Traffic Safety Improvements Countywide for the area of Picture Rocks Road at Sandario Road

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Pima County Department of Transportation

Welcomes You!

Traffic Engineering Division Staff

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Project Life Cycle

Public Input

You are here

Planning/Programming
6 months

Development/Design
18 months

Construction
10 months

Life Cycle of the Project Development Process
Improvement Project Locations

Proposed safety / capacity related projects

Picture Rocks Rd at Sandario Rd
Project Goals

1. Reduce the total number of crashes and reduce crash severity
2. Improve bicycle and pedestrian safety and access
3. Improve safety by reducing traffic congestion
4. Maintain existing access to businesses and driveways
5. Analyze life-cycle costs with predictive safety methodology
6. Provide improvements based on safety benefits
Project Site

Picture Rocks Rd at Sandario Rd
Traffic Operations

Picture Rocks Rd at Sandario Rd

Safety and Capacity related issues:

- 10-year Crash History—31 crashes total, 23 property damage, 8 injury accidents (15 were angle crashes)

- Average Daily Traffic (ADT)—10,143 vpd Picture Rocks Rd, 3,928 vpd on Sandario Rd

- Congested Area
Traffic Operations

Picture Rocks Rd at Sandario Rd – looking north
Traffic Operations

Picture Pocks at Sandario Rd – looking west
Traffic Operations

Picture Rocks Rd at Sandario Rd – looking south
Traffic Operations

Pictur Rocks Rd at Sandario Rd – business access
Possible Solutions

Picture Rocks Rd at Sandario Rd

*Reasonable alternatives:*

- Improve intersection
- Improve pedestrian access and facilities
- Improve bicycle facilities
- Add lighting
- Maintain access to businesses
Intersection Types

Stop Control

Traffic Signals

Roundabouts

Hannah Olsen E.I.T
Modern Roundabout Example

96th Street and Cholla Street in Scottsdale
Other Circular Intersections

Neighborhood Traffic Circles
• Common in Tucson neighborhoods
• Used to slow down traffic on local streets

Rotaries
• First circular intersections in the U.S.
• Common back east
• Very large radii
Roundabouts vs. Traffic Signals

- Fewer & Less Severe Accidents
- No Red Light Running
- Slower Speeds (operating speeds 15–23 mph)
- Improved Pedestrian Safety
- Faster Commute Travel Times
- Less Congestion and Delay
- Increased Capacity
- Aesthetics
- Reduced Air Pollution
Roundabout Conversion
(click on image to play video)
Roundabout Locations

Roundabout Locations in Pima County:
• Hardy Rd/ Calle Buena Vista (Town of Oro Valley)
• I-19 at Canoa Rd Traffic Interchange (Green Valley)
• Continental Rd/Camino Del Sol (Green Valley)

Approximately 30 Roundabouts in Arizona

Source: Nokia’s 2014 Here Maps (Graphic by Damien Hauser with ESRI)
Roundabout Locations

Camino Del Sol at Continental Road in Green Valley

Before: 12 crashes in five years  
After: 0 crashes in five years
Frequently Asked Questions

- How to Use Them
- Vehicular Safety
- Pedestrian Safety
- Bicycle Safety
- Large Trucks
- Buses
- Fire Engines
- Emergency Vehicles
- Access to Businesses
- Cost
- Aesthetics
Roundabouts and Safety

**Reduction in collisions**

<table>
<thead>
<tr>
<th>Category</th>
<th>Reduction</th>
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</thead>
<tbody>
<tr>
<td>Overall collisions</td>
<td>37%</td>
</tr>
<tr>
<td>Injury collisions</td>
<td>75%</td>
</tr>
<tr>
<td>Fatality collisions</td>
<td>90%</td>
</tr>
<tr>
<td>Pedestrian collisions</td>
<td>40%</td>
</tr>
</tbody>
</table>

Source: Federal Highway Administration and Insurance Institute for Highway Safety (FHWA and IHS)
Conflict Points at Intersections

Vehicle conflict points: Conventional intersection

- Diverge: 8
- Merge: 8
- Crossing: 16
- Total: 32

Vehicle conflict points: Roundabout

- Diverge: 4
- Merge: 4
- Crossing: 0
- Total: 8

vs.
Pedestrian Safety

- Roundabouts are safer than signalized intersections
- Slower traffic speeds
- Two stage crossing for pedestrians
- Crosswalk set back from circulatory roadway
Bicycle Safety

TIPS for using a Roundabout:

• Riders follow the same rules as vehicles.

• Be assertive when merging with traffic.

• Riders should travel at approximately the same speed as motorists.

• Cyclists should ride in the center of the lane, not along the curb line.

• Be sure to use proper hand signals when exiting the roundabout.

Tips for safely walking and biking through a roundabout

Walk around the outside; don’t cross through the middle

Ride your bike as a vehicle or walk your bike as a pedestrian

Research is ongoing on additional treatments and design considerations to address the needs of visually impaired pedestrians.
Buses

104th Street & Cactus Street in Scottsdale
Semi-Tractor Trailers
(click on image to play video)
Fire Trucks
(click on image to play video)
Roundabouts and Businesses

- **Inviting:** Roundabouts provide for green space, have little or no congestion, and provide easy access to destinations.

- **Increase Visibility:** Slower vehicle speeds give drivers/passengers more time to see nearby businesses.

- **Improve Connectivity:** Slower vehicle speeds improve access for cyclists and pedestrians.

- **Increase Sales:** Sales tax revenues increased 60% after roundabouts were installed.
Roundabout Cost vs. Traffic Signals

- *Initial capital cost about slightly higher*
- *Serviceable life 2x longer*
- *Annual equipment maintenance costs $10,500 less*
- *Safety costs significantly lower*
- *Overall life-cycle cost ½ the life-cycle cost of a signal*
More Information on Roundabouts

Pima County Department of Transportation website:
http://webcms.pima.gov/Transportation/Single-Lane Roundabouts

Arizona Department of Transportation website:
https://azdot.gov/about/transportation- safety/roundabouts/overview

Federal Highway Administration Roundabouts - An Informational Guide:

NCHRP Report 672 – Roundabouts: An Informational Guide
https://onlinepubs.trb.org/.../nchrp_rpt_672.pdf

RoundaboutsUSA: www.roundaboutusa.com

Roundabouts Resources: www.roundaboutresources.org