

# Roundabouts: The Next Intersection

by Kurt Smith, Traffic Engineer, Ak. DOT & PF

"I find traffic signals almost insulting," said Jay, our guide on a 4WD tour of the Daintree Rainforest in Australia. He does not like to stop at signals, especially when there is no conflicting traffic. He likes roundabouts, which let him make his own stop/go decisions and rarely require him to stop.

Australians' seemingly unanimous approval of roundabouts contrasts with the negative reactions sometimes heard from Alaskans – especially from those who are experiencing Anchorage's first roundabout. Those reactions include concerns about safety and not knowing how to drive roundabouts, as well as more humorous remarks. For example, an Anchorage body shop suggested posting a sign in the middle of a new roundabout identifying them as a sponsoring business. Others have suggested placing handy accident report vending machines in every roundabout island. Although these were tongue-in-cheek suggestions, they reflect the initial reactions of many who have little roundabout experience.

My wife and I recently returned from a driving vacation in Australia and New Zealand. On the way over, I wondered about negotiating roundabouts while driving on the "wrong" side of the road. I had driven few roundabouts and thought that if they were going to be a problem, they would be a more serious problem under that circumstance.

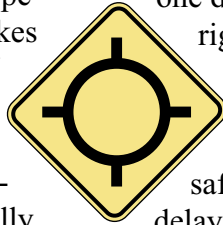
I found them simple and easy to drive, even on the left side. I don't remember stopping at any of the hundreds of roundabouts on our route. When there were

cars on other approaches, the conflicts were handled easily and intuitively. Roundabouts present you with one decision to make at a time and it's as easy as a right—or left, depending on the country you're in—turn on red.

The numbers back up those impressions. Data shows that single-lane roundabouts are safer for cars, bikes and pedestrians, cause less delay than signals (except at very high volumes), and greatly reduce stops. According to a recent Insurance Institute for Highway Safety study, roundabouts reduce injury accidents by 75%, and incapacitating injury or fatal accidents by as much as 90% when compared to intersections with traffic signals or stop signs. Widespread installation of single lane roundabouts in Alaska could greatly reduce injuries and fatalities.

State road authorities, with municipalities leading the way, are starting to install roundabouts. In the fall of this year, the Municipality of Anchorage constructed Alaska's first modern roundabout on southport Drive. The City and Borough of Juneau constructed a teardrop-shaped traffic circle in the spring, although it did not incorporate the deflection and other design features of modern roundabouts.

More are on the way. The DOT&PF plans to construct multi-lane roundabouts at the Dowling Road / New Seward Highway (NSH) ramp intersections in Anchorage and a single lane roundabout at a new Loftus Road intersection at the University of Alaska Fairbanks. The Municipality of Anchorage plans to



Alaska's first modern roundabout: Southport Drive, Anchorage, September 2001



construct a single lane roundabout on Elmore Road at the new South Anchorage High School. Roundabouts are being considered for several other locations.

The decision to install multi-lane roundabouts is more complex than it is for single lane ones. In general, multi-lanes are less safe than single lanes. When compared to traffic signals, accident data indicate they are safer for vehicles, less safe for bicycles, and the jury is still out for pedestrians. However, regardless of what the pedestrian data eventually shows, some pedestrians will feel less safe at multi-lane roundabouts than at signals. People accustomed to WALK and DON'T WALK signals at signalized intersections can be uncomfortable crossing multiple lane approaches without this type of positive guidance.

Like single lanes, multi-lane roundabouts have substantial advantages. They move a lot of traffic with minimal delay and often reduce the need for additional lanes between intersections. The latter is a major factor at diamond interchanges (like Dowling/NSH) where additional lanes between ramps can increase project costs by millions.

Even with all their advantages, roundabouts are not appropriate everywhere. They do not function well in coordinated signal systems. They are not a good choice at intersections where the traffic on one leg is so heavy that it would lock out a downstream approach. They are not a good substitute for grade-separation on high-speed, controlled access arterials. Single lane roundabouts can't handle traffic volumes much over 15,000 entering vehicles per day. Multi-lane roundabouts can't handle as much traffic as very large signalized intersections. There are other situations where they may not be the best solution. However, the exceptions leave a large portion of Alaska's intersections as good roundabout candidates.

In the transportation business, we often face hard choices: highway safety vs. environmental impact, standards vs. community character, highway capacity vs. pedestrian friendliness, neighborhoods vs. through traffic, etc. In contrast, single lane roundabouts are of-

ten an easy choice. They are safer for vehicles and pedestrians, environment-friendly, reduce delay, look better, and use no electricity. They offer an unprecedented opportunity to improve Alaska's highway system.



Traffic circle construction, Downtown Juneau, May 2001.

**New Law:** The DOT&PF is working with the Department of Public Safety to draft a new law telling drivers and pedestrians how to negotiate roundabouts and telling police who is at fault in case of an accident. Alaska will likely be the second state to enact such a law. The main points of the law are: (1) entering drivers yield to vehicles already within the roundabout, (2) no passing on the right within multi-lane roundabouts, (3) trailing drivers within multi-lane roundabouts yield to exiting vehicles in front of them, (4) drivers should choose their approach lane at multi-lane approaches based on whether they are turning left, right, or going straight, and (5) pedestrians may not cross to roundabout central islands.

**First Impressions:** The first roundabouts built in each community are ambassadors. If well designed, experience indicates the public will want more of them. If not, communities may reject them. Designers should thoroughly understand the principles of roundabout design and, desirably, have designs checked by experienced outside designers before construction.

**Yield to Right—NOT:** Roundabouts reverse the usual right of way rule for drivers who arrive at an intersection at the same time. At roundabouts you yield to the left (to traffic already within the roundabout).

