FILE

City of Lake Elmo
City Council Workshop
3800 Laverne Avenue North
Lake Elmo, MN 55042
January 19, 2010

6:30 p.m. – 8:30 p.m. (?)

Agenda

1. Planning Status Update – City Planner
2. Presentation on Roundabouts
3. Discussion on proposed 2010 Fee Schedule
4. Adjourn

A social gathering may or may not be held at the Lake Elmo Inn following the meeting.

CITY OF LAKE ELMO

MAYOR & COUNCIL WORKSHOP

DATE: 1/19/10
WORKSHOP
ITEM # 1
DISCUSSION

AGENDA ITEM: Planning Status Update

SUBMITTED BY: Kyle Klatt, Planning Director

THROUGH: Bruce Messelt, City Administrator BAM

SUMMARY AND ACTION REQUESTED: The City Council is being asked to review a brief status report regarding two items that have recently been considered by the Planning Commission, including the following:

- *Sketch Plan Review for Eder's Century Pines Subdivision.* The Planning Commission has accepted a sketch plan for this subdivision, which will allow the applicants to proceed with a formal preliminary plat request. Council action is not required on this item.

- *Floodplain Management Ordinance Update.* This item will be placed on the Council's January 26, 2010 agenda for action.

The purpose for a workshop discussion on these items is to give the City Council a chance to review these future action items before it needs to make a decision on them. Detailed information on each item is available in last months Planning Commission packet and will not be resubmitted for the Council meeting with the exception of the Eder's sketch plan.

BACKGROUND INFORMATION:

(1) ***EDER'S CENTURY PINES SKETCH PLAN:*** The proposed subdivision has been requested by the Eder Family to facilitative the re-subdivision of the former family farm into six new lots, three of which would be occupied by existing single family dwellings or farm related outbuildings. According to the City Code, the purpose of the sketch plan review is as follows:

> "In order to ensure that all applicants are informed of the procedural requirements and minimum standards of this chapter and the requirements or limitations imposed by other city ordinances or plans, prior to the development of a preliminary plat, the sub-divider shall meet with the Planning Commission and prepare a sketch plan which explains or illustrates the proposed subdivision and its purpose. The Planning Commission shall accept the information received, but take no formal or informal action which could be construed as approval or denial of the proposed plat."

Although the Commission was not required to take any formal action, Staff provided an initial analysis of the proposed plat as part of its report to the Commission. The Commission spent a fair amount of time at its meeting discussing Staff's recommendation to require a "re-subdivision plan" or "ghost plat" with the preliminary plat submission. The Planning Commission, via an informal poll, overwhelming decided that the applicants should not have to submit such a plan with their preliminary plat request.

Due to the limited scope of the proposed subdivision, Staff has recommended that the preliminary and final plat stages be combined into one application and review process.

(2) ***FLOODPLAIN MANAGEMENT ORDINANCE UPDATE:*** The Planning Commission previously conducted a public hearing concerning an update to the Floodplain Management Ordinance (Chapter 152 of the City Code) and recommended approval of a new ordinance that more closely aligns with the model ordinance drafted by the Minnesota Department of Natural Resources (DNR). This ordinance has been sent to the DNR for review and comment in accordance with State Statues, and the City has received a response back from the DNR concerning the draft regulations. A summary of the comments is provided below.

Given the relatively minor nature of the requested changes, Staff recommended that the Planning Commission accept the revisions as drafted by the DNR and forward the draft ordinance to the City Council for final adoption. Based on an opinion rendered by the City Attorney, the City will not need to conduct another public hearing prior to adoption of the ordinance.

Staff developed a table for the Planning Commission summarizing the DNR's comments regarding the draft ordinance. The full text of the draft ordinance with the DNR changes is available form the Planning Department. The comments from the DNR, and any response as appropriate from Staff, are as follows:

Page	Section	Comment
1	152.02 (2.2)	Minor revisions to provide a more specific reference to the maps that are adopted by reference. City official responsible for maps is changed to the City Administrator.
3	152.02 (2.87)	Added correct title for FIS maps
7	152.04 (4.45)	*DNR COMMENT: The ratio of 1-inch per 1-sq.ft. is for the total openings, not each opening.* This change would amend the Planning Commission's recommendation to apply the maximum area calculation to each opening. The DNR's comment clarifies the intent of this section.
16	152.10 (10.35)	*DNR COMMENT: Verify that the City code specifies a timeline.* The section referenced in the draft ordinance required action within 60 days unless otherwise extended pursuant to state rules.

Page	Section	Comment
16	152.10 (10.37)	*DNR COMMENT: FEMA requires that the dollar amounts be specified. Please do not delete.* The Planning Commission did not recommend inclusion of specific dollar amounts. The City should reconsider its original position based on the FEMA requirements.
17	152.10 (10.42)	*DNR COMMENT: Verify that the city code includes a time line.* The section referenced in the draft ordinance includes a specific maximum time frame for Planning Commission review and Council action on Conditional Use Permits (i.e. the Council must take action within 60 days of receiving the Planning Commission's report).
18	152.10 (10.45)	*DNR COMMENT: In this included somewhere else in the City Code? Please verify.* Since this falls under the requirements for Conditional Uses, it would be subject to the time limits established in the Zoning Ordinance and already referenced earlier in this section (please note that the DNR will be provided with the appropriate reference and time limits as part of the City's final submission)

None of the comments appears to significantly change the Planning Commission's original recommendation, and Staff therefore recommended that the Commission forward the final document with all changes requested by the DNR to the City Council for final adoption. As noted above, the draft ordinance (with the DNR revisions) will be placed on the January 26, 2010 Council Meeting for final action. The City is required to adopt the revised ordinance by February 3, 2010 to remain in compliance with the National Flood Insurance Program.

The public hearing for the proposed ordinance was conducted by the Planning Commission on October 26, 2009 and continued until the November 9, 2009 meeting. The Commission did recommend approval of the final ordinance at its last meeting.

ATTACHMENTS:

1. Eder's Century Pines Sketch Plan

SUGGESTED ORDER OF BUSINESS:

- Introduction of Item .... City Administrator
- Staff Presentation/Discussion .... Planning Director
- Questions from Council to Staff .... Mayor Facilitates
- Public Input, If Appropriate .... Mayor Facilitates

EDER'S CENTURY PINES
Sketch Plan

Folz, Freeman, Erickson, Inc.
LAND PLANNING • SURVEYING • ENGINEERING
FFE
12445 55TH STREET NORTH
LAKE ELMO, MINNESOTA 55042
Phone (651) 439-8833 Fax (651) 430-9331

ORIGINAL SCALE
1 INCH = 100 FEET
0 50 100 200
SCALE IN FEET

LEGEND

- ○ DENOTES SET ½ INCH BY 16 INCH IRON PIPE MONUMENT MARKED WITH A PLASTIC CAP INSCRIBED "FREEMAN LS 16989", UNLESS SHOWN OTHERWISE
- ● DENOTES FOUND MONUMENT, SIZE AND MARKINGS AS INDICATED
- DENOTES POWER POLE
- Ⓣ DENOTES TELEPHONE MANHOLE
- DENOTES TELEPHONE PEDESTAL

NOTES

1) ORIENTATION OF THIS BEARING SYSTEM IS BASED ON THE WASHINGTON COUNTY COORDINATE SYSTEM (NAD83) WHERE THE NORTH LINE OF THE NE1/4 OF THE NE1/4 OF SECTION 10, T29N, R21W, BEARS N89°40'49"E.

2) ELEVATIONS BASED ON THE NORTH AMERICAN VERTICAL DATUM 1988. SITE BENCHMARK IS THE TOP OF A WASHINGTON COUNTY CAST IRON MONUMENT AT THE NORTHEAST CORNER OF SECTION 10, T29N, R21W. BENCHMARK ELEVATION = 969.48 FEET

3) ZONING INFORMATION FROM CITY OF LAKE ELMO ZONING MAP DATED 09-17-07.

4) PARCEL IDENTIFICATION NUMBERS, NAMES AND ADDRESSES FROM WASHINGTON COUNTY TAX INFORMATION.

5) GROSS AREA OF PLAT = 78.5 ACRES. ROADWAY TO BE DEDICATED = 4.7 ACRES.

6) DRAINAGE AND UTILITY EASEMENTS BEING 10 FEET WIDE ALONG ALL BLOCK LINES AND 5 FEET WIDE EACH SIDE OF ALL LOT LINES.

I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the Laws of the State of Minnesota.

[signature] December 04, 2009
Timothy J. Freeman, LS — Date
Minnesota License No. 16989

Revisions

1) Add outlots at request of clients. Recalculate and revise areas.

MAYOR & COUNCIL WORKSHOP

DATE: 1/19/2010
WORKSHOP
ITEM #: 2
DISCUSSION

AGENDA ITEM: Presentation on Roundabout Design Concepts & Benefits

SUBMITTED BY: Request of City Council

THROUGH: Bruce A. Messelt, City Administrator BA

REVIEWED BY: Jack Griffin, City Engineer

SUMMARY AND ACTION REQUESTED: This item has been scheduled at the suggestion of the City Council during its January 12th, discussion of the 2010 Workplan. No Council action or direction is requested at this time; this item is for community and Council information only.

BACKGROUND INFORMATION: The intent of this item is to allow MNDOT to present the current design concepts and benefits of utilization of roundabouts throughout the region. At present, a Roundabout is scheduled for construction at the intersection of Jamica Avenue and Trunk Highway 5.

STAFF REPORT: City staff has included information from MNDOT and from other sources on the topic of Roundabouts. MNDOT and City Engineering staff has been invited to present to the Council and community on this topic and answer questions from the Council regarding the efficacy of roundabouts in Lake Elmo and elsewhere.

RECOMMENDATION: In addition to the above and attached background information, it is recommended that the City Council receive tonight's presentation for information purposes only.

ATTACHMENTS: As stated.

SUGGESTED ORDER OF BUSINESS:

- Introduction of Item .... City Administrator
- Report/Presentation ....MNDOT Representative/City Engineer
- Questions from Council to Staff .... Mayor Facilitates
- Public Input, if Appropriate .... Mayor Facilitates
- Council Discussion .... Mayor & City Council

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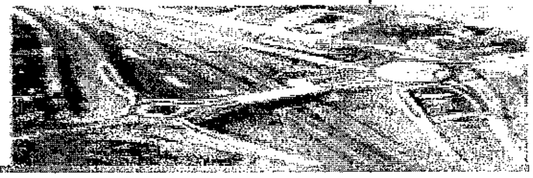

Roundabouts in Minnesota

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Why do we use roundabouts?

Roundabouts are often used in new or remodeled intersections to lower the incidence of crashes. View Video

Better safety: Roundabouts show a 39 percent decrease in all crashes and an 89 percent decrease in fatal crashes. More

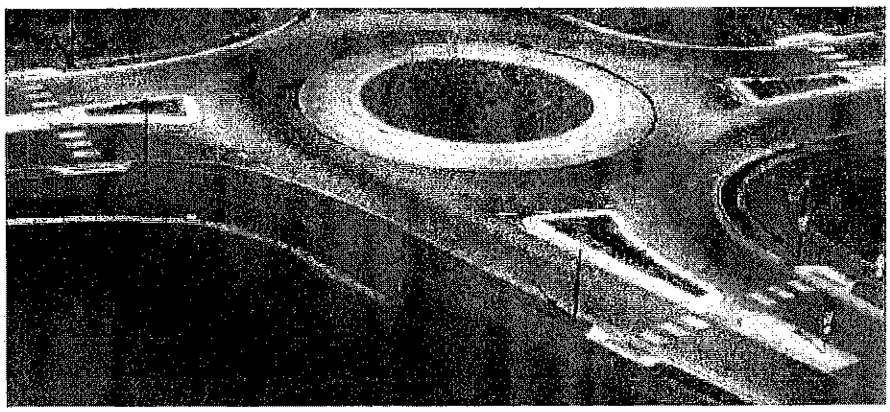
Better traffic flow: Roundabouts can handle high levels of traffic with less delay than most stop signs or signals.

The tight curves slow traffic so entering and exiting are easier and more efficient.

Better fuel efficiency and air quality: Where roundabouts replace signals, idling decreases which reduces vehicle emissions and fuel consumption by 30 percent or more.

Roundabouts in Minnesota

Minnesota is installing roundabouts at some intersections that have a high crash rate or where more than two roads intersect.



How to drive a roundabout

Animation (Courtesy of the Alaska DOT)

- Bicycle
- Car
- Truck
- Emergency Vehicles

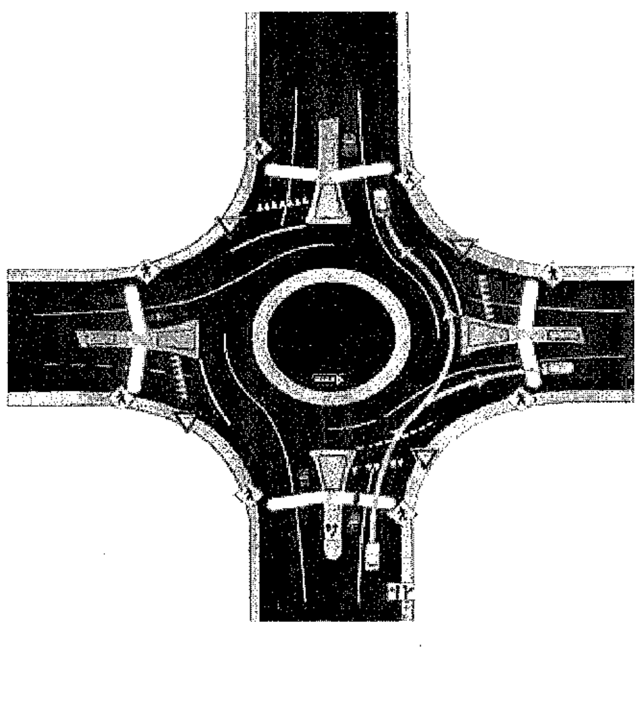
Driving tips

When approaching a roundabout, slow down and get into the appropriate lane.

Yield to pedestrians in the crosswalk. They have the right of way.

When entering a roundabout, yield to vehicles already in the circle. Merge into the traffic flow when it is safe.

Continue through the roundabout until you reach your exit. Do not stop or pass in a roundabout.



If an emergency vehicle approaches, exit immediately and then pull over and stop. Do not stop in the roundabout.

When exiting the roundabout, signal your turn and yield to pedestrians in the crosswalk. Minnesota Driver's Manual Chapter, Chapter 3, page 26.

Cyclists Cyclists can either ride with traffic inside the roundabout or use the crosswalks appropriately.

Cyclists who ride with traffic must follow the same rules as vehicles and must yield as they enter the roundabout. Since traffic moves slowly in the circle, cyclists should be able to travel at or near the same speed as motorists, staying in line with circulating traffic.

Pedestrians Cross only at crosswalks, and always stay on the designated walkways. Never cross to the central island.

Cross the roadways one direction at a time. Use the median island as a halfway point where you can check for approaching traffic.

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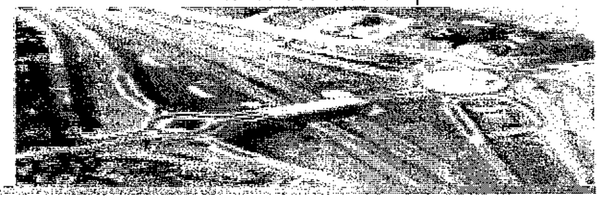
Minnesota Department of Transportation



Minnesota Roundabouts

Safety

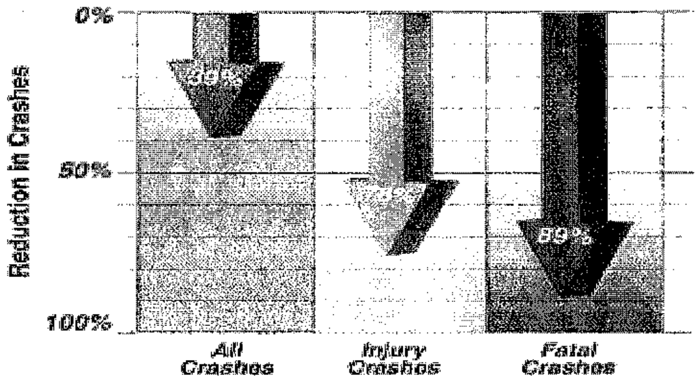
Safety

Due to slower speeds, and angle of collision impact, safety at a roundabout can be dramatically improved when compared to a traditional four-way intersection

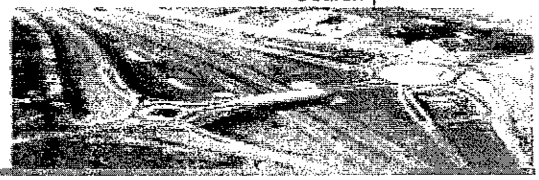
A study by the National Insurance Institute for Highway Safety reports that intersections converted to roundabouts show a 39 percent decrease in all crashes and an 89 percent decrease in fatal crashes.

Pedestrians are also safer in roundabouts because traffic is moving more slowly.

Reduction in Crashes After Conversion to Roundabouts (23 Intersections)



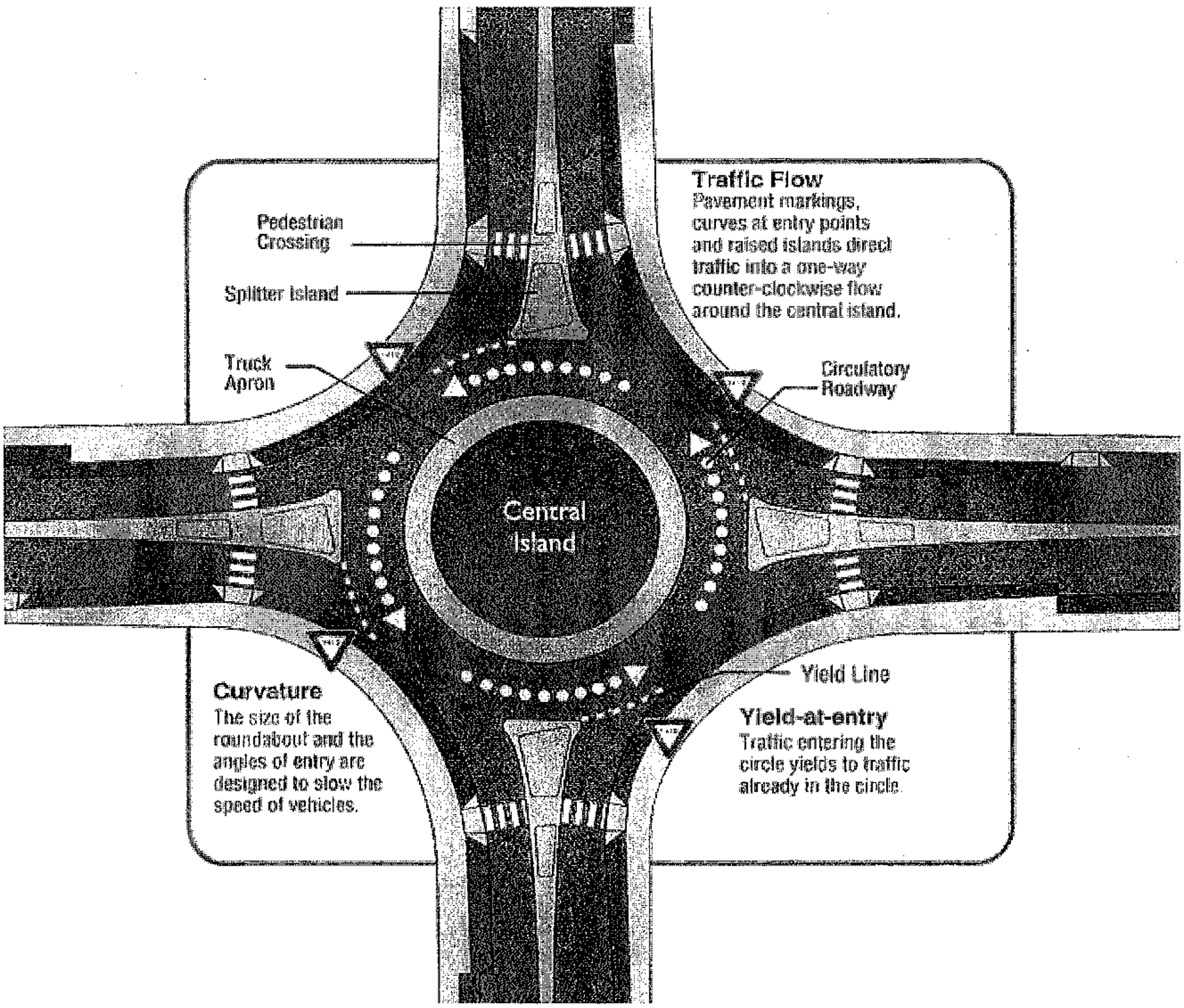
Source - Insurance Institute for Highway Safety .

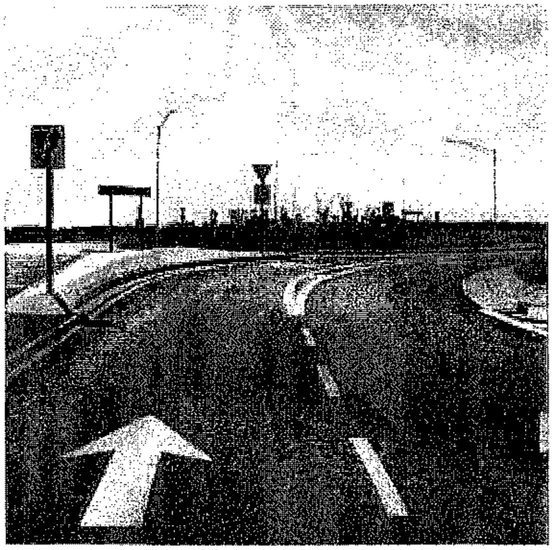


Roundabouts in Minnesota

Features

Features of roundabouts include one way traffic flow, yield at entry and the curvature of the roundabout.





One way traffic flow: Pavement markings, curves at entry points, and raised islands direct traffic into a one-way counter-clockwise flow around the central island..

Yield at entry: Traffic entering the circle yields to traffic already in the circle. This prevents the intersection from "locking up" which could happen if the traffic in the roundabout would have to stop for entering traffic.

Geometric curvature: The radius of the roundabout and the angles of entry, created by the design of the medians and the center island, slow the speed of all vehicles to around 15-25 mph.

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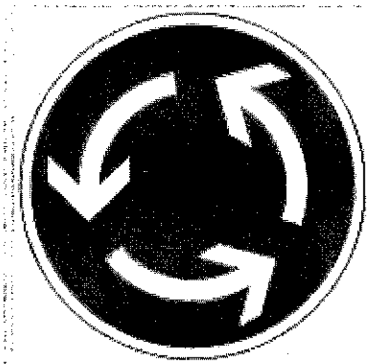
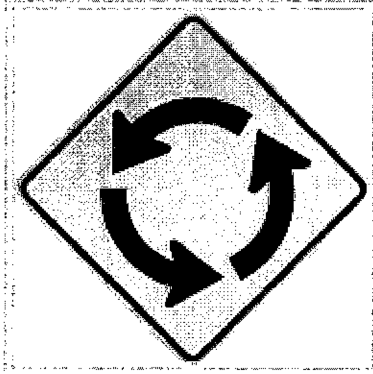
Roundabout

From Wikipedia, the free encyclopedia



Road sign for a roundabout in Germany (right-hand traffic). In the UK this symbol (with the arrows reversed) is used at mini roundabouts.



Road sign before a roundabout in the U.S. (right-hand traffic).

Traffic sign to identify a roundabout in the UK (left-hand traffic).

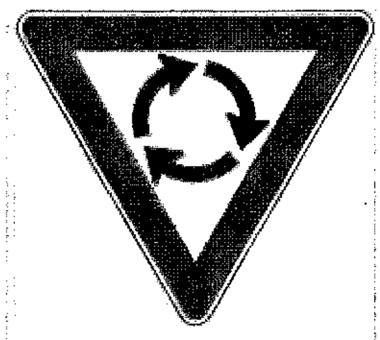
A **roundabout** is one of several types of circular road junctions or intersections at which traffic is slowed down and enters a one-way stream around a central island. Technically these junctions sometimes are called **modern roundabouts**, in order to emphasize the distinction from older circular junction types which had different design characteristics and rules of operation. In the United States those older designs commonly are referred to as "rotaries" or "traffic circles".

In countries where people drive on the right, the traffic flow around the central island of a roundabout is anticlockwise (also known as counterclockwise). In countries where people drive on the left, the traffic flow is clockwise.

Statistically, roundabouts are safer for drivers and pedestrians than both traffic circles and traditional intersections.[1] Because low speeds are required for traffic entering roundabouts they are not designed for high-speed motorways (expressways). When such roads are redesigned to take advantage of roundabout principles, steps are taken to reduce the speed of traffic, such as adding additional curves on the approaches.

Modern roundabouts are particularly common in the United Kingdom, Ireland, Morocco, Australia, and France. Half of the world's roundabouts are in France (over 30,000 as of 2008).[2] The first modern roundabout in the United States was constructed in Summerlin, Nevada in 1990,[3] and roundabouts have since become increasingly common in North America.

Contents



Give way sign at a roundabout in Australia (left-hand traffic).

Difference from traffic circles and rotaries

Starting in the 1960s, research in the United Kingdom found that circular junctions with certain geometric characteristics and traffic control schemes tended to be safer than those without them and the engineers building them distinguished them with the term *roundabout*.[4]

In US technical usage, circular junctions that have the following characteristics are roundabouts and those that do not are considered traffic circles or rotaries:[5]

- Roundabouts require entering drivers to give way to all traffic within the roundabout, regardless of lane position, while rotaries and traffic circles typically allow traffic to enter alongside traffic circulating in an inner lane without consequence.
- Generally, exiting directly from the inner lane of a multi-lane roundabout is permitted, and such exiting traffic has the right-of-way over entering traffic. By contrast, exiting from the inner lane of a traffic circle or rotary is usually not permitted without first executing a lane change to the outside of the circle.
- Deflection on entry is used to maintain low speed operation in roundabouts. Drivers must maneuver (are *deflected*) around the splitter islands and the central island, at speeds of 15–25 miles per hour (24–40 km/h). Many older rotary and traffic circle junctions allow entry at higher speeds due to the lack of deflection, or require a stop and a 90-degree turn to enter, creating a large difference in speed between entering and circulating traffic which can make it difficult for entering drivers to find suitable gaps in heavy traffic.
- Pedestrians are usually prohibited from the central island of roundabouts, and the crosswalk for pedestrians and some cyclists is withdrawn from the junction by at least the length of one vehicle.
- All vehicles circulate around the central island of a roundabout in the same direction, which is determined by whether traffic drives to the right or the left. In left-hand traffic countries the circulation is clockwise; in those that drive to the right, it is anticlockwise.
- Modern multi-lane roundabouts are typically less than 250 feet (75 meters) in diameter,[6] although signalised roundabouts and roundabout interchanges may be considerably larger.

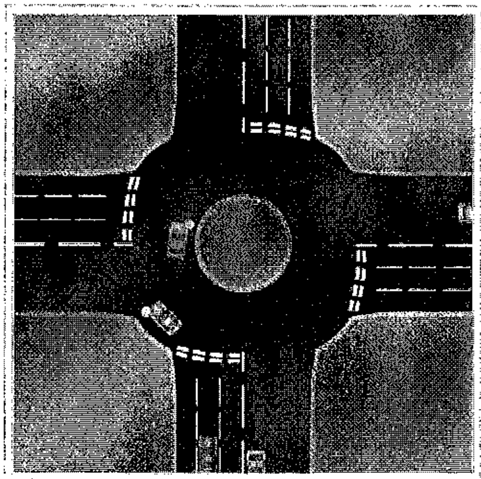
The term "traffic circle" is not used in the United Kingdom, where most circular junctions meet the criteria for roundabouts. The U.K. does, however, have roundabout variants such as mini-roundabouts and magic-roundabouts — see below for the distinctions from the type of junction generally referred to here as a roundabout).

In the U.S., many people use the terms "roundabout", "traffic circle", and "rotary" interchangeably. Many old rotaries and traffic circles remain in the Northeastern United States. Since many of the older junction forms have unfavourable safety records, transportation professionals are careful to use "roundabout" when referring to newer designs and "traffic circle" or "rotary" when referring to ones that do not meet the criteria listed above. The more precise term, *modern roundabout* is used often to differentiate more carefully.

A large number of traffic circles and rotaries have been converted to other types of junctions. Several have been converted to roundabouts, now meeting modern roundabout design standards, including the former Kingston traffic circle in New York and several in New Jersey.[7][8]

History

Numerous circular junctions existed before the advent of roundabouts, including the Place de l'Etoile around the Arc de Triomphe in Paris, Columbus Circle in New York City, and several circles within Washington, DC. However, the operating and entry characteristics of these circles differed considerably from modern roundabouts. The first British roundabout was built in Letchworth Garden City in 1909 - originally intended partly as a traffic island for pedestrians.[9][10] In the early 20th century, numerous rotary junctions were constructed in the United States, particularly in the northeast states, which allow entry at relatively high speeds and require entering drivers to weave with exiting and circulating traffic.



Movement within a roundabout in a country where traffic drives on the left. Note the clockwise circulation. There is also a right hand side version of the animation.

However, the widespread use of roundabouts began when British engineers re-engineered circular intersections during the mid-1960s and Frank Blackmore invented the mini roundabout [11] to overcome its limitations of capacity and for safety issues. Unlike traffic circles, traffic approaching roundabouts is normally required to give priority to circulating and exiting traffic and to eliminate much of the driver confusion associated with traffic circles and waiting queues associated with junctions that have traffic lights. Roughly the same size as signalled intersections with the same capacity, roundabouts also are significantly smaller in diameter than most traffic circles and rotaries, separate incoming and outgoing traffic with pedestrian islands to encourage slower and safer speeds (see traffic calming).

Safety

Roundabouts are safer than both traffic circles and traditional junctions—having 40% fewer vehicle collisions, 80% fewer injuries and 90% fewer serious injuries and fatalities (according to a study [12] of a sampling of roundabouts in the United States, when compared with the junctions they replaced). Roundabouts also reduce points of conflict between pedestrians and motor vehicles and are therefore considered to be safer for them. However, roundabouts, especially large fast moving ones, are unpopular with some cyclists. This problem is sometimes handled on larger roundabouts by taking foot and bicycle traffic through a series of underpasses or alternate routes.

A major signal-controlled roundabout in central Bristol, England. Vehicles drive on the left, and vehicles in the roundabout are stopped by traffic lights to allow other vehicles to enter.

At traditional junctions with stop signs or traffic lights, the most serious accidents are right-angle, left-turn, or head-on collisions that can be severe because vehicles may be moving fast and collide at high angles of impact. Roundabouts virtually eliminate those types of crashes because vehicles all travel in the same direction and most crashes are glancing blows at low angles of impact.[13]

While roundabouts can reduce crashes overall compared to other junction types, crashes involving cyclists may not experience similar reductions.. An analysis[14] of the New Zealand national crash database[15] for the period 1996–2000 shows that cyclists were involved in 26% of the reported injury crashes at roundabouts, compared to 6% at traffic signals and 13% at priority controlled junctions. The New Zealand researchers propose that low vehicle speeds, circulatory lane markings, and mountable centre aprons for trucks can improve the safety of cyclists within roundabouts.[16] These strategies are typically employed on modern roundabouts constructed in the United States.

The most common roundabout crash type for cyclists, according to the New Zealand study, involves a motor vehicle entering the roundabout and colliding with a cyclist who already is traveling around the roundabout (generally just over 50% of all cyclist/roundabout crashes fall into this category). The next most common crash type involves motorists leaving the roundabout, colliding with cyclists who are continuing further around the perimeter of the roundabout. Designs that have marked perimeter cycle lanes are found by research data to be even less safe than those without them, suggesting that in roundabouts cyclists should "take the lane", operating as a vehicle rather than riding on the exterior.

If the adjacent footpaths are not properly designed, there are increased risks for persons with visual impairments. This is because, unlike traffic signals, it is hard to hear if there is an adequate gap in traffic to cross. During the all-red interval at a signal, traffic comes to a stop, and blind pedestrians can tell by listening which direction gets the green light. Since there is often moving traffic at a roundabout, the sounds of non-conflicting traffic will mask gaps, or the sound of an idling vehicle whose driver has stopped to give way to the pedestrian.

This issue has led to a conflict in the United States between the visually impaired and civil engineering communities; some in the visually impaired community have taken the position that roundabouts (rather than signal-controlled crossings) are acceptable only if there are pedestrian crossings with signalised control at *each* road connecting to a roundabout. Engineers point out that since vehicle speeds are slower, crossing gaps are more plentiful, drivers are more apt to give way, and the severity of pedestrian crashes are lower than if the same driver had run a red light. However, the blind community considers this to be a civil rights issue, not an engineering issue. While pedestrian crossings with traffic lights installed in roundabouts are not unheard of (see below), signalisation is normally used on large-diameter roundabout interchanges rather than small-diameter modern roundabouts. Signalisation would also substantially increase the cost of roundabout construction and maintenance (essentially, both types of junction being built at every junction). Furthermore, equipping a roundabout with traffic-halting lights would decrease its throughput considerably, thereby artificially reducing or even eliminating the design's main advantage over traditional signal-equipped junctions. Signalisation would also increase delays for most pedestrians during light traffic, since pedestrians would need to wait for the signal to change to legally cross.

Capacity and delays

The capacity of a roundabout varies based on the number of entry and circulating lanes, and also on more subtle geometry elements including entry angle and lane width. Also, like other types of junctions, the operational performance of a roundabout depends heavily on the flow volumes from various approaches. A single-lane roundabout can be expected to handle approximately 20,000 to 26,000 vehicles per day, while a two-lane roundabout can be expected to handle 40,000 to 50,000 vehicles per day.[17]

Under many traffic conditions, an unsignalised roundabout can operate with less delay to users than traffic signal control or all-way stop control. Unlike all-way stop intersections, a roundabout does not require a complete stop by all entering vehicles, which reduces both individual delay and delays resulting from vehicle queues. A roundabout can also operate much more efficiently than a signalised junction because drivers are able to proceed when traffic is clear without the delay incurred while waiting for the traffic signal to change.

However, roundabouts can increase delays in locations where traffic would otherwise not be required to stop. For example, at the junction of a high-volume and a low-volume road, traffic on the busier road would normally not have to stop if the junction were signalised, because the traffic signals would provide a green signal to the busier road the majority of the time. When the volumes on the approach roadways are relatively balanced, a roundabout can reduce delay because each approach would otherwise encounter a red signal greater than half of the time if the junction were signalised.

Roundabouts can also reduce delays for pedestrians when compared to traffic signals, because pedestrians are able to cross during any safe gap rather than waiting for the traffic signal to provide the right-of-way to the pedestrian.

Several software packages exist to help with calculating capacity and queues at roundabouts. These include ARCADY, RODEL and SIDRA INTERSECTION[18].

Types

Large roundabouts such as those used at motorway junctions typically have two to six lanes around the central hub, and may have traffic lights regulating flow.

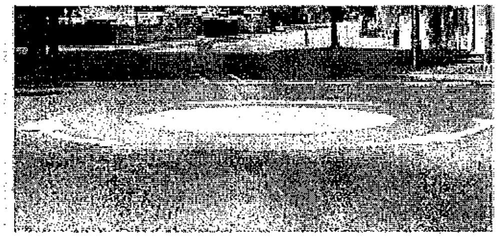
Some roundabouts have a divider between traffic turning from one road onto an adjacent one, and traffic within the roundabout, enabling those making such turns to bypass the roundabout entirely. Another type of roundabout is the through-about roundabout or "hamburger" junction. This type of roundabout enables straight-through traffic on one road to cross over the central island, while all other traffic must drive around the island. As a consequence this junction must always be controlled by traffic lights. Examples of this type exist in Bracknell, Hull,[19] Nottingham and Reading (all in England), as well as on the N2/M50 intersection in Dublin, Ireland.

Gyratory system

The term "gyratory" (for example, Hanger Lane gyratory) is sometimes used in the United Kingdom when a roundabout is large and has non-standard lane markings or priorities, or when there are buildings on the central island; in fact, they are more like traffic circles.[20]

Mini roundabouts

Mini-roundabouts exist at smaller junctions to avoid the use of signals, stop signs or the necessity to give way in favour of one road of traffic. Mini-roundabouts can be a painted circle, a low dome, or often are small garden beds. Painted roundabouts and low domes can easily be driven over by most vehicles, which many motorists will do when there is no other traffic, but the practice is dangerous if other cars are present. Mini-roundabouts work in the same way as larger roundabouts in terms of right of way. They can often come in "chains", making navigation of otherwise awkward junctions easier. There are usually different road signs used to distinguish mini roundabouts from larger ones.



A **mini-roundabout** in the United Kingdom, where a painted white circle is used for the centre. The arrows show the direction of traffic flow.

Mini-roundabouts are common in the UK and Ireland, as well as Irapuato in Mexico and Mount Royal and Rosedale in Calgary, Canada.

A slightly larger version of a mini-roundabout, sometimes called a "small roundabout", is designed with a raised centre surrounded by a sloped "overrun area" of a different colour from the roadway and up to a metre in thickness called a "truck apron" or a "mountable apron". The truck apron's design discourages small vehicles from taking a shortcut over it while at the same time allowing the mini-roundabout to more easily accommodate the turning radius of larger vehicles (such as a truck which may have to navigate the roundabout). These are not well suited for bus routes, as mounting the apron can be somewhat uncomfortable to passengers.

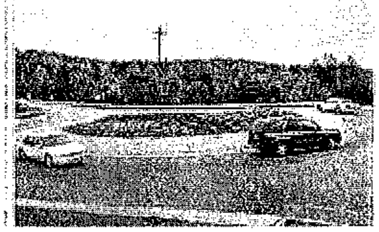
In the UK the maximum diameter permissible of a mini-roundabout is 4m. Whilst it may be physically possible, it is illegal for vehicles like cars, which can turn around the mini-roundabout, to go over the painted island, or around the wrong way—vehicles should treat it like a solid island and proceed around it.[21] (In practice, many motorists ignore these rules, especially when traffic is light). Some local authorities have installed double white lines around the island to indicate this, but these are not permissible. The centre island also must be able to be over-run by larger vehicles. If this is not possible, perhaps due to plants, or street furniture it is considered a small roundabout not a mini roundabout and as such must adhere to the stricter roundabout guidelines.

At Hatton Cross roundabout, close to London Heathrow Airport, five small 'mini-roundabouts' have been constructed where the roads join/leave the main roundabout, requiring traffic to circle the main roundabout in an anti-clockwise direction.

Raindrop roundabouts

A hybrid raindrop roundabout in Zagreb, Croatia. These two roundabouts are more akin to a magic roundabout since the left turns need not drive through both of them.

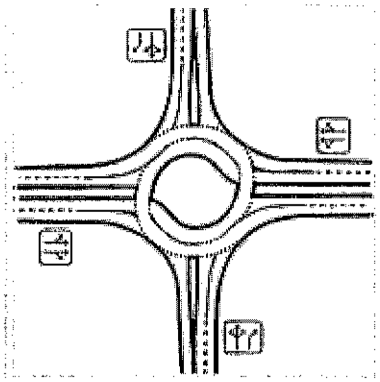
These roundabouts do not form a complete circle and are in a "raindrop" shape. They are appearing at U.S. Interstate interchanges to provide a free-flowing left turn to the on-ramps and eliminating the need for turn signals and lanes. Since the entry and exit slip roads are one-way, a complete circle is unnecessary. This means that drivers entering the roundabout from the bridge do not need to give way and prevents queuing on narrow, two-lane bridges. These roundabouts have been used at dumbbell roundabout junctions, replacing traffic signals that are inefficient without a turning lane. Several junctions along Interstate 70 near Avon, Colorado use teardrop roundabouts.[22]



Raindrop roundabout at an Interstate interchange in North Carolina.

Turbo roundabouts

In the Netherlands, a relatively new type of roundabout is built increasingly often. It provides a forced spiralling flow of traffic, thus requiring motorists to choose their direction before entering the roundabout. By eliminating many conflicting paths and choices on the roundabout itself, traffic safety is increased, as well as speed, and as a result, capacity. A turbo roundabout does not allow traveling a full circle.


The basic shape of the Dutch turbo roundabout

Several variations of the turbo roundabout exist. The basic turbo roundabout shape is designed for where a major road crosses a road with less traffic.

Turbo roundabouts are typically built with raised lane separators. Cheaper implementations with only road markings exist, but hurt the efficiency (regarding safety, speed and capacity) of the design by enabling users to cheat the system.

According to micro-simulation, a two-lane roundabout with free right turns should offer 12-20% greater traffic flow than a conventional, three-lane roundabout of the same size. The reason offered by authors Ir. Isaak Yperman and Prof. Ir. Ben Immers is that there is less weaving in a turbo, making entering and exiting more predictable. Because there are only ten points of conflict (compared with 16 for a conventional roundabout, or 64 with a traffic signal), it is expected that these new designs will be safer, as well. At least 15 have been built in the Netherlands, while many turbos (or similar, lane splitting designs) can be found in southeast Asia.[23]

Multi-lane roundabouts in the United States are typically required to be striped with spiral markings,[24] as most states follow the federal Manual on Uniform Traffic Control Devices or develop a state-level manual subject to the approval of the federal government.

Roundabouts on motorways

See also: Roundabout interchange

Roundabouts are generally not appropriate for placement on motorway or freeway mainlines because the purpose of such facilities is to provide for uninterrupted traffic flow. However, roundabouts are often used for the junction between the slip roads and the intersecting road. A single roundabout, grade separated from the mainlines, may be used to create a roundabout interchange. This type of junction is common in the UK and Ireland. Alternatively, separate roundabouts may also be used at the slip road intersections of a diamond interchange to create what is often referred to as a "dumbbell interchange", which is increasingly common in both Europe and North America due to its reduced need for wide or multiple bridges.

An additional use of roundabouts for junctions is the **3-level stacked roundabout** — this is a roundabout interchange where *both* of the roadway mainlines are grade separated. In the United Kingdom, the M25/A3, M8/M73 and A1(M)/M18 interchanges are examples of this type. These junctions, however, have less capacity than a full free-flow interchange. A similar design to this is the three-level diamond interchange.

Most junctions on Dublin's M50 motorway C-road use a standard roundabout interchange — although several such junctions have a greater volume of traffic than the capacity such roundabouts can accommodate. In Northern Ireland, the junction between the M1 and M12 (Craigavon connector motorway) is via a standard roundabout with a raised centre, 3 onslips and 3 offslips, and 2 lanes.

In the city of Malmö, Sweden, there is a roundabout connecting two motorways, Autostradan from Lund, and the Inner ring road. It is signposted as a motorway throughout this roundabout. Today these two motorways are considered local, but before the year 2000 they were part of the European roads E6, E20 and E22.

In the Netherlands, A6 motorway and A7 motorway cross near Joure using a roundabout. For the junction between the A200 and the A9 a 3-level stacked roundabout is used. Near Eindhoven (the Leenderheide junction), the junction for the A2 is done with a roundabout. An overpass is built for the A67 from Antwerp to Germany.

Roundabout interchanges are sometimes confused with rotary interchanges, which operate with rotaries rather than roundabouts. Rotary interchanges are common in New England, particularly in the state of Massachusetts, but a European example of a rotary interchange may be found in Hinwil, Switzerland.

Controlled roundabouts

Some bridges on Beijing's 2nd Ring Road are controlled by traffic lights. While it may appear to defy the roundabout system at first, it works well to control the flow of traffic on the bridges, which themselves are two viaducts creating a roundabout suspended over the ring road itself.

Signal controlled roundabouts are common in Great Britain and Ireland, where they have been introduced in an attempt to alleviate traffic problems at over-capacity roundabout junctions or to prevent some flows of traffic dominating others (around the M50 in Dublin for example).

"Magic" roundabouts

The town of Swindon in Wiltshire, England, is known for its "Magic Roundabout". This roundabout is at a junction of five roads and consists of a two-way road around the central island with five mini-roundabouts where it meets the incoming roads. Traffic may proceed around the main roundabout either clockwise via the outer lanes, or anticlockwise using the inner lanes next to the central island. At each mini-roundabout the usual clockwise flow applies.

Sadlers Farm Roundabout

Similar systems are found in various places in England, most famously the Moor End roundabout in Hemel Hempstead (Hertfordshire), which has six intersections; but also in High Wycombe (Buckinghamshire),[25] the Denham Roundabout in Denham (Buckinghamshire), the Greenstead Roundabout in Colchester (Essex), the Sadler's Farm Roundabout in Benfleet (Essex) which is the junction between the A130, the A13 and the B1464. "The Egg" in Tamworth (Staffordshire) and the Hatton Cross Roundabout in London.[26] Magic roundabouts are also known as "Ring Junctions", while larger ones are sometimes known as "Gyratories".

Roundabouts with trams

Tram roundabouts are most notably found in inner Melbourne, particularly in the inner suburban area of South Melbourne, where the tram network is extensive. Tram tracks always pass through the central island of these roundabouts, with drivers required to give way, not only to vehicles coming towards them from their right, but also to trams coming at them from right-angles.

Having trams pass through small roundabouts is not a problem; through larger roundabouts it can be difficult, particularly when there is a junction between tram lines as well. In these cases, the roundabouts are very large, and often have tram stops in the middle. The Haymarket roundabout between Royal Parade and Elizabeth Street is the most notorious junction of this nature, containing a tram-stop, pedestrian crossings, three entering tram lines, traffic signals to stop vehicular traffic at each crossing point when a tram is due, service roads and pedestrian crossing.

There are a few larger roundabouts in Brussels, Belgium, where several tram routes converge from different directions, and the tram lines are laid around the roundabout allowing the trams to follow the same path as other traffic.

In Dublin, Ireland, the Red Cow ("Mad Cow") roundabout at the N7/M50 junction is particularly infamous. It is a grade-separated motorway junction, and is signal-controlled with secondary lanes (separate from the main roundabout) for those making left turns. The junction, the busiest in Ireland, had tram lines added to it with the opening of the LUAS system in 2004. The tracks pass across one carriageway of the N7, and across the southern M50 sliproads. Trams pass at a frequency of every 5 minutes at rush hour.

In Gothenburg, Sweden the roundabout and tram stop at Korsvägen (the Crossroad) is of this type, and is rather infamous in the city. It is heavily trafficked by cars, and about one tram or bus per minute passes in several directions. This is further complicated by separated rights-of-way for trams and buses and the fact that it is also one of the busiest interchanges in the city. Another one is located at Mariaplan in the inner suburb of Majorna. The trams makes a right turn, giving the roundabout an odd design. Since traffic isn't heavy, this normally doesn't create any problems.

In Wrocław, Poland, trams pass through the Powstańców Śląskich Roundabout, having a stop in the roundabout (north-headed track).

In Vítězné náměstí (Victory Square) in Prague, Czech Republic, a tramway crosses the carriage way of the roundabout at 3 places since 1942. Entering as well as leaving trams have to give way to all cars. In years 1932–1942 trams went around much like cars.[27]

In Kiev, Ukraine an interchange of two "fast tram" lines is done below a roundabout.

Oslo, Norway also has many roundabouts with tram tracks passing through; for example at Bislett, Frogner plass, Sinsen, Solli plass and Storo.

In Wolverhampton, England, the Midland Metro tram passes through the centre of a roundabout on approach to its terminus at St Georges. This also happens in New Addington on the Tramlink on Old Lodge Lane at the junction to King Henry's Drive.

In Salt Lake City, Utah a light rail line on the south side of the University of Utah crosses a roundabout where Guardsman Way meets South Campus Drive. Like virtually all rail crossings in the United States, both crossings in the circle are equipped with boom barriers.

Roundabouts with railways

In Jensen Beach, Florida, the main line of the Florida East Coast Railway running north-south bisects the two-lane roundabout at the junction of Jensen Beach Boulevard running east-west and three other roads and the service entrance to a large shopping plaza. Boom barriers are in place at the railway crossings. The landscaped centre island bisected by the tracks was originally curbed, but 18-wheelers had trouble negotiating the roundabout, so the curbs were replaced with painted drive over concrete strips. A proposed fountain in the centre island has never been built. The roundabout was built in the early 2000s and has improved traffic flow considerably although there are still delays caused by the many long freight trains coming through.[28] Two roundabouts in the Melbourne metropolitan area, Highett, Victoria[29] and Brighton,[30] have heavy rail crossing the roundabout and through the inner circle. Boom barriers protect the rail from oncoming traffic at the appropriate points in the roundabout.

Hamburger roundabout/throughabout/cut-through roundabout

These resemble a normal roundabout but are signalised and have a straight-through section of carriageway for one of the major routes. The *hamburger* name derives from the fact that the plan view resembles the cross-section through a hamburger. There are two such examples on the A580 East Lancashire Road in St Helens, England, one at Haydock Island in Merseyside (which also features the M6 passing overhead), the second is on the Astley/Boothstown border near to Manchester. More examples are the A6003 at Kettering and the A538 near Manchester Airport.[31]

A more advanced and safer version of a hamburger roundabout is a roundabout interchange, separating the straight roadway and using underpasses or overpasses to cross the roundabout itself.

Roundabouts and cyclists

Cycle facilities at roundabouts

Research has shown that even in large circular junctions that lack modern roundabout design features, a high rate of bicycle/motor vehicle crashes occurs when bicyclists are riding around the outside. Design guidance for modern roundabouts recommends terminating cycle lanes well before the entrances, so bicyclists merge into the stream of motor traffic.[17][32]

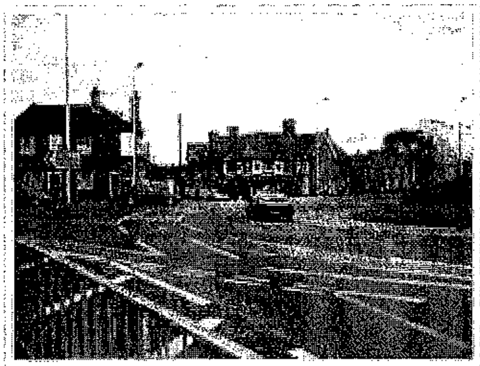
A 1992 study[33] from the German Transport Ministry's research institute has cast particular light on this issue. The study found that bicyclists' risk is high in all such intersections, but it is much higher when the junction has a marked bicycle lane or sidepath around its outside *(see "Marked perimeter cycle lanes" below)*. The results of this study concerning circular junctions are summarised on the web (in German, but partially translated below).[34] A report about accidents at four-arm roundabouts was published[35] by the UK Transport and Road Research Laboratory (TRRL) (now TRL) in 1984.

Collisions typically occur when a motorist is entering or leaving the circular roadway. A motorist entering the circular roadway must give way to traffic in it, but such traffic will generally keep away from the outside of the circular roadway (as with a vehicle in the photo) if passing an entrance. A bicyclist close to the edge of the roadway is not in the usual position where an entering motorist expects to look for circulating traffic.

When exiting the circular roadway, a motorist must look ahead to steer, and to avoid colliding with another vehicle ahead or with pedestrians on a footpath. As the circular roadway curves away from the exit, the path of a vehicle exiting the circular roadway is relatively straight, and so the exiting motorist may often not need to slow substantially. However, if it is necessary to give way to a bicyclist riding around the outside, the exiting motorist must look toward the rear, to the outside of the intersection. With many vehicles, such as vans, the driver's view in this direction is obstructed. The task burden of the motorist is therefore substantially increased if bicyclists ride around the outside. The resulting conflicts, and more frequent requirements for motorists to slow or stop, also reduce the efficiency of traffic flow which is one of the major advantages of the circular junctions. Cycle lanes around the outside of circular junctions are therefore falling out of favour.

Marked perimeter cycle lanes

An early attempt to deal with the problem was to mark preferential lanes for cyclists. With cycle lanes, bicyclists do not merge into the flow of motor traffic in the roundabout, but rather, they travel around the outside, relieving them of the requirement to merge. The coloured road surface and edge lines of the cycle lanes indicate that exiting motorists are required to give way to bicyclists at all locations where their paths may cross. As noted previously, this design has been found to be hazardous to cyclists and has fallen out of favour.



Cycle lanes on St John's roundabout in Newbury, Berkshire, England. This example is from a country where traffic keeps to the left, and traffic in the circular roadway of the roundabout travels clockwise.

This form of roundabout was originally installed at St John's roundabout in Newbury, Berkshire, England and at Museuum Road, Portsmouth, England. The St John's roundabout in Newbury is still marked with perimeter cycle lanes. The cycle lanes on the roundabout at Museum Road, Portsmouth have been removed and, instead, the carriageway has been narrowed to encourage drivers and cyclists to circulate together.

Modern design guidance

The special features of modern roundabouts, including splitter/diverter islands and small diameter of the circular roadway, decrease the speed of motor traffic and so reduce the risk of collisions for motorists as well as cyclists below that of conventional junctions. Design guidance[17] for modern roundabouts recommends terminating cycle lanes well before the entrances, so cyclists merge into the stream of motor traffic. Cyclists who lack the confidence to do this may use the footpaths as pedestrians. Modern design guidance also recommends placing the footpaths far enough from the roundabout so that at least one exiting vehicle can wait without blocking the circular roadway. A roundabout with 2 lanes should place the footpath two car lengths from the junction.

Bicycle/pedestrian roundabouts

The same features that make roundabouts an attractive option for roadway junctions have led to their use at junctions of multi-use trails. The University of California, Davis[3] and Stanford University both have built bicycle-pedestrian roundabouts. Roundabouts are used on off-road bicycle trails in Florida, Colorado and Alaska.[36]

See the United States DOT publication, Roundabouts: An Informational Guide.

Advantages of roundabouts

- Roundabouts are safer than signal controlled junctions, with accidents usually occurring at a slower speed and at a slight angle instead of right-angle or rear end collisions at junctions.

- Roundabouts allow for easy u-turns, including for larger vehicles, which are sometimes impossible or forbidden in normal road junctions.

- Roundabouts (and other circular intersection types) allow for landscaping, monuments, and other aesthetic uses within the central island.

- Most roundabouts are not controlled by traffic lights. This has several advantages:
  - Reduced waiting time for drivers, less fuel wasted while idling and thus better air quality
  - Reduced operating costs for lamp replacement and electricity
  - Drivers can focus on the street level for other cars and pedestrians
  - Roundabouts still function as designed during electrical power outages

Disadvantages of roundabouts

- Roundabouts require all traffic to slow down, and thus may be undesirable where a high-volume road would otherwise not be required to stop.

- A roundabout occupies more space than crossroads at the intersection point. However, traffic signals often require construction of turn lanes for capacity and safety, and therefore traffic signals may occupy more space overall than a roundabout at the same location.

- Drivers may become confused and use roundabouts improperly, especially in areas where roundabouts are uncommon, or where traffic circles or rotaries also exist.

- The central island of a roundabout can be a hindrance to movement of oversize vehicles. Highway designers can design for oversized loads, if they are aware that they will be using the route.

- Obstruction to departing vehicles can result in blockage of all approaches to the roundabout until the obstruction clears. When exiting vehicles queue into the roundabout, they obstruct both entering and circulating traffic. In a non-roundabout intersection, particularly those with exclusive turn lanes, traffic flow can typically be maintained in directions parallel to the obstruction.

Examples of roundabouts

- St George's Circus, London
- Van Dyke Ave at 18 1/2 Mile Road, Sterling Heights, Michigan (3-Lane Roundabout)
- Interstate 70 at Avon Road, Avon, Colorado
- Interstate 17 at Happy Valley Road, north of Phoenix, Arizona
- Los Alamitos Traffic Circle, Long Beach, California
- Kinsale road roundabout (Kinsale Rd/N27 at South Ring Road (N25), Cork, Ireland (Signalised roundabout)
- The Plain, Oxford, England (Irregularly shaped signalised roundabout)
- Ancaster Roundabout (Kings Hwy 2 at Hamilton Drive), Hamilton, Ontario, Canada
- Trade Center roundabout, Dubai, United Arab Emirates (UAE)
- Highways E6 at E39 in Klett, Norway
- Dunning Street at Interstate 87 ramps, Malta, New York
- New Seward Highway at Dowling Road, Anchorage, Alaska, USA (A dumbbell junction)
- Al Mukalla roundabout, Yemen.
- Udyog Path at Sarovar Path, in Chandigarh, India. Most major grid intersections in Chandigarh are circular, many of which are roundabouts.

- The Australian cities of Griffith in New South Wales, and Albany in Western Australia contain no traffic lights, only roundabouts.
- The town of Milton Keynes, England is famous for having grid roads which have roundabouts at almost every junction.
- Seattle, Washington has well over one hundred roundabouts that have been built during the last two decades, with many more located throughout the Seattle metropolitan area. In addition, hundreds of mini-roundabouts have long existed in the city's residential neighborhoods.[37]
- The town of Basingstoke, England is nicknamed 'Doughnut City' for having over 10 roundabouts on its ring road.

See also

- Roundabout Appreciation Society
- Roundabout interchange
- Traffic circle
- Rotary
- Give way/Yield Sign
- Junction
- All-way stop
- Roundabout dog
- Level of service

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External links

- Modern Roundabouts - Geocoded National Database
- Mini Roundabouts Good Practice Guidance - Department for Transport (United Kingdom)
- DLZ Roundabouts
- Roundabouts in North America
    - Roundabouts: An Informational Guide by the U.S. Federal Highway Administration, FHWA-RD-00-67, June 2000 (or see the entire pdf in one file)
    - Secion 3B.24 from the U.S. Manual on Uniform Traffic Control Devices
    - Roundabouts: Interim Requirements and Guidance by the New York State Department of Transportation, June 20, 2000
- The Magic Roundabout of Swindon
- Multilane Roundabouts an Information Sheet
- The Hanger Lane Gyratory System, London, England
- The Kinsale Road Roundabout, Cork, Ireland, on Google Maps

- Approaching a roundabout
- Mini-roundabouts - Getting them Right
- Washtenaw County Road Commission's Modern Roundabout Information
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Retrieved from "http://en.wikipedia.org/wiki/Roundabout"
Categories: Road junction types | Roundabouts | Utility cycling | Cycling safety

MAYOR & COUNCIL WORKSHOP

DATE: 1/19/2010
WORKSHOP
ITEM #: #3
DISCUSSION

AGENDA ITEM: Preview of Proposed 2010 City Fee Schedule

SUBMITTED BY: Tom Bouthilet, Finance Director

THROUGH: Bruce A Messelt, City Administrator BAM

REVIEWED BY: Joe Rigdon, KDV
City Department Directors

SUMMARY AND ACTION REQUESTED: Attached please find the preliminary 2010 draft of City Fees. The City has already acted on some significant utility fees (e.g. water rates) and has directed City staff to spend 2010 reviewing and updating other fees (i.e. surface water).

However, other City fees still need to be reviewed and, if appropriate, updated for 2010 Council is being asked to review the draft 2010 Fee Schedule as part of tonight's Workshop and provide direction, as appropriate, on preparation of the final Fee Schedule for adoption on January 26th..

STAFF REPORT: Based upon a review of the current Fee Schedule and past Council actions, City staff has prepared a draft 2010 Fee Schedule for Council review. Cognizant of the current state of the economy and recent budget actions, staff has attempted to limit any fee increases to as little as possible.

However, there exists certain City fees that do require significant attention and adjustment, based either upon their current incongruity to services provided or mandated federal, state or local services or remunerations which the City must administer.

ADDITIONAL INFORMATION: Finance Director Bouthilet and Financial Advisor Rigdon will be leading this discussion and will be prepared to discuss, in detail, the proposed 2010 Fee Schedule.

ATTACHMENTS:

Draft 2010 Fee Schedule

SUGGESTED ORDER OF BUSINESS:

- Introduction of Item .... City Administrator
- Report/Presentation .... Tom Bouthilet and Joe Rigdon
- Questions from Council to Staff .... Mayor Facilitates
- Public Input, if Appropriate .... Mayor Facilitates
- Council Discussion .... Mayor & City Council

2010 Fee Schedule			
Development, Service, Building, Etc.	2009	2010	Escrow or Additional Charge
Accessory Bldg Forward of Primary Structure	$75.00	$80.00	
Amateur Radio Antenna	$850.00	$875.00	
Appeal (to Board of Adjustment and Appeals)	$80.00	$100.00	
Assessment Search	$21.00	$25.00	
Building Demolition			
First 1000 Square Feet	$103.00	$105.00	Plus .50 Surcharge
Each Additional 1000 sq feet or portion thereof	$10.50	$11.00	Plus .50 Surcharge
Burning Permits			
Residential	$40.00	$45.00	
Commercial	$75.00	$80.00	
Comprehensive Plan Amendment	$1,300.00	$1,300.00	
Conditional Use Permit (CUP) <new or amended>	$1,000.00	$1,000.00	Wireless Communication Facilities Escrow $5,000.00 Flood Plain Ordinance Escrw $500.00
CONTRACTOR LICENSE FEES			
Blacktopping	$65.00	$70.00	
Excavator License	$65.00	$70.00	
Heating and A/C	$65.00	$70.00	
Sign Installer	$55.00	$60.00	
Solid Waste Hauler	$115.00	$120.00	
Tree Contract	$65.00	$70.00	
COPY SERVICES			
Copies (B&W)	$0.30	$0.35	
Copies (B&W) 11 X 17	$3.00	$1.00	
Copies (Color)	$3.00	$0.50	
Copies (Color) 11 X 17	$0.40	$2.00	
City Map - colored	$3.10	$3.15	
City Street Maps 36 X 40	$15.00	$20.00	
GIS / Engineering Maps			
Existing Maps	$5.00	$5.00	Provided electronically or paper
Custom (Per Hour rate)	$65.00	$70.00	Provided electronically or paper
Plan Size Maps Larger than 11 X 17		$20.00	
Development Standards Specification & Details	$50.00	$55.00	
Code Book	$160.00	$160.00	
Sections 1, 2, 4, 6-12, 14	$12.00	$12.00	
Section 3	$52.00	$52.00	
Section 5 and 13	$27.00	$27.00	
Comprehensive Plan	$105.00	$105.00	
OP Ordinance	$12.00	$12.00	
Parks Plan	$80.00	$80.00	
Culverts in Developments with Rural Section	$155.00	$160.00	
Dog License	$16.00	$16.00	
Service Dogs License (dogs with special training to assist individual with diasabilities)	$5.00	$5.00	Renew on expiration of rabies vaccination
Unlicensed dog (first impound)	$60.00	$60.00	Plus Boarding Fee-20.00/Day
Licensed dog (first impound)	$42.00	$42.00	Plus Boarding Fee-20.00/Day
Cat Impound (first impound)	$42.00	$42.00	Plus Boarding Fee-20.00/Day
Subsequent dog/cat impound	$80.00	$85.00	Plus Boarding Fee-20.00/Day
Duplicate License or Tag	$1.00	$1.00	
Driveway	$0.00		
Residential	$55.00	$60.00	Plus .50 Surcharge
Commercial	$155.00	$160.00	Plus .50 Surcharge
Excavating and Grading	$105.00	$115.00	Erosion Control Bond, Escrow, or Letter of Credit: 1500.00 per acre.
False Alarm			
1 to 3 False alarms			
In excess of 3 up to and including 6 false alarms within a twelve (12) month period			
Residential	$105.00	$110.00	
Commercial	$310.00	$315.00	
In excess of six false alarms within a twelve (12) month period			
Residential	$180.00	$185.00	
Commercial	$515.00	$520.00	

Development, Service, Building, Etc.	2009	2010	Escrow or Additional Charge
Fire			
Daycare inspection Fee	$55.00	$60.00	Plus .50 Surcharge
Fie Alarm Systems	$55.00	$60.00	Plus 1% of Value
Fire Sprinkler System (Inspection Fee)	$105.00	$110.00	
Fire Sprinkler System (Reinspection Fee)	New	$50.00	
Flood Plain District Delineation	$775.00	$500.00	
Fuel Tank Removal (Underground)	$55.00	$60.00	Plus .50 Surcharge
Heating			
New Residential	$130.00	$135.00	Plus .50 Surcharge
Addition to Residential	$55.00	$60.00	Plus .50 Surcharge
Commercial (New or Addition)	Minimum $155.00 or 1% of total job cost	Minimum $160.00 or 1% of total job cost	Plus minimum .50 Surcharge
Interim Use Permit (IUP)	$1,000.00	$1,050.00	
Interim Use Permit (IUP)-Renewal	$1,000.00	$300.00	
Lawn Sprinklers	$115.00	$120.00	Plus .50 Surcharge
Liquor			
Club On Sale Intoxicating	$100.00 per year	$100.00 per year	
Off Sale Intoxicating	$200.00 per year	$200.00 per year	
Off-Sale Non-Intoxicating	$150.00 per year	$150.00 per year	
On-Sale Intoxicating	$1500.00 per year	$1500.00 per year	
On-Sale Intoxicating - 2nd Bldg	New	$750.00 per year	
On-Sale Investigation	$350.00	$350.00	
On-Sale Non-Intoxicating	$100.00 per year	$100.00 per year	
On-Sale Sunday Intoxicating	$200.00 per year	$200.00 per year	
Temporary Non-Intoxicating	$25.00 per event	$25.00 per event	
Wine	$300.00 per year	$300.00 per year	
Lot Line Adjustment	$310.00	$310.00	
Manufactured Home Parks			
New	$1,050.00	$1,075.00	Plus 2500.00 Escrow
Move home out of City	$55.00	$60.00	Plus .50 Surcharge
Move into City	$105.00	$110.00	Plus .50 Surcharge
Minor Subdivision	$980.00		
Moving House or Primary Structure into City	$515.00	$520.00	Plus bond with amount to be determined by City w/recommendation from Building Official
Moving Accessory Structure into City	$300.00	$305.00	Plus Escrow to be determined by the City w/recommendation from Building Official
New Construction Plan Review	Per 1997 UBC (65%	Per 1997 UBC (65%	
Park Dedication (up to 3 lots)	$3600.00 for each	$3600.00 for each	Four or more lots per Section 400 Formula
Parking Lots			
New Commercial	$155.00	$160.00	Plus .50 Surcharge
Existing Commercial	$80.00	$85.00	Plus .50 Surcharge
Platting			
Concept (PUD or OP)	$1,220.00	$1,220.00	
Preliminary Plat (and Development Stage)	$1,810.00	$10,810.00	
Final Plat (and Final Plan)	$1,220.00	$1,220.00	Plus 2.5% Administrative Fee Development Agreement
Plumbing			
New Residential	$130.00	$135.00	Plus .50 Surcharge
Addition to Residential	$55.00	$60.00	Plus .50 Surcharge
Commercial (New or Addition)	Minimum $155.00 or 1% of total job cost	Minimum $160.00 or 1% of total job cost	Plus minimum .50 Surcharge
Private Roads (permitted only in AG zone)	$105.00	$110.00	Plus .50 Surcharge
Restrictive Soils and Wetland Restoration Protection and Preservation Permit	$775.00		1500.00 escrow
Right-of-Way Permits			
Annual Registration (1415.05 Subd.1)	$80.00		
Excavation (1415.11 Subd. 1)	$230.00		
Each Additional Excavation	$37.00		
Trench Fee (boring or open cut)	.55 per foot		
Overhead Installation Fee	.55 per foot		
New Subdivisions (Alternate to per foot fee)	65.00 per lot per utility		
Street Obstruction Fee (1415.11 (Sub 2.)	$80.00		
Permit Extension	$80.00		
Delay Penalty	15.00 per day		

Development, Service, Building, Etc.	2009	2010	Escrow or Additional Charge
Sewage Disposal			
On-Site Septic Systems			
New	$105.00	$110.00	Plus .50 Surcharge
Alterations or Repairs	$105.00	$110.00	Plus .50 Surcharge
Sewer Availability Charge (SAC)	$5,250.00	$5,400.00	per SAC unit -2100.00 to Met. Council; 3300.00 to City
Sewer	$4.08 per 1,000 gallons	$4.35 per 1,000 gallons	
Wetland Treatment			
Hookup to Existing System	$80.00	$85.00	Plus .50 Surcharge
Alteration/Repair	$55.00	$60.00	Plus .50 Surcharge
201 Off-Site Maintenance Fee	70.00 per unit per quarter	75.00 per unit per quarter	
Signs Permanent	$175.00	$180.00	Plus .50 Surcharge
Signs Temporary	$70.00	$75.00	Plus .50 Surcharge
Signs Temporary Renewal	$20.00	$25.00	Plus .50 Surcharge
Site Plan Review (Chapter 520)	$980.00	$980.00	
Street Cleaning Erosion Control			
Escrow	$2,000.00	$3,000.00	
Re-inspection	$40.00 per hour	$40.00 per hour	Portal to Portal from City Hall. Minimum: 1 hour
Processing Fee			10% of Contractor's Invoice to City
Surface Water			
Residential	$35.00	$40.00	
Non-Residential (commercial, ag., etc.)	$35.00	$40.00	Utility Rate Factor per code
Tennis Courts	Per 1997 UBC	Per 1997 UBC	Plus surcharge
Vacations (Streets or Easements)			
Easements	$515.00	$515.00	$500.00 Escrow
Streets	$515.00	$515.00	$500.00 Escrow
Variance	$750.00	$750.00	
Video Reproduction	$30.00	$35.00	
Water			
Residential – Quarterly Rate	$25.00 Base	$25.00 Base	
Plus Rate Per 1000 Gallons			
0-15,000 Gallons	2.15	$2.10	
15,001 - 30,000 Gallons		$2.80	
30,001 - 50,000 Gallons		$3.70	
50,001 - 80,000 Gallons		$4.90	
80,001+Gallons		$6.50	
Commercial – Quarterly Rate	$25.00 Base	$25.00 Base	
0-15,000 Gallons	$3.10	$3.05	
15,001 - 30,000 Gallons		$3.20	
30,001 - 50,000 Gallons		$3.70	
50,001 - 80,000 Gallons		$4.90	
80,001+Gallons		$6.50	
All Connection Permits	$130.00	$140.00	
Meters, MIU & Meter Installation Sets	$285.00	$300.00	
Delinquent Accounts	6% per quarter	6% per quarter	Plus 25.00 or 8%, whichever is greater, if certified to County for collection with taxes
Disconnect Service	$80.00	$80.00	
Reconnect Service	$80.00	$80.00	
Service Call			
Water Storage Violation	$10.00 per day	$15.00 per day	
Bulk Water from Hydrant	$55.00 for first 5,000 gallons	$60.00 for first 5,000 gallons	Plus 3.20 per additional 1000 Gals
Swimming Pool Fill	$95 for first 5,000 gallons	$100.00 for first 5,000 gallons	Plus 3.20 per 1000 Gals & $15.00 per labor hour
Water Availability Charge (WAC)			
Existing Structures within Old Village	$800.00	$800.00	
New Development	$3,675.00	$3,900.00	
Wind Generator	$825.00	$850.00	$2000.00 Escrow
Wireless Communication Permit	$850.00	$500.00	$2000.00 Escrow
Zoning Amendment (Text or Map)	$1,245.00	$1,245.00	