This document aims to provide heavy vehicle drivers with information about safe driving behaviour. The information provided in this publication is not a substitute for knowing the legislation and should not be taken as an accurate or binding interpretation of the law.

Heavy Vehicle Driver – Tips & Guide
Issue 1 November 2011

Negotiating Steep Hills

“Low risk” driving goes hand in hand with a driver’s ability to successfully negotiate a heavy vehicle up or down a hill. As a professional heavy vehicle driver you are responsible for ensuring your vehicle performance on steep hills is adequate to maximise road safety and minimise traffic congestion and disruption.

As a general guide:

There are a number of steep gradient roads in Western Australia that require drivers of heavy vehicle to exercise caution.

These include but are not limited to:

- Ravensthorpe Hill (11% gradient) on South Coast Hwy, Shire of Ravensthorpe.
- Marandoo Hill (8% gradient) on Karijini Drive, Shire of Ashburton;
- Greenmount Hill (7% gradient) on Great Eastern Hwy, Shire of Mundaring;
- Coalfields Hwy (7% gradient) in the Shire of Harvey;
- Bedfordale Hill (5.11% gradient) on Albany Hwy, City of Armadale;
- Red Hill (6.8% gradient) Toodyay Road, City of Swan; and
- Toodyay Road (8% gradient) Shire of Toodyay.
Factors that can influence heavy vehicle hill climbing ability

Every heavy vehicle driver needs to be aware that the following can influence heavy vehicle’s ability to climb hills:

- The type of road surface seal (Example: asphalt or gravel);
- The length and “gradient” also known as steepness of a hill;
- Climate conditions (For example, wet, icy or poor visibility);
- Insufficient load weight on the Axle Drive Group of towing vehicle;
- Vehicle Gross Combination Mass (In respect to hill climbing ability - GCM generally implies that a properly maintained vehicle combination, should be able to safely climb a maximum grade/slope of 5%);
- Lack of traction (Condition of tyres – do not use bald or badly worn tyres);
- Driving heavy vehicle combinations at the correct approach speed;
- Drivers missing a gear change or selecting the wrong gear;
- The towing vehicles lack of power;
- Roadworthiness of vehicle (Always conduct daily pre-start vehicle and trailer checks and perform a more thorough weekly vehicle combination maintenance inspection); and
- Driver inexperience.

DRIVING UP A STEEP HILL

At the start of a work shift and before driving a heavy vehicle, ALL drivers should familiarise themselves with the route they intend to travel and be aware of any steep hills along that route.

- Know your vehicle’s towing capabilities;
- Observe and obey all regulatory road warning signage along the road;
- If you need to stop and check your vehicle and load before going up a hill, do so in a safe location;
- If required, commence gear shift change down early, prior to ascending the hill;
- Use the gearbox properly on your truck and know the right gear to engage and exactly when to do it;
- Changing gears and using the correct gear is a fundamental skill every heavy vehicle driver must master and necessary for efficient operation of your vehicle;
- The correct gear is the one that enables the engine to operate at its most efficient speed for the task it is doing;
- Use the engine torque efficiently, and
- Do not change gear while climbing the hill.

DRIVING DOWN A STEEP HILL

- Make sure your vehicle is in low gear before commencing descent and do not rely on the your service brakes (the gear required to ascend a hill is usually the same gear required during descend)
- If you fail to engage the correct gear, then stop the vehicle immediately and make the correct gear change.
- Do not attempt to descend a hill in neutral gear or with the clutch depressed
- Use the auxiliary brakes to help control the vehicle speed
- Only use the service brakes for managing emergencies, traffic conditions and cornering

It is important to note that brakes may become overheated if you use them constantly downhill to control speed. This can lead to brake burn-out or brake fade causing the brakes to fail.