

# **CORVALLIS CITIZENS ADVISORY COMMISSION ON TRANSIT AGENDA**

**Wednesday, November 9, 2011, 8:20 a.m.  
Madison Avenue Meeting Room  
500 SW Madison Avenue**

- I. INTRODUCTIONS
- II. APPROVAL OF MINUTES  
October 12, 2011
- III. CACOT/VISITOR'S COMMENTS
- IV. OLD BUSINESS  
On-Time Performance of CTS Routes
- V. NEW BUSINESS  
Benton County Presentation on Roundabouts - Benton County Engineer Laurel Byer
- VI. INFORMATION SHARING
- VII. COMMISSION REQUESTS AND REPORTS
- VIII. PENDING ITEMS
- IX. ADJOURNMENT

Future Meetings:

Wednesday, December 14, 2011, 8:20 a.m., Madison Avenue Meeting Room

Wednesday, January 11, 2012, 8:20 a.m., Madison Avenue Meeting Room

Commission Members:

Stephan Friedt, Chair

Susan Hyne, Vice-Chair

Ray Shimabuku

Brandon Trelstad

Mike Beilstein, Council Liaison

Robert E. Wilson

Kriste York

Robert Monasky

Evan Sorce, ASOSU Representative

The Madison Avenue Meeting Room is accessible to the public.  
Please contact Tim Bates at (541) 766-6916  
if you need special accommodations to attend the meeting.

**CORVALLIS CITIZENS ADVISORY COMMISSION ON TRANSIT  
MINUTES  
October 12, 2011**

**Present**

Stephan Friedt, Chair  
Susan Hyne, Vice Chair  
Robert Monasky  
Evan Sorce  
Brandon Trelstad  
Robert E. Wilson  
Kriste York

**Staff**

Tim Bates, Public Works  
Brie Caffey, Public Works

**Visitors**

Brian Maxwell, First Student  
Linda Elder, Dial-A-Bus

**Absent**

Mike Beilstein, Council Liaison  
Ray Shimabuku

**SUMMARY OF DISCUSSION**

Agenda Item	Information Only	Held for Further Review	Recommendations
I. Introductions	X		
II. Approval of August 10, 2011 Minutes			Approved, as amended
III. CACOT/Visitor Comments			N/A
IV. Old Business			N/A
V. New Business	X		
VI. Information Sharing	X		
VII. Commission Requests and Reports	X		
VIII. Pending Items			N/A
IX. Adjournment			Adjourned at 9:20 am

**CONTENT OF DISCUSSION**

**I. Introductions**

The meeting was called to order at 8:20 am by Chair Friedt. Introductions of Commission members, staff, and visitors were made.

**II. Approval of Minutes**

Commissioner Trelstad requested a correction to page 2: Commissioner Wilson seconded the approval of the August 10<sup>th</sup> minutes, not Commissioner Trelstad.

**With that correction, Commissioner Wilson and Vice Chair Hyne, respectively, moved and seconded to approve the August 10, 2011 minutes. The motion passed unanimously.**

**III. CACOT/Visitor Comments**

None.

**IV. Old Business**

None.

**V. New Business**

Brian Maxwell of First Student reported that CTS ridership is very strong. The buses are running well, except for Bus 746, which continues to present mechanical challenges. Mr. Maxwell reported the drivers are doing their best to keep the buses on schedule. He said drivers are using the signal priority system (Opticom) but it is difficult to determine how much it is helping to maintain on-time performance. Mr. Bates reminded the group that Opticom will not change a red light to a green, but it will hold a green and speed up the light cycle, so that a red light becomes green faster than in a normal cycle.

Mr. Bates gave a construction update, noting that 9<sup>th</sup> Street between Monroe and Jefferson should be opening later this week. He said that closure has affected at least half of the bus routes. Mr. Bates said the Marys River Bridge project has affected Route 6 and the Beaver Bus Southeast Route, and should last another 2-3 weeks. Information about detours is on the CTS web site and signage is posted at affected bus stops.

Mr. Maxwell reported that high pedestrian and vehicle traffic on OSU campus streets has also slowed the buses.

Commissioner Sorce asked about transfers now that transfer slips are not necessary. Mr. Maxwell explained that passengers are encouraged to verbally request transfers when boarding. He said drivers will hold a bus at the DTC for a maximum of three minutes but he is hesitant to authorize holding buses beyond that time because even those three minutes could put stress the system for the rest of day. Mr. Maxwell said drivers will often help customers find mid-system connections that will work for them. Mr. Maxwell explained that Route 5 is experiencing very heavy ridership that may be affecting on-time performance. He reported that he received a phone call from a woman who was concerned when she allegedly counted 85 people on route 5/6; he said he reassured her that mass transit is meant to carry large loads of people.

Mr. Maxwell reported that strollers are becoming an issue because people are using strollers as de facto shopping carts, carrying the child on the way to the store and groceries on the way back from the store. When the stroller is filled with groceries and they have their child in their hands, some riders resist folding the stroller to make room for other strollers or wheelchairs. Mr. Bates said drivers should feel empowered to enforce CTS's policy that strollers must be folded to make room for a wheelchair.

**VI. Information Sharing**

Mr. Bates reviewed the Information Sharing Report. Comments in addition to the report

included:

Chair Friedt asked how the costs for refurbishment and placement of the Philomath Connection shelters were funded. Mr. Bates explained that the FTA considers Philomath part of our urbanized area and therefore the Philomath shelter project was an eligible under the City of Corvallis' ARRA grant. Most of the ARRA money was used to purchase three new CTS buses and make improvements to existing CTS shelters and stops. Mr. Bates and Mrs. Caffey said staff is considering using the remaining funds for items such as CTS shelter ADA upgrades, Simme Seat placements at CTS stops, and backdoor landing pads at CTS stops. The Corvallis City Attorney is making a transfer of property so the City of Philomath will own the three refurbished shelters and pay for future maintenance and cleaning. Commissioner Monasky asked that information on any new shelters be sent to him so that he may update the Google Transit database.

Mr. Bates reported on the VIS vendor presentations, noting that the most recent presenter said they could upgrade some of our current equipment, which may eliminate the need for an RFP process. Mr. Bates said staff is still planning a trip to Rogue Valley Transit District to see a demonstration of their recently-purchased VIS system. Commissioner Monasky suggested that it would be helpful if the company we choose can produce an information feed compatible with Google Transit so that the data doesn't have to be input twice - once into the VIS system and once into Google Transit.

Visitor Linda Elder, Executive Director of Dial-A-Bus, reported that Dial-A-Bus is struggling with accuracy of data in ridership reports. She said there was a breakdown in communication between Dial-A-Bus and Benton County IRM, which facilitates the reports, when a new route was added. This communication issue caused inaccurate report numbers for CTS ADA rides. Mr. Bates noted that CTS contributes a fixed amount for ADA fare replacement directly to Benton County, and Benton County contracts with Dial-A-Bus, so the City's payment to the County remains the same regardless of the actual ridership numbers.

Mr. Bates reported that complaints of behavioral issues on the buses have declined. He said excluding individuals that caused issues this summer seems to have had a positive effect on disruptive behavior.

Chair Friedt asked about the search for BETC money, noting that if CTS does not find a partner, then we will be \$290,000 below expenses this year. Mr. Bates said City staff Lisa Namba and Jim Mitchell continue to seek BETC partners. Mr. Bates said if it appears that BETC is not going to be realized this year, Ms. Namba and/or Mr. Mitchell will go to City Council with a cost matrix that will indicate if we can get by without service cuts. Mr. Bates noted that we would receive more revenue this year if the Transit Operations Fee is raised, which is expected per the ordinance language. Commissioner Sorce asked about future funding if we don't receive BETC money now. Mr. Bates explained that CTS has approximately \$1.2 million worth of certified BETC credits. He said if BETC program does sunset we will need to either find revenues to make up the shortfall, or make cuts appropriate to the reduced revenue level. Mr. Bates said he expects that Council will have a large role in the long-range plan of CTS.

**VII. Commission Requests and Reports**

Commissioner Trelstad reported that OSU is partnering with the City on a project at 26<sup>th</sup> St. & Western Blvd to install a traffic signal, pedestrian improvements and a campus entrance probably some time next summer.

Chair Friedt requested staff produce general, on-time performance statistics, by route, so that CACOT may begin looking for trends. Staff agreed to provide this.

**VIII. Pending Items**

None.

**IX. Adjournment**

**Commissioners Wilson and Hyne, respectively, moved and seconded that the meeting be adjourned. The motion passed unanimously.**

The meeting was adjourned at 9:20 am.

**NEXT MEETING: November 9, 2011, 8:20 am, Madison Avenue Meeting Room**



## **Benton County Public Works October 2011**

# **Summary of the Modern Roundabout**

Picture credit: <http://www.strans.org/roundabouts.html>

This document is compiled from numerous resources and studies that are available on the internet as well as anecdotal evidence. It is intended to provide the reader who is currently unfamiliar with modern roundabouts an overview about how a roundabout works, differences between a roundabout and a traffic circle, and general safety considerations.

# Summary of the Modern Roundabout

By Laurel Byer, PE  
County Engineer

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## Introduction

This document was generated as part of a public information outreach effort on the proposed use of roundabouts as an appropriate traffic management option within Benton County. In general, the community has not viewed roundabouts as a favorable alternative which is a typical initial reaction in communities that have installed roundabouts. Once a roundabout is installed and in operation, the community has found that it is a safe, viable option. Benton County put together this document to address the most prevalent concerns and safety issues. We hope you find this information useful. At the end of the document are links for more information on the internet.

## Issue: Roundabout vs. Traffic Circle

**Roundabouts** are circular intersections where traffic flows around a central island. There is a circular roadway around the large central island where all vehicles travel counterclockwise. Vehicles entering the roundabout yield to those already circulating in the intersection. Vehicle speeds are generally 15-25 mph and the goal is to keep traffic moving through the intersection.



There are multiple benefits to using a roundabout:

1. Increased Safety - Slower, consistent traffic speed (15-25 mph) and elimination of dangerous left turns make roundabouts a safer option for bicyclists and pedestrians as well as drivers. Additional safety measures for pedestrians include location of cross-walks at least one car-length away from the actual roundabout and pedestrian refuge islands between lanes on approach roads.
2. Improved operation - Roundabouts eliminate unnecessary idling at red lights and stop signs. By increasing intersection capacity, the need to widen the entire section of street goes away. In other words, a two-lane road with a roundabout is often more efficient than a four-lane road with a traffic signal because the traffic flows smoothly through the intersection.

3. Aesthetics - Increased landscaping opportunities on the central island and splitter island can improve the overall appearance of the intersection.
4. Fuel Savings- Because vehicles do not have to stop at red lights and stop signs, there is significant fuel savings over time. This is better for our pocket-books and the environment.
5. Better for the Environment - By eliminating unnecessary stopping and traffic lights, roundabouts reduce fuel consumption and improve air quality. Roundabouts cut hydrocarbon emissions at intersections by as much as 42%. A roundabout requires fewer travel lanes for turn movements and therefore may have less of an impact on the surrounding area.

**Traffic circles** are raised islands, placed in intersections, around which traffic circulates. They are good for calming intersections, especially within neighborhoods, where large vehicles are not a major concern but speeds, volumes, and safety are problems.

Advantages:

- Traffic Circles are very effective in moderating speeds and improving safety
- Placed at an intersection, they can calm two streets at once

Disadvantages:

- They are difficult for large vehicles (such as fire trucks) to circumnavigate
- They must be designed so that the circulating lane does not encroach on the crosswalks
- They may require the elimination of some on-street parking
- Landscaping must be maintained, either by the residents or by the municipality

In the early 1990's, the neighborhoods near the intersection of 10<sup>th</sup> and Grant in Corvallis were experiencing significant cut-through traffic on 10<sup>th</sup> Street at the expense of their livability. They approached the City for assistance in re-directing and slowing down traffic. A system of speed humps on 10<sup>th</sup> Street and a traffic circle at the intersection of 10<sup>th</sup> and Grant were installed on a trial basis. After almost a year of operation, the intersection was re-studied and it was determined that the number of cars decreased by approximately 15% and average speeds were lowered from 28 mph to 25 mph. Based upon written comments, the community was not supportive of the traffic circle; however, the neighborhood wanted the traffic calming to stay because they felt the safety and livability of their neighborhood improved.

## Issue: If it Ain't Broke...

Some of the comments we hear from the public are, "If a traffic signal works, why use a roundabout?" and "There will be more accidents because nobody knows how to drive in a roundabout." However, studies have shown that it is just not true. Roundabouts have fewer conflict points and lower speeds compared to conventional intersections, resulting in a significant overall reduction in the severity of crashes for all users.

A 2001 study by the *Insurance Institute for Highway Safety* showed that the conversion of 23 intersections from traffic signals or stop signs to roundabouts **reduced fatal crashes by 89%, injury crashes by 76%, and all crashes by 39%**. Another study by the *New York State Department of Transportation* showed a 75% decrease in injury crashes and a 37% decrease in total crashes at 35 intersections that were converted from traffic signals to roundabouts. The crashes in a roundabout tend to be 'fender benders' compared to the much more severe 'T-bone' crash typical at a signalized intersection.

Human nature is a strong force and it has a single overwhelming purpose to keep us and our loved ones safe. We are trained throughout our lives to discern between what is okay, and what is dangerous. When you accidentally touched the hot stove as a child, you put it in your memory banks that it hurt and not to do it again. When you strayed too far from your parents and they called you back with that tone of worry and fear in their voices, your subconscious took note. Generally, the lesson learned was "if it is unfamiliar, it could be dangerous. Only trust the things you know." This can also be applied to the introduction of a roundabout into a community as it is common for the community to be opposed to a roundabout before construction. However, once it is built, the public perception shifts.

### Public Attitude Toward Roundabouts Before And After Construction\*

Attitude	Before Construction	After Construction
Very Negative	23%	00%
Negative	45%	00%
Neutral	18%	27%
Positive	14%	41%
Very Positive	00%	32%

\* taken from U.S. Department of Transportation statistics

There is currently one roundabout within the boundary of Benton County and it is located in North Albany at the intersection of North Albany Road and Gibson Hill Road. City of Albany staff stated that public opposition was similar to the above statistics and approximately 70% of the local residents were opposed to the installation of the roundabout in North Albany. Some of the objections were:

- It's a European idea that won't work in the US.
- Drivers get trapped going in circles forever.

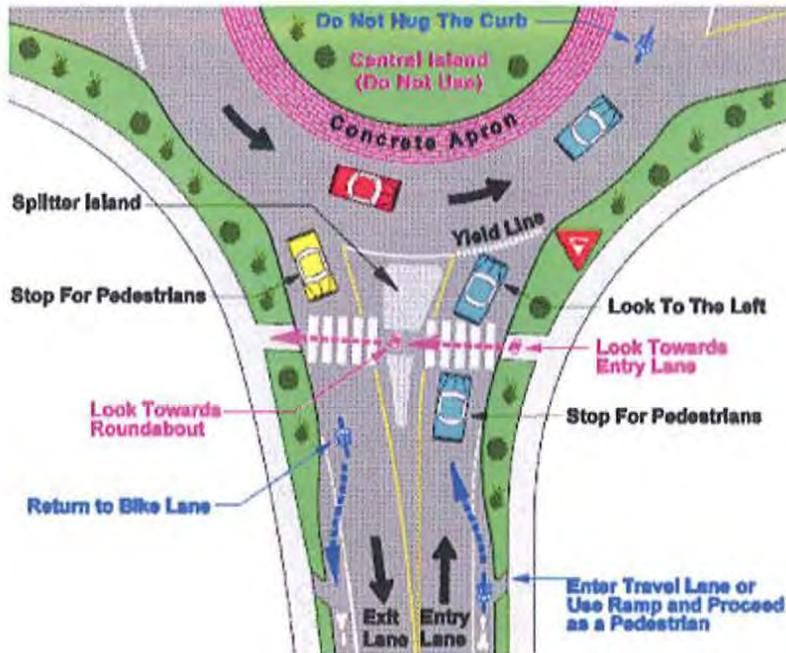
- It's going to have a high crash rate and be a safety problem
- It will cause congestion.
- US drivers don't know how to use them.
- Trucks won't be able to navigate them.

City staff speculates that the split has probably reversed and about the same percentage of residents that were opposed now support it. The City Council feels that it has worked well and have been willing to consider adding more roundabouts at locations where they have an operational or safety advantage. The City opened a new roundabout this past summer on Knox Butte Road east of Goldfish Farm Road. The new one is intended to provide both vehicle and pedestrian access to a new elementary school.

The North Albany roundabout operates substantially better from both a capacity and safety perspective than a signal. In addition, the City has seen pretty big benefits for pedestrians. The yield rate by drivers is extremely high and combined with the low circulating speeds it makes it a very safe pedestrian crossing point. That advantage is one of the reasons the City went with a roundabout on Knox Butte last summer. The City of Albany has two more roundabouts in the planning stage with no firm construction date.

## Issue: How Does a Roundabout Work?

A roundabout is a circular intersection. Traffic maneuvers around the circle in a counterclockwise direction, and then turns right onto the desired street. All traffic yields to vehicles in the roundabout and left-turn movements are eliminated. Unlike a signalized intersection, vehicles generally flow and merge through the roundabout from each approaching street without having to stop. Vehicle speeds are generally 15-25 mph and the goal is to keep traffic moving through the intersection. In general, the approach lanes (also called splitter lanes) to the roundabout are designed to slow the vehicle down prior to reaching the crosswalk.



Driving vehicles in a roundabout:

1. Slow down. Watch for and obey traffic signs.
2. Yield to pedestrians and bicyclists as you enter and exit the roundabout.
3. Look to the left for traffic.
4. Enter when it is safe.
5. Keep your speed low and stay in your lane within the roundabout (do not pass or change lanes within the roundabout).
6. Exit carefully to your destination. Use your right-turn signal, in front of the splitter island just prior to your exit, to indicate your intention to exit.

## Issue: Bicycle and Pedestrian Safety

Proper accommodation of pedestrians and bicyclists in roundabouts represents an area of continuing research and development. Properly designed roundabouts include sufficient deflection and splitter islands at the approaches to slow vehicles. The literature shows that, given a properly designed single-lane roundabout, motorist and pedestrian safety is almost always improved when compared to conventional intersections. Roundabouts have fewer conflict points and lower speeds compared to conventional intersections, resulting in a significant overall reduction in the severity of crashes for all users.

As with conventional intersections, a cyclist using a roundabout can proceed either as a motor vehicle or as a pedestrian using the sidewalk and marked crosswalks. If proceeding as a motor vehicle, merging with traffic is required at the entry. This may take some skill and judgment but is not unlike traveling through a conventional intersection. Motorists must detect cyclists upon entry, circulating and exiting so as not to merge into or turn in front of them. Properly designed single lane roundabouts reduce vehicle speeds sufficiently so that most cyclists feel comfortable sharing the road. Marking bicycle lanes through the roundabout has not been shown to be safer.



This single lane roundabout in Grand Junction, Colorado, shows how bike lanes are handled. The cyclist has two options- either use the ramp up onto the sidewalk and proceed more as a pedestrian or take the center of the lane and go around just as a motor vehicle. Bike lanes are not striped around modern roundabouts because of the risk of collisions due to blind spots.

### Driving bicycles in a roundabout:

1. If you are riding on the shoulder or bike lane, merge into the traffic lane before the shoulder ends.
2. Signal your intent to move into traffic.
3. Once inside the roundabout, don't hug the curb.
4. Ride close to the middle of the lane to prevent cars from passing and cutting you off.
5. Watch for cars waiting to enter the roundabout, as they may not see you.
6. If you do not want to ride your bike in the roundabout, use the sidewalk and proceed as a pedestrian.

Additional safety measures for pedestrians include location of cross-walks at least one car-length away from the actual roundabout and pedestrian refuge islands between lanes on approach roads. The splitter islands at roundabouts allow pedestrians to cross one direction of traffic at a time. This is a significant advantage over conventional intersections. If motorists do not yield to pedestrians at the crosswalk, pedestrians must select a gap in traffic before crossing.



Splitter islands allow pedestrians to cross one direction of traffic at a time.

Photo: [www.pedbikeimages.org](http://www.pedbikeimages.org).

People who are visually impaired must be able to detect where and when to cross, be able to stay in the crossing area, and detect and exit the crossing. Properly designed and installed curb ramps and warning devices at the sidewalk sides of the crossing and in the splitter island aligned with the crosswalks can help address detecting where to cross and exit. The alignment along with highly visible crosswalk markings can assist pedestrians in staying in the crossing.

Overall, single-lane roundabouts can work well for most cyclists and pedestrians if properly designed and implemented. Lower operating speeds compared to conventional intersections reduce the overall severity of crashes that may occur.

## **Issue: Senior Driver Safety**

Intersections are dangerous places for drivers of all ages, and they pose a special risk for older drivers. According to several studies by the Insurance Institute for Highway Safety, drivers ages 65-69 are more than twice as likely to be in fatal multivehicle intersection crashes as drivers ages 40-49. Drivers 85 and older are about 11 times more likely than these younger drivers to be in fatal multi-vehicle intersection crashes. The problem seems to be related to situations when the older driver must evaluate changing information from the left and right before pulling into the intersection. For instance, at a stop sign the driver must check for traffic on the left, then check for traffic on the right, and pull into the intersection when it is safe. Compared with drivers ages 35-54 and 80 and older, drivers ages 70-79 made more evaluation errors -- seeing another vehicle but misjudging whether there was adequate time to proceed. In contrast, drivers 80 and older predominantly failed to see or detect the other vehicle.

As we age our hearing, vision, reaction time, thought processes, ability to attend to tasks, and the ability to maintain attention decline. Because the number of older drivers is projected to increase (approximately 20 percent of licensed drivers in the United States will be age 65 and older by 2020) it is important to identify ways to reduce the frequency and severity of their intersection crashes. Improved side impact protection, especially airbags, will help protect older drivers from serious injury in intersection crashes, researchers note. Lowering their crash involvement likely will involve reducing or simplifying the situations in which they must make quick decisions. Countermeasures to reduce crash risk include signals with full left-turn protection, four-way stop signs, and roundabouts.

Roundabouts may help to reduce failure-to-yield crashes at intersections, especially among older drivers, since they serve to slow traffic and organize it into a safer pattern. Research has indicated that when roundabouts are compared to traditional intersections, drivers exhibit increases in selective attention, divided attention, perception and reaction time.

## **Issue: Transit, Emergency Services, and Delivery Trucks**

It is all about design. Additional width required to accommodate the turning paths of larger vehicles, semi-trailers, and buses can be provided by designing the outer portion (truck apron) of the central island for encroachment. This is done by placing mountable curbs along the central island radius at least two inches in height to discourage regular vehicle traffic. The encroachment area, between this curb and the raised portion of the central island must be designed as load bearing pavement. When an emergency services vehicle enters the roundabout, regular vehicle traffic should continue through the roundabout and then pull over to the right to let them pass.



## **Issue: Construction and Maintenance Costs**

The cost for a landscaped roundabout varies widely and can range from \$45,000 to \$150,000 for neighborhood intersections and up to \$250,000 for arterial street intersections, not including additional right-of-way acquisition. The average initial cost of installation of a traffic signal is around \$200,000. Yet roundabouts have lower ongoing maintenance costs than traffic signals.

## **The Big Issue: SW West Hills Road and 53<sup>rd</sup> Street**

Benton County Public Works is investigating the feasibility of a roundabout at the intersection of SW West Hills Road and SW 53<sup>rd</sup> Street. The intersection currently meets warrants (engineering requirements) for the installation of a traffic control treatment (signal or roundabout). Currently, the Level of Service on West Hills Road is failing and traffic backs up as they wait for gaps in the traffic on SW 53<sup>rd</sup> Street. With over eight thousand cars a day, it can take a while for those gaps to appear, so drivers are taking chances. The proposed roundabout is similar in design to the roundabout located in Albany at Knox Butte Road and Timber Ridge Street.

Benton County staff held an Open House for this and other projects along the West Hills and 53<sup>rd</sup> Street corridor in February of 2010. In general, a large segment of the public is not in support of installing a roundabout. However, Benton County has support for pursuing a roundabout at this intersection from the Benton County Roads Advisory Committee, the Corvallis Area Metropolitan Planning Organization (CAMPO) Technical Advisory Committee, and the CAMPO Policy Board. The County is seeking additional support through both the City and County Bicycle and Pedestrian Advisory Committees and the Corvallis Citizen's Advisory Commission on Transit. The next step will be to present the findings to the City Council for their support and then to the County Commissioners for a final decision.

## Sources and Links:

<http://trafficalming.org/measures/traffic-circles/>

<http://www.strans.org/roundabouts>

<http://www.walkinginfo.org/engineering/roadway-roundabouts.cfm>

<http://www.bicyclinginfo.org/faqs/answer.cfm?id=3454>

[http://www.safeandmobileseniors.org/pdfs/You\\_Want\\_a\\_Revolution.Time\\_9-15-08.pdf](http://www.safeandmobileseniors.org/pdfs/You_Want_a_Revolution.Time_9-15-08.pdf)

<http://safety.fhwa.dot.gov/intersection/roundabouts/>

<http://forestlaketimes.com/2011/02/08/roundabout-could-have-positive-benefits-for-seniors/>

<http://www.dot.state.mn.us/roundabouts/>

[http://www.slate.com/articles/life/transport/2009/07/dont\\_be\\_so\\_square.single.html](http://www.slate.com/articles/life/transport/2009/07/dont_be_so_square.single.html)

<http://www.roundaboutsusa.com/>

<http://www.iihs.org/>

[http://www.oregon.gov/ODOT/HWY/ENGSERVICES/roundabout\\_home.shtml](http://www.oregon.gov/ODOT/HWY/ENGSERVICES/roundabout_home.shtml)

<http://www.kittelson.com/toolbox/roundabouts>

<http://www.fhwa.dot.gov/publications/research/safety/00068/>

<http://www.co.benton.or.us/pw/index.php>