Traffic Safety Improvements Countywide for the areas of Gates Pass at Kinney Road, Bopp Road at San Joaquin, and Bopp Road at Donald Avenue

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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

- Gates Pass
- At Kinney Rd
- Bopp Rd at San Joaquin
- Bopp Rd at Donald Ave
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 #1

Bopp Rd at Donald Ave
Traffic Operations

Bopp Rd at Donald Ave

Safety and Capacity related issues:

• Crash History - 14 crashes total; 7 property damage only, 6 injury crashes and 1 fatal crash

• Average Daily Traffic (ADT) – 6,698 vpd and Bopp Rd and 600 vpd on Donald Ave

• Excessive speed on Bopp Ave
Traffic Operations

Looking north on Donald Ave
Traffic Operations
Looking west on Bopp Rd
Traffic Operations
Looking south on Donald Ave
Possible Solutions

Bopp Rd at Donald Ave

Reasonable alternatives:

• Improve the intersection of Bopp Rd at Donald Ave

• Improve pedestrian facilities

• Improve bicycle facilities

• Add lighting to intersection

• Slower traffic on Bopp Road
Traffic Operations

Bopp Rd at San Joaquin

Safety and Capacity related issues:

• Crash History - 4 property damage crashes total; 2 ran stop sign crashes, 1 rear end crash and 1 hit object

• Average Daily Traffic (ADT) – 2,906 vpd and on San Joaquin and 6,033 vpd on Bopp Rd

• Excessive speeds on Bopp Rd
Traffic Operations

Looking east on Bopp Rd
Project Site

Bopp Rd at San Joaquin
Traffic Operations

Looking northwest on San Joaquin
Possible Solutions

Bopp Rd at San Joaquin

Reasonable alternatives to solving safety and capacity related issues:

• Improvements to the intersection of Bopp Rd and San Joaquin

• Improve pedestrian facilities

• Add lighting
Project Site #3

Kinney Rd at Gates Pass Rd
Traffic Operations

Kinney Rd at Gates Pass Rd

Safety and Capacity related issues:

• Crash History - 2 crashes total; 1 motorcycle lost control, 1 rear end crash

• Average Daily Traffic (ADT) – 2,973 vpd on Gates Pass Rd and 2,985 vpd on Kinney Rd
Traffic Operations

Looking west on Gates Pass Rd
Project Site

Kinney Rd at Gates Pass Rd
Traffic Operations

Kinney Rd at Gates Pass Rd
Possible Solutions

Kinney Rd at Gates Pass Rd

Reasonable alternatives:

- Improvements to the intersection of Kinney Rd at Gates Pass Rd
- Improve pedestrian facilities
- Add lighting
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)

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

Approximately 30 Roundabouts in Arizona
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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<tbody>
<tr>
<td>Overall collisions</td>
<td>37%</td>
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<tr>
<td>Injury collisions</td>
<td>75%</td>
</tr>
<tr>
<td>Fatality collisions</td>
<td>90%</td>
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<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
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.

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)
Access to Businesses

• Most business owners agree that slower speeds and safer travel enhance business.

• Roundabouts provide better access to businesses near the intersection than traffic signals because roundabouts do not have left-turn storage lanes with raised medians.
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
Roundabouts Landscaping
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.roundaboutsusa.com

Roundabouts Resources: www.roundaboutresources.org