S.R. A1A Tomorrow | Space for Everyone

Answers to Community Questions About the Roundabout

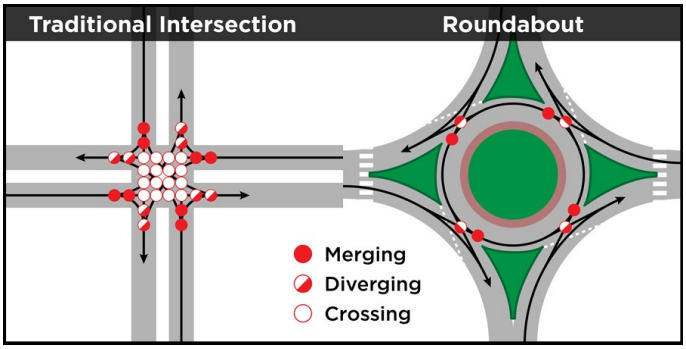
The Florida Department of Transportation (FDOT) has been meeting with local officials and community members regarding two planned projects on State Road (S.R.) A1A in Cape Canaveral. The following are questions and FDOT responses related to plans to realign International Drive and construct a roundabout at the new intersection. Questions related to the overall corridor are addressed in a separate document.

Roundabout Safety

Q. Is a roundabout really safer than a four-way signalized intersection?

The most significant safety benefits of the roundabout are the removal of left turns across oncoming traffic and slower speeds. The roundabout also removes the chances for a head-on collision among vehicles. The left-turn and head-on collisions can lead to more serious injuries and fatalities. A traditional four-legged intersection has 32 conflicts, or points where vehicles could cross paths and collide. The roundabout only has eight conflict points.

Roundabouts are geometrically designed to reduce vehicle speeds to generally 25 mph or less, and all turns are right turns. This significantly reduces the severity of crashes over those at traditional intersections. Crashes that do occur are typically low-speed, sideswipe crashes rather than high-speed T-bone collisions that can occur at traditional intersections especially with left-turn movements.



Roundabouts also improve pedestrian safety due to the slow speeds and by providing a refuge island. This allows for two simple crossings of one-way traffic. If a pedestrian is hit by a car at 30 mph, there is a 45% chance of serious injury or fatality. At 40 mph, the risk jumps to 85%.

Multiple studies have been done across the country on the safety of roundabouts. For example, in September 2021, Pennsylvania's Department of Transportation released data for 26 roundabouts on state routes at intersections that were previously stop- or signal-controlled. These roundabouts were reviewed based on having at least three years of data available before and after the roundabout's installation. These 26 roundabouts comprise all the roundabouts on state routes that met the review parameters. Department data based on police-submitted crash reports spanning the years 2000 through 2020 shows:

- Fatalities were reduced by 100%
- Suspected serious injuries were reduced by 81%
- Suspected minor injuries were reduced by 36%
- Possible/unknown severity injuries were reduced by 76%
- Crashes causing only property damage increased by 13%
- The total number of crashes dropped 22%

Additionally, modern roundabouts have been shown to shorten travel times for both drivers and pedestrians. Relieving congestion has been proven to help reduce the frequency of vehicle crashes.

Navigating a Roundabout

Q. How will emergency vehicles use the roundabout? Won't it increase the response time? Will the fire station at Jackson Street stay where it is?

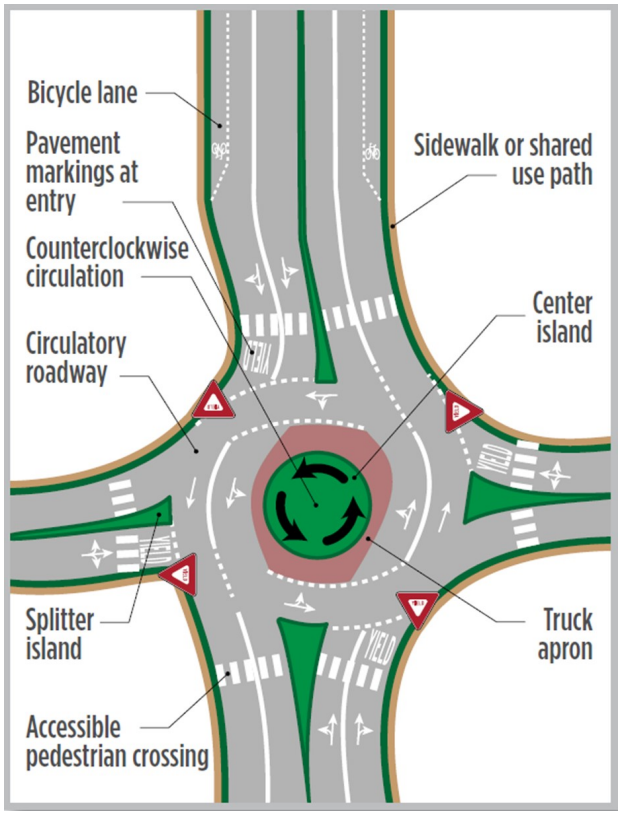
Modern roundabouts are designed with emergency vehicles in mind. Emergency vehicles can travel within a roundabout with no issues. Statistics show that traffic flow through a roundabout is improved over a traditional intersection; thereby decreasing response time. The fire station at Jackson Street will not need to relocate.

Q. Will tourists, snowbirds, seniors and others coming to the area to watch launches know how to navigate the roundabout?

Compared to a typical signalized intersection, roundabouts are much simpler to use because they only have two rules: 1) Yield to vehicles already in the roundabout and 2) Always turn right – entering or exiting.

Roundabouts are becoming more widely used across the country and are no longer an unfamiliar feature. For example, The Villages (a large and growing retirement community west of Leesburg in Sumter County), has several roundabouts within its internal network of streets which are successfully traversed every day. The modern roundabout will also have clear signage and pavement markings to guide drivers through it.

The Department will continue to provide education throughout the design and construction to raise awareness within the community.



Q. How will trucks navigate the roundabout? It looks like a truck in the outer lane will collide with a vehicle in the inner lane.

Roundabouts are designed to accommodate all the turning movements of the largest vehicle that is expected to traverse the intersection (design vehicle). For S.R. A1A, the design vehicle is a tractor trailer, 73.5 feet in length. To accommodate the sweep of the trailer wheels of a tractor trailer as it makes its way through the roundabout, a truck apron is constructed around the inside of the circulating roadway. The truck apron has an approximately 3- to 4-inch curb where it meets the circulating roadway to deter smaller vehicles from cutting across it. Additionally, the apron is constructed of a different material (concrete) and colored differently than the circulating roadway, to distinguish it and to make it clear that the truck apron is not something to be driven over by smaller vehicles.

Both the design vehicle and a passenger car must fit side by side per the Florida Intersection Design Guide, Section 7.4.1. The proposed roundabout design accommodates the design vehicles in the entries, circulating roadway, and exits for all movements, as well as side-by-side travel for a passenger car adjacent to the design vehicle for the multilane through movements along S.R. A1A.

Q. How will motorized bicycles move through the roundabout? Will they take the vehicle lane or bicycle lane?

There will not be a bike lane within the roundabout. E-bikes can be ridden anywhere a bicycle can be ridden, including sidewalks, streets, bike lanes, and shared-use paths. Therefore, an e-bike user could choose to occupy the travel lane of the roundabout or the sidewalk around the roundabout.

Pedestrians and Bicyclists

Q. Will vehicles stop for pedestrians crossing the roundabout?

Pedestrians should not be crossing the roundabout itself. There will not be a pedestrian crossing within the roundabout. Pedestrian crossings will be placed across each connecting roadway, a short distance outside of the roundabout.

By state law, vehicles are required to stop for any pedestrian within a marked crosswalk. Therefore, vehicles will be required to yield to pedestrians crossing at the marked crosswalks just outside of the roundabout. The design is evaluating the addition of pedestrian activated lights to increase visibility at the crosswalks.

Q. Will the crosswalks near the roundabout be raised?

No, those crosswalks will not be raised.

Other Roundabout Questions

Q. Are there traffic signals at a modern roundabout?

No, there are no signals in a roundabout. That's an added advantage with roundabouts. The traffic flow is continuous, and the travel time is reduced.

Signals in the form of Pedestrian Hybrid Beacons (PHBs) or Rectangular Rapid Flashing Beacons (RRFBs) are being considered at the crosswalks, which will be located a short distance from the roundabout and activated only when a pedestrian intends to cross.

Q. Will the S.R. A1A roadway banking at International Drive/North Atlantic Avenue be flattened?

Yes, the elevations and grades of that area will be modified/flattened with the design of the roundabout.

Q. Will there be adequate sight distance to judge gaps to enter the roundabout?

Yes, sight distance will be adequate for entering and exiting the roundabout. Proper sight distance is provided by not installing tall landscape or large objects in or near the roundabout. Also, the travel speeds around the roundabout are relatively low.

Q. How will this roundabout be different than the one in Viera?

The proposed modern roundabout has two through lanes and one circulating lane, while the Viera roundabout has two circulating lanes. This additional circulating lane can create confusion over which lane drivers need to be in to make a turn. The roundabout in Cape Canaveral will not have this extra lane, making navigation much simpler.

Many roundabouts that people are familiar with were designed using standards that are now outdated as experience with roundabouts has increased. Modern roundabouts make sure entry and exit points are designed so that the alignment is intuitive and clear for drivers. Modern roundabout guidance has been used in hundreds of newer roundabouts around the state and the country, and the modern roundabouts have proven to be a safe and effective tool to reduce speeds and improve safety.

Q. If roundabouts are so great, why are they being removed in the northeast?

This is a common misunderstanding that is confusing rotaries (or traffic circles) with roundabouts. In Massachusetts, there has been much talk about removing the old inefficient and high crash rotaries and replacing them with traffic signals. In some cases, the safety and traffic flow problems seen at many of the rotaries could potentially be solved by adapting some of the roundabout pavement marking and signage techniques.

Although rotaries and roundabouts are generally circular in shape, there are significant differences in their appearance and operation. Rotaries are typically large. This size results in high circulating vehicle speeds of between 30 and 40 mph. These high circulating speeds mean that entering vehicles must wait for larger gaps between vehicles before entering, which reduces the volume of traffic (capacity) that can move through the rotary. This lower capacity means that during peak traffic periods, long delays and congestion are very common. Finally, due to a combination of vehicle speeds, congestion and lack of adequate signage and pavement markings, the frequency of crashes is often high.

Roundabouts are much smaller, with single lane roundabouts typically having a diameter of between 100 and 140 feet (larger diameter to accommodate large tractor-trailers), and multi-lane roundabouts no larger than about 250 feet in diameter. This smaller size, plus chicanes -- or curves -- on the approaches, results in much slower entering and

circulating vehicle speeds of between 10 and 25 mph. These lower speeds mean entering traffic can access much smaller gaps between circulating vehicles, which results in an increased volume of traffic (capacity) through the roundabout and fewer delays and congestion for all users. Finally, primarily due to the lower vehicle speeds, roundabouts all but eliminate the occurrence of fatal and serious injury crashes, while minimizing the occurrence of minor injury and property damage crashes.

A traffic circle oftentimes requires vehicles to change lanes once in the traffic circle to get to the desired destination. In a modern roundabout, you choose which lane to be in prior to entering the roundabout and once you enter the roundabout, you do not need to change lanes inside the roundabout to get to your destination. These designated lanes make modern roundabouts clearer to navigate. Clear signage and striping will give all users efficient paths through the intersection.

Q. What is the landscaping that will put in the middle?

Visible landscaping will be used to alert drivers of a change in the roadway. The landscaping will be strategically planned to provide a visual gateway while still allowing good sight distance for drivers, pedestrians, and bicyclists to see what is coming so they can enter the roundabout safely.

Q. Will the modern roundabout increase noise?

No – the reduction in speed will decrease noise.

Q. Will this modern roundabout require right of way (ROW)?

Yes, some right of way is needed to realign International Drive and for construction of a roundabout.

For questions or to request a small group meeting, please contact:

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Q. Isn't this wasting the money that was spent to install the signals at this intersection?

Roundabouts do not require as much maintenance as signals and only require electricity for lighting at night. This results in long-term cost savings. Also, roundabouts still operate in power outages without the need for police to direct traffic. This results in less city/county resources during storm events.

Additionally, roundabouts often solve traffic congestion problems without requiring road segments to be widened between intersections resulting in a net cost savings.

Another factor worth consideration is costs associated with crashes. Because they result in far fewer injury and fatal crashes than traffic signals, roundabouts produce lower long-term costs to society as a result of these crashes. Considering all of these items, roundabouts may cost more than traffic signals initially but are far less expensive in the long run.

Q. Why is the FDOT pushing for this roundabout even though the citizens are not sold on it?

The City and FDOT are in support of Vision Zero and the associated roadway improvements to reach that goal of zero fatalities and zero serious injuries. The Department recognizes resistance to change that can develop, especially when the reasoning behind the change is not fully understood. There have been numerous studies conducted related to the performance of roundabouts and the safety benefits. The statistics show that roundabouts significantly reduce fatalities and serious injuries and are generally safer intersections than traditional intersections.

The Department is encouraging continued discussion and education with the community. FDOT is open to listening to alternate solutions or design modifications that alleviate concerns and will achieve the same goals. Please join the small group meetings and tell us why you are not in support of a roundabout so that we can address your concerns and possibly implement your suggestions as applicable.