Traffic Safety Improvements Countywide for area of Linda Vista at Camino De Oeste

April 20, 2016
Pima County Department of Transportation

Welcomes You!

Traffic Engineering Division Staff

Steve Wilson P.E. – Civil Engineer

Hannah Olsen E.I.T. – Civil Engineering Assistant
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

Linda Vista Blvd at Camino De Oeste
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

Linda Vista Blvd at Camino De Oeste
Traffic Operations

Linda Vista Blvd at Camino De Oeste

Safety and Capacity related issues:

• Crash History - 9 crashes total; 6 rear-end crashes, 1 loss of control
  2 angle crashes

• Average Daily Traffic (ADT) – 10,675 vpd Linda Vista Blvd
  and 1,069 vpd on Camino De Oeste

• Congested Area – Back-up on Westbound Linda Vista Blvd
  exceeds 30 vehicles
Traffic backs-up on Linda Vista Blvd from 4-way stop at Camino De Oeste
Traffic Operations
30 plus vehicle back-up in peak hour
Traffic Operations
Possible Solutions

Linda Vista Blvd at Camino De Oeste

Reasonable alternatives:

• Improve intersection at Linda Vista Blvd and Camino De Oeste

• Improve pedestrian access and facilities

• Improve bicycle facilities

• Add lighting at intersection
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 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 chart]

<table>
<thead>
<tr>
<th>Type of Collision</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>37%</td>
</tr>
<tr>
<td>Injury</td>
<td>75%</td>
</tr>
<tr>
<td>Fatality</td>
<td>90%</td>
</tr>
<tr>
<td>Pedestrian</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

<table>
<thead>
<tr>
<th>Conflict Types</th>
<th>Diverge</th>
<th>Merge</th>
<th>Crossing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>8</td>
<td>16</td>
<td>32</td>
</tr>
</tbody>
</table>

Vehicle conflict points: Roundabout

<table>
<thead>
<tr>
<th>Conflict Types</th>
<th>Diverge</th>
<th>Merge</th>
<th>Crossing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>
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.
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

Roundabout Resources: www.roundaboutresources.org