

Robert Morgan

B.Eng.(Civil), M.Eng.Sc.(Transport),

F.I.T.E., F.I.P.W.E.A., M.A.I.T.P.M., L.R.P.S.

Traffic Engineering and Road Safety

ABN 23 411 362 688

**24 Park Road, Surrey Hills
Vic., 3127, Australia**

Tel: (03 or +61.3) 9888 8786

Fax: (03 or +61.3) 9888 8980

E-mail: roadsafe@vicnet.net.au

20th December 2007

My Ref: 800REP

Mr Vaughn Notting
Special Projects Engineer
Surf Coast Shire Council
P.O. Box 350
TORQUAY 3228

Dear Vaughn,

AIREYS INLET: PRECINCT 1 TRAFFIC TREATMENTS

Following our discussions and on-site inspections on 7th December, I wish to provide you with the following report on the traffic issues in Precinct 1 at Aireys Inlet.

COMMUNITY DESIRES

It is proposed to make improvements to drainage in the area and this may effect the nature, appearance and operation of streets. Proposals for drains and streets in the area were prepared for Council by engineering consultants GHD. A Citizens' Jury was established to provide community comment and advice to Council on those proposals.

Community comments, as expressed in the Citizens' Jury report, may (in my own words) be summarised as follows:

1. The community desires, where possible, to preserve the existing character of the area.
2. The extent of changes proposed in the GHD July 2007 report are too extensive; in particular with the number of roads which are proposed to be sealed
3. New development in the area will be limited, so traffic volumes are likely to remain as they are now
4. The extra cost of a Special Charge Scheme may be a concern to some residents
5. "The jury has not been given convincing evidence to suggest that there are any streets in the precinct which are used intensively enough to be considered for sealing."
6. The associated issues of traffic speed and pedestrians walking on the road are acknowledged. Sealing roads may increase speeds and increase safety problems.
7. The depth of drains is agreed to be a safety problem which needs to be addressed.
8. Rather than providing separate footpaths, the shared use of roads by pedestrians and drivers should continue.
9. Regarding siltation of drains from unsealed road surfaces, no convincing arguments were presented to the community that this is so significant that it requires roads to be sealed.
10. The particular drainage problems identified by GHD are acknowledged and need to be addressed.

11. Rather than having separate footpaths off the road, the citizens jury “strongly recommends that a traffic management system is introduced and implemented, recognising the shared road principle:
 - Signs at entrances to precinct indicating shared roads
 - Traffic calming across the precinct
 - Reduced speed limits”
12. “If it proves imperative to seal the section of Hopkins St between the Great Ocean Road and Hartley Street, the jury would require that the surface treatment be non-bitumen, of a material that blends with the existing network of gravel roads and the environment.”
13. “The intersection of Hartley, Aireys, Anderson and Roadknight Streets [should] be addressed using the approach outlined by GHD, but as an unsealed option.”

I have been asked to provide advice on the last three items

OVERVIEW

The area is separated into two traffic areas by the north-south gully which runs from west of Wright Street to west of Marian Street and through to the beach. Hopkins Street and Alice Street provide the main connections into each area. Albert Avenue has its own access off the Great Ocean Road. A few streets in more recent subdivisions are sealed. From the tube counts of traffic, taken over the past decade, 85th percentile speeds in some significant streets range from 40 km/h to 49 km/h. Speeds in the unsealed Hopkins Street (49 km/h) and Alice Street (47 km/h) are similar to those in the sealed Amaroo Crescent (48 km/h).

SPEED LIMITS OR TRAFFIC SPEEDS?

One of the suggestions of the Citizens’ Jury is to have reduced speed limits. One important point to bear in mind is that signed speed limits, of themselves, will not reduce the speed of vehicles. On major roads, it is the anticipation of enforcement that keeps vehicle speeds to near the speed limit. In this local area the measured speeds are all less than the general urban limit of 50 km/h, yet no enforcement is happening. Something else is - and that is the appearance of the streets, as seen by drivers. In general, the streets in the area appear ‘enclosed’ - which leads drivers to drop their speed - or they are relatively short - so drivers don’t have a long distance over which to speed up. Unfortunately there is a conflict between speed control objectives and fire control access objectives: overhanging of trees, which are good for keeping speeds down, create problems for fire engine access. So when trees within the road reservation in the area are trimmed back it can be expected that speeds in some streets may increase.

Lowering the speed limit in the streets will not have any significant effect on vehicle speeds, unless enforcement occurs (which will not happen to any great extent) or unless drivers see a direct, immediate reason to slow down (and not some general reason like ‘it’s safer’ or ‘it’s good for other people’). The most effective way to directly influence drivers’ speeds is to create a road environment which unconsciously leads them to slow down, as it looks enclosed, feels uncomfortable or they can correctly assess a hazard. And if you can slow drivers down that way there is no need to sign lower speed limits. Conversely, if you sign a lower speed limit and drivers see no direct need for it, they won’t slow down and it will have the adverse safety effect of bringing discredit to speed limits in general.

SHARED ZONES

What range of traffic speeds should be sought where people are walking on the road in this area? Desirably it should be as low as possible. In legally enforceable 'Shared Zones' where drivers and pedestrians have similar rights and obligations, VicRoads guidelines require the speed limit to be 10 km/h or 20 km/h. Speed control devices need to be at 40 m spacings to achieve this. From my understanding of the citizens' jury report, they do not want this level of alteration to the local street system and I doubt that drivers would put up with going that slow over the distances involved, which are up to one kilometre to access some homes off the Great Ocean Road via Hopkins Street.

A DESIRABLE SPEED RANGE

Therefore the treatment will need to accommodate normal road rules. Along a street vehicles will have precedence over pedestrians, though there is a general obligation to avoid collisions and act reasonably in the circumstances, taking account of what might be expected to happen. In this environment, traffic speeds in the range of 30 km/h to 40 km/h would be desirable. Where speeds this low this cannot be achieved or where volumes of traffic are high, separate footpaths should be considered.

TYPES OF SPEED-CONTAINING TREATMENTS

The simplest type of treatment is to let trees within the road reservation create an enclosed feeling. Thus, in conjunction with the Country Fire Authority, there is a need to establish how this slowing effect of overhanging trees can be maximised. For example, is it a case of providing truck passing places at specific driveways, rather than the whole way along a street?

So far as midblock treatments are concerned on unsealed roads, it would be undesirable to seal a short section of street in order to install, say, a one lane wide road hump. Gravel from the unsealed road would get on the sealed section and create a potential skidding problem in the braking area and present a hazard for pedestrians. On a sealed street a one lane narrowing (which pedestrians and cyclists could bypass) with a road hump would be a suitable treatment. On an unsealed street the options are limited to:

- A simple narrowing aligned straight along the road - limited effect on reducing speeds
- A concrete dish drain
- A treatment involving a one lane narrowing at each end of a (say) 20 m section, with a wider section in the middle (e.g. at two driveways). The one lane sections would be on opposite sides of the road. See the 'Slow Point' sketch on the left side of Figure 1.

At either sealed or unsealed intersections, 'threshold' treatments can be provided to narrow the road and slow vehicles. This occurs typically on the minor legs, but within local areas like Precinct 1 it can be on any leg, depending on the nature of the speed problem. It is important for consistency across the road network that a 'major' route be selected through every intersection (except at roundabouts and signals) and that the other 'minor' leg or legs give way. But within local areas, this does not preclude speed controlling devices being placed on the 'major' road. [In this context 'major' does not mean busy, important or big; it simply means the road with intersection priority]. So, where speed control is desirable at intersections, the options are:

- A localised threshold treatment, typically one lane wide, at or near the intersection

- Realigning the intersection or realigning priority, so there is no straight through alignment (easier to achieve on a sealed intersection)
- More extensive work on each approach to an intersection, narrowing each leg and creating a more ‘closed in’ appearance. With this it is important that speeds are physically controlled by either horizontal realignment or by using humps/ramps. Examples of this exist on the Mornington Peninsula and may be suitable at Hopkins Street / Berthon Street or Hopkins Street / Hartley Street.

From the above it can be seen that the issue of whether a street is sealed or unsealed becomes less important, because if trees are overhanging and narrowings are designed to look like ‘more of the same’ with trees, grass and other landscaping (rather than like ‘traffic control devices’), the streets will retain their low key appearance or may even become more low key in appearance. This should be considered in the context of Item 12 (above) from the Citizens’ Jury report: sealing Hopkins Street, having grassed spoon drains and having low key intersection treatments where the view straight along the street is obscured may make the street look even more low key than at present. It would certainly result in lower speeds.

POSSIBLE SIGNS TO COMPLEMENT SPEED CONTROLS

One of the Citizens’ Jury recommendations is to have “signs at entrances to [the] precinct indicating shared roads”. As discussed above, legally enforceable ‘Shared Zone’ signs are not appropriate. Also, in my view, signs at the entrances to the area would be of limited value because once inside the area drivers will have forgotten the signs and their speed and behaviour will be influenced by what they see ahead of them. So the most effective way to achieve pedestrian safety is to slow traffic by the methods discussed above.

If there are locations where drivers need specific advice about possible pedestrians on the road, the standard diagrammatic ‘Pedestrians’ warning sign W6-1 can be used. As stated in AS 1742, the Manual of uniform traffic control devices, Part 10 ‘Pedestrian Control and protection’, these signs “should not be used where the likely presence of pedestrians is obvious”. As a principle of good design, any section of road where there is only one traffic lane and limited visibility should have a separate pedestrian path, to reduce the risk to pedestrians and reduce the need for warning signs.

A further possibility is to use a W6-1 ‘Pedestrians’ warning sign with a supplementary W8-style plate to provide a general warning. The plate could state (in three lines) ‘ON ROADS / IN THIS / AREA’. Again, the value of such signs will be limited: at times of year when there are few pedestrians the signs will not be believed and at times when there are pedestrians it will be their presence that influences drivers. Any over use of signs here may also lead to a demand for such signs elsewhere.



SITE SPECIFIC TREATMENTS

The attached area plan (Figure 1) shows recommended locations and types of treatments to keep speeds down. It is designed to treat long sections of straight streets and other problem locations I have been advised about. Note that these are preliminary proposals which may need to be reviewed as more detailed investigation and design proceeds.

A further plan (Figure 2) shows the suggested treatment at Hartley Street / Roadknight Street / Aireys Street / Anderson Street intersection. The basis of this layout is (a) to recognise that Hartley Street - Roadknight Street is the busier route and (b) to avoid the creation of a cross road or any blind spots for turning vehicles.

Hopkins Street is the main access to/from the north eastern area. Of all the locations within this area, the section of this street between the Great Ocean Road and Berthon Street is where pedestrians on the road are at greatest risk, because drivers coming off the Great Ocean Road have turned via a major intersection treatment and need time to adjust. Also, this section has the highest volumes of local traffic. Whether or not this section of Hopkins Street is sealed, it would be wise to provide a separate footpath for the safety of pedestrians. A path is not needed in Alice Road near the Great Ocean Road because the verge can be walked on and there is a clear, open view.

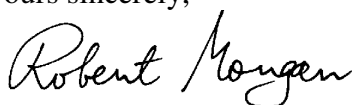
RECOMMENDATIONS

From the above sections, the following recommendations are made:

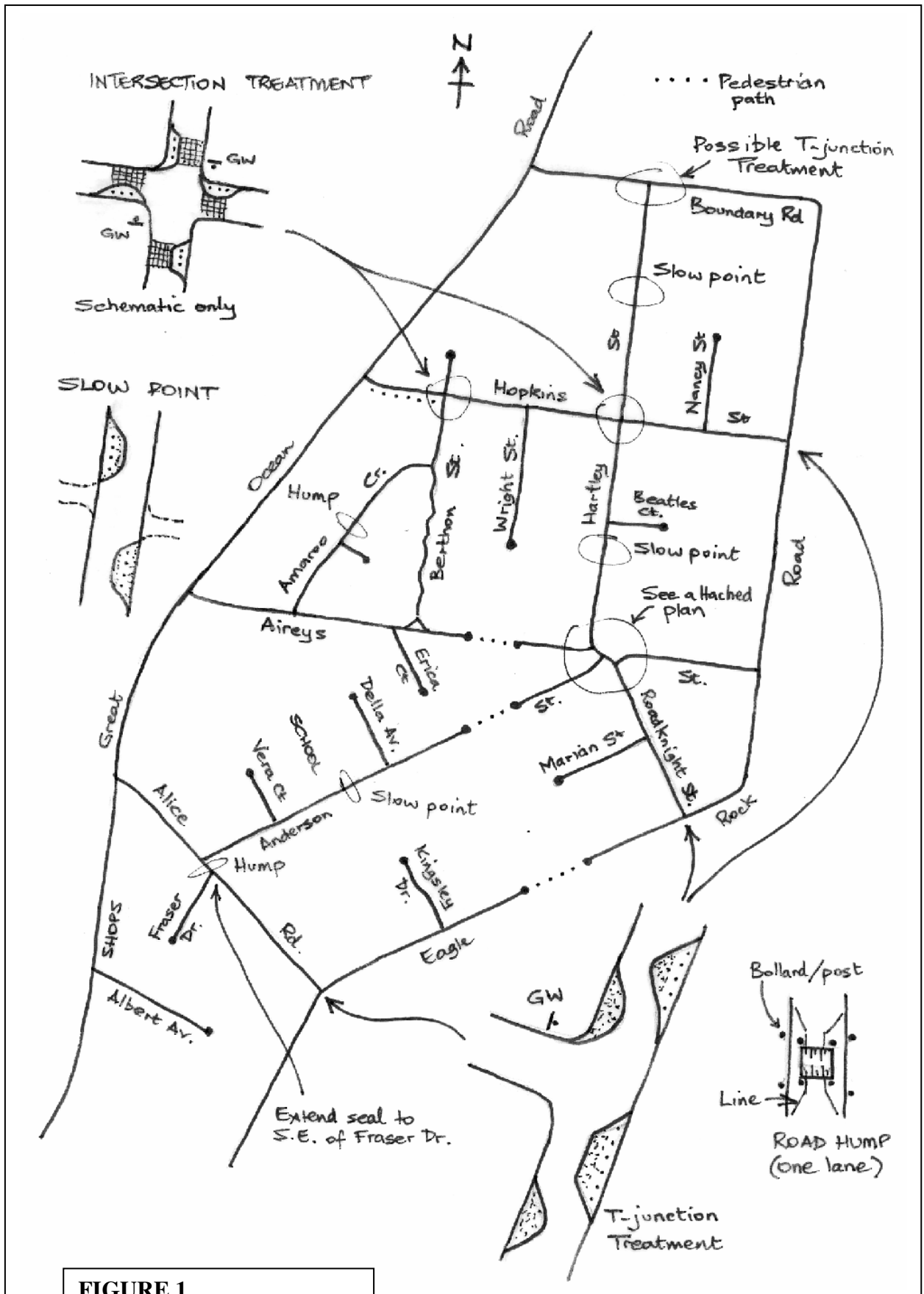
1. Do not seek lower signed speed limits in this local area.
2. In conjunction with the Country Fire Authority, establish how the slowing effect of overhanging trees can be maximised.
3. Use the attached area plan (Figure 1) as the basis for local area traffic treatments in the area.
4. View the effects of sealing a road within the context of the attached plan for local area traffic treatments and landscaping which creates an 'enclosed' appearance: sealing is unlikely to lead to a significant increase in speeds.
5. Treat the Hartley Street / Roadknight Street / Aireys Street / Anderson Street intersection as shown on the attached plan (Figure 2).
6. Provide a separate path on Hopkins Street, between the Great Ocean Road and Berthon Street.
7. Where traffic is restricted to one lane at any point, provide a separate footpath past that point.
8. Where traffic speeds cannot be contained to the 30 - 40 km/h range and there are significant numbers of pedestrians, consider providing separate footpaths.
9. If there are locations where drivers need specific advice about possible pedestrians on the road, use the standard diagrammatic 'Pedestrians' warning sign W6-1. If speeds are contained in the manner recommended here, the need for this sign will be extremely limited or may not exist at all.

Should you have any questions about the above matters, do not hesitate to contact me.

Yours sincerely,



ROBERT MORGAN



**FIGURE 1
RECOMMENDED AREA
TREATMENTS**

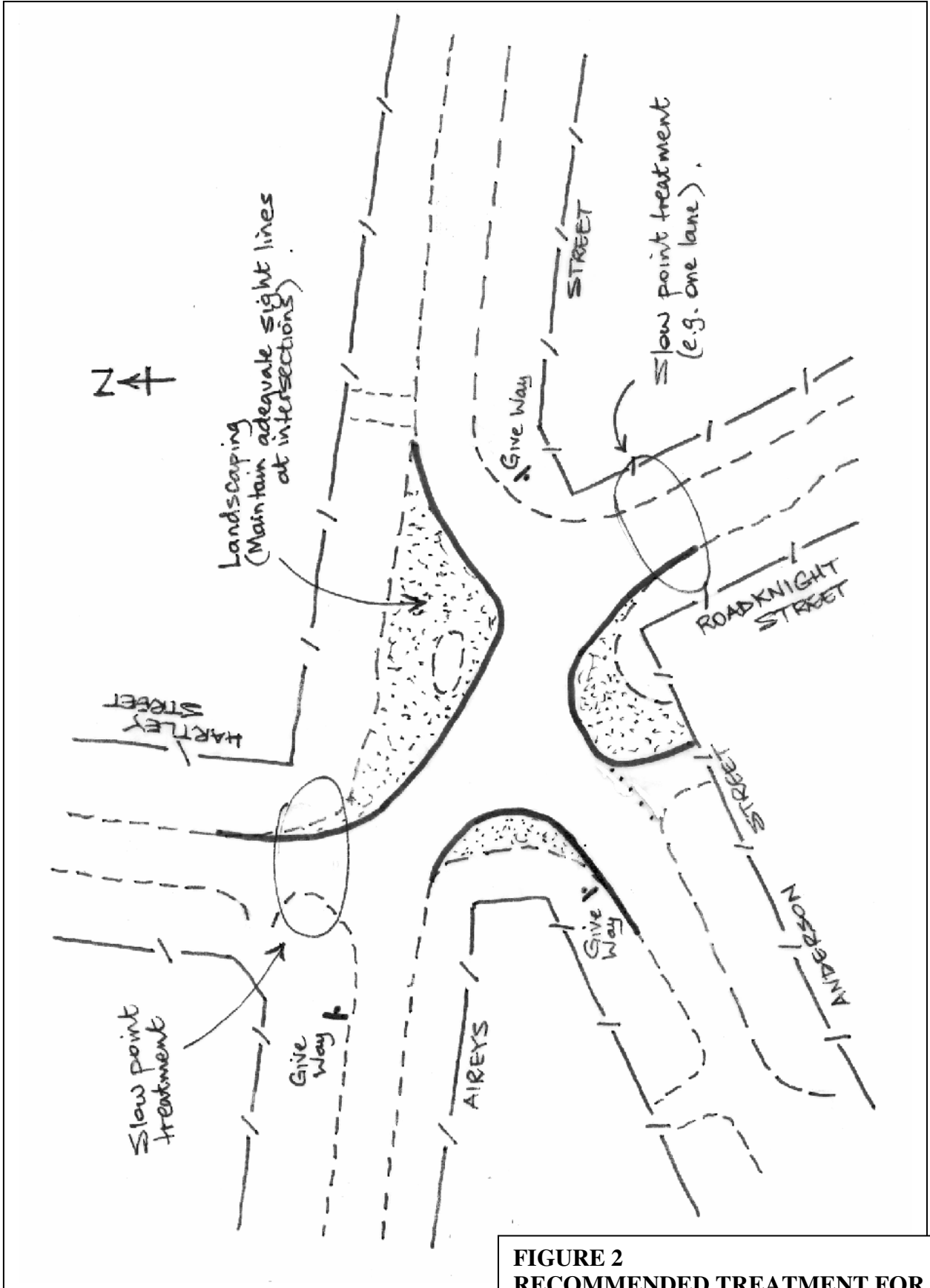


FIGURE 2
RECOMMENDED TREATMENT FOR
HARTLEY STREET / ROADKNIGHT
STREET / AIREYS STREET /
ANDERSON STREET