Relationship with Austroads Guide to Road Design – Part 6B (2009)

The Department of Transport and Main Roads has, in principle, agreed to adopt the standards published in the *Austroads Guide to Road Design (2009) Part 6B: Roadside Environment*.

When reference is made to other parts of the *Austroads Guide to Road Design* or the *Austroads Guide to Traffic Management*, the reader should also refer to Transport and Main Roads related manuals:

- *Road Planning and Design Manual*
- *Traffic and Road Use Management Manual*.

Where a section does not appear in the body of this supplement, the *Austroads Guide to Road Design – Part 6B* criteria is accepted unamended.

This supplement:

- has precedence over the *Austroads Guide to Road Design – Part 6B* when applied in Queensland
- details additional requirements, including *accepted with amendments* (additions or differences), *new or not accepted*
- has the same structure (section numbering, headings and contents) as *Austroads Guide to Road Design – Part 6B*.

The following table summarises the relationship between the *Austroads Guide to Road Design – Part 6B* and this supplement using the following criteria:

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<td>Appendix A  Examples of post selection charts and sign support gantries</td>
<td>Accepted</td>
</tr>
</tbody>
</table>
1 Introduction

1.2 Scope of this part

Additions

This part of the Road Planning and Design Manual includes details for heavy vehicle interception sites, Queensland Police Service (QPS) enforcement bays, and multi-combination vehicle decoupling sites.

Guidance on the use of values outside of the design domain (Normal and Extended) should be undertaken in accordance with this document and the Transport and Main Roads Guidelines for Road Design on Brownfield Sites.

2 Environmental aspects

2.2.2 Fauna crossings

Additions

In addition, designers should refer to the Transport and Main Roads Fauna Sensitive Road Design Manual.

Where a road design includes barriers and/or noise fencing, the likelihood of fauna crossing the road should be considered. The design should recognise that concrete safety barriers and noise barrier fencing do not allow passage of terrestrial fauna across the road.

2.3.3 Noise barriers

Additions

Designers should also refer to the Transport and Main Roads publications Technical Specification MRTS15 Noise Fences, and the Transport Noise Management Code of Practice.

3 Roadside amenity

3.3 Landscaping

Additions

Details on the department’s requirements on landscaping are outlined in the Transport and Main Roads Road Landscape Manual.

3.3.2 Safety

Additions

The design of landscaping must also consider the practice of “Crime Prevention through Environmental Design” as described in the Transport and Main Roads Road Landscape Manual.

3.3.4 Landscaping specific situations

Additions

Medians and splitter islands

Planting within medians can also:

• help prevent U-turns in locations where a safety barrier is not present.
3.4 Rest facilities

Additions

The information in Section 3.4 of Austroads Guide to Road Design - Part 6B is accepted as providing an overview of the issues relating to rest facilities. Additional design guidance is provided in this supplement. The Transport and Main Roads Rest Areas and Stopping Places – Location, Design and Facilities is also to be referred to for practice applicable in Queensland.

3.4.1 Need for rest facilities

Additions

Refer to the Transport and Main Roads Rest Areas and Stopping Places – Location, Design and Facilities for further details on the need for rest facilities.

3.4.2 Road design considerations for rest areas and service centres

Differences

The rest area categories (major rest areas, minor rest areas, truck parking areas and motorist stopping places) described in this section of Austroads Guide to Road Design - Part 6B are replaced with the definitions contained in the Transport and Main Roads Rest Areas and Stopping Places – Location, Design and Facilities for:

- Formal rest area network:
  - rest areas (types A, B and C for both light and heavy vehicle categories)
  - driver reviver sites
  - stopping places.

- Informal rest opportunities:
  - interception sites
  - informal heavy vehicle stopping places.

- Commercial rest opportunities

- Towns as rest opportunities

Additions

The information in Section 3.4.2 of Austroads Guide to Road Design - Part 6B is accepted as providing an overview of the issues relating to road design consideration for rest facilities. The following guidance should be applied for the road design considerations for rest areas and service centres in Queensland.

The design of every rest area will have a particular set of requirements defined by its location, road type and usage, and many other local requirements. The importance of the knowledge and experience of local Transport and Main Roads officers, industry, and road users cannot be overstated, and each area should be carefully considered and include appropriate consultation to ensure all needs are met.
Access and egress must accommodate the traffic likely to use a site and must provide an adequate level of safety for vehicles entering or leaving the rest area. The application and requirements will vary from site to site and should consider at least the following:

- **Access arrangement (turning movements)**
  - On all dual carriageway roads:
    - Accesses to the rest area are to be restricted to left in/left out access for all road users.
    - Rest area facilities should be duplicated (one rest area on each side of the road). Pairs of rest areas do not have to be directly opposite each other and in some cases may be staggered to achieve improved safety outcomes.
    - Where duplication is not possible, appropriate intersection design should be applied as per the Volume 3, Parts 4, 4A, 4B and 4C of this *Road Planning and Design Manual*.
  - On single carriageway roads:
    - The need for duplication of rest area sites is dependent on the volume of traffic and the type of vehicles using the route and the availability of safe right turn opportunities into and out of the site.
    - Where vehicles would have difficulty crossing into a rest area or movements across a road would interfere with the normal flow of traffic causing safety concerns, the need for duplication is increased. Duplication of sites may also reduce the need for safety treatments such as protected right turn lanes on the road itself, and can be an economical solution.
    - A ‘left-in left-out’ design, duplicated on both sides of a road, has the potential to provide surety of safety through the minimisation of turning manoeuvres by large vehicles and provide more space for drivers without excessive costs in associated road works.
  - Acceleration and deceleration lanes – where required, adequate acceleration and deceleration lanes should be provided at the exit and entrance of rest areas as per Volume 3, Part 4A of this *Road Planning and Design Manual*. Locating rest areas at the top of crests assist in reducing the need for and length of these lanes.

- **Access to service centres**
  - Direct access to a motorway or grade separated highway is preferred over indirect access due to the potential heavy traffic flows on interchange ramps. The location of service centres must consider the minimum spacing between adjacent ramps as detailed in Volume 3, Part 4C of this *Road Planning and Design Manual*. For an otherwise high class proposal, consideration may be given to a reduction in this distance provided expert traffic engineering analysis can demonstrate adequate safety and operational performance.
  - Indirect accesses at interchanges may be permitted, but will require expert traffic engineering analysis of the impact on the operation and safety of the ramps and intersections involved. Such access is not preferred because it is not as easy for drivers to stop. Indirect access will be considered where alternatives are not available, or the site and development proposal clearly offers the best solution in all other respects.
- Grade (of the road at the rest area location) – heavy vehicle drivers prefer rest areas located at tops of hills with up-grade access into the rest area and a down-grade exit. Uphill exits are undesirable for trucks and may lead to trucks stopping on the road shoulder nearby, instead of using the rest area.

- Topography – locations in deep gullies, rolling hills or high cuttings should be considered inappropriate when selecting rest area sites due to difficulties in addressing requirements for grade, access arrangements and internal rest area grades.

- Design vehicle – the ingress and egress to each rest area should be suitable for the largest combination vehicle utilising the route. The design and check vehicle appropriate for the route should be adopted for the design of access and egress from rest areas.

- Sealed access – access into the rest area should be sealed to enable safe entry and exit. On unsealed roads, access points should conform to the conditions of the roadway. The access and egress should be designed to ensure that maintenance issues resulting in rough or damaged access points are avoided to prevent difficulty for vehicles entering and exiting the site and safety concerns for the drivers and other road users.

_Motorist stopping places_

The signage arrangements for motorist and heavy vehicle roadside stopping places are shown in the Transport and Main Roads Traffic Control Sign TC1112.

Typical dimensions for passenger vehicle and heavy vehicle stopping places are shown in Figures 6B-1 and 6B-2.

**Figure 6B-1 – Passenger vehicle stopping place typical dimensions**
3.4.3 Siting of service centres and rest areas

**Additions**

Refer to the Transport and Main Roads *Rest Areas and Stopping Places – Location, Design and Facilities* for further details on the siting of service centres and rest areas.

Methods for providing rest areas in an economical manner includes:

- Use of segments of old road alignments that would otherwise not be utilised. These segments can be used to create a large and long heavy vehicle rest area at a significantly reduced cost. The realignment of an existing road should consider the opportunities to use redundant sections of road alignment as rest areas.
- Co-placement of rest areas with commercial operations such as service stations.
- Location of rest areas within towns.

3.4.4 Design of service centres and rest areas

**Differences**

Figure 3.4 in *Austroads Guide to Road Design - Part 6B* which is an illustration of a rest area layout is not to be used. Instead the sample layouts in Transport and Main Roads *Rest Areas and Stopping Places – Location, Design and Facilities* should be consulted.

**Additions**

In addition to the requirements in *Austroads Guide to Road Design - Part 6B* the design of services centres and rest areas should include consideration of the following.

The design of rest areas should be prepared in coordination with urban design, landscape and environmental design disciplines to ensure the integration of all the various elements of the design. As any rest area could potentially be considered part of the commercial driver’s work area, therefore workplace health and safety considerations may apply. It is therefore essential that rest areas allow activities that commercial vehicle drivers may be required to undertake in a safe manner.
The design guidance contained in this section does not apply to decoupling sites or sites where freight related activities occur and these sites should be clearly separated from rest areas.

The internal design of every rest area will vary dependant on its location, road type and usage, and many other local requirements. The importance of the knowledge and experience of local departmental officers, industry, and road users cannot be overstated, and each area should be carefully considered and include appropriate consultation to ensure all needs are met.

Proposed layout

The design of a rest area will be strongly influenced by the local conditions and the route on which it is placed. There is no single ‘template’ design for rest areas, however there are common features. The most important consideration when designing a rest area is to ensure safety of movement within the site and to minimise potential conflicts between vehicle and pedestrian movements.

The design of parking areas within the rest area should allow for the following:

- The provision of a combined motorist and heavy vehicle rest area is sometimes appropriate to allow greater use of shared amenities and greater economies of scale. Motorists and heavy vehicle rest area users can share the facilities in combined rest areas.
- In combined rest areas, heavy vehicle parking spaces should be separated from other vehicles to prevent traffic conflict during manoeuvring. The separation of motorist and heavy vehicle parking spaces reduces disturbance of heavy vehicle drivers’ rest by holiday or other travellers. Landscaped areas or sound absorbing walls can be used for separation.
- Heavy vehicle bays are to be designed as ‘front-to-rear’ or ‘nose-to-tail’ parking. This allows heavy vehicles of various sizes to make the best use of the space available and also provides easy manoeuvring in the rest area. It is also the most effective design layout for achieving effective rest as it minimises in-cabin noise impacts for drivers when using their sleeper cabs.
- Separate the heavy vehicle parking area into different parking areas for short term and long term heavy vehicle parking to minimise disturbance to those who require long rest breaks.
- Allow for the use of all expected vehicle types, and where possible separate them within the rest area.
- Provide an adequate number of larger and longer bays for caravans and recreational vehicles.
- When providing heavy vehicle spaces in rest areas, allow for the design and check vehicles for the route (refer to Volume 3, Part 4 of this RPDM for a description of the design and check vehicles).

Rest area safety

Rest areas should be designed to ensure the safe movement of all users potentially accessing the site. Internal movements should be managed or directed to ensure they are at a safe level and that the potential for conflict between all users is minimised.

Interaction between vehicles and pedestrians, in particular when accessing facilities provided, should be minimised, and any necessary interaction should occur at a very low speed.
When deciding on placement of facilities and parking bays in dual-use areas there is potential for very large trucks and pedestrians (including children) to interact. When designing for pedestrian/vehicle interactions, the following should be considered:

- parking areas should be located immediately adjacent to facilities
- access roadways should not be located between facilities and car parking areas
- roadways designed for vehicle acceleration or deceleration between the highway and the rest areas should not intersect with a location or path a pedestrian is likely to utilise
- clear lines of sight, particularly around facilities and pedestrian access points, should be achieved
- at very large or busy facilities it may be necessary to implement formal pedestrian facilities (marked crossings, etc.) in accordance with Volume 3, Part 4 of this RPDM.

**Surface grade**

A level surface in a rest area is desirable. Long distance drivers who take long rest breaks need a level place to enable effective sleeping within the vehicle or heavy vehicle cabin.

**Safe movement within the site**

The circulation of vehicles in the rest area should minimise internal traffic conflicts. For example, good rest area layout design should ensure uni-directional flow of vehicles entering, parking and exiting the rest area. Rest areas should be designed so that reverse manoeuvring of heavy vehicles is not required.

The layout should ensure that the design vehicles can negotiate the rest area without being impeded by other parked vehicles.

**Separation of vehicle types**

Separation of vehicle types should be considered where interactions between them could have safety implications. As a rule, motorists should be separated from heavy vehicles wherever possible, particularly in highly trafficked areas where vehicle interactions may be intensified. This is particularly important in areas where children may have access to areas in which heavy vehicle manoeuvres might occur.

Even amongst heavy vehicles, livestock and refrigerated vehicles are known to cause disturbance to drivers of other vehicle types, and where possible and practicable, should be provided with separated areas to park so as to minimise noise related impacts on other drivers attempting to achieve effective rest.

Dangerous goods vehicles may also need to be considered on routes where these vehicles are common. Due to safety requirements they may not be able to stop at the same rest area as other heavy vehicles. For example, an explosives vehicle must not stop near a fuel tanker, and will need to proceed to the next available rest area, or a dangerous goods vehicle must not park within 15 meters of a building or a concentration of people, and is also restricted to eight meters from another vehicle which is a placard load. This may be particularly important on significant freight routes which are known to support mining operations which require significant numbers of this type of movement.
In addition, if the route is a tourist route, consideration of a separated area for use by light vehicles camping overnight and other motorists. Noise impacts from short-stay motorists, particularly children can impact on the fatigue management benefits of the rest area.

Where vehicle mix is an issue, clear line marking and signage should be erected to direct vehicles to an appropriate area within the site.

*Amenity*

A landscape buffer zone is essential to separate the road from the rest area and provide a more restful space. Seven or eight metres is a desirable minimum width for this zone however this may not be achievable in situations with limited corridor space. This must be balanced with the need, for safety purposes, that the rest area should not be hidden from view. To provide a perception of security it should be laid out so it can be seen from the road. Ground cover combined with clear trunk trees can help provide both views and a feeling of separation.

As an absolute minimum where a nature strip is not possible, separation should be clearly indicated by adequate and visible line-marking, and fencing if appropriate for safety.

*Pavement*

The pavement within the rest area should be designed to cater for the largest and heaviest vehicles that are anticipated to utilise the site and of sufficient quality to remain accessible in all weather conditions.

*Facilities*

In combined rest areas, amenities should be located within convenient access to both motorist and heavy vehicle drivers and passengers. For example, toilets should be located between the motorist and heavy vehicle parking areas or at a location that does not require motorists to enter the heavy vehicle parking area of the site.

The following table defines the desired standards and facilities for each rest area type. The selection of a rest area type is described in Transport and Main Roads Rest Areas and Stopping Places – Location, Design and Facilities.

**Table 6B-1 – Rest area standards and facilities**

<table>
<thead>
<tr>
<th></th>
<th>Heavy Vehicle</th>
<th>Motorist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type A</td>
<td>Type B</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(for largest vehicle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>permitted on route)</td>
<td>Large: 15+ bays (&gt;1000 HV AADT)</td>
<td>Large: 20+ bays (&gt;10000 AADT)</td>
</tr>
<tr>
<td></td>
<td>Medium: 10-15 bays (500 – 1000 HV AADT)</td>
<td>Medium: 10-20 bays (1000 – 10000 AADT)</td>
</tr>
<tr>
<td></td>
<td>Small: 5-10 bays (&lt;500 HV AADT)</td>
<td>Small: 5-10 bays (&lt;1000 AADT)</td>
</tr>
<tr>
<td><strong>All weather seal</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Separation for</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>vehicle types</strong></td>
<td>Yes</td>
<td>Desirable</td>
</tr>
<tr>
<td><strong>Separation for long</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>term/short term</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>visitors</strong></td>
<td>Yes</td>
<td>Desirable</td>
</tr>
<tr>
<td><strong>Bins</strong>(1)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Natural</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Shade/trees</strong>(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(where available)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Tables/chairs(3)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>------------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Shelters/Artificial Shade</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Lighting(4)</td>
<td>Yes</td>
<td>Desirable</td>
</tr>
<tr>
<td>Toilets(5) and Water Supply(6)</td>
<td>Yes</td>
<td>Desirable</td>
</tr>
<tr>
<td>Separation from road</td>
<td>Well separated and screened with vegetation mounding, barrier, etc.</td>
<td>Separated and screened where possible</td>
</tr>
<tr>
<td>On-Road Signage</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>BBQ</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Playground</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Private Camping allowed (20 hr max)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Caravan dump point provided</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Notes:

1. Appropriately sized bins (preferably with lids) should be clearly visible, easily accessible and serviced regularly.
2. Wherever possible the maximum number of natural shade trees should be provided. Where these cannot be retained during construction works, replacement of shade trees is required. This is particularly important in hotter western areas of Queensland, and at heavy vehicle rest areas where larger, taller trees ensure drivers can rest comfortably over longer periods of time when they have no access to air conditioning.
3. Tables, chairs and shelters. A standard six-seater ‘BBQ-style’ table/chair set covered by a solid roof providing shelter from both sun and rain is the minimum standard required for all rest areas. The number and size of shelters is dependent on expected usage of the rest area. Where natural shade is not available, it is important to provide larger areas of artificial shade that is available at all times of day, and shade-providing walls may be required for shelters where trees are not available.
4. Lighting - lighting is useful to enhance personal safety of rest area users. Not only will lighting aid security to those using the site, but it will act as a beacon to improve the visibility of the rest area from the road. This will promote its use and also improve the perceived safety of users as they know they are visible to passers-by. Lower level lighting should be provided in designated parking areas to allow drivers the opportunity to take long sleep breaks.
5. Toilets – where sewers are located in close proximity to the rest area, toilets should be connected to the sewerage system. Where a sewer is not available, the selection of toilet type and toilet designs requires knowledge of estimated rest area usage. Composting toilets should not be used for high volume roads where rest area usage is significant. Septic tank systems and aerated wastewater treatment system (AWTS) can be installed to treat wastewater to the required level of effluent quality for discharge. Attention must be given for sensitive land use if effluent needs to be discharged for land applications.
Toilet designs should be simple, durable and vandal resistant to enable easy maintenance and minimise the whole of life cost. The selection and design of rest area toilets should take into consideration the ongoing maintenance of the facility required. Ventilated toilet designs should be used to minimise odour problems. The roof of a toilet structure can be designed such that it maximises natural lighting for energy savings and provides good ventilation.

6. Water supply - if town water is available at the rest area site, it should be provided for use. Potable water should be provided where practicable for hand washing, with appropriate signage used where the water is not suitable for drinking. As a preferred minimum standard, a tank should be supplied where there is capacity to collect water, for example where a shelter-shed is provided.

Animal welfare requirements

There may be a need to consider whether access to animal spelling yards will be required in order for drivers to meet not only their own fatigue management requirements, but also the welfare requirements of the animals they are transporting.

Safety and crime prevention through design

The design of safe built environments improves safety and security in rest areas. The site layout design should allow for easy identification of pedestrian corridors and destinations, establish clear sightlines through sensitive location of site features, and maximise the opportunities for natural light and pathways illuminated by lighting at night. A clear sight distance provides a perception of safety and adequate space.

Environmental impacts

Rest areas should be designed to minimise environmental impacts. Particularly in rural and remote areas, the use of composting toilet facilities and solar lighting should be considered. Grass swales or vegetative strips between the rest area and roadway may be used to provide natural stormwater treatment for runoff from the road or rest area. The environmental assessment and design of a rest area should be undertaken in accordance with the Transport and Main Roads Environmental Processes Manual.

Landscape design

Landscaping and provision of trees and plants should be considered early in the design of rest areas to ensure adequate shade provision, protection from noise, and screening from traffic on adjacent roads. For rest areas that are located close to highly trafficked roads, noise mounds planted with trees and medium height shrubs may aid to screen out noise generated from road traffic. The Landscape design of a rest area should be undertaken in accordance with the Transport and Main Roads Road Landscape Manual.

Noise Impacts

Impacts due to noise should be a strong consideration in the design of heavy vehicle rest areas in order to ensure:

- heavy vehicle drivers are provided the best opportunities available to achieve optimum rest or sleep, and
- that nearby properties are not exposed to excessive noise generated due to heavy vehicle movements or from equipment such as refrigeration units.
The physical design of a rest area can have significant noise impacts on users of the area. Designs where vehicles bays are configured in a side-by-side format can be more efficient in the use of space, and therefore less expensive to construct. However they produce less desirable outcomes for fatigue management as the noise generated by vehicles starting and stopping in close proximity to each other (in particular close to the cabin of sleeping drivers in adjacent bays), can cause sleep disturbance.

Nose-to-tail configurations produce less noise impacts for drivers, and are generally preferred by industry, as there are generally less ‘peak’ noise events (stopping, starting, etc.) occurring immediately adjacent to the cab of a resting driver. It is important when considering nose-to-tail configurations, to also determine appropriate lead-in and lead-out distances between bays. This may significantly increase the required length of a rest area, although the desired rest outcomes will be improved.

Trees and shrubbery can be an effective way of providing noise-dampening within a rest area, and the retention of screening vegetation is highly recommended throughout the site and between the roadway and the rest area proper. For further details regarding the noise impacts of rest areas designers should refer to the Transport and Main Roads Transport Noise Management Code of Practice.

Network Resiliency

Rest areas in Queensland can also play an important role in ensuring resiliency of the road network in the event of extreme weather conditions. Additional considerations that should be taken into account in the design of a rest area include.

- Rest areas should be accessible during all weather conditions affecting the road which they service. Generally this means they should be sealed wherever possible and located where they will remain available during localised flooding.
- The rest area design should consider allowing the design vehicle to perform a ‘U-turn’ movement, either within the rest area, or in a controlled movement utilising the roadway, in order to return in the former direction of travel.
- Where appropriate, rest areas should be designed and built to support potential emergency management operations that may occur in the local area. These may include responses to flooding, fires, or other significant events which cause the closure of roads. The design may need to accommodate:
  - the need to safely hold an expected number of vehicles that may need to stop and wait in the area
  - to provide sites where emergency services can establish local coordination or support centres if required, including use of the site as a supply distribution point for communities cut off during emergency events.

3.4.5 Signage

Differences

In Queensland, the signage for rest areas should be provided in accordance with the Transport and Main Roads Manual of Uniform Traffic Control Devices - Part 6 Tourist and Services Signs. In addition, Transport and Main Roads Rest Areas and Stopping Places – Location, Design and Facilities provides details on the required signs and examples of the use of signage for rest areas.
3.5 **Roadside vending sites**

There is no equivalent Section 3.5 in *Austroads Guide to Road Design – Part 6B*.

*New*

Roadside vending involves the selling of articles either directly or from a stall or standing vehicle on a road. The selling of goods and services in this way is potentially dangerous, as vehicles may suddenly swerve or stop, creating unsafe situations with moving traffic.

Stalls on private land adjacent to the road will potentially attract the same approval conditions as roadside vending sites within the road reserve, because of the possible impact on traffic safety.

Transport and Main Roads “Guideline Roadside Vending on State-controlled Roads”, “Roadside vending on State-controlled Roads Fact Sheet” and “Roadside Vending on State-controlled Roads Technical Assessment Guide” detail the assessment process.

3.6 **Heavy vehicle interception sites**

There is no equivalent Section 3.6 in *Austroads Guide to Road Design – Part 6B*.

*New*

Heavy vehicle interception sites are designed to provide a safe area outside the road carriageway for weighing and inspecting heavy vehicles. They may also be used for a range of other purposes including:

- inspecting other vehicles
- undertaking other enforcement activities by Police or other authorised officials
- motorist use for short stops to inspect their own vehicles (provided the site is not being used for official purposes), and
- emergency vehicles use as required.

The department is currently in the process of developing a guide for the design of heavy vehicle interception sites in consultation with industry. Once finalised, this guidance will be published in this section. For design guidance in the interim, advice should be sought from the Manager (Traffic Surveys and Data Management).

3.7 **Queensland Police Service (QPS) enforcement bays**

There is no equivalent Section 3.7 in *Austroads Guide to Road Design – Part 6B*.

*New*

Police enforcement activities may occur at a range of locations along a route including at rest areas and heavy vehicle interception sites. In addition, police activities may be focused at other locations along a route for alcohol and drug testing and other traffic offences.

Discussions with the Queensland Police Service have identified the following requirements for the safe use of a site for police operations:

- At minimum 1.0 m police operating area around all sides of the target vehicle (on which enforcement is undertaken) with all vehicle doors in the open position. On the side furthest from the road, this operating space is not to include batter slopes or areas behind barriers.
- A 3.0 m clear space between the police operating area and the edge of the nearest lane of traffic.
- The police vehicle will be located one full car length behind the target vehicle and offset half a car width closer to the road. This position allows the police vehicle to quickly re-enter the road if required.
- Allowance should be made for an additional target or parked vehicle at the site.

These requirements therefore require that the police enforcement interception site should measure approximately 25 m long by 9 m wide as shown in Figure 6B-3.

The access and egress from these sites should be designed in accordance with the requirements for rest areas.

The need for incorporating the provision of these sites in road upgrade projects should be determined in consultation with the relevant departmental office and the QPS.

Figure 6B-3 – QPS enforcement bay requirements

3.8 **De-coupling pads**

There is no equivalent Section 3.8 in *Austroads Guide to Road Design – Part 6B*.

*New*

De-coupling pads are designed to allow multi-combination vehicles to be broken up/combined to meet the approved routes as defined by the department and the National Heavy Vehicle Regulator.

The department is currently in the process of developing a guide for the design of multi-combination vehicle de-coupling sites in consultation with industry. Once finalised, this guidance will be published in this section.
4 Roadside infrastructure

4.1.2 Signs, markings and delineation

Additions

In addition details with regards to signs marking and delineation are contained within the Transport and Main Roads *Manual of Uniform Traffic Control Devices*.

Guide posts

Also refer to the Transport and Main Roads’ Standard Drawings:

- Road edge guide posts
- Flood depth indicators.

4.1.3 Poles

Additions

Also refer to Transport and Main Roads:

- *Design Guide for Roadside Signs*, and
- Standard Drawings.

Selection and positioning

In urban areas on kerbed roads, poles should be placed as far behind the kerb as possible. Where possible, poles should be placed on the property side of any footpath rather than the past practice of just behind the kerb.

Non-yielding poles without barrier protection should not be erected at locations where they may be more vulnerable such as the following:

- adjacent to horizontal curves with a speed value less than 80% of the 85th percentile speed of the element
- on most traffic islands (particularly small ones) at intersections
- on narrow medians
- adjacent to road pavements that may become slippery under adverse conditions, and
- in gore areas adjacent to off ramps (poles in gore areas should be avoided).

If a road safety barrier is required to shield a pole, adequate clearance, commensurate with the barrier type, between the sign supports and the barrier must be provided.

4.1.5 Supports for road signs

Additions

Supports for road signs must be designed in accordance with the Transport and Main Roads *Design Guide for Roadside Signs* and Transport and Main Roads’ Standard Drawings. The post sizes for signs requiring multiple supports will often be of a size that should be made breakaway.
4.1.6 Fences

*Additions*

Fencing requirements should be determined by a risk assessment taking into consideration the impacts on all road corridor users.

Particular attention should be given to the height and placement of a fence, and to the material used in its construction so as to minimise the potential sight obstruction between all road users such as drivers, cyclists and pedestrians.

Inappropriate use of a fence near parking bays may prevent occupants from leaving a vehicle parked close to it.

*Specific uses of fences and design considerations*

The following is to be added to Table 4.1 of *Austroads Guide to Road Design - Part 6B*.

<table>
<thead>
<tr>
<th>Use</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermin and dog fences</td>
<td>Vermin and dog fences are required to prevent the spread of vermin and wild dogs and are to be erected as required by the Department of Agriculture and Fisheries.</td>
</tr>
</tbody>
</table>

The height of fence will depend on its function and the potential hazards involved. A 1.2 m fence is usually required along the right of way unless other arrangements are made with property owners. Where security fencing is required, or it is important to discourage pedestrian access, a 1.8 m high fence is required.

Fences are generally the responsibility of the property owner unless resumption has occurred in which case replacement of the fencing is undertaken as accommodation works. Security fencing is the responsibility of Transport and Main Roads.

Fencing with horizontal rails must not be used within the clear zone or in any location where there is the possibility of impalement.

If fencing is located behind a barrier, adequate clearance between the fence and the barrier should be provided dependant on the barrier type and the expected deflection of the barrier in the event of a crash.

*Stock grids*

In Queensland “stock grids” are known as “motor grids”.

If the AADT exceed 700, grids are not suitable and the road should be fenced to ensure adequate safety for the traffic.

Full design details are included in Transport and Main Roads Standard Drawings.

4.2 Road lighting

*Difference*

The design of lighting in Queensland is to be undertaken in accordance with Volume 6 of this *Road Planning and Design Manual*. 
4.3.1 General

Additions

The design and planning of emergency/help phones should be undertaken in accordance with this section and the following Transport and Main Roads documents:

- Engineering Policy 149 Managed Motorways

4.4.1 Introduction

Additions

In addition to on-street parking which is addressed in Volume 3, Part 3 of this Road Planning and Design Manual, and off-street parking which is addressed in this section, parking may also be provided in the verge area of a road. This latter form of parking provision is not addressed in the existing documentation in the Austroads Guide to Road Design. A new Section 4.4.9 has therefore been included in this document to address this topic.

Verge and indented parking is typically provided between the kerb line and property boundary, and can be a cost effective retrofit measure to relocate parking from the road pavement to the verge in order to make space for other use of the road space (such as on-road bicycle lanes).

4.4.5 Car parking area layout design

Additions

Parking areas

The design of parking areas must also consider the practice of “Crime Prevention through Environmental Design” (CPTED) as described in the Transport and Main Roads Road Landscape Manual. Specific measures for parking areas that may be considered include:

- Avoiding obstructions to sight lines and avoiding potential entrapment spots by:
  - eliminating dense bushes, solid fences or advertisements that obscure the view
  - eliminating unnecessary buildings or sheds (that is hiding places)
  - maximising sight lines from the entrances/exits to the various parts of the area, and
  - using low fences and low growing shrubs as the boundaries of the area.

- Enhancing natural surveillance by:
  - locating the area to take advantage of buildings with windows overlooking the area
  - taking advantage of adjacent or nearby business premises or houses so that the occupants can see the area
  - maintaining landscaping to prevent it obscuring the view of the area, and
  - using “see-through” fences rather than solid walls as boundaries.

- Providing lighting such as:
  - a person can see into the back seat of a vehicle before entering it
lighting is uniform to avoid deep shadows, and
designing to provide more fixtures with lower wattage to obtain better uniformity (and the lighting level should enable a person with normal vision to identify a face from a distance of 15 m).

4.4.9 Verge and indented parking design

There is no equivalent Section 4.4.9 in Austroads Guide to Road Design – Part 6B.

New

Verge and indented parking can be a cost effective measure for providing parking in areas where on-street parking cannot be retained.

Verge parking involves provision of a hard stand treatment on the verge such as paving or concrete to allow vehicle to park safely in the verge without disrupting pedestrian movement and other functions of the verge. An example of verge parking is shown in Figure 6B-4.

Indented parking is similar but involves providing car parking in the verge at the same level as the road pavement. This therefore requires changes to the kerb line to achieve and is more suitable to locations with heavier parking demand and medium to high volumes of cyclists due to its higher costs and impacts on existing infrastructure. An example of indented parking is shown in Figure 6B-5.

The key design considerations are:

- Maintaining appropriate residual width on the verge for pedestrians.
- Impact on sightlines for vehicles at intersections and property access.
- Clearance between the rear of the verge parking bay and pedestrian pathway considering vehicle manoeuvring and overhangs, door opening and the potential for non-compliant parking across the pedestrian facilities.
- Clearance on the road side of parked vehicles still needs to provide a minimum of 1 m clearance for cyclists to the “car door zone”.
- Indented parking also requires consideration of stormwater drainage surface flow within the bay. Inverted cross fall to the indented bays may be beneficial to minimise impacts to drainage infrastructure.
- Landscaping, and
- Potential conflicts with public utility plant, street furniture, roadside safety/noise barriers, property access locations, and landscaping requirements within the verge.

The recommended design elements for verge parking are as follows:

- 2.0 m minimum width of the parking bay but desirably 2.1 to 2.8 m to allow for variations in vehicle proximity to the left edge of the bay.
- 5.4 m minimum verge width to maintain pedestrian access. This may be narrowed to 4.5 m in local residential streets.
- Pavement type to be sufficient to maintain structural integrity for design vehicle.
- Kerb to be semi-mountable or mountable.
- Signage to be installed as per the requirements of the Transport and Main Roads *Manual of Uniform Traffic Control Devices – Part 11: Parking controls*.

**Figure 6B-4 – Examples of verge car parking**

Source: reproduced with permission from Brick n Pave

Source: Transport and Main Roads
Figure 6B-5 – Examples of indented car parking

Source: Transport and Main Roads
4.6 Intelligent transport system infrastructure

There is no equivalent Section 4.6 in *Austroads Guide to Road Design – Part 6B*.

New

The incorporation of ITS infrastructure in the roadside environment is now commonplace. There is a wide range of ITS infrastructure elements in use which are discussed in Volume 5 of this *Road Planning and Design Manual*.

Due to the often critical nature and cost of this infrastructure, road design needs to take into consideration the following specific elements associated with ITS design.

- protection (barriers) of non-frangible and/or high value ITS infrastructure
- use of frangible ITS infrastructure where barrier protection cannot be provided and/or ITS infrastructure is of lower value
- provision of access for maintenance activities.
References

Transport and Main Roads publication references refer to the latest published document on the departmental website (www.tmr.qld.gov.au).

Additions

Transport and Main Roads, Design Guide for Roadside Signs, Brisbane, QLD

Transport and Main Roads Engineering Policy 149 Managed Motorways, Brisbane, QLD

Transport and Main Roads Environmental Processes Manual, Brisbane, QLD

Transport and Main Roads Fauna Sensitive Road Design, Brisbane, QLD

Transport and Main Roads Guideline Roadside Vending on State-Controlled Roads, Brisbane, QLD

Transport and Main Roads Guidelines for Road Design on Brownfields Sites, Brisbane, QLD

Transport and Main Roads Manual of Uniform Traffic Control Devices, Brisbane, QLD

Transport and Main Roads Rest Areas and Stopping Places - Location, Design and Facilities, Brisbane, QLD

Transport and Main Roads Road Landscape Manual, Brisbane, QLD

Transport and Main Roads Roadside Vending on State-Controlled Roads - Fact Sheet, Brisbane, QLD

Transport and Main Roads Roadside Vending on State-Controlled Roads - Technical Assessment Guide, Brisbane, QLD

Transport and Main Roads Specifications MRTS15 Noise Fences, Brisbane, QLD

Transport and Main Roads Standard Drawings, Brisbane, QLD


Transport and Main Roads Traffic Control Sign TC1112, Brisbane, QLD

Transport and Main Roads Transport Noise Management: Code of Practice, Brisbane, QLD.