DTEI ROUTE ASSESSMENT
FOR
RESTRICTED ACCESS VEHICLES

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This guide has been prepared by Traffic and Access Standards Section, Department for Transport, Energy and Infrastructure (DTEI). It has been approved and authorised for use by Authorised Assessors by:

Executive Director, Transport Services, DTEI
/ / 2008

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1. Scope and Background

1.1 Scope

This guide is intended to:
- advise road transport operators, who operate Restricted Access Vehicles, how to apply for access to new routes, and,
- outline the procedures, assessment criteria and the risk management framework to be used by a route assessor.

This guide will apply to all new route assessments following the date of approval and authorisation. This document may be amended from time to time and it will be the responsibility of the user to ensure that they have the latest version.

1.2 Statutory Requirements

It is necessary to regulate the size and mass of vehicles that travel on South Australian roads in order to:
- ensure a reasonable level of safety for all road users;
- promote the free flow of traffic;
- prevent undue wear to the road infrastructure and associated assets; and
- ensure minimum impact on the amenity and environment of areas adjacent to the routes.

The Department for Transport Energy & Infrastructure (DTEI) is responsible for the administration of the Road Traffic Act 1961. This guide deals with Part 4 of that Act and Regulations, which specifies maximum limits for the height, width, length and mass of vehicles that may travel on public roads in South Australia. These limits are shown in the DTEI “Policy for the Transport of Oversize and Overmass Indivisible Loads and Vehicles”.

This guide applies to Restricted Access Vehicles, which, by definition, are vehicles or combinations of vehicles that alone, or together with any load, exceed:

(a) the gross mass limits as indicated in Road Traffic (Mass and Loading Requirements) Regulations 1999; and
(b) one or more of the following statutory dimension limits as specified in the Road Traffic (Vehicle Standards) Rules:
   - a width of 2.5 metres;
   - a height of 4.3 metres; or
   - a length of 12.5m for a rigid truck and 19m for an articulated vehicle.
Vehicles exceeding the above statutory limits may be permitted to operate on all or part of the road system by exemptions to the Road Traffic Act and Regulations being granted. Exemptions are administered through DTEI, operating under the delegated authority of the Minister for Transport Energy & Infrastructure. Exemptions may be issued in one of the following ways:

- **Exemption by Permit** means that a written authorisation is prepared and issued as a ‘once off’ document to exempt a specific vehicle combination, allowing the vehicle combination to operate in excess of the statutory dimension and/or mass limits and approval to travel along specified routes for a specific period.

- **Exemption by Government Gazette Notice** is a means of granting a general exemption for a specific class of vehicle including vehicle combinations (possibly carrying specific commodities) from a clause or clauses of the statutory dimension and/or mass limits. Approval to travel along specified routes is outlined in the Gazette Notice and the appropriate Route Network Book displaying the approved routes. This exemption covers all owners of specified vehicle combinations that satisfy the exemption requirements.

It is the responsibility of the Transport Operator to ensure that they possess the correct documentation applicable for the intended operation. When necessary a legible copy of this must be carried in the vehicle.

### 1.3 Definitions of Vehicle Types

Restricted Access Vehicles include a range of vehicles and vehicle combinations that exceed dimension and/or mass limits. Primarily this document deals with B-Doubles and Double Road Trains. However, the route assessment criteria may be applied to any Restricted Access Vehicle, e.g. Car Carriers, Controlled Access Buses and Rigid Truck & Trailer Combinations etc. For further details of these and other combinations refer to the DTEI document “Policy for the Transport of Oversize and Overmass Indivisible Loads and Vehicles” or visit the web site:


The information provided in this manual is relevant for all Restricted Access Vehicles, regardless of length and mass.

Information regarding vehicle types may be found on the web site:

1.4 Principal Routes

A network of principal routes has been assessed by DTEI as being suitable for the operation of most Restricted Access Vehicles. Information on these routes is regularly updated and for the most recent information, Transport Operators should consult the relevant Gazette Notice for the vehicle type. Gazette Notices are available from the DTEI freight home page:


Alternatively copies (fees apply) are available by written request to the

Manager, Policy and Projects Section
Safety & Regulation Division
DTEI
PO Box 1
Walkerville SA 5081

The Applicant must apply for access to travel on routes which deviate from approved Restricted Access Vehicle routes, published in the relevant Government Gazette Notice. This will involve a route assessment to be undertaken in accordance with assessment information contained in this manual, unless the route has been previously assessed.

1.5 Route Assessment Criteria

If approval is given in accordance with the assessment criteria shown in this manual and decisions relating to the use of roads by specific types of vehicles justified, the level of exposure of a road authority to liability should be minimised.

Assessment of routes for Restricted Access Vehicles involves consideration of the criteria based on the National Transport Commission (NTC) document, “Performance Based Standards Scheme Network Classification Guidelines July 2007. Additional criteria applicable in South Australia are detailed in Section 5 herein.

Performance Based Standards Scheme Network Classification Guidelines

The quantitative limits placed upon certain criteria recommended in the NTC guidelines and herein in Section 5 are intended as a guide only and should not be considered in isolation, but taken into consideration with other assessment criteria. Where criteria do not strictly meet the recommended standards, Route Assessors should undertake a risk assessment (Section 6) to evaluate the implications of their decisions and adjust recommendations accordingly, noting reasons for their decision.
2. Roles in the Route Assessment Process

2.1 Role of the Applicant

The role of the Applicant in the route assessment process is described below and discussed in further detail in Part B of this manual.

1. Evaluate the proposed transport method and assess the need to use a particular route for a Restricted Access Vehicle.

2. Check whether the proposed route appears under Government Gazette for access by the proposed vehicle type.

3. Lodge a request for access with the Vehicle Permits Unit, Vehicle Services Section, Transport Safety Regulation Directorate, Safety & Regulation Division, DTEI (located at Keteena Street, Regency Park 5010).

   DTEI will Check if the proposed route conflicts with any current policies: the classification of the route as a General RAV Route or a Commodity RAV Route; and if any other previous assessments have been undertaken for all or part of this route.

   If the proposed route is suitable for further assessment, the applicant will be notified and be directed to or issued with a list of suitable Authorised Assessors.

4. The Applicant then must engage an Authorised Assessor of their choice to undertake an assessment of the route for the specified vehicle type. This will be done at the Applicant’s expense. Only Authorised Assessors from the approved list are eligible to undertake route assessments for RAV routes.

5. Final reports undertaken by the Authorised Assessor must then be submitted by the Applicant and/or the Authorised Assessor to the relevant road authorities (DTEI/council) and rail owner (where level crossings exist along a route) for clearance.

6. Final reports undertaken by the Authorised Assessor, including clearances, must then be submitted to the Transport Safety Regulation Directorate, DTEI by the Applicant for consideration to Gazette.
7. The Applicant may be required, at the discretion of DTEI, or Council to undertake a field trial in order to determine the impact of the Restricted Access Vehicle on the amenity, environment and community as well as ensuring that the vehicle can physically traverse the route.

8. If the Assessment Report indicates that modifications are required to the road network to accommodate Restricted Access Vehicles it should be noted that the Applicant will be required to meet the costs of the improvements.

9. If an assessment recommends that works be undertaken prior to Gazettal, then it is the responsibility of the Applicant to contact the appropriate road authority. Any works undertaken, as recommended in the report, are to be carried out in accordance with the requirements of the relevant road authority and are to be funded by the Applicant unless other arrangements are made with the road authority. Once the works are completed, it is the responsibility of the Applicant to notify DTEI and provide evidence of compliance to allow approval for Gazettal.

10. The route assessment process is summarised in Figure 2.1
SECTION 2  The Roles in the Route Assessment Process

Figure 2.1 – Route Assessment Process
2.2 Role of Local Government

Local government is generally responsible for the management of roads other than those under the care, control and management of the Commissioner of Highways. However, the powers delegated to Officers of DTEI to exempt vehicles from the statutory requirements of the Road Traffic Act 1961 extend to all roads in South Australia.

In granting exemptions for operation on roads which are managed by local government, DTEI has a responsibility to minimise damage to the structural, safety and environmental integrity of the local government road system. Liaison and involvement Local Government will be undertaken as part of the route assessment process.

Local government is also responsible for the amenity, environmental and local community issues within their jurisdiction and therefore has a role in advising the Authorised Assessor and the Applicant as to the appropriateness of the use of Restricted Access Vehicles along the proposed route.

To preserve the environmental integrity of the local government road network the Applicant must liaise with councils involved prior to DTEI granting RAV access. The Applicant must obtain from Council a clearance to Gazette for Restricted Access Vehicles. This may be subject to any of the recommendations (e.g. restricted operation or remedial works) of a route assessment. The Clearance should take into account, at a minimum, the impacts relating to the following issues:

- Community safety issues;
- Social issues;
- Amenity impact issues;
- Environmental issues; and
- Local issues.

There are special conditions associated with roads under the jurisdiction of local government.

**DTEI will not, as a matter of policy, grant approval under s.161 of the Road Traffic Act for a Restricted Access Vehicle to travel on a local government road without Council clearance.**

Road width, alignment and variability of the surface of unsealed roads depending on the time of year are important factors that need to be carefully assessed. However, failure to meet these requirements should not automatically preclude a route, which may jeopardise the viability of an efficient transport operation, unless...
all options have been considered and a comprehensive risk assessment undertaken. Section 6 provides guidance for a risk assessment and management process.

2.2.1 Clearances

The purpose of a Council Clearance is to:

(a) Provide assessments on the basis of community safety, social, amenity, environmental and local issues for a transport operator applying to DTEI for a permit to operate a Restricted Access Vehicle on a council road.

(b) Provide DTEI, as the permitting authority, with additional information regarding the road condition for consideration in the technical route assessment process as seen necessary by Council.

(c) take into consideration ongoing maintenance issues regarding RAV access,

(d) Provide operational conditions of access - based on “local issues” as seen fit by Council. This may include (but is not limited to):

- imposing speed limits;
- designating the need for escort vehicles; and
- restricting access times, e.g. on school bus routes.

Any assessment or information supplied by local government will be in addition to the technical assessment undertaken by the Authorised Assessor.

A Clearance may be reviewed and/or revoked at any time by the Council following formal notification being provided to DTEI.

2.2.2 Legal Status of Clearances

The issuing of a Clearance by Council complements, but does not replace the full technical assessment required to be undertaken by DTEI. It is recommended that this is clearly stated on the Clearance Certificate.

The Clearance indicates that the Council is satisfied, to the best of its knowledge, that the granting of RAV access should not unduly impact on the community safety, social, amenity, environmental and local issues of the Council.

The issue of the Clearance does not guarantee DTEI will grant access nor should any of the information provided in the Clearance be a substitute for a technical route assessment. Access will only be granted subject to both the recommendation of a technical route assessment and the Clearance Certificate.
2.3 Role of Authorised Assessors

The Authorised Assessor, as defined in Section 4.1.1, will be engaged directly by the Applicant to undertake RAV route assessments for the purpose of Gazettal. This is done at the Applicant’s cost.

DTEI are the custodians of certain statistical data and records relevant to the assessment. The Authorised Assessor shall place a request with DTEI pertaining to the required route in order to receive this information. This may include:

- previous assessments along the route where available,
- traffic counts,
- crash history,
- road drawings for DTEI roads where available.

As a requirement of the Authorised Assessor Scheme, the Manager, Traffic & Access Standards Section, DTEI will receive a copy of each assessment and examine for compliance with the DTEI Route Assessment Guidelines for Restricted Access Vehicles. This is a requirement for ongoing accreditation as part of the Authorised Assessor scheme.

Where the standard of the assessment is unacceptable, then in the first instance, the Manager, Traffic & Access Standards Section, DTEI will discuss the matter with the Authorised Assessor. Should such unacceptability continue, warnings and the withdrawal of endorsement as an Authorised Assessor may result.

If an assessment recommends that works be undertaken prior to Gazettal, then it is the responsibility of the Applicant to contact the appropriate road authority. Any works undertaken, as recommended in the report, are to be carried out in accordance with the requirements of the relevant road authority and are to be funded by the Applicant unless other arrangements are made with the road authority. Once the works are completed, it is the responsibility of the Applicant to notify DTEI and provide evidence of compliance to allow approval for Gazettal.

The accreditation process for Authorised Assessors may be reviewed by DTEI at any time.
2.4 Role of DTEI

Similarly to council roads, a clearance is required from the Regional Managers on DTEI operated roads.

This must be obtained by the Applicant prior to the submission for final Gazetral of the route.

Further to this, the Authorised Assessor may place a request with DTEI for statistical data and other information that is held by DTEI, relevant to the requested route.

A technical assessment of any rail crossing will be provided by the Level Crossing Unit, Traffic & Access Standards Section, DTEI. The Level Crossing Unit may also be available to assist in negotiations with the rail owner(s) for clearances required at level crossings if requested in writing, by the applicant. All requests should be in writing to:

Manager, Traffic & Access Standards Section
DTEI
PO Box 1
Walkerville SA 5081

2.5 Role of Other Road Owners

Although DTEI has the power to issue permits for the operation of Restricted Access Vehicles on all public roads throughout South Australia, it is a matter of policy that agreement relating to amenity, environment and community impact issues, is obtained from the road owner, prior to the granting of access.

2.6 Role of Rail Owners

Where level crossings exist along the proposed route there is a dual responsibility between the road owner and the rail owner for management of the crossing. Clearance(s) must be provided for access for Restricted Access Vehicles by the rail owner prior to the Applicant and/or the Authorised Assessor submitting a report for consideration for Gazetral. It is the responsibility of the applicant to manage any negotiations with the rail owner, however the Level Crossing Unit, DTEI may also be available to assist in negotiations if requested by the Applicant.
3. Outline of Methodology

3.1 Requirements of a Route Assessment

A route assessment shall determine the impact that a Restricted Access Vehicle operating along a proposed route may have in terms of:

- the effect on amenity, environment and their impact on local communities as outlined in Section 5;
- the ability of the proposed type of Restricted Access Vehicle to be physically and safely accommodated along the proposed route, as set out in Section 5; and
- the impact or risks as assessed in accordance with Section 6 of this manual, if necessary.

A route assessment must demonstrate that a proposed route is appropriate for use by the vehicle and that the operation of the vehicle is acceptable to relevant authorities. This includes DTEI, local councils, other road owners, railway owners (where level crossings exist along the route) and utility service providers (electricity, communications, gas and water).

A route assessment must be undertaken by an Authorised Assessor, as defined in Section 4.1.1, who is responsible for coordinating technical aspects of the route assessment, to ensure that the assessment is undertaken consistently across the State and in accordance with this manual.

3.2 Route Assessment Process

The determination of the suitability of a particular route for Restricted Access Vehicles will be a decision based upon the evaluation of a combination of factors, for which absolute limits cannot be established to suit every situation. To address these situations, a risk management process should be undertaken.

The conditions existing along a route under assessment may vary considerably, from an open rural road, sealed or unsealed, to urban roads. A balance has to be reached between prevailing conditions on each section of a route and should not be viewed in isolation, but must be considered in terms of the total route length.

It is important that routes for the operation of these vehicles be selected so as to minimise risk to other road users and property whilst facilitating efficient freight movement.
4. Assessment Information

4.1 Applicant Information

4.1.1 Authorised Assessor

An Authorised Assessor:

- Must be able to demonstrate an ability to undertake a restricted Access Vehicle route assessment to the satisfaction of the Manager, Traffic & Access Standards Section, DTEI.
- Agrees to comply with all relevant guidelines including appropriate DTEI Operational Instructions,
- Shall be an Accredited Road Safety Auditor,
- Shall be registered with DTEI as an Authorised Assessor.

A list of Authorised Assessors will be maintained by Traffic & Access Standards Section, DTEI. This list will be made available to those wishing to engage an assessor to undertake a RAV route assessment and will be made available to those requiring route assessments either via the DTEI freight web site or by request if internet access is not available to the user.


4.1.2 Route Assessment Report and Recommendations

The route assessor shall prepare a report on the technical aspects of the proposed route and make a recommendation on the suitability of the route for the specified vehicle. The route assessor may recommend operational conditions (e.g. restricted hours of operation, etc.) on the acceptance of the route (refer Section 4.2).

A route assessment report and recommendation shall include:

- details of the amenity, environmental and community impact issues addressed by local government;
- details of the technical and physical criteria assessment should be included along with details of any risk assessments undertaken;
This may include but is not limited to:

- Connections with existing Gazette Route
- Traffic Volumes
- Road width
- Township Roads
- Bridge Widths
- Overtaking Provision
- Overtaking Sight Distance
- Low Speed off tracking and intersection design (including vehicle turning paths)
- Pavements and road surfaces
- Bridges and structures
- Railway level crossings (the Level Crossing Unit, DTEI will provide a technical assessment of the crossing and can assist to negotiate with the rail owner for clearances)
- Height clearance
- Crash statistics highlighting any “hotspots” (available from DTEI)
- Traffic Counts (may be available from DTEI on selected arterial roads)
- Speed environment
- Adjacent land use/planning zones
- Other vehicle types

- a Clearance Certificate from each Council or letter from the private road owner, for council or private roads along the proposed route;
- a Rail Clearance Certificate from each railway owner responsible for any level crossing along which the proposed route will travel. The Level Crossing Unit, DTEI, can assist with negotiations with the Rail owner on request by the Authorised Assessor;
- any reports considered necessary from utility service providers affected by the operation of Restricted Access Vehicles;
- results of any field trial;
- details of any conditions or recommended road works to enable the route to be approved for Restricted Access Vehicle operation;
- all turning path diagrams must be included with the report and presented “to scale”. Drawings should be prepared to a preferred scale of 1:200, but must not be greater than 1:500.
where possible, electronic copies of the turning envelopes in AutoCAD/AutoTURN (or similar) format should be provided, the turning path envelopes determined using the appropriate vehicle templates at a speed of not less than 5km/h.

The report must include recommendations as to the suitability of the route, for the nominated vehicles, with or without conditions.

If a route assessment recommends that the route is not appropriate, an Applicant may then:

a) accept that the route is unsuitable and that access is not available;

b) submit a new application for a new (alternative) route; or

c) liaise with road, rail and utility owners as appropriate for required works to be undertaken to meet requirements of the report. Any proposed designs or works will be at the cost of the Applicant.

In the event of agreement still not being achieved regarding the suitability of any section of the route, the matter may be referred to the Manager, Policy & Projects, Safety & Regulation Division, DTEI, for resolution.

4.2 Advice and Approval

4.2.1 Assessment Recommendations and Granting Access for Restricted Access Vehicles

Prior to granting access to operate Restricted Access Vehicles on the proposed route, the Manager, Policy & Projects, Safety & Regulation Division, must ensure that the route assessment report recommends that the route is suitable and be satisfied that:

- the route assessment has been undertaken in accordance with this manual;

- the required Clearance Certificates from councils, other road owners and railway owners (and if necessary utility service providers) have been provided;

- any conditions imposed are appropriate and/or that recommended works have been undertaken or planned to proceed in agreement with the relevant road, rail and utility owners.
4.2.2 Conditional Approval Arising From Route Assessments

Operating or other conditions may be imposed, based on the recommendation of a route assessment that will facilitate the acceptance of the route for use by Restricted Access Vehicles. These may be based on risk assessments undertaken in accordance with Section 6 of this manual and include:

- restricted operating conditions, e.g. turning movements, operational times, speed limits etc;
- required modifications to terminal yard infrastructure; or
- required infrastructure works to be undertaken to safely accommodate the larger vehicles, some or all of the costs being borne by the Applicant.

4.2.2.1 Restricted Times of Operation

Restricted times of operation may be a practical solution to routes which may not otherwise be acceptable when other factors, in particular traffic composition, local traffic conditions and volumes, are taken into account.

In considering operational time restrictions for Restricted Access Vehicles, it is important to manage any inappropriate queuing that may occur either side of the restricted times. The provision of truck parking areas on each approach to a town where time restrictions apply should be considered.

4.2.2.2 Roadworks, Traffic Control or Other Infrastructure Work

All recommended infrastructure or roadwork improvements should be identified as either required or desired, such that:

- required works – must be completed prior to Restricted Access Vehicles access being granted;
- desired works – must be placed on an agreed works program such that it is undertaken according to funding priorities. Restricted Access Vehicles may be granted access prior to these works being completed.

The cost of all infrastructure improvements to private properties shall be met by the Applicant, consignor and/or private landowner.

Where it is necessary for modifications to be carried out to roads, intersections or traffic devices in order to make a route more suitable for Restricted Access Vehicle operations, Applicants will be expected to meet all of these costs.

Any proposals and negotiations for cost sharing should be finalised and agreed to by all parties as part of the route assessment process prior to the granting of access for Restricted Access Vehicles.
4.2.2.3 Trial Periods

In terms of the physical characteristics of a route, the decision of whether it can accommodate Restricted Access Vehicles should be able to be made during a route assessment. However, where a council may be prepared to consider granting clearance for the route, but is uncertain of the impact on the community in the long term, consideration may be given to allowing the route to be used for a trial period. Trial periods are different from field trials which may be requested as part of the route assessment process.

Prior to issuing a permit for a trial period the Manager, Policy & Projects, Safety & Regulation Division must be satisfied that the following issues regarding the trial have been established and agreed to by the Applicant, Council(s) and/or DTEI:

- the extent of the trial (duration, operational conditions);
- the success or failure criteria (measure of impact which will result in acceptance or non-acceptance of the route in the long term); and
- responsibilities for monitoring and reporting on the trial (who will fund and undertake the assessment of the trial).

A trial should only be considered if uncertainty exists concerning the impact that Restricted Access Vehicle operations may have on amenity, environmental and community impact issues. A trial to determine whether a section of road is “safe” for these vehicles is not appropriate. Failure to provide a report and recommendation to the Manager, Policy & Projects, Safety & Regulation Division at set times during the conduct of a lengthy trial and at the end of the trial period will be considered to be a failure of the trial and the route shall be considered inappropriate.

Caution should be exercised when proposing a trial, as once Restricted Access Vehicles begin operating there may be an expectation from the Applicant and/or Operators that the operation of these vehicles will continue. The operator should therefore be advised that approval of a trial period does not necessarily imply ongoing operation of the route at the conclusion of the trial. Also, trials should not be established which are restricted to a single Transport Operator if the ability to operate Restricted Access Vehicles would place that Applicant at a significant commercial advantage over other Transport Operators.
5. **Assessment Criteria**

5.1 **General**

This section deals primarily with the assessment of routes for General RAV route Gazetted. For routes that are classed as Commodity routes, please refer to *Commodity Network Route Guidelines* which form part of the *Heavy Vehicle Access Framework* document which is available on the DTEI freight website


The following criteria are indicative of the road condition, geometry or traffic interactions, which may need to be addressed when undertaking a route assessment. It may not be necessary for all of the following criteria to be fully investigated but each should be considered to determine whether further investigation is required.

These criteria are based on the National Transport Commission (NTC) document, “Performance Based Standards Scheme Network Classification Guidelines July 2007”, which contains road classification guidelines for the following parameters:

- Road width;
- Bridge widths;
- Overtaking;
- Maximum vehicle lengths;
- Signalised intersections;
- Railway level crossings;
- Off-road truck parking;
- Entry length onto main roads and highways;
- Approach visibility (stopping sight distance);
- Vertical (overhead) clearance;
- Roadside infrastructure; and
- Amenity and environmental factors.

All routes should be assessed for Higher Mass Limit (HML) loads in the first instance. If the route is determined to be unsuitable for HML requirements but meets the requirements for General Mass Limits (GML), then the route may be Gazetted for GML Restricted Access Vehicles with restrictions on HML operations.
If an element or section of road within a route does not meet the required standards, a risk assessment evaluation should be undertaken to assist in determining the impact of Restricted Access Vehicles and appropriate treatment required. Refer to Section 6 for examples of risk assessment and details to assist in undertaking a risk assessment.

5.2 Traffic Composition

It is considered that certain qualifications can be made in relation to routes on which Restricted Access Vehicles operate with respect to traffic composition. A major consideration in route selection is the overtaking opportunities for other road users. In the absence of regular overtaking lanes along the route, high traffic volumes reduce the frequency at which opportunities occur, thereby increasing risk taken by overtaking vehicles.

For example, on a route where there is a high proportion of commercial vehicles, or where local drivers are already familiar with Restricted Access Vehicles operating in the area, there is a greater likelihood of route acceptance. However, on a route where there is high number of pedestrians and/or cyclists or a high tourist component, with vehicles towing caravans, the introduction of Restricted Access Vehicles may present considerable risks to other road users. The approval of this type of route needs to be considered with due caution. The number and type of Restricted Access Vehicles likely to use the route should also be considered.

5.3 Traffic Volumes

The volume of traffic using a proposed route must be assessed including annual average daily traffic (AADT) and percentage of commercial vehicles (%CV). The magnitude of these volumes may influence the acceptance of the route for use by Restricted Access Vehicles.

In considering traffic volumes, the variations in flow throughout the year (seasonal effects) and the day, as well as the rate of growth should be considered. It may be necessary to limit Restricted Access Vehicle operation during peak hours in urban areas, or during certain periods of the year due to seasonal changes in traffic flow. On the other hand, Restricted Access Vehicle operation may be allowed during certain periods of the year to cater for seasonal commodity movements (such as grain, see Commodity Network Route Guidelines, Heavy vehicle Access Framework).

5.4 Crash History

Any proposed route should be reviewed with regard to the recorded crash history, particularly in relation to heavy vehicle incidents or other crashes which may be typical of confined alignments. This will involve obtaining
data from the Road Crash Reporting System managed by DTEI. Careful review of crash locations may be required if there have been multiple crash events at one location or if there are crash events that involve trucks and/or large commercial vehicles.

5.5 Other Considerations

5.5.1 Batter Slopes

Steep batter slopes may induce the roll-over of errant vehicles and therefore any proposed route with potentially adverse batters, taking into account the speed environment, road alignment, clear zone width and cross-fall may be less than satisfactory. A slope greater than 1:4 potentially reduces the ability of drivers to recover if they run off the road. For certain heavy vehicles, where the centre of gravity height is much greater than normal vehicles, this safe slope may be further reduced.

5.5.2 Cambers and Cross Falls

AUSTROADS, “Guide to the Geometric Design of Rural Roads (1989) Section 3”, suggests cross falls over 8% should be identified. The cross fall and camber along the proposed route should be checked to identify any sections which may contribute to vehicle roll-overs or the striking of roadside furniture or vegetation.

5.5.3 Superelevation

The maximum speed of the curve must not be more than 15km/h below the posted or legal speed limit for the section of road unless there are advisory speed signs installed on the approaches to the curve and the maximum speed of the curve does not fall below the speed shown on the advisory speed signs.

5.5.4 Vertical Grades

The maximum desirable vertical grade for any two lane, two way section of a proposed route is as follows:

- Level 2 vehicles 5%
- Level 3 vehicles 5%

Routes with grades greater than 5% may be approved following consideration of the length of the grade, traffic volume, traffic composition, speed environment and opportunity for overtaking. Consideration must be given to the condition of the road surface, particularly on unsealed roads.
SECTION 5 Assessment Criteria

5.5.5 Vehicle Turning Movements

Vehicle turning movements at intersections, depots and roundabouts should be checked to ensure compliance with the relevant vehicle code of practice as shown on the DTEI website http://www.transport.sa.gov.au/freight. The NTC turning path templates should be used. (see 4.1.2 Route Assessment Report and Recommendations)

5.5.6 Terminal Connections

The suitability of the terminal/destination for internal circulation and manoeuvring is the responsibility of the Applicant concerned.

Access to and from the terminal/destination must be limited to the following:

- Entry and exit must be in a forward direction,
- Entry and exit must not unduly effect the movement of other vehicles on the road system and should comply with the turning restrictions outlined in the relevant codes of practice,
- Vehicles must be able to completely enter the terminal/destination without overhang onto the roadway or footpath,
- Entering sight distances at the terminal connection with the road should comply with the Safe Intersection Sight Distance – see appendix A,
- Swept paths for both entry and exit must comply with the appropriate AUSTRROADS/NTC vehicle turning templates (exceptions may be made for low speed/low volume roads).
- Whenever practicable the appropriate AUSTRROADS/NTC vehicle turning templates should be used to initially assess the suitability of the terminal connection. Field trials may be considered to verify the suitability of the terminal connections in conjunction with an initial assessment based on the results of the turning templates.
- When turning left into terminal connections, the vehicle should be kept as near as practicable within the left lane. i.e. without adversely affecting traffic flows.
- When turning left out of terminal connections onto multi-lane roads, the vehicle must, where practicable, enter the lane nearest the left kerb.
- Right hand turns to and from terminal connections may be considered subject to the prevailing road environment, sight distances, traffic volume and composition as outlined in Section 5.5.5.
- When turning right into a terminal the turn should generally be made from the lane nearest to the centre of the road. On unsealed roads the
right turn movement will depend on good sight distances and low traffic volumes.

5.6 Restricted Operation

Restricted operation(s) may be required for the proposed route as part of the risk assessment process (see Section 6, Risk Assessment and Management). These may include, but are not limited to, the following:

- Time restrictions (curfews)
- Speed limits
- Turning restrictions
- Infrastructure works

5.7 Field Trial

A field trial may be required if the route assessor cannot determine that the route meets all the requirements for Restricted Access Vehicles or if requested by a referring authority, such as DTEI, Council or the railway operator.

A field trial can only be initiated through DTEI and should only be considered after all other possibilities have been taken into account.

When field trials are to be undertaken, a temporary permit for access is required for the duration of the trail. This should be obtained through Permits Unit at Regency Park. Fees will apply for the Permit Application.

Other Authorities should be notified and invited to observe during the field trial. These may include:

- DTEI, Traffic and Access Standards, Restricted Access Vehicle Unit
- DTEI, Permits Unit, Regency Park
- Relevant Road Authority (eg Council representative, DTEI Regional staff)
- SAPOL
- Other relevant authorities
6. Risk Assessment and Management

6.1 Introduction

The use of any type of vehicle within a road network will rarely be free of risk. The use of a road network by Restricted Access Vehicles does not necessarily increase the danger to other road users provided that potential hazards are identified and treated appropriately. The identification, assessment and control of hazards associated with use by these vehicles are fundamental to the route assessment process outlined in this manual.

The provision of a safe network for use by all road users is the responsibility of all road managers. The management of risk, through the application of a risk management process, will assist in the development of a network of restricted access vehicle routes which can have economic and social benefits for regional economies and local communities.

Risk management involves the systematic application of management policies and practices to the task of identifying, analysing, evaluating, treating, monitoring and communicating risk.

There are many different approaches to risk management. The following advice is provided as a suitable process to assist route assessors in undertaking a risk assessment on the various amenity, environmental, community and technical components detailed in this manual. The process outlined is based on the Standard AS/NZS 4360:2004 – Risk Management.

6.2 The Main Elements of Risk Assessment

The main elements in the risk assessment process are:

(a) Identify the risks
(b) Assess the risks
(c) Manage the risks

These are described below:

(a) Identify the risks

Identify what, why and how an incident could arise as the basis for further analysis. Different situations may have their own particular risks and assessors must be sufficiently aware to ensure that these are included in the process.

(b) Assess the risks
There are two factors that should be used together to determine the degree of risk posed by a hazard:

- **Probability**: What is the likelihood of the identified hazard actually causing an incident? The probability may range from practically impossible to almost certain and may be determined from statistical data or experienced based knowledge.

- **Severity**: How serious are the consequences of exposure? This may range from minor to catastrophic.

(c) **Prioritise the risks**

The risk assessment calculator included below is to be used to quantify the priority of the identified hazards according to the scale:

- $P1 = \text{very high risk}$
- $P2 = \text{high risk}$
- $P3 = \text{moderate risk}$
- $P4 = \text{low risk}$

It is expected that Hazards P1 and P2 shall be treated prior to operation of RAVs on the route(s). The Authority should also treat all other hazards depending on the level of risk acceptance. Treatment of hazards should occur before the requested route(s) is Gazetted.

(d) **Manage the risks**

The issue of approval for a route may depend on the degree of risk that has to be accepted by a road authority. This can be ameliorated by managing the risk.

Once the hazard has been identified and the risk quantified it is necessary to make an informed decision and take action to manage the risk. There is a hierarchy of actions available to establish an order of preference and effectiveness of control measures. These are shown in Figure 6.1(b) and described below.

- **Risk acceptance**: An informed decision to accept the likelihood and consequences of a particular risk.

- **Risk treatment**: Selection and implementation of appropriate options to lower the risk by reducing the probability of an event occurring, or the severity of the event should it occur. Low levels of risk may be acceptable with little or no treatments applied. For other risks,
develop and implement a specific management plan which may include funding implications.

- **Risk transfer**  Shifting the responsibility or burden for loss to another party through legislation, contract, insurance or other means.

- **Risk avoidance**  This requires an informed decision not to become involved in a risk situation and the route is unlikely to be approved.

### 6.3 Documentation

Appropriate documentation is required to manage risk in a logical and sensible manner. The Standard AS/NZS 4360:2004 – Risk Management, Appendix H provides examples of risk management documentation. Clear accurate documentation will provide an appropriate audit trail and enable route assessors to recommend appropriate actions where risk is involved in route assessment.

Examples of risk assessment models are shown below in Figures 6.1(a) and 6.1(b).

The considerations shown below are to be undertaken by route assessors to assess the risk associated with each evaluation undertaken in the route assessment process.

1. **Description of Risk** – the chance of something happening that will have an impact upon objectives. It is measured in terms of probability and severity. As an example, consider the probability and consequences arising from the use of an unsealed road by Restricted Access Vehicles. This may not be any worse than if the road was used by General Access Vehicles undertaking the same task.

2. **Consequence** – expressed qualitatively or quantitatively, being loss, injury disadvantage or gain. There may be a range of possible outcomes associated with an event.

   (a) **Probability** – the likelihood of a specific event or outcome, measured by the ratio of specific events or outcomes to the total number of possible events or outcomes and may be expressed numerically.

   (b) **Severity** – determine the impact of a particular event and relate it in terms of consequence based on a high-low assessment related to the particular risk. There may be a range of possible outcomes associated with an identified risk.
The risk management process is designed to assist the assessors to make informed decisions to facilitate route access assessment. If road owners have specific concerns regarding liability issues then legal advice may be required. However if approval is given in accordance with this manual and reasons for a particular decision justified, the level of exposure of a road authority should be minimised.
SECTION 6  
Risk Assessment and Management

### SECTION 6                            Risk Assessment and Management

#### HIGH RISK TRANSFER

**RISK AVOIDANCE**

**RISK ACCEPTANCE**

**RISK TREATMENT**

**PROBABILITY OF OCCURRENCE**

**FIGURE 6.1(a)**

#### MED - LOW

**RISK TRANSFER**

**RISK AVOIDANCE**

**RISK TREATMENT**

**RISK ACCEPTANCE**

**PROBABILITY OF OCCURRENCE**

**FIGURE 6.1(b)**

**RISK ASSESSMENT MODELS**
SECTION 6
Risk Assessment and Management

RISK ASSESSMENT CALCULATOR

POSSIBILITY

EXPOSURE

TIE LINE

CONSEQUENCES

RISK SCORE

Almost Certain

Very Likely

Unusual but Possible

Remotely Possible

Conceivable but Very Unlikely

Practically Impossible

Very Rare

Rare

Infrequent

Occasional

Frequent

Continuous

Numerous Fatalities

Multiple Fatalities

Fatality

Serious Injury

Casualty Treatment

First Aid Treatment

Catastrophe

Disaster

Very Serious

Serious

Important

Noticeable

Very High Risk

High Risk

Substantial Risk

Moderate Risk

Risk

Acceptable
7. Risk Assessment Examples

7.1 Examples of non conformance to Technical or Physical requirements

7.1.1 Example 1 - Entering Sight Distances

(a) Route Application Details

An application was made for access to a depot involving both DTEI and Local Government Roads.

(b) Background

The proposed route was from a DTEI road (which was already gazetted for Level 2 operation), involving a right turn onto a local road (Main Road), then a right turn into another local road (Access Street) and then left into the depot. These roads were in a light industrial area.

The DTEI road junction with Main Road had good approach and entry sight distances, and dedicated storage and acceleration lanes for movements to and from the local road.

Main Road is a four lane divided road with a wide median strip populated with established vegetation (trees) and has dedicated parking lanes on both sides of the road.

Access St is an 11 metre wide undivided road.

The depot access was assessed and considered adequate, subject to sufficient space being available for the vehicle to turn around such that it could enter and exit the depot in a forward direction. The gate at the depot was of sufficient width, and access into the depot was such that there would be minimal disruption as the vehicle entered the depot.

(c) Issues

- Entering Sight Distances

Approach sight distances along Main Road on the approach to the Access Road were found to be poor due to the trees on the median strip, though once at the intersection, just prior to crossing to the opposite carriageway and entering Access St, sight distances improved. Further to this, there was no sheltered storage lane in the median strip on Main Road to facilitate the right turn movement for
heavy vehicles into Access St, causing the right hand through lane of traffic to be blocked by this movement.

- Traffic Flows

  Traffic volumes on Main Road were moderate during peak times and lower later at night, as would be expected.

- Operating times

  The operator who requested access operates an overnight express service, and when questioned indicated that the hours of operation at this site would be between 11pm and 2am.

(d) Risks

- Risk of a fail to stand accident

  This risk was deemed to be low due to times that the vehicles operate and the area being zoned as light industrial, i.e. an expectancy of large vehicle in the area. Although the consequences could be severe if a fail to stand accident occurred, the problems still existed if General Access Vehicles were used in lieu of the Level 2 vehicles, (i.e. the sight distance issues remain and the exposure of traffic to large vehicles turning right in the area may be increased).

- Economic risk

  The Operator would be disadvantaged if Restricted Access Vehicles were not permitted as productivity gains were significant.

(e) Assessment

  The risk management approach to approve access to this route was to reduce the exposure and likelihood of an incident through the imposition of curfews on operational times, while accepting that there was some risk involved. Council was also informed as to the concerns over this particular intersection, with a suggestion for minor engineering improvements, e.g. trimming vegetation, to be made to reduce the risk further. This would become more significant should Level 2 vehicle activity increase at this location.
7.1.2 Example 2 - Acceleration Lane Lengths

(a) Route Application Details

Part of an application required a left turn access onto a DTEI road using the existing left turn slip lane of approximately 90m.

(b) Background

Main Road is a high volume, 4-lane divided road speed zoned at 80km/h. Access Road is a 2-lane undivided council road which intersects Main Road at a signalised intersection. The intersection is located at the bottom of a vertical decline along Main Road, which after the intersection, rises steeply. Vehicles travelling on the left turn slip lane need to accelerate uphill and attempt to merge with high speed traffic on Main Road within a 90m distance. Located at the end of the slip lane begins an emergency stopping lane of 3m in width. This stopping lane continues for some 300m until a left turn slip lane provides access from Main Road into another side road.

(c) Issues

- entry lane length

The NTC “Performance Based Standards Scheme Network Classification Guidelines July 2007”, requires a minimum length of 1090m for a Level 2 Road Class with an operating speed of 80km/h on the through road with a up grade of 1%.

(d) Risks

- Risk of a side swipe/rear end collision

The possibility was deemed to lie between unusual but possible to very likely, and the exposure ranged from occasional to frequent. As the consequences of a collision were serious to very serious, the risk calculator showed that the risk score was high P1.

(e) Assessment

Traffic on Main Road was moderate to the extent that traffic would, if necessary, change lanes to the right to avoid heavy vehicles emerging from the short acceleration lane.

To enable heavy vehicles to accelerate to an acceptable level of the normal traffic speed when they merge into main stream traffic, the risk management approach to approve access to this route was to suggest a reduction in the exposure and likelihood of an incident could be achieved.
by increasing the length of the slip/merge lane by using the available 300m of emergency stopping lane.

7.1.3 Example 3 - Acceleration Lane Lengths

The provision of off-road truck parking bays on major routes requires heavy vehicles to rejoin the traffic flow by merging into the main stream from an entry lane. The length of the entry lane should be sufficient to allow the heavy vehicle to accelerate to an acceptable level of the normal traffic speed to avoid undue hazard or obstruction.

The suggested minimum length for an entry lane onto a main road or highway with an operating speed on the through road of 110km/h, for a Road Class Level 2 at 0% grade is 1620m. (NTC “Performance Based Standards Scheme Network Classification Guidelines July 2007”).

In many cases, provision of an adequate length is not possible due to problems with alignment, land acquisition, native vegetation, cost, practicability etc.

DTEI consider that where the Safe Intersection Sight Distance (SISD) is met (Appendix A), then either the full length lane is provided as per NTC, or no acceleration lane is required. If no lane is provided then the entry angle onto the main road should be more than 70 degrees to ensure drivers of heavy vehicles are positioned in the vehicle such that they can see approaching traffic.

Where SISD is not met, then sites must be dealt with on a case by case basis, considering traffic volumes, sight and stopping distances etc. It is suggested that a 600m acceleration lane, the length required by a general access vehicle, may in some cases, be provided to allow a vehicle to achieve a reasonable speed differential to the main road speed environment.

7.2 Examples of non conformance to Amenity requirements

7.2.1 Example 5 - General Amenity Considerations

The NTC PBS guidelines outline a requirement to address amenity issues such as noise, vibration, air quality, dust, splash & spray. Whilst each of these should be considered curing the assessment process, there may be consideration where a detailed application of testing as outlined in NTC PBS guidelines would not be appropriate.

Where a new green fields project or a major road upgrade is being undertaken for the purposes of RAV access then these requirements may be considered. In other instances for the purposes of route classification, then a lower level or
more general consideration of these issues may be more appropriate. For example an assessor may make general comments regarding noise and air quality and the affects of introducing RAV access to the road, but would not necessarily do specific testing for either.

When an assessor selects NOT to apply the NTC PBS guidelines regarding these amenity issues, they need to outline why they consider it not appropriate as part of their risk assessment.
### APPENDIX A: Safe Intersection Sight Distances

#### Appendix A Safe Intersection Sight Distances

<table>
<thead>
<tr>
<th>RAV Operating Speed (km/h)</th>
<th>Grade</th>
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<td></td>
<td>-8%</td>
<td>-6%</td>
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<tr>
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**Safe Intersection Sight Distance**

*Source: Route Assessment Guidelines for Restricted Access Vehicles in Queensland (2006)*
## Appendix B  DTEI Regional Offices

### DTEI Regional Offices
Office hours are 8.30 am to 5.00 pm Monday to Friday.

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<thead>
<tr>
<th>ADDRESS</th>
<th>REGION</th>
<th>Phone No.</th>
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<tr>
<td>Permit Office</td>
<td>Statewide</td>
<td>8348 9550</td>
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<tr>
<td>Kateena Street</td>
<td></td>
<td></td>
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<tr>
<td>REGENCY PARK  5010</td>
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<tr>
<td>Tasman Terrace</td>
<td>Northern &amp; Western</td>
<td>8688 3306</td>
</tr>
<tr>
<td>PORT LINCOLN  5606</td>
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<tr>
<td>Eyre Highway</td>
<td>Northern &amp; Western</td>
<td>8648 5211</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Wongabirrie Road</td>
<td>Northern &amp; Western</td>
<td>8638 5500</td>
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<tr>
<td>Thomas Street</td>
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<td>8532 8111</td>
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<tr>
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<td></td>
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<tr>
<td>37-41 The Parade</td>
<td>Metropolitan</td>
<td>8226 8222</td>
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<tr>
<td>NORWOOD  5067</td>
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### Customer Service Centres
Customer Service Centre hours are 9.00 am to 5.00 pm Monday to Friday.

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<th>LOCATION</th>
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<td>8648 5114</td>
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<td></td>
<td>PORT AUGUSTA  5700</td>
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<tr>
<td>Port Pirie</td>
<td>Shop 7 &amp; 8 Flinders Arcade 72 Ellen Street</td>
<td>8632 9220</td>
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<td>PORT PIRIE 5540</td>
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<tr>
<td>Port Lincoln</td>
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<td>8688 3151</td>
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<td></td>
<td>PORT LINCOLN  5606</td>
<td></td>
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<tr>
<td>Whyalla</td>
<td>25 Forsyth Street WHYALLA 5600</td>
<td>8648 8701</td>
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<tr>
<td>Mount Gambier</td>
<td>3-5 Helen Street MOUNT GAMBIER 5290</td>
<td>8735 1151</td>
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<tr>
<td>Murray Bridge</td>
<td>19 Seventh Street MURRAY BRIDGE 5253</td>
<td>8535 6156</td>
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<tr>
<td>Kadina</td>
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<td>10 Butler Street NARACOORTE 5271</td>
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<tr>
<td>Berri</td>
<td>29 Vaughan Terrace BERRI 5343</td>
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