CHARTERS TOWERS
REGIONAL COUNCIL

TIPS FOR DRIVING ON GRAVEL ROADS

What is a gravel/ unsealed road?

A gravel or unsealed road is a road where the surface you travel on is made up of broken down rock generally 20 to 30 mm in diameter. This rock is obtained from a number of sources such as quarries, ridge gravel deposits or the material occurring in that location. Due to the low traffic volume it is not economical to seal the road with bitumen so the road is left with a gravel surface. Because the surface is only a collection of small rocks it is not "bound" like the surface of a sealed road and is therefore "slippery " particularly when there is a lot of loose material on the running surface. Generally these roads have developed over time from rough bush tracks weaving around trees and rocks and have never been designed for high speed travel. As such they will generally twist and turn as they follow ridges or high ground and be quite steep when crossing creeks and gullies.

Not all gravel roads are the same and dependant on the weather and other variables may be different every time you travel the road. It is therefore very important you drive to the prevailing road conditions and slow down.

Some factors that affect road conditions are:

- Loose Material – As a vehicle travels down a gravel road the outer edge of the tyres throw the small stones out to the side while the centre of the tyre tends to pack down and hold the gravel in. This has the effect of forming two wheel tracks down the road, damaging the surface, only using a small percentage of the road surface available and shortening the life of the road. If the road is newly graded or in good condition and the traffic avoids travelling in the same wheel tracks it will push the loose material back into the road surface, use a greater percentage of the road wearing it evenly and extend the life and usability of the road between grades. The best thing to do when driving on loose gravel is to slow down and drive to the conditions.
- Corrugations – These are the little valleys and mountains looking like a piece of corrugated iron laying across the road. Corrugations occur more frequently in dry loose materials. They are formed when a bump causes a wheel to jump slightly, and where the wheel comes down a slight depression is caused. The next wheels hitting the bump jumps and hits the same spot and then jumps and lands again making the depression slightly deeper and propagates the corrugations down the road. The main two ways to decrease the vibration caused by corrugations is to adjust speed and tyre pressure. By speeding up or slowing down you allow your suspension time to react to cancel out the corrugations (at certain speeds it may also increase the effect of the corrugations). Be careful how fast you travel however, the quicker you go the less control you have and the longer it will take you to stop because your wheels are not making contact with the road surface as you "float" over the corrugations and the car will tend to "skip" and "drift". If you decrease your tyre pressures slightly the additional flex in the side walls of the tyre can "absorb" some of the bumps and give a smoother ride. Be careful how much air you let out of your tyres, decreasing the tyre

pressure affects the handling of your vehicle. The increased flex in the side walls can also heat up the tyres and cause damage to the side wall or destroy the tyre. Decreasing the pressure can also cause damage and dints to the rims and roll the tyre off the rim if the pressure is too low.

- Dust – As a vehicle travels over an unsealed road the wind from its passage blows the small dust particles into the air and affects visibility. This loss of visibility can be quite dangerous when passing an oncoming vehicle just before you come to a curve in the road or other structure (like a bridge or culvert). It is important when approaching an oncoming vehicle you slow down and move to the left hand side of the road to decrease the amount of dust generated and avoid damage from any loose stones that may be thrown up by the passage of the vehicles. Do not travel in dust clouds, this is especially important not just for the comfort of people in the vehicle but the dust can cause undue wear and tear on your vehicle.
- Water – Be it in the form of rain, puddles or water flowing across the road, the water mixes with the dirt and makes mud. Mud can be slippery and if it is in sufficient quantities cause loss of traction and handling problems the driver may not be familiar with. Always slow down and take additional care in wet conditions. Water over the road can also cause a pothole or washout and be much deeper than it appears, as the commercial says "if it's flooded forget it".

There are several questions that you should think about before and during your trip on a gravel road, these are:

How should I behave?

Driving on gravel and unsealed roads requires a lot more concentration for longer periods than driving in a built up area on a sealed road, therefore you will need to be well rested before starting your journey, take regular breaks and be aware of fatigue.

Early warning signs for fatigue are:

- Yawning.
- Poor concentration.
- Tired or sore eyes.
- Restlessness.
- Drowsiness.
- Slow reactions.
- Boredom.
- Feeling irritable.
- Making fewer and larger steering corrections.
- Missing road signs.
- Having difficulty staying in the lane.

You will also need to be courteous to other drivers, as there are less opportunities to overtake due to dust clouds and poor visibility, slow down or pull over and let faster drivers pass. Remember every overtaking manoeuvre has the potential to kick up rocks and break

windscreens or do other damage to your vehicle and you are potentially a long way from help. Large vehicles like road trains will not pull over very far towards the shoulder as this can cause the last trailer to flick violently from side to side anywhere up to two metres each side, If you are approaching a road train coming the other way
move well off the road, pull up and give them as much room as possible. This will reduce the risk to you, your passengers and your vehicle as well as reduce the risk of the road train turning over.

If you have to open a gate to travel down a road, then it is common courtesy to close the gate behind you. Leave open gates open and closed gates closed.

When approaching crests, dips, grids, gates, bridges, causeways and other areas where the road narrows and you have poor visibility of vehicles coming the other way, slow down and keep to the left hand side of the road to avoid head on collisions. There is also a high likelihood of potholes, rutting and rough surfaces on the approach to these bottle necks as there is little opportunity to avoid the wheel ruts, once again the safest course is to reduce speed well before the obstacle.

When negotiating bends and corners do not be tempted to "cut the corner", particularly if this means going on the wrong side of the road. On banked (superelevated) corners there is a tendency for people who are travelling too fast to cut the corner like a rally driver to avoid slipping in the loose gravel that is thrown to the outside (top) of the curve. This is a very dangerous practice as the single cross fall causes water to concentrate and scour the inside of the curve causing the vehicle to lose control and then enter the loose material at high speed with no chance to recover control.

Plan your trip and give yourself plenty of time to get to your destination. Average travelling speed on a good gravel road is approximately 60 kph, you may be able to reach 80 kph on a good straight and have to do less than 40 kph on corners, hills, creek crossings and windy stretches of road. A well maintained road may be slightly quicker and a less well maintained road will be a lot slower.

Advise someone of your plans and expected arrival times so that they can send assistance if you do not arrive as planned.

How does my car behave?

All vehicles will handle differently on a gravel road than they do on a sealed road, you need to take care and familiarise yourself with how your car handles under various conditions. This is particularly noticeable with the difference between Front Wheel Drive (FWD) and Rear Wheel Drive (RWD) vehicles which both handle very similarly at normal traffic speeds on a sealed road. On a gravel road a FWD will tend to understeer (turn less sharply than is intended, due to front wheels losing traction before the rear wheels) and a RWD will tend to oversteer (turn more sharply than intended, due to the rear wheels losing traction before the front wheels). Obviously aggressive driving such as abrupt changes in direction, braking and accelerating can make this worse. While driving on gravel roads you should avoid coasting

and braking mid corner and try to be as smooth as possible with gentle turning, acceleration and braking. If your vehicle is a four wheel drive (4WD) it may handle somewhere in between the two extremes of the 2WD vehicles above with less understeer leading into the corner and less oversteer on the way out of the corner as the front wheels drag it around.

If your vehicle is well maintained it will be more reliable and handle better than a vehicle that is poorly maintained. Travelling on gravel roads will cause increased wear and tear to your vehicle and therefore require increased maintenance and leading to high running costs. It is also advisable when travelling in remote areas to have a selection of spares (radiator hoses, fan belts, bulbs etc.), tools, a first aid kit and potable water.

What if I cannot avoid the crash? (Break downs and emergencies)

There may be occasions when an accident cannot be avoided, for example when animals unexpectedly enter the road or a blown tyre. In these cases there are several things you can do to decrease the severity of the accident and protect the people in your vehicle:

- Assess your options quickly and accept that if the accident is unavoidable you are going to crash.
- Avoid any sudden changes of direction, these may make the car unstable and cause it to roll over.
- Decrease your speed as much as possible before hitting the object you are crashing into, this will reduce damage to the vehicle and injury to people. Modern ABS braking systems will assist with this, push the brake as hard as you can and ignore any "fluttering" of the brake pedal as this is the ABS doing its thing. If you do not have ABS fitted to your vehicle avoid locking up the brakes, as this will stop you from being able to steer, you may have to "feather" the brakes (apply brakes until they start to lock and then ease up a little and apply pressure again until they start to lock up), this will allow you to maintain steerage.
- Keep as much of your vehicle between the object and you and your passengers as possible. Modern vehicles utilise "crumple zones" and other mechanisms to decrease the effects of accidents and keep passengers safe. These are more effective to the front and rear of the vehicle so you are safer to hit them straight on than to take the hit on the side of the vehicle.
- Assess the damage. Take some time to check out the people and vehicle/ vehicles involved in the accident and give first aid if required. Move to a safer location off the road if there is a likelihood of further injury due to the location or situation. Call for assistance if you have a means of communication available (mobile phone, radio, satellite phone or EPIRB)
- Stay with the vehicle. Do not leave the area surrounding the vehicle as you may get lost or be walking away from assistance, a large object like a vehicle is easier to find than a lone person. Remember, if you have travelled down the road someone else also will.