Roundabout
Research and Case Study Conducted by Victoria Fromme
Survey of the Montpelier, Vermont residents before and after roundabout construction

Cost of Conventional Intersections
Conventional Traffic Light Intersections:
- Equipment costs $125,000 on average
- Electricity costs $8,000 to $10,000 per stop per light each year

Environment
At typical intersections:
- Drivers idle their cars, sitting and waiting at a light

Decrease in pollutant emissions from roundabout conversion:
21 to 29 %
Points of Conflict: areas in which accidents with other cars, pedestrians, or bicyclists can occur

Four-way Intersection: 32 Points
Roundabout: 8 Points

Accident Reduction Studies

Schoon and van Minnen:
181 Dutch intersections transformed from traffic signal/stop sign to a roundabout

Crashes (with injuries) decreased:
- 47% former traffic signal
- 71% former stop sign
Severe injury crashes decreased 81%

Troutbeck:
73 intersections in Australia that were converted from typical signal designs to roundabouts

Crashes (with injuries) decreased:
- 74% at all former intersections

Elvik:
Conversion of a yield, two-way stop, or traffic signal control to a roundabout

Crashes (with injuries) decreased:
- 30–40% former traffic signal
Accidents involving bicyclists decreased: 20%
Accidents involving pedestrians decreased: 30%
Research

Roundabout Interchange

One bridge interchange

Two bridge interchange
A50/Heron Cross in the United Kingdom.
West Chester

Lakota Drive West and Eagleridge Drive in West Chester Township

Fairfield Township

Hamilton-Mason and Vinnedge Roads

Project Cost: $1 million
Fatal Crashes: 90% reduction
Crashes (with injuries): 75%
Accidents with Pedestrians: 30-40% reduction
Engineers: W.G. Stang LLC
Funding: Ohio Public Works Commission 46%; County funding; Fairfield Township Funding

Research

Cincinnati Roundabouts

Other Roundabouts:
- Eden Park
- Northern Kentucky University
Vail, Colorado – Avon, Colorado

**Background**
- Freeway interchanges of Vail, Colorado became badly overcrowded
- Initially, engineers proposed $15 million worth of off-ramps, the widening of overpasses, and new traffic lights
- Residents demanded a smaller and greener alternative that was friendly to bicyclists and pedestrians
- Residents and Council voted in favor for a $2.2 million pair of modern roundabouts on each end of the interchange

**Vail, Colorado’s First Roundabouts**
West Bound and East Bound I-70 Ramps at Vail Road

- *First roundabout interchange built in North America*
- formerly regulated by stop signs
- consisted of two and three lane entries
- ARCADY/RODEL
- Implemented 1995, Cost $2.8 million
- First year, crashes reduced by 12%

**West Bound Design**
- Rain Drop Design
- Diameter of the circle is 120 feet
- Five legs lead to the roundabout
- Capacity of 2,700 vehicles per hour

**East Bound I-70 Ramp**
- Circular Design
- Diameter of the circle is 200 feet
- Six-leg roundabout
- Capacity is 5,200 vehicles per hour
Roundabout Case Study

Interstate and Chamonix Roads
- Opened in 1997
- Crashes (comparing 1994 to 2000) decreased 20%
- Crashes (with injuries) decreased 85%

Avon Road Corridor
- Five roundabouts along Avon Road
- Two of the five are interchange roundabouts
Last Thoughts

American approach to traffic:
HURRY UP and ........... wait.
RUSH! PEDAL TO THE MEDAL! BEAT THOSE SIGNALS!

To only get stopped and have to wait two minutes for the red light.

European approach to traffic:

T-intersections-YIELD
Roundabouts-YIELD
low delay intersection keeps the traffic flowing

Are essentially phasing out American tactics of roadways