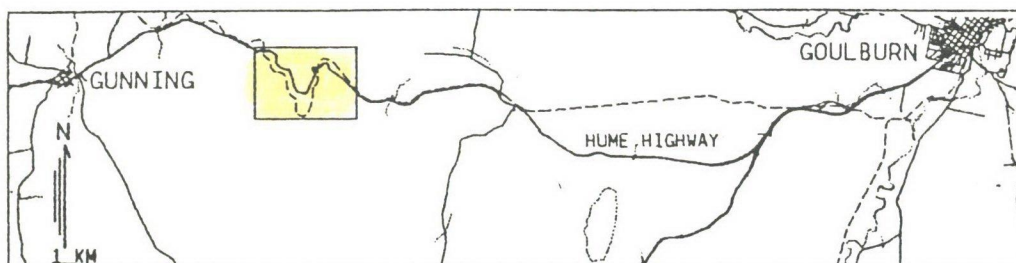
CRASHES: 10 recorded crashes: none fatal, 4 injury, 6 towaway.
7 casualties: none killed, 7 injured.



CRASH SUMMARY:

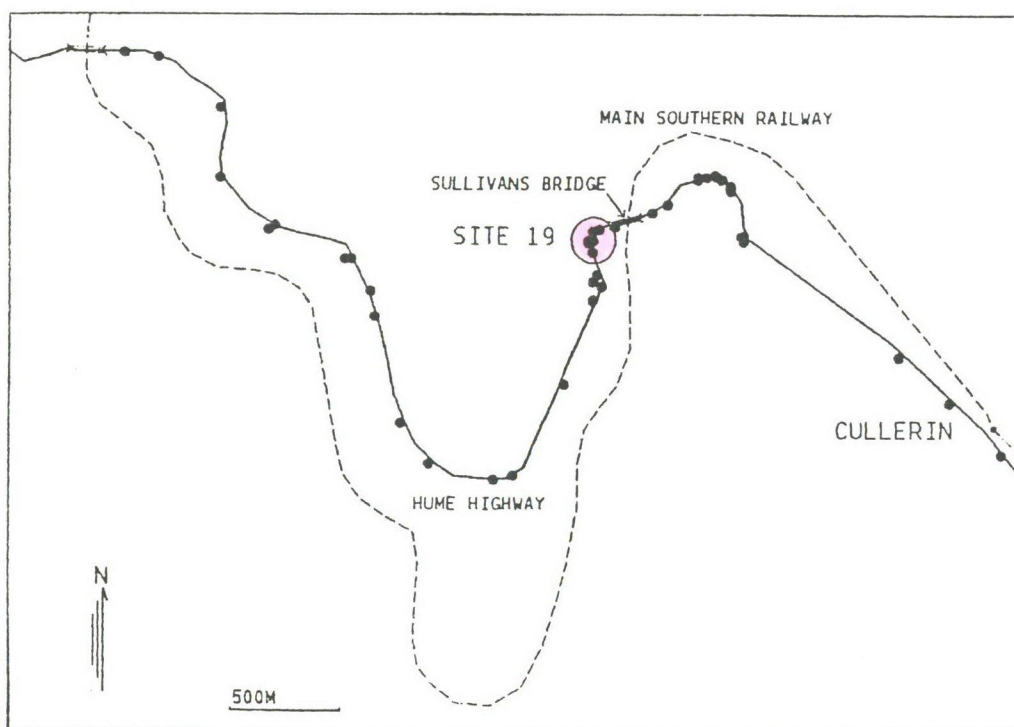
One of the 10 crashes was not on the midblock section described above but 15m south of William street. This crash involved a vehicle exiting from a driveway on the west side of the highway and colliding with a northbound vehicle. Of the 9 remaining crashes, 8 were nose-tail impacts; the other was a motorcycle losing control after striking debris on the road. All but one of the nose-tail crashes involved vehicles travelling north.

Site 19 - Hume Highway 100m south Sullivans bridge, Cullerin Range.



DESCRIPTION: This site is a sharp left hand bend for vehicles travelling south approximately 15 km north of Gunning.

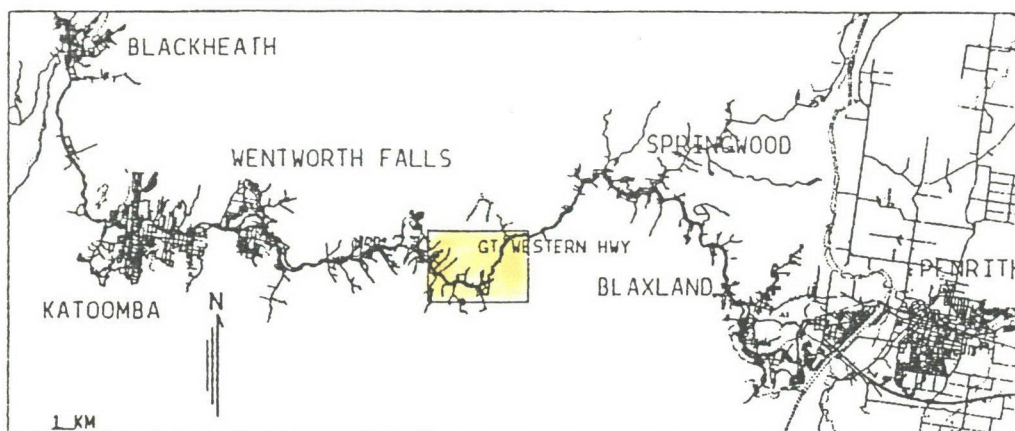
CRASHES: 9 recorded crashes: 1 fatal, 5 injury, 3 towaway.
8 casualties: 1 killed, 7 injured.



CRASH SUMMARY:

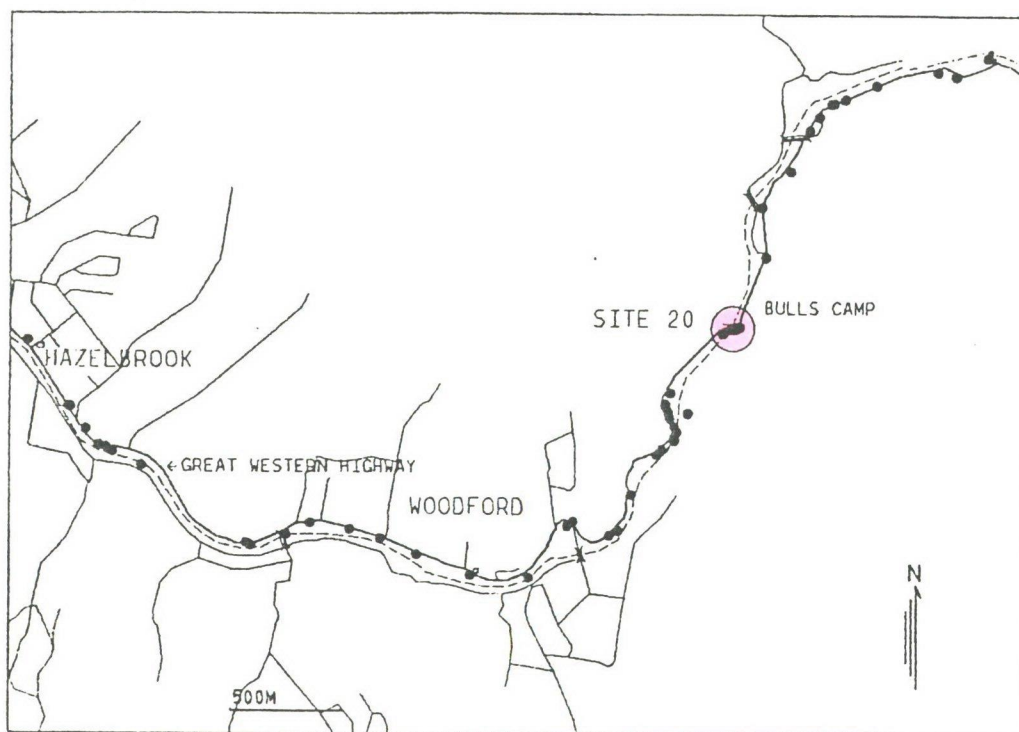
Two of the nine crashes involved tyre blowout; the remainder were in some way due to loss of control on the sharp bend. Six crashes were single vehicle; all but one involved semi-trailers and vehicles travelling south. None of the crashes occurred during 1982.

Site 20 - Great Western Highway at the railway overpass,
Bulls Camp.



DESCRIPTION: The site is the railway overpass approximately 2 km east of Woodford. For vehicles travelling west there is a sharp right bend coming onto the bridge and a left hand bend exiting from the bridge.

CRASHES: 9 recorded crashes: none fatal, 5 injury, 4 towaway.
7 casualties: none killed, 7 injured.



CRASH SUMMARY:

All but one of the crashes involved vehicles travelling west losing control, mostly in wet or greasy road conditions.
In the remaining crash a vehicle travelling east was on the wrong side of the road forcing a vehicle travelling west off the road.