



Road Operational Guideline 01 (ROG 01)

Classification of Department-managed roads

1. Objective

To establish a classification system for Department-managed roads that will determine a management hierarchy which will facilitate appropriate design, construction and maintenance standards to be applied.

2. Background

As part of its land management responsibility, the Department currently manages the single largest network of unsealed roads in Western Australia. From information gathered from spatial analysis, the entire Department road network comprises an estimated 90,000 km of roads and tracks. Of this, 36,426 km of roads and tracks have been identified to have strategic importance and are maintainable assets. Approximately 10,000 km are properly designed and constructed sealed and gravel roads that receive moderate to heavy use with 443 km of the roads being sealed. An estimated 7,000 km of these are Type 1 roads which are roads regularly used by the public or industry and it is these roads that pose the greatest risk and where the bulk of the maintenance funds are spent. The network also includes over 313 bridges of which 186 exist upon the strategic road network.

For the Department, roads provide essential access for a range of management functions including research, fire protection and other land and marine management responsibilities. Roads also provide access for commercial operations such as timber harvesting of plantations and State forest, apiarists, wildflower industry and commercial tourism. Many roads are open for the general public to access the national parks and reserves throughout the state. The standard and maintenance of these roads will vary according to their function and as depicted by the management hierarchy. In the discharge of their duty of care responsibilities, road managers must be able to demonstrate the basis for determining road construction, inspection and maintenance priorities.

Roads have also been constructed and are maintained on Department-managed lands by other agencies and organisations such as the Forest Products Commission, power and natural gas utilities, communication providers or the many exploration and mining companies that operate throughout the State. While other organisations may have agreement to construct and hold the maintenance responsibilities for these roads, the Department as the underlying land manager retains a duty of care to ensure that the safety of the road user is upheld through appropriate design, construction and maintenance practices.

In 2009, the Department engaged the Australian Road Research Board (ARRB) to:

- undertake a review of the Department's road management policy and road classification system;

- recommend a revised management system together with appropriate geometric and road maintenance standards for each road type and category; and
- develop operational guidelines for the implementation of the policy and the road management system (www.intranet/pvs/default.aspx).

This guideline provides the basis for the classification of Department-managed roads that will determine a management hierarchy and facilitate the appropriate road design, construction and maintenance standards to be applied.

3. Scope

This guideline applies to all roads and associated infrastructure on lands reserved under the *Conservation and Land Management Act 1984* (CALM Act) and other Department-managed lands. This policy does not apply to internal access roads currently vested with the Swan River Trust under the *Swan and Canning Rivers Management Act 2006*.

4. Legal or policy considerations

Policy No. 40 – *Road Management* outlines the policy for the management of roads on Department-managed lands. The policy also contains a summary of the legislation and other policies that are relevant to this guideline (www.intranet/pvs/default.aspx).

5. Procedures

5.1 Classification systems

The road classification system for categorising the total Department road network of an estimated 90,000 km is based on a hierarchical approach which aligns the classifications with existing national and Western Australian classification systems, while providing for the unique needs of the Department in managing designated and operational roads which often have very low traffic volumes.

The primary purpose of the road classification system is to ensure that the appropriate management, planning practices and engineering standards are applied to the road network based on the primary function or purpose and use of the road. It enables more efficient use of limited resources by allocating funding to achieve the most cost-effective treatments, better meeting road user expectations, setting maintenance priorities and assisting in the scheduling of roadworks. The relationship of all the different classification systems is shown in (www.intranet/pvs/default.aspx).

A long road could have more than one 'classification' appropriately applied to different sections of it, depending on changes to its primary purpose and use. The term 'road' used throughout this guideline therefore also includes parts of roads.

5.2 Functional class

Roads in general fall into classes ranging from major arterial to local access. In recognition of this, Austroads (1989) defined a system of functional classifications for both urban and rural roads. This is the primary system used to classify all state and local government roads in Western Australia. Roads in the Department network are considered to fit predominantly into either Austroads Rural Class 5 or Urban Class 9.

Rural Class 5 roads are defined as 'Those roads, which provide almost exclusively for one activity or function, which cannot be assigned Classes 1 to 4'. A similar description also applies to Class 9 roads. Detailed descriptions of the Austroads Functional Classifications are given in (www.intranet/pvs/default.aspx).

5.3 Road hierarchy

MRWA, in conjunction with local government and other associated organisations, undertook a major review of all local roads outside the Perth metropolitan area in 2007 and established the regional road hierarchy consisting of four types as listed in section 5.5.1. Almost the entire Department road network falls under the local access road classification. Details of each classification category are found in (www.intranet/pvs/default.aspx).

5.4 Department road classification principles

In developing the road classification system for the Department, the following guiding principles were used:

- The classification system links and is consistent with the Austroads National Functional Road Classification system and the Road Hierarchy categories used in Western Australia by MRWA and local government;
- At the higher level, a Department classification system needs to be function-based. Traffic volumes, vehicle or road surface types and road widths should not influence the classification decision;
- The classification system is to take into account existing data collected on Department-managed roads, integrated with the proposed update of ROMAN and climate zones in the state; and
- Allocating roads into five hierarchy categories (see Table 2) is considered sufficient for use by the Department to establish appropriate construction and maintenance standards.

In developing the classification system for the Department road network, consideration was given to the different climatic regions and land forms across the state, as identified in the Interim Biogeographic Regionalisation of Australia (IBRA) zones. However, as the classification system is functionally based, it is not influenced by the various climatic and land form variations within the state.

Further details of each IBRA zone and sub-zones can be found in (www.intranet/pvs/default.aspx). While these factors can have a pronounced effect on the geometric design standards and maintenance intervention levels, it is considered that they are not relevant in relation to road function or primary purpose of the road. It is therefore proposed that a common road classification system be applied across the state but with possibly different geometric and maintenance intervention levels applied to each road category based on the zones and sub-zones identified. Further information on the key considerations in the management of the road network in the various IBRA zone are given in (www.intranet/pvs/default.aspx).

5.5 Road types and categories for Department-managed roads

The Department road classification system complies with systems adopted in Australia. The Department roads fit into the Austroads Class 5 (rural special purpose roads) or Class 9 (urban special purpose). All Department roads also have a Western Australian Road Hierarchy category of 'Access Road' in ROMAN.

As the Functional Class and Road Hierarchy classification types are too high level for detailed Department planning and operational purposes, two other classification types have been adopted.

5.5.1 Department road type

For strategic management purposes, the Department road network will consist of **designated** and **operational** roads according to its purpose or use, and to one of the four types listed in Table 1 and as described in (www.intranet/pvs/default.aspx).

A **designated road** (Type 1) provides general public access to major attractions, recreational areas or form scenic drives or thoroughfares for local community. These roads provide multiple functions often forming strategic access for rapid response for fire fighting purposes. The remaining roads are considered to be **operational roads** and are of less importance, used primarily for internal management purposes and can be subject to closure. While operational roads may be available for public use, suitable road conditions cannot be assured, if resources are not available.

The intention of providing a designated and operational road type is in recognition that the Department does not have in the foreseeable future sufficient resources to adequately provide for the desired road standards across the entire road network. A strategic management approach has been adopted to concentrate the available resources on those roads which have greater importance based on general public access, heavy industry use, fire access and recreational pursuits hence forming a hierarchy for the management of roads. The Department will use factors such as local knowledge of road use, importance of a road, public expectations, and available funding to assist staff to define the road types in the network.

This Road Operational Guideline deals specifically with the designated road network. Many of the practices and procedures developed could also be applied to the operational roads, if resources permit.

In selecting the appropriate road type, Department staff should establish the **importance** of the road in the longer term to the wider community and industry as well as the availability of resources to adequately manage the designated roads.

Table 1: Department road type

Type	Description	Comment
Designated roads		
1	Roads that are primarily used to provide access for the general public and are considered of high importance.	Visitor access to recreational sites, community thoroughfares, popular coastal/river access.
Operational roads		
2	Roads that are primarily used for Department related activities although they are not closed to the public. Roads required for management purposes including fire prevention and suppression activities or are important for timber harvesting or other industry operations.	Most State forest roads and tracks, national park and conservation reserve boundaries and management tracks, plantation access tracks and firebreaks.

3	Roads that are subject to restricted access and are not open to the public without authorisation. Access may be restricted in relation to policy or regulations, such as control of disease, public safety during mining or timber harvesting activities. Access is restricted through adequate signage and gating where necessary.	Any roads in the Disease Risk Area (DRA), mine exclusion zones and temporary exclusion zones for timber harvesting activities.
4	Roads that have no perceived functional value and are unworthy of further maintenance and maybe assigned for rehabilitation. The condition of these roads is unknown and may become untrafficable.	Roads excluded from asset management including relegated roads.
5	Roads upon Department-managed lands that are managed and maintained by another agency or body through agreement	Roads constructed and maintained by local government that have yet to be dedicated and gazetted or roads under the control of mining companies.
6	Roads that are not Department lands that may be maintained by the Department. These roads may be restricted or open to the public	Roads associated with the management of UCL or roads that are necessary to access Department sites.

5.5.2 Department road category

For the purposes of establishing appropriate design, construction and maintenance standards, each road will also be allocated to one of the five categories listed in Table 2 according to its purpose or use.

Details of the proposed the Department road category classification system is shown in www.intranet/pvs/default.aspx. Daily traffic volume has been included only as a guide to the typical range of traffic likely to be carried on each road. This volume is expressed as an Average Daily Traffic (ADT) and represents traffic over the peak season. In some cases roads may over short periods (say) during timber harvesting carry significantly higher traffic volumes, especially heavy vehicles.

Allocating an appropriate Department road category with respect to traffic type and volume will assist in ensuring that roads are not built and maintained to a higher standard than is warranted. The resultant network should therefore be 'fit for purpose'.

Care should be taken to not reclassify a road for the occasional high traffic flows but adopt the category the road should be over a long term period of (say) over 20 years. For periods of high intensive use special measures may have to be taken to upgrade a road after which the road can be restored to its original conditions. For example during timber harvesting, logging routes may require upgrading based on the engineering requirements for logging routes outlined in www.intranet/pvs/default.aspx. When logging operations are completed a road may be restored to its initial condition so as to not incur an ongoing higher maintenance cost due to a wider road. In this way road design and future maintenance requirements are based on the base load over the life of a facility and not for the occasional heavy use by, in this case, logging traffic.

In selecting the appropriate road category Department staff should base their decision on establishing the **primary** use or purpose of the road in the longer term. It must be recognised that most roads will serve a range of purposes and could carry a wide variety of traffic types with shared functionality. Local knowledge, and information provided in

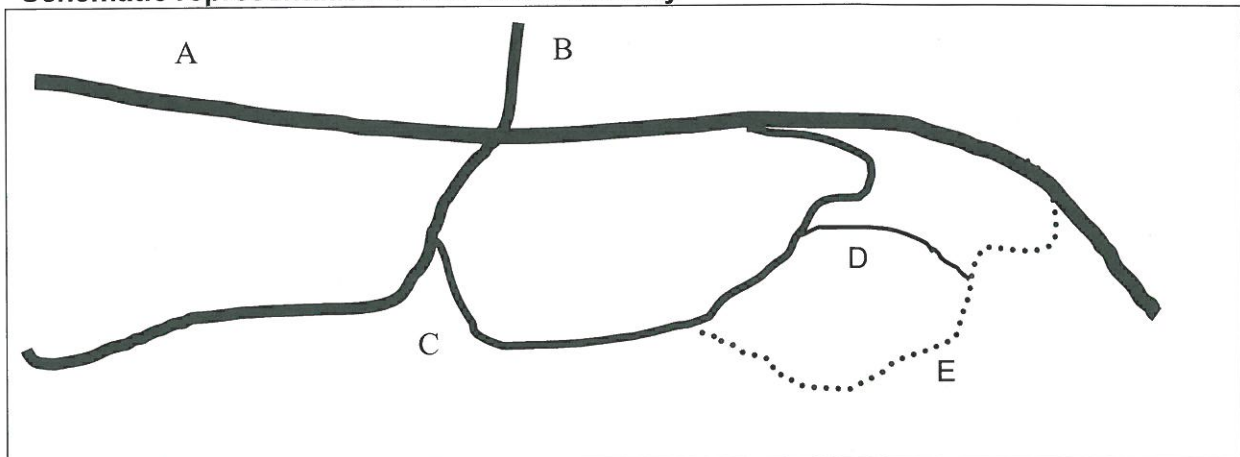
www.intranet/pvs/default.aspx describing the purpose and giving a description of each road category should assist staff in selecting the most appropriate category. In some cases information already collected for the ROMAN system may provide additional local information.

The classification system for the Department road network should be reviewed from time to time and classifications, type and categories changed as necessary due to any major land use changes, new developments and the strategic importance of the road.

Table 2: Department road categories

Category	Title	Desired Design Speed	Brief Description
A	Major road	>80km/hr	Commonly provides for main movements through a region, two lane.
B	Secondary road	60-80km/hr	Generally provides access to areas of interest, two lane.
C	Minor road	50-70km/hr	Provides all weather access for moderate use, hard wearing, single lane.
D	Internal access	40-60km/hr	Drained but formed from local material and therefore can be subject to closure.
E	Track	20-40km/hr	Provides access primarily for four-wheel drive vehicles.

Schematic representation of the road hierarchy



(Source: Giummarra 2001)

6. Custodian

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8. Review date

This guideline will be reviewed no later than 1 January 2021.

9. Director/Branch Manager approval

Approved (date)

11/3/16

By



Director Parks and Visitor Services

