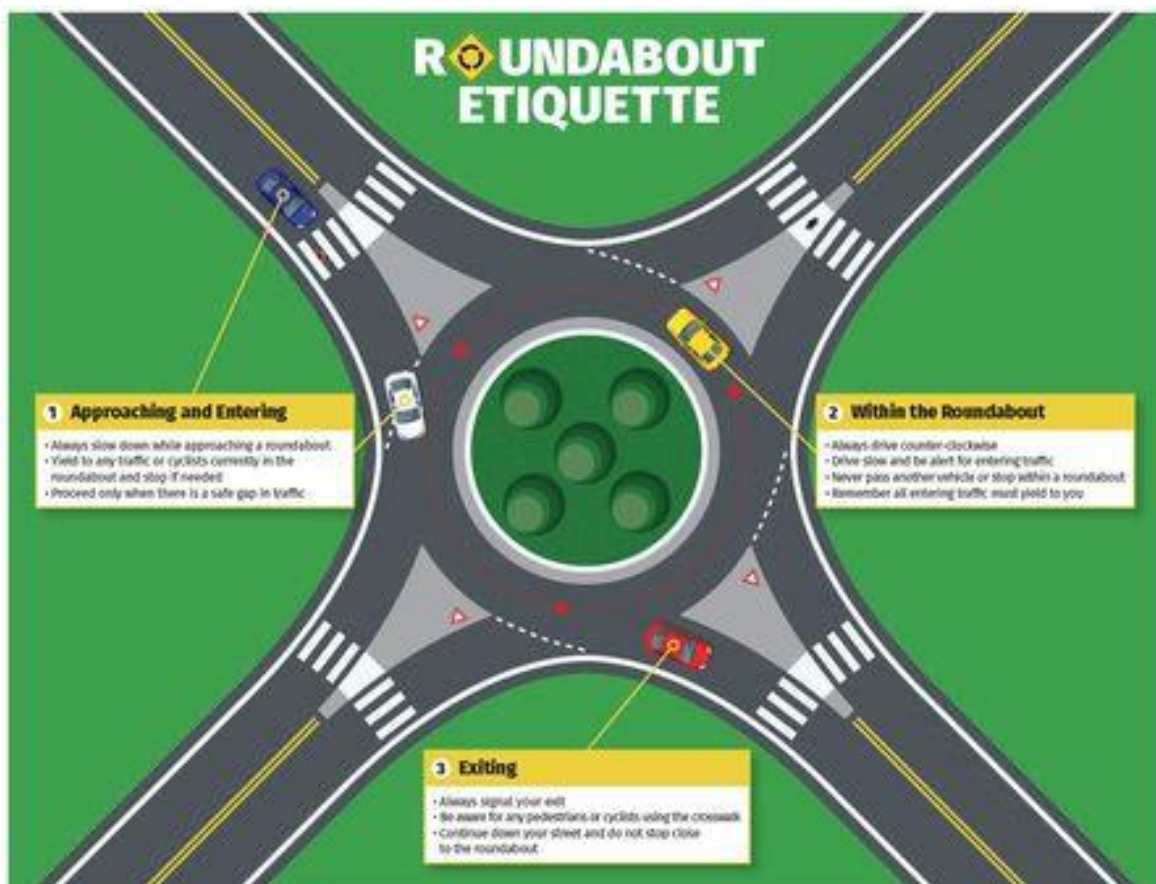


Circular Intersections

Roundabouts, Traffic Circles, and Rotaries

Have you noticed more and more circular intersections popping up on roads around your neighbourhood? These circular intersections take various forms, sizes, number of lanes and method of entrance to name of few are the distinguishing elements. For ease of discussion, the term “woop de do” will be used for them all. Regardless of the term they are all designed to improve traffic flow, decrease the number of serious collisions, allow for easier left turns, and reduce the emissions produced by vehicles idling at red lights.



History and Modern Use of Circular Intersections

Circular intersections have long been in use around the world, with design and operations continually being reviewed and altered for improvements. It is thought that one-way circular intersections were invented by a French architect, Eugene Henard, in 1877. During the same period, the American architect William Eno was also proposing his plan for small circles to alleviate traffic congestion in

New York City. In the early stages of use, traffic volumes were relatively limited and traffic flow rules loosely defined, with different operating practices in different jurisdictions (merging traffic, entering yield, circulatory yield, etc.).

As traffic volumes increased in North America the use of circular intersections fell out of practice, while in Europe and other areas the use continued with changes and modifications to develop a *woop de do* that functions appropriately for current conditions. North America in recent decades has begun to return to the *woop de do* for some applications with adaptive change in driving skills required but success in efficiently moving traffic.

The most significant change from older circular intersections to those of current day is that traffic entering now yields to vehicles already in the circle; as opposed to early operations of traffic in the circle yielding. As there will be vehicles exiting the circle, this creates gaps for new vehicles to enter.

Generally, traffic will slow and flow through a circular intersection rather than the stop-and-wait of traffic lights and signals. The modern *woop de do* is specifically designed for the unique application and characteristic needs of a given intersection. They can vary in diameter, speed and volume of traffic alignments. According to engineers' specification the circular intersection might be called a roundabout, traffic circle or rotary. This kit does not delineate between the terms, since navigating them follows the rules and signage currently established.

The Highway Traffic Act was first introduced in 1923 due to reduce accidents and improve traffic flow. It has largely remained a provincial responsibility. Though with increased interprovincial and international drivers there has been a movement to unify the laws especially within Canada, such as direction of traffic, signage, slow traffic travel on the right side, in 2009 all jurisdictions banned the use of handheld cell phones while driving. The rules of Circular Intersections are somewhat consistent throughout Canada and when the suggested speed is followed traffic keeps moving.

Navigating a




Know the signage

Warning Sign

They are generally yellow diamond shaped means caution. Yellow signs tend to indicating some kind of hazards, such as geese crossing or an unexpected curve in the road. In some places, you may find a warning indicator that indicates a traffic light, stop sign, lane merge, or *woop*





de do is up ahead. Watch for warning signals that mark a school zone , which use to be blue . Warning indicators can also indicate a temporary hazard, such as possible icy roads or an upcoming construction ahead which tend to be orange .

Yield Red and White

Stop is indicated by the colour red (with white lettering). A triangular shape with a point downward, red with a white interior, and the word “yield” written in red are all examples of real “yield” signs. They are made of red and white with red lettering on the sides. A yield sign directs the driver to do the following: slow down, defer to approaching or intersection traffic, halt when required, continue when it is safe, and maintain awareness of oncoming cars and other road users. The meaning of a flashing yellow light is the same as that of a yield sign.

Yield Yellow

This is a warning sign it is indicating that there is a yield is ahead. Unfortunately, the yellow triangle with the point down is still used in many clip arts, pictures and social media for yield signs. Today’s yield signs, on the other hand, is indicated above; this is due to the fact that they are more visible. For the most part, we perceive things as they used to be, which leads us to believe that they are yellow. It is this manner of looking at things that is problematic. Yellow Yield signs have not been the standard since 1971 when the standard was changed to a red border with a white triangle highlighting the importance of the slow down and stop aspect of the yield.

Passenger Vehicles

When approaching a circular intersections observe posted signage, slow down, stay right of the splitter island and yield to pedestrian using the crosswalk. – At the entry point, look to the left and yield right-of-way to any traffic in the woop de do. – Do not block the crosswalk if another vehicle is waiting at the yield line in front of you. – Do not pass any bicyclists who are permitted to ride within the circular intersections just as other vehicles. – Once you have entered the woop de do, proceed in a counter-clockwise direction having the right-of-way over other traffic looking to enter. – Use your right-turn signal and exit to your desired street. – Be cautious and yield to any pedestrian using the crosswalk at your exit; there will be a car length between the circular intersections circle and the crosswalk.





High Side Vehicles / Trucks

Basically, the same as a passenger vehicle with the exception that in the circular intersections trucks should travel on the outer paved portion only.

This is primarily for the long wheel radius.

Tractor-trailer trucks

They are longer and the rear wheels track to the inside of a turn; the inner concrete apron has a mountable curb and is intended for the trailer portion of the truck to ride up on as it negotiated the circular intersections. – A tractor trailer would start with its front wheels close to the left-side splitter island and then when in the circle and confident that the rear trailer wheels will clear the right-side entry curb, the front tires should be to the outer portion of the circle while the rear wheels will track up on the inner concrete apron; when exiting the front tires should again be close the left-side splitter island for the rear wheels to clear the right-side exit curb.

Cyclists

If you are comfortable riding in slower traffic merge with vehicle traffic and circulate like you are a vehicle, making sure to yield to traffic when entering. – This in-line arrangement is preferable to side-by-side travel where cyclists and vehicles are not always able to view each other, as easily and there may be conflicts with a vehicle seeking to exit while the bicyclist beside it intends to continue around. – If you are unsure about using a woop de do per vehicle traffic operations, you should dismount and walk your bicycle as a pedestrian at the designated crosswalk.

Pedestrians

Use the designated crosswalks at street entry points; never cross to the central island. – Watch for vehicles and signal your intent to cross. – When you are certain that traffic to your left will be yielding to you, cross the splitter island which offers some refuge between the two directions of traffic, then concentrate on the traffic to your right and complete the remaining portion of the crossing.

Suggested speed

Slow down as you approach the circular intersections and be aware of crossing pedestrians. As a general rule you should slow your car down to 20-25mph on the approach to a big woop de do. Even if it is really clear, you wouldn't want to go any faster as it could effect your position especially going onto the circular intersections. – Yield to all traffic inside the circular lane and wait for an appropriate gap. – Maintain a safe speed, as indicated by the posted speed limit signs, through the. Never change lanes within the circular intersections, unless indicated.

How to enter a circular intersection:

- 1.) Slow down, scan for and yield to pedestrians. – Remember that crosswalks might be located away from the intersection to make them more noticeable.
- 2.) Yield to drivers already in the circular intersection.
- 3.) Use your signals so other drivers understand your intentions. If the circular intersection has more than one lane, follow these recommendations:

NOTE – If you plan to take the first available *exit*, use your right-turn signal as you enter and keep it on until you exit. – If you intend to travel past the first exit, it's safer to use the left (i.e. inside) lane to enter and exit. Use your left-turn signal to show that you won't be using the first exit. – While it's permitted to use the outside lane to travel by more than one exit, it's not as safe.

While inside a circular intersection:

- 1.) Maintain a safe speed and stay in the same lane.
- 2.) Keep your left-turn signal on until you pass the exit prior to your intended exit.
- 3.) If you're in the outside lane, yield (slow down but don't stop) to allow inside-lane drivers to exit.

How to exit a circular intersection:

- 1.) After you've passed the exit prior to your intended exit, activate your right-turn signal.
- 2.) Watch for and yield to pedestrians.
- 3.) If you're in the inside lane, be watchful of any vehicles in the outside lane in case they forget to yield. If it appears an outside-lane driver isn't going to yield, use your left-turn signal and continue around the entire circle until you can exit the next time around. Never "force" your way out from the inside lane.



Interesting Facts and Rules of the Road

Benefits – Reduces injury accidents by 75% and fatal accidents by 90%. – Increases efficient traffic flow up to 50%. – Helps the environment by reducing carbon emissions by double digits. – Decrease fuel consumption by as much as 30%. – Life-cycle costs are less than traffic signals without electronics purchase, operation and maintenance.

Traffic Rules – the rules of traffic signals are numerous and complex for a first-time description – red, right on red, amber, green, protected left arrows, permissible lefts, etc.; for a woop de do there is simply one basic rule – yield to traffic already inside.

Low Speeds – slow to the advisory speed; reduced speed mean less damage in the event of any collisions

Less Information to Absorb – drivers have basically one direction (left) to concentrate on as opposed to observing for traffic from the left, straight and right at a signalized intersection

Pedestrian Refuge – the splitter islands provide a pedestrian refuge and allow for concentration on one direction of traffic at a time

Conflict Points – the number of pedestrian and vehicle conflict points in a circular intersections configuration versus a 4-way intersection is significantly reduced; similarly head-on or T-bone vehicle accidents are basically eliminated with sideswipe orientations the main possibility.

Overview of Modern circular intersections

Compared to traffic signals, CI offer the following advantages:

Reduced Delays – Cars only have to yield at the entrance to a CI, rather than stopping and waiting for a green light at a signalized intersection, this keeps things moving. This means shorter average queues and fewer cars blocking driveway entrances. When traffic volumes are low, motorists experience almost no delay, regardless of what direction they arrive from and where they are going.

Increased Capacity – Traffic capacity is higher due to the continuous flow of a CI compared to the wait at yellow and red lights. If multiple drivers are trying to turn left, a CI can handle this much more quickly than lights.

Reduced Speed – Drivers have to slow down to negotiate a CI, but motorists don't slow down when they see a green light. Permission to proceed through a CI is always the same, regardless of when a motorist gets to it so there isn't the temptation to step on the gas to catch a green or yellow light.

Improved Safety – There are only eight points in a woop de do where two cars could collide and 32 at a set of lights. This, combined with reduced speeds, reduces the frequency and severity of traffic accidents.

Environmentally Responsible – Reduced delays mean reduced fuel consumption and harmful emissions, which improves air quality and motorists' gas mileage. Noise pollution is also reduced because of lower speeds, and less stopping and starting.

Reduce Maintenance Costs – woop de do eliminate the costs associated with electricity, maintenance, and signal timing optimization that traffic signals require.

Aesthetically Pleasing -- The woop de do centre island provides an opportunity for landscaping and community beautification, and the splitter islands may be planted with grass or flowers.

Pedestrian Access and Safety – Crosswalks are placed away from the edge of the woop de do, so motorists encounter pedestrians wither before they arrive at the woop de do or after they leave it, tomes when they are not preoccupied with navigating through the intersection. Also, pedestrians are move visible to approaching drivers and they cross only one direction to traffic at a time, with a refuge area on the splitter island in the middle. Crossing distances are greatly reduced because there are fewer approach lanes at a woop de do. These advantages, combined with reduce speeds, results in drivers being more willing to yield to pedestrians and a better overall pedestrian experience.

Bicycle Access – Cyclists may choose to either walk their bicycle across the crosswalks like a pedestrian (this is recommended for less experienced riders), or ride through the woop de do as a vehicle.

Summary of Circular Intersection



Slow down to the posted limit
Let vehicles already circulating go ahead
Obey all one-way signs
Watch for pedestrians, cyclists, vehicles (large and small), and horse and buggy

YouTubes Videos based on PEI

How to use a roundabout – YouTube video
<https://www.youtube.com/watch?v=46mOPz3rhHs>

North River Roundabout – YouTube video
https://www.youtube.com/watch?v=fl_OVRkSGkw

Maypoint Roundabout - YouTube video
https://www.youtube.com/watch?v=__P1ejcRFYA

Questions

What does YIELD mean when entering a roundabout?

Tailgate the vehicle in front of you.

No – but it is often the common practice

Speed up when entering the roundabout.

No – vehicle needs to be ready to stop

Yield to vehicle on the left.

Yes – contrary to the all-way-stop, where yield to right

Yield to vehicle on the right.

Yes – if they are all ready in the roundabout

Yield to all vehicles, pedestrians, cyclist, and horse and buggy in the roundabout.

Yes

What is the recommended speed limit of the circular intersection?

Same as highway approaching.

False – the speed as posted or assume 20-25km/h

There is no speed limit suggestions.

False – advisory speed is posted or assume 20-25km/h

Posted when entering.

True

Exit as fast as possible.

False – do not increase speed inside the woop de do

What are the benefits of the round about?

Increased Capacity

Yes – due to continuous flow

Reduce Delays

Yes – traveling the suggested speed no stopping

Reduce Speed –

Yes – slow down to negotiate circular Intersection

Environmentally Irresponsible

No – reduces harmful emissions due to continuous flow

Are circular Intersection a new traffic control device?

No – they date back to the late 1800s

Are the rules for circular Intersection the same Canada wide.

Yes –

Are the terms Roundabout, Traffic Cycle, and Rotary mean the same thing?

No – they are all versions of a circular intersection

It's important to learn the basic circular intersection rules before you encounter one. Next time you use a circular Intersection, take these tips for a spin to prevent a collision:

Choose your lane. As you're approaching a multi-lane circular intersection, there should be a sign that indicates which lane you need to take to get to each exit. Identify your desired exit and signal to get into the correct lane before you enter the circular intersection. Don't change lanes once you're in the circular intersection.

Signal your turn. Signal in the direction you want to go as you're approaching the circular Intersection. Think of a circular Intersection like a normal intersection:

- ◆ If you're turning right, you need to signal to the right before you enter
- ◆ If you're heading straight through, there's no need to signal
- ◆ If you're turning left, signal to the left before you enter

Watch for pedestrians. Before you start moving into the circular intersection, slow down and yield to pedestrians crossing or waiting to cross at the crosswalk.

Note: In most cities, vehicles have to yield to pedestrians — but in some cities, pedestrians have to yield to vehicles. Be sure to follow the road signs as you approach a circular intersection.

Circular intersection are popping up everywhere. Keep an eye out for pedestrians before entering, yield to traffic in all lanes, and never switch lanes while you're in the woop-de-do to keep yourself and others safe.

Yield to traffic in the circular intersection. Yield to traffic in all lanes before entering the woop-de-do, especially if the signs stating traffic in multiple lanes may exit at any time. Remember to stay in your lane once you've entered.

Watch for pedestrians again. Keep an eye out for pedestrians crossing the circular intersection at your upcoming exit, and don't follow other drivers too closely in case they stop suddenly at the crosswalk.

Signal your exit. No matter which exit you're taking, use your right signal to indicate you're ready to exit the circular intersection.

For single-lane circular intersection, all of the same rules apply, but you won't need to choose a lane before entering.

Bonus tip: If you're approaching a circular intersection at the same time as a large transport truck or bus, don't pull up directly beside them. Depending on its size, a truck or bus may need to use both lanes to get through the woop-de-do.

Sometimes accidents happen, even when you drive carefully and follow the rules of the road. Take a little time to familiarize yourself with the information you'll need to provide to your insurance company if you have if you have to make a car insurance claim and contact your licensed broker to make sure you have the coverage you need to protect you in the event of an accident.

Primary Resource

Prince Edward Island Driver's Handbook

CAA /Alberta Motor Association website <https://ama.ab.ca/>

Government of Prince Edward Island Website

<https://www.princeedwardisland.ca/en/information/transportation-and-infrastructure/roundabouts-in-pei>

City of Charlottetown Website

https://www.charlottetown.ca/resident_services/transportation_infrastructure/understanding_roundabouts