

Technical Note 4.2

Guidelines for “3-2-1 green reflector” informal heavy vehicle stopping places

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Table of Contents

1	Purpose	3
2	Background.....	3
3	Considerations	3
4	Installation and Site Selection.....	3
5	Future Planning and Potential.....	5
6	References	5
	Appendix 1: Sample assessment criteria.....	7
	Appendix 2: Introduction of “3-2-1 Green Delineator”	10

1 Purpose

These guidelines outline items to consider in the provision of advance notice of informal heavy vehicle stopping places in rural areas of Queensland.

The use of “3-2-1 Green Reflectors” is to provide enhanced safety for all road users at stopping bays that are **not formally** provided or maintained by TMR, but show obvious signs of use by heavy vehicles.

The intent is to provide those heavy vehicles accessing informal sites with forewarning that a site is approaching so that they do not suddenly undertake braking manoeuvres that are dangerous to themselves or other vehicles in the traffic stream. This is particularly important at night.

2 Background

The introduction of coloured delineators originally occurred in 2007 as an alternative safety measure to indicate upcoming informal stopping places for heavy vehicle drivers. At the time, Blue was chosen as the colour used on guideposts.

During national implementation several years later, Country Fire Authorities identified that blue reflectors were in conflict with those deployed by fire authorities as indicators of available water sources.

Therefore, to maintain national consistency for both heavy vehicle drivers and fire authorities, a national trial was undertaken within Queensland, New South Wales and Victoria resulting in a consensus to adopt **Green** as a replacement colour that was available, not used elsewhere, and did not conflict with the important needs of fire authorities.

In Queensland, the trial of these new reflectors took place along the Cunningham Highway in late 2011. Industry consultation was lead by Rod Hannifey to ensure that sites were usable and visible with no disadvantage over the former blue colour.

The provision of these delineators has received wide acceptance from the trucking community, and is supported by the Australian and Queensland Trucking Associations. However, as these sites are informal, the location of “Green Reflector” sites is not shown in the Guide to Queensland Roads.

3 Considerations

Warrant for Provision

“Green Reflectors” on marker posts are intended to assist heavy vehicle drivers to stop in a predetermined manner by providing advance notice. They also direct drivers to stopping places where TMR determines that adequate sight distance and other **basic** safety provisions are provided. As the reflectors are visible both day and night, the scheme provides notice to drivers at all times.

It should be noted that the informal sites are not all weather facilities and that these sites may not be suitable for use during or after prolonged rain. TMR makes no commitment to provision of facilities, maintenance, or ongoing access to these sites.

Informal heavy vehicle stopping places are an intermediate supplement to the existing formal Rest Area and Stopping Place network. A program to construct new or upgraded existing rest areas and stopping places is still required where there are deficiencies so that drivers can manage fatigue, and where an informal site is strategically placed and well used, it may be considered for upgrading to a formal stopping bay or rest area.

As “Green Reflector” sites are primarily a rural road treatment, they should not be installed on roads with high traffic volumes and high vehicles speeds where access and egress to the site will be difficult. At these locations, formal stopping bays or rest areas should be considered.

4 Installation and Site Selection

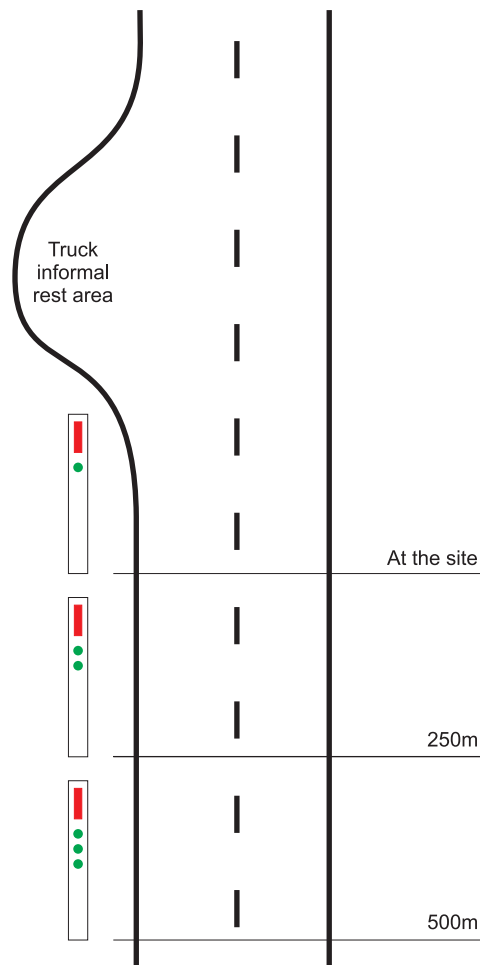
The approach to informal “3-2-1 Green Reflector” stopping places are denoted by a series of green reflectors placed on existing road edge guide posts.

It is important to consider the speed environment and the maximum vehicle size allowable on each particular road segment. As a minimum however, it is recommended that the first series of 3 reflectors is a minimum of 500m before the site itself in order to allow a safer stopping distance.

The system of marking sites begins with:

- **three** green reflectors mounted on a guide post at a minimum of 500 metres

- **two** green reflectors at a minimum of 250 metres
- **one** green reflector on the guide post immediately before the stopping place



Reflector Placement

The Green Reflectors should be placed in vertical position on the guide post below the existing reflector, spacing should be clear for the drivers to be able to differentiate the number of reflectors per post.

Site Condition Requirement

The site requirements for the informal stopping places, does not have to be similar to a formal stopping place or rest area. The site can be found as former stockpile sites that are inactive, which are located on roads that have lack of stopping areas for heavy vehicles.

The site of the informal heavy vehicle stopping place should:

- be flat, for easy access for heavy vehicles
- have no significant drop-off from the edge of bitumen of the highway to the entry/exit
- have a hard standing area sufficiently well formed and of a reasonable standard to allow heavy vehicles to stand without damage or bogging in normal conditions
- be long enough and wide enough to accommodate one parking space for the largest heavy vehicle using that route (refer to Austroads "standard design vehicles")
- allow a truck to park safely clear of the carriageway (road edge line)
- be such that the condition of the drainage system, road edge and embankment will not be detrimentally affected by heavy vehicle movements
- be relatively remote from properties so that noise, glare from headlights etc will not become an issue

- be sufficiently set back from roadside hazards such as gullies and drops in embankments to not prove to be an additional hazard to drivers, especially at night
- not be located at the base of hills, due to acceleration requirements of heavy vehicles.

Note: A disused road-base stockpile site may be a suitable location and some sites may be made suitable with only minor improvement work or previous “blue reflector” sites that meet the requirements and/or the assessment criteria.

Access to site

Appropriate sites should be easy to access with good shoulder formation and a relatively smooth transition between the highway's sealed edge and the site.

Sight Distance

There should be a minimum 200 metres sight distance to each marker, when undertaking the installation of these sites. A safe exit from the stopping area should be a minimum of 200 metres visual clearance, based on the largest vehicle traversing the road.

It is important that there is adequate sight distance both on the approach to the informal heavy vehicle stopping place to allow heavy vehicle drivers to see the entrance to the stopping place and whether it is occupied, and on the departure for drivers leaving the site to enter the road. Sites should not be located on curves/bends. and trees/shrubs should be trimmed where visibility is an issue.

Mainstream Traffic

The informal heavy vehicle stopping place is to be located where there is adequate sight distance for through traffic to see entering, parked and exiting vehicles.

Maintenance

High usage and heavy loads can cause damage to the surface condition of informal heavy vehicle stopping places. During routine maintenance inspections, the surface condition of the sites should be periodically checked.

Checks should also be made of the condition of the guide posts and reflectors to ensure they are in place, unobscured and that defective reflectors are replaced and dirty reflectors are cleaned.

Sample Assessment Criteria

A sample assessment criteria provided by Transport and Main Roads' South West Region in Appendix 1, outlining the necessary context to assess each of the selected sites for the trial month.

5 Future Planning and Potential

There is a possibility for these sites to be used for emergency purposes such as, pull over points for movements of a wide load within a narrow road corridor, turning area for heavy vehicles during unconditional weather.

Eventually, within reason these informal stopping sites could be upgraded as a formal rest area or stopping place with signage and proper facilities.

Upgrading of sites to ‘formal’ status

Where high usage is obvious and a need is identified consideration should be made of upgrading the site to a formal Rest Area or Stopping Place.

This will require:

- application of standards/guidelines applicable to the provision of Rest Areas and Stopping Places
- a commitment to undertake provision of improved access, facilities, or maintenance as required
- registration with Corporate Mapping for inclusion in the Guide to Queensland Roads.









6 References


1. NTC – National guidelines for the provision of rest area facilities
2. MRD Policy – Provision of roadside amenities
3. Roadside amenities strategy for Main Roads

4. MUTCD – Part 6 Service and Tourist signs
5. Austroads Guide – Part 2 Design considerations
6. Road Planning and Design manual (RPDM) - Chapter 13

Appendix 1: Sample assessment criteria

Sample assessment criteria - Appendix 1

Cunningham Highway (Ipswich to Goondiwindi) – (Eastbound)																	
Blue Reflector change to Green Reflectors																	
As at March 2012																	
Rd No	Chain	Side With Gazettal	Site	DCF Comments	Mini Safety Audit												Photo
					Minimum 200 m sight distance to each marker	Safe entry to stopping area (Not too sharp)	Minimum length 28 m without tapers	No significant edge drop off	Minimum width without tapers 8 m (From Edge Line)	Surface reasonably flat and firm in dry weather	Not already signed as a rest area or stopping bay.	No close residences	Safe exit from stopping area (Sight distance Min 200mtrs)	Not at the base or crest of hill	Not located on curve or bend	Not at private property e.g. (Servos, Road-houses)	
17C	3.85	RHS	Stockpile Site	Good. Green Reflectors installed on 5/3/12	√	√	√	√	√	√	√	√	√	√	√	√	
	21.01		Rogers Creek Stockpile site (LHS)	Good. Green Reflectors installed on 5/3/12	√	√	√	√	√	√	√	√	√	√	√	√	
	59.19		E/B – East of Gore (LHS)	Good. Green Reflectors installed on 5/3/12	√	√	√	√	√	√	√	√	√	√	√	√	
	65.6		(65.36) West of Gore (LHS)	Good. Green Reflectors installed on 5/3/12	√	√	√	√	√	√	√	√	√	√	√	√	
	71.89		East of Chain Ponds (LHS)	Good. Green Reflectors installed on 5/3/12	√	√	√	√	√	√	√	√	√	√	√	√	
	74.64		West of Chain ponds	Good. Green Reflectors installed on 6/3/12	√	√	√	√	√	√	√	√	√	√	√	√	
	79.17		East of Omanana (LHS)	Good. Green Reflectors installed on 6/3/12	√	√	√	√	√	√	√	√	√	√	√	√	
	105.67		East of Inglewood (3x RHS)	Good. Green Reflectors installed on 6/3/12	√	√	√	√	√	√	√	√	√	√	√	√	

Cunningham Highway (Ipswich to Goondiwindi) – (Eastbound) Blue Reflector change to Green Reflectors As at March 2012																		
Rd No	Chain	Side With Gazettal	Site	DCF Comments	Mini Safety Audit													Photo
					Minimum 200 m sight distance to each marker	Safe entry to stopping area (Not too sharp)	Minimum length 28 m without tapers	No significant edge drop off	Minimum width without tapers 8 m (From Edge Line)	Surface reasonably flat and firm in dry weather	Not already signed as a rest area or stopping bay.	No close residences	Safe exit from stopping area (Sight distance Min 200mtrs)	Not at the base or crest of hill	Not located on curve or bend	Not at private property e.g. (Servos, Road-houses)		
17D	37.29		Rest Area east of Yelarbon (RHS)	Good. Green Reflectors installed on 6/3/12	√	√	√	√	√	√	√	√	√	√	√	√		

Cunningham Highway (Ipswich to Goondiwindi) – Blue Reflector site assessment for proposed change to Green reflectors									
Rd No	West Bound	Site /Direction	Tags			Comments / Description Potential or existing sites	DCF Comments	Others Comments	
			3	2	1				
17C	21.01	Rogers Creek Stockpile site (LHS)	•	•	X	1 set of reflectors missing!	Good. Green Reflectors installed on 5/3/12		
	65.6	(65.36) West of Gore (LHS)	•	X	X	2 sets of reflectors missing!	Good. Green Reflectors installed on 5/3/12		
	71.89	East of Chain Ponds (LHS)	X	•	•	1 set of reflectors missing!	Good. Green Reflectors installed on 5/3/12		
	74.64	West of Chain ponds	2.5 •	X	•	2 sets of reflectors missing/part missing!	Good. Green Reflectors installed on 6/3/12		
	79.17	East of Omanana (LHS)	X	X	•	2 sets of reflectors missing!	Good. Green Reflectors installed on 6/3/12		

Glossary

E/B = Eastbound (Goondiwindi to Ipswich)

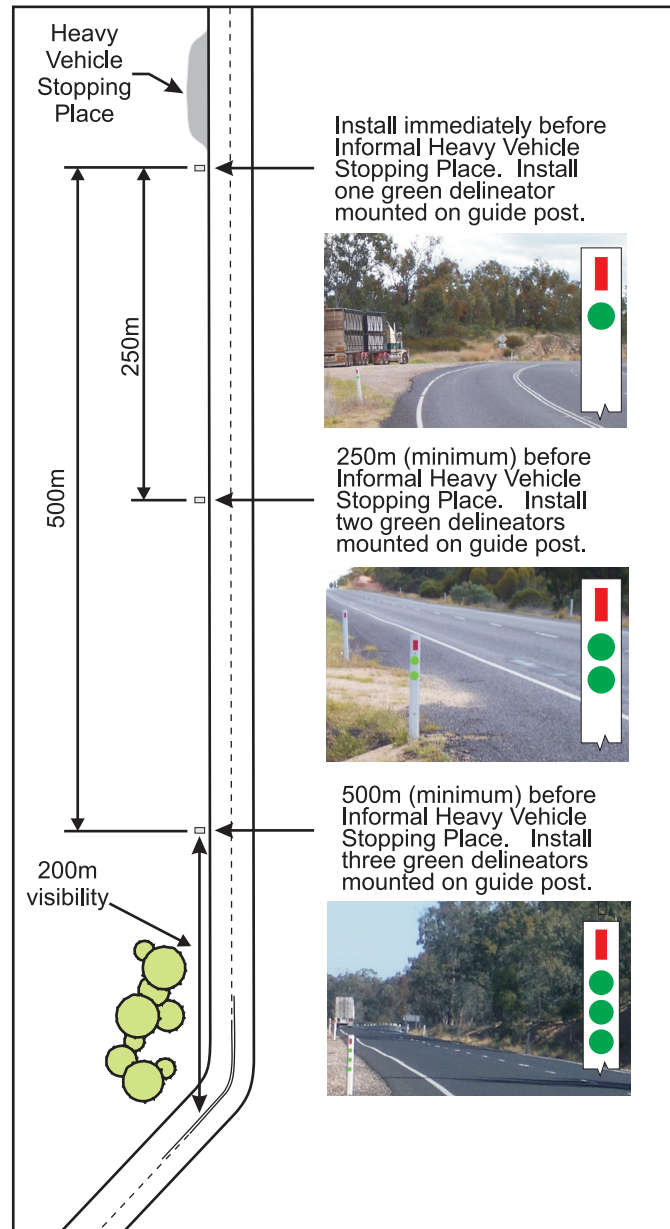
W/B = Westbound (Ipswich to Goondiwindi)

Sites marked in Blue = Mapped Blue Reflector Sites (Ref to Blue Delineator Sites – Border District 2006 Map)

Other Sites = Sites identified as potential Green Reflector Sites for informal HV Stopping Places

X = no Blue Reflectors at positions 3,2 or 1 on guide posts leading up to informal sites.

Appendix 2: Introduction of “3-2-1 Green Delineator”



In 2007, Department of Transport and Main Roads (TMR) worked with industry to successfully introduce the “3-2-1 Blue Delineator”. These blue reflectors are used to identify informal heavy vehicle stopping places along state-controlled roads and have become an important supplement to TMR’s formal Rest Area network.

After implementation however, Fire Authorities expressed concerns about the use of blue reflectors, as blue is the colour being used to identify the location of fire fighting water sources. As a result, it has now been decided to change to a new national standard of green.

In 2011, TMR ran a trial of green reflectors and after industry consultation, they were found to be easy to see in all weather conditions.

The purpose of green reflectors is to indicate to heavy vehicle drivers that a stopping place is a short distance ahead. They are intended to provide drivers with enough warning so they may stop safely if they wish to use the site.

It is important to remember however that these sites are informal and not part of the TMR Rest Area or Stopping Bay network. While they may be suitable for some vehicles to stop, check loads or if necessary take short term rests, they may not be suitable for all vehicle types, and are unsealed and therefore likely to be unavailable in wet weather.

Green reflectors may be either circular or rectangular in shape, and will be placed on roadside guideposts underneath standard red reflectors.

New green reflectors are currently located along the Cunningham Highway and will be rolled out across rural Queensland, gradually replacing existing blue reflector sites.

Drivers are encouraged to use informal sites responsibly, and wherever possible access formal Rest Areas or stopping places as a preference.

For further information email freight@tmr.qld.gov.au

