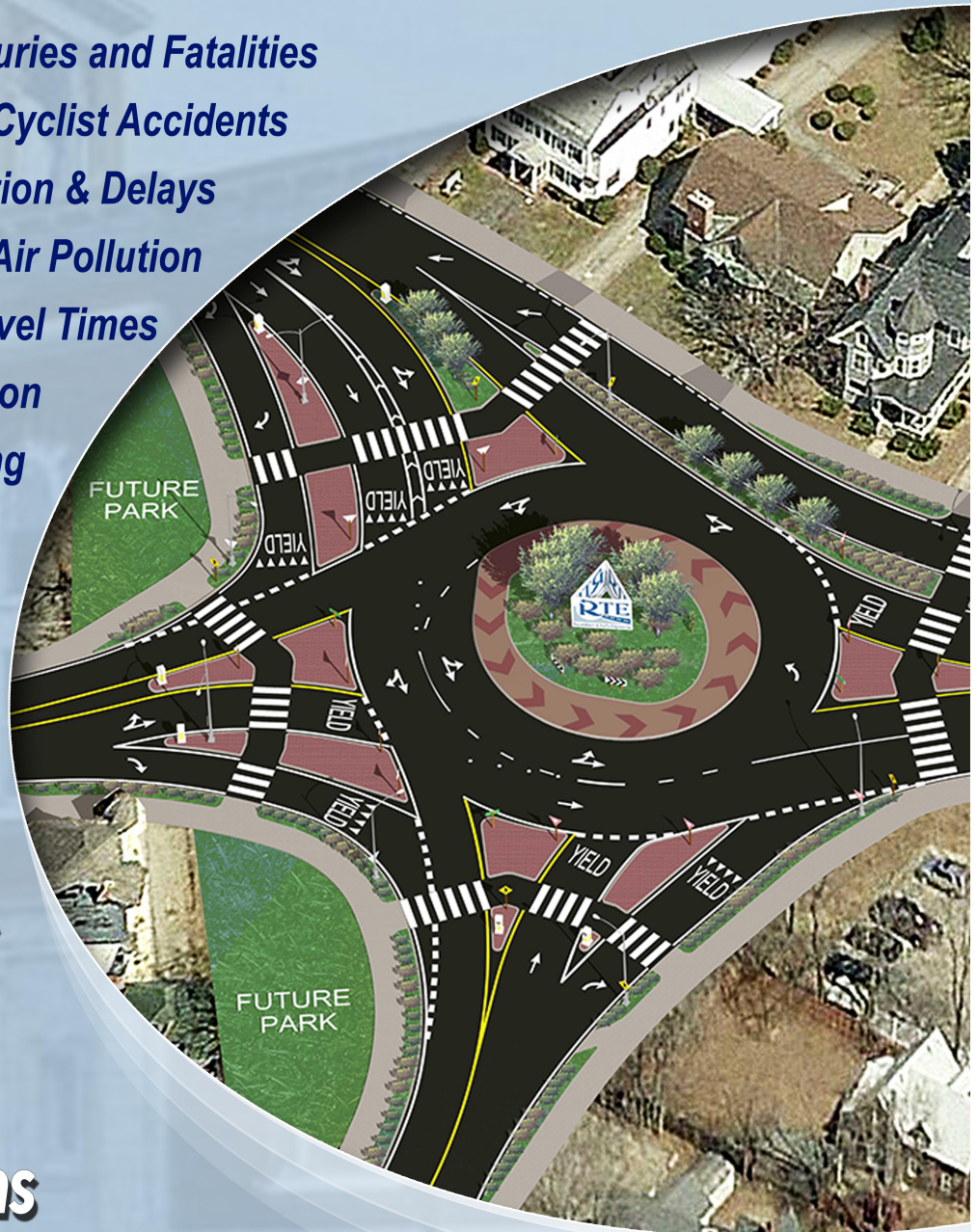


The Modern Roundabout ***SOLUTION***

- *Fewer Accidents, Injuries and Fatalities*
- *Fewer Pedestrian & Cyclist Accidents*
- *Less Traffic Congestion & Delays*
- *Reduced Noise and Air Pollution*
- *Faster Commute Travel Times*
- *Less Driver Frustration*
- *No Red Light Running*
- *Slower Speeds*



**Your Community
Deserves**

**Safer
Intersections**

**The Right System...
at the Right Time...
at the Right Cost...**

A Modern Roundabout...

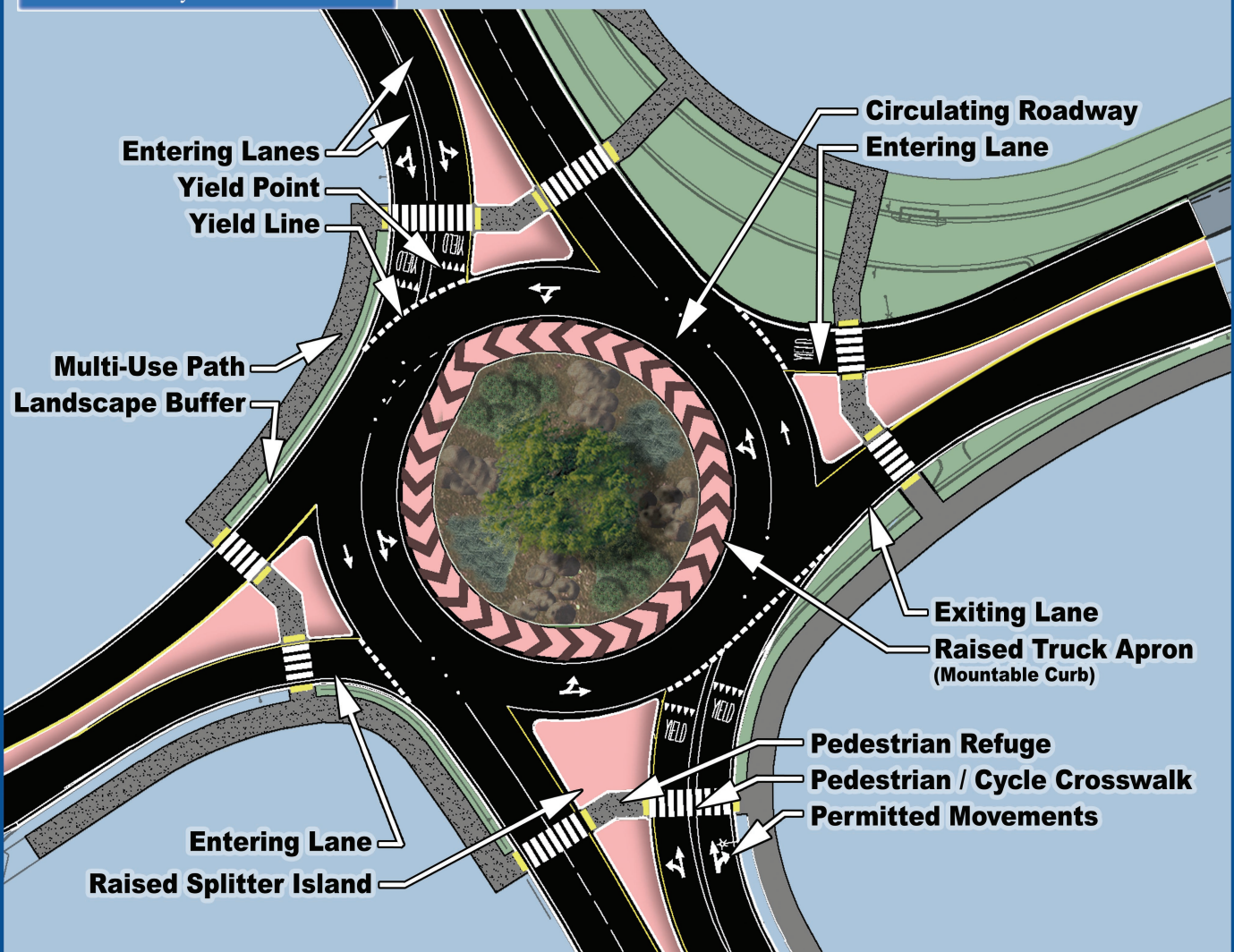
Slower, more consistently paced traffic increases safety and results in faster overall travel times.

is a one-way circular intersection without a traffic signal or stop signs. Traffic flows in one direction around a center island.

Modern Roundabouts are a relatively new type of intersection traffic control device in the United States and differ significantly from traffic circles used primarily for "traffic calming" in residential areas or older rotaries or traffic circles frequently found on the east coast. The basic difference between a Modern Roundabout and a signalized intersection is lower intersection speed, reduced accident and injury rate and control of intersection entry and exit.

"Modern Roundabouts, in place across the country, effectively and safely accommodate high volume traffic situations in major roadway intersections and freeway interchanges"

Increasing traffic volumes, stop signs and traffic lights hinder quick and efficient traffic flow. Stop... go... slow-down... speed-up traffic motion during peak rush hour commutes causes driver frustration congestion and travel delay. Stopping for a red light during early morning or later evening off peak travel times, when no cars are in sight, also causes unnecessary delays. A Modern Roundabout eliminates these enforced traffic pauses and provides safe, efficient and continuous traffic flow.



Modern Roundabouts are a circular intersection design with traffic control features that control driver behavior. These features include entering traffic yield signs, channeled approaches and design that helps to insure relatively low and safe travel speeds.

Modern Roundabout design controls speeds through intersections and provides a traffic calming effect that significantly reduces the number and severity of accidents.

A 22 m.p.h. average roundabout speed allows drivers more time to react to potential conflicts. A lower speed differential between vehicles, pedestrians and cyclists means all road users are traveling at similar rates of speed and accident severity is significantly less.

The Modern Roundabout is a self regulating traffic control device using intersecting roadway widths and curves, medians, signing and landscaping to regulate speeds. The layout of a Modern Roundabout is typically compact with a raised central island fit into a circle of generally 100 to 300-feet in diameter. Design is very flexible and allows several variations depending on traffic flow and public right-of-way constraints. On approach, roundabouts may flare from one lane to two lanes in a very short distance. This feature greatly increases intersection capacity without widening the corridor along its entire length.

Modern Roundabouts are unique from other intersections in that they use "splitter islands" (curved medians) and raised concrete curbs to control traffic entering and traveling through the roundabout. Splitter islands increase intersection safety by slowing vehicle

speeds, deterring "wrong-way" drivers and by providing safe refuge for pedestrian crossings. Entering and exiting traffic streams are physically separated.

Modern Roundabouts convert all traffic movement into right-turns only

Approaching drivers slow down and yield to the counterclockwise flow of circulation traffic in the roundabout. Drivers travel around rather than through the intersection and exit by making a slight right-turn towards the desired destination.

Modern Roundabouts are designed and sized to ensure specific travel speeds and accommodate traffic flows, large trucks and vehicles. The raised center island and right-turn conversion of all traffic flow through the intersection substantially reduces vehicle-to-vehicle conflicts.

Modern Roundabout Benefits

- ◆ **Lives Saved - Major Reduction in Injury and Fatal Accidents**
- ◆ **Reduced Travel Delays and Congestion**
- ◆ **Enhanced Pedestrian Safety**
- ◆ **Reduced Intersection Speeds**
- ◆ **Reduced Environmental Impact Noise Levels**
- ◆ **Reduced Vehicle Emissions**
- ◆ **Reduced Fuel Consumption**
- ◆ **Provides Traffic Calming**
- ◆ **Red-light Running Incidence Eliminated**
- ◆ **Increased Intersection Capacity**
- ◆ **Faster Overall Roadway Travel Times**
- ◆ **Less Right-of-Way Needs Construction and Maintenance Costs**
- ◆ **Opportunity for Community Aesthetic Enhancement**

Traffic Calming

"Crashes that do occur tend to be minor because speeds are slower"

The radius of the circular road and the angle of entry points of a Modern Roundabout can be designed to slow vehicle speeds. Lower speeds allow drivers more time to judge and react to other vehicles and pedestrians.

- ◆ **Reduced Speed**
- ◆ **Controlled Entry Angle**

Pedestrian and Bicyclist Safety

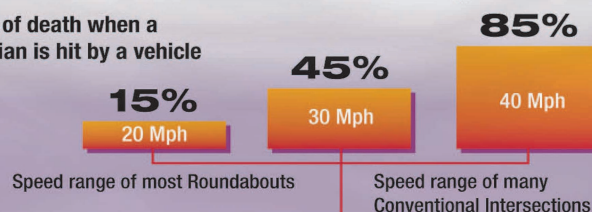
By reducing speed and eliminating through and left-turn traffic movement at an intersection, pedestrian safety rises considerably and pedestrian / vehicle conflict points are decreased by 50 percent. The traditional signalized intersection has up to 16 potential pedestrian / vehicle points of conflict and a Modern Roundabout has only eight

pedestrian / vehicle points of conflict. Fewer conflict points and lower rates of speed also reduce the likelihood of driver and pedestrian perception error and correspondingly the number of vehicle / pedestrian crashes.

Bicyclists have the option of traveling through the Modern Roundabout either by riding in the travel lane as a vehicle, or by exiting the roadway and using the shared-use path and pedestrian crosswalks. Most Modern Roundabouts typically provide a multi-use path at the perimeter of the roundabout to accommodate pedestrians, wheelchairs, strollers and bicyclists with highly visible roadway crossings set back behind the traffic yield line.

Pedestrian Fatality Rates

Chance of death when a pedestrian is hit by a vehicle



Insurance Instituted for Highway Safety (Note: Average red light running speed is 45-50 mph)

Modern Roundabouts = Safety and Capacity

Public Safety is About Saving Lives

"The most serious kinds of crashes at conventional intersections are virtually eliminated with modern roundabouts"

"Slower traffic movement at roundabout intersections significantly reduce accident severity and eliminates the potential threat associated with fast moving vehicles"

Modern Roundabouts Save Lives

38% to 40% Reduction in All Crash Types

74% to 78% Decrease in injury Accidents

90% Decrease in Fatalities or Incapacitating Injuries

30% to 40% Decrease in Pedestrian Accidents

Source: Insurance Institute for Highway Safety (IIHS) and Federal Highway Administration (FHWA) 2003

User Guidelines

Motorists

1. Slow down prior to roundabout approach.
2. Select desired destination from map sign.
3. Select desired destination lane (multi-lane approaches only).
4. Yield to pedestrian crossings and cyclists in roadway or waiting to cross.
5. Yield to traffic already circulating around or in the roundabout.
6. Stay in lane and keep to the right when entering the roundabout.
7. Stay in lane while circulating inside the roundabout and exit at your desired destination.

"Remember to obey roadway signs at all times"

Pedestrians

Always use caution and use crosswalks.

Bicyclists

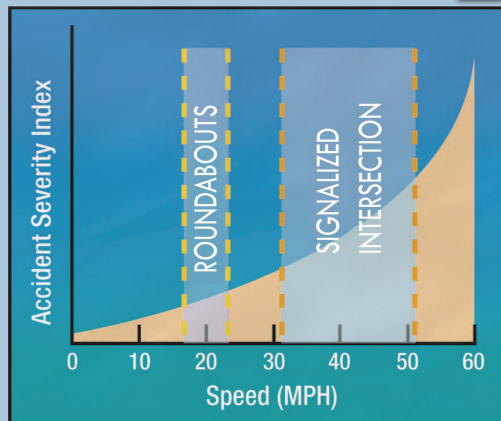
Follow the rules of the road or walk your bike in crosswalks.

Large Trucks, RVs and Boat and Horse Trailers

This Modern Roundabout is designed to accommodate nearly all large trucks and wheel bases while staying in lane (either left or right lane). All trucks and trailers using the left lane should use the truck apron and stay in lane.

Emergency Vehicles

Motorists yield to emergency vehicles and pull over when safe after exiting the roundabout.



Accident Severity & Speeds²

Slower average vehicle speeds and lower differential speeds between the vehicles, cyclists and pedestrians significantly reduce the accident severity of collisions at Modern Roundabouts.

Public safety is the driving force and highest-ranking priority in all intersection designs. Accident injury and fatality rates are the traffic engineer's most compelling indicator of the operational and safety performance of an intersection. While speed, traffic volume, congestion and capacity demands are factoring design components, the constant challenge and primary objective of traffic engineering is to reduce and minimize incident rates at existing intersections and incorporate all possible public safety elements into every new intersection design.

Federal Modern Roundabout guidelines state that accident frequency and severity is less for a roundabout intersection than a traffic signal. Roundabouts have fewer conflict points for vehicles, pedestrians and bicyclists and the potential for many hazardous incidents, such as right-angle "T-bone", conflicting left-turn or head on crashes are eliminated with Modern Roundabouts.

Safety study findings worldwide provide and support quantitative evidence that in most circumstances the selection of a Modern Roundabout intersection design, over the more conventional intersection traffic control options, can have significantly positive traffic safety implications.

In 2002 more than 1.8 million intersection crashes occurred in the United States. 219,000 of the crashes were the result of red light running and the cause of nearly 1,000 deaths and 181,000 injuries. Federal Highway Administration (FHWA) 2002, American Trauma Society.

One in three Americans knows someone who has been injured or killed in a red light running crash.



- ◆ **Continuous Traffic Flow**
- ◆ **Reduced Congestion and Delay**
- ◆ **Less Driver Frustration**



Travel Benefits

A Modern Roundabout's continuous traffic flow means decreased traveler delays. All roundabout lanes and legs operate simultaneously. Both the Modern Roundabout and traffic signal intersection are capable of relieving traffic congestion, but in many circumstances, Modern Roundabouts can offer higher traffic flow volumes and overall operational performance, meaning vehicles can move more easily, efficiently and safely navigate through an intersection. In certain circumstances, a Modern Roundabout also has a higher potential for meeting the increasing traffic demands of a growing community and relieving congestion caused by future traffic growth because of its unique capacity capabilities. In some situations, as much as a 75 percent reduction in travel delay time has been realized where Modern Roundabouts replaced existing traffic signal intersections.

Community Benefits

Landscaped buffers separating pedestrian and traffic encourage pedestrians to cross only at designated crossings and provide the city of Prescott the opportunity to enhance the aesthetics of an intersection.

By design, a Modern Roundabout is itself a traffic calming measure slowing vehicle speed and reducing noise as well. With slower speeds and shorter congestion-related delays business access is safer, easier and more flexible. Municipalities benefit from the economic savings associated with a roundabout intersection. The "life" or longevity of a Modern Roundabout is generally two times longer than a signalized intersection. Construction costs and right-of-way requirements are typically less with fewer lanes required than traditional signalized intersections.

- ◆ **Slower Speed Equals Reduced Fatalities**
- ◆ **Reduced Pedestrian and Vehicle Conflict Points**
- ◆ **Shorter Crosswalk Distance**
- ◆ **Predictable One-Way Vehicular Direction**
- ◆ **Protective Splitter Islands**



- ◆ **Attractive Community Entrance**
- ◆ **Traffic Calming**
- ◆ **Enhanced Business Access**
- ◆ **Enhanced Pedestrian Safety**
- ◆ **Lower Construction and Maintenance Costs**
- ◆ **Less Public Right of Way Required**

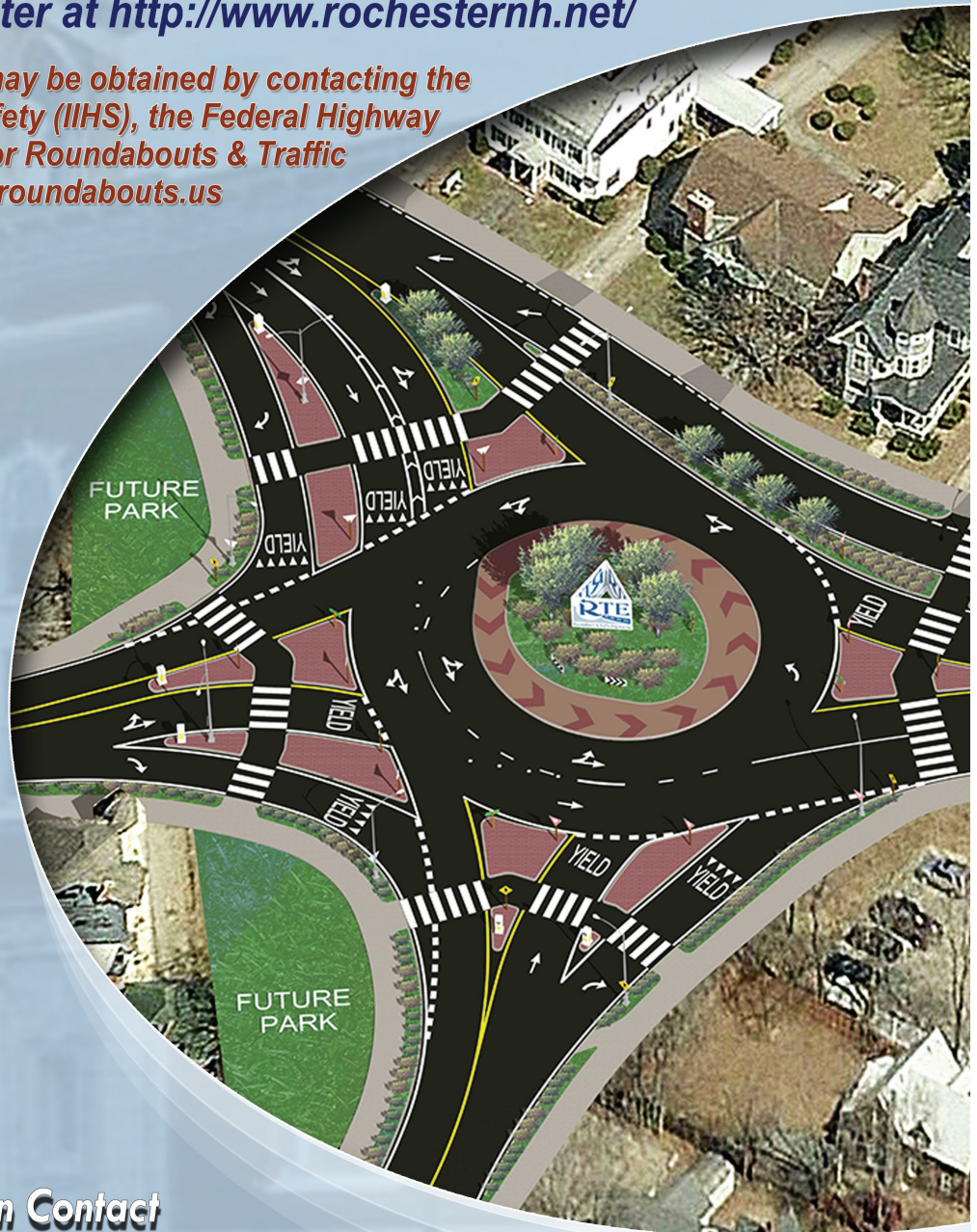
Environmental Benefits

Modern Roundabouts reduce the number and duration of vehicle stops and eliminate red-light sitting engine idle time (auto emissions are often worse than that of a moving vehicle). These combined benefits results in reduced noise, air pollution and reduced fuel consumption.

- ◆ **Reduced Fuel Consumption**
- ◆ **Reduced Auto Emissions**
- ◆ **Reduced Noise Pollution**

For more information about Modern Roundabouts and informational materials please contact the City of Rochester at <http://www.rochesternh.net/>

Additional information may be obtained by contacting the institute for Highway Safety (IHS), the Federal Highway Administration (FHWA) or Roundabouts & Traffic Engineering (RTE) www.roundabouts.us



For More Information Contact the City of Rochester

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