



Northsight Roundabout

MAG TRC

August 27, 2015

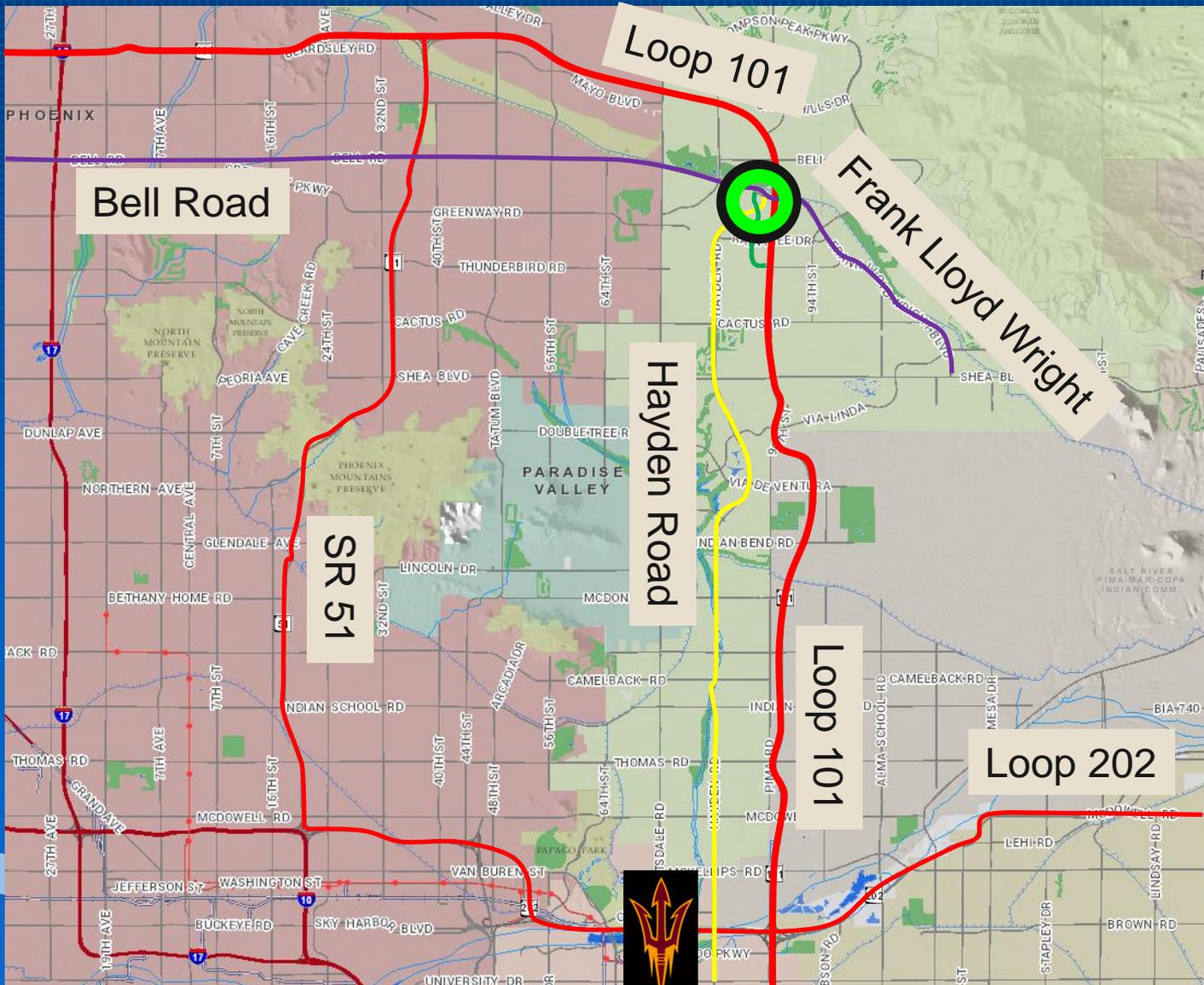
George Williams PE, PTOE, PTP
Principal Traffic Engineer
City of Scottsdale



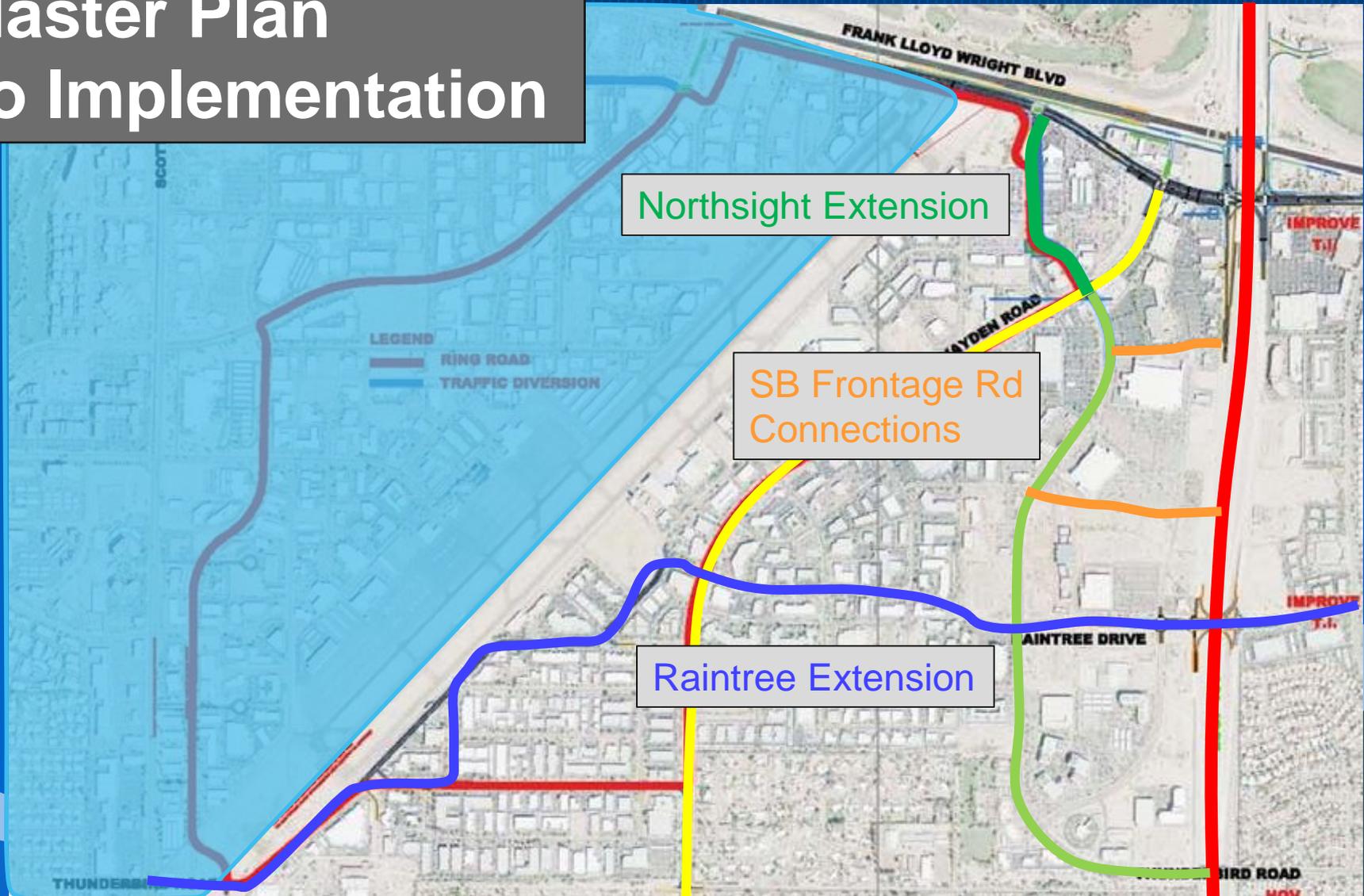


Northsight Boulevard Extension Project: Improving Traffic Flows and Increasing Safety

Project Location



Master Plan To Implementation



Major Goals

- Mitigate FLW congestion
- Improve east/west connectivity
- Minimize business impact
- Minimize Airport impacts
- Minimize ROW needs & costs



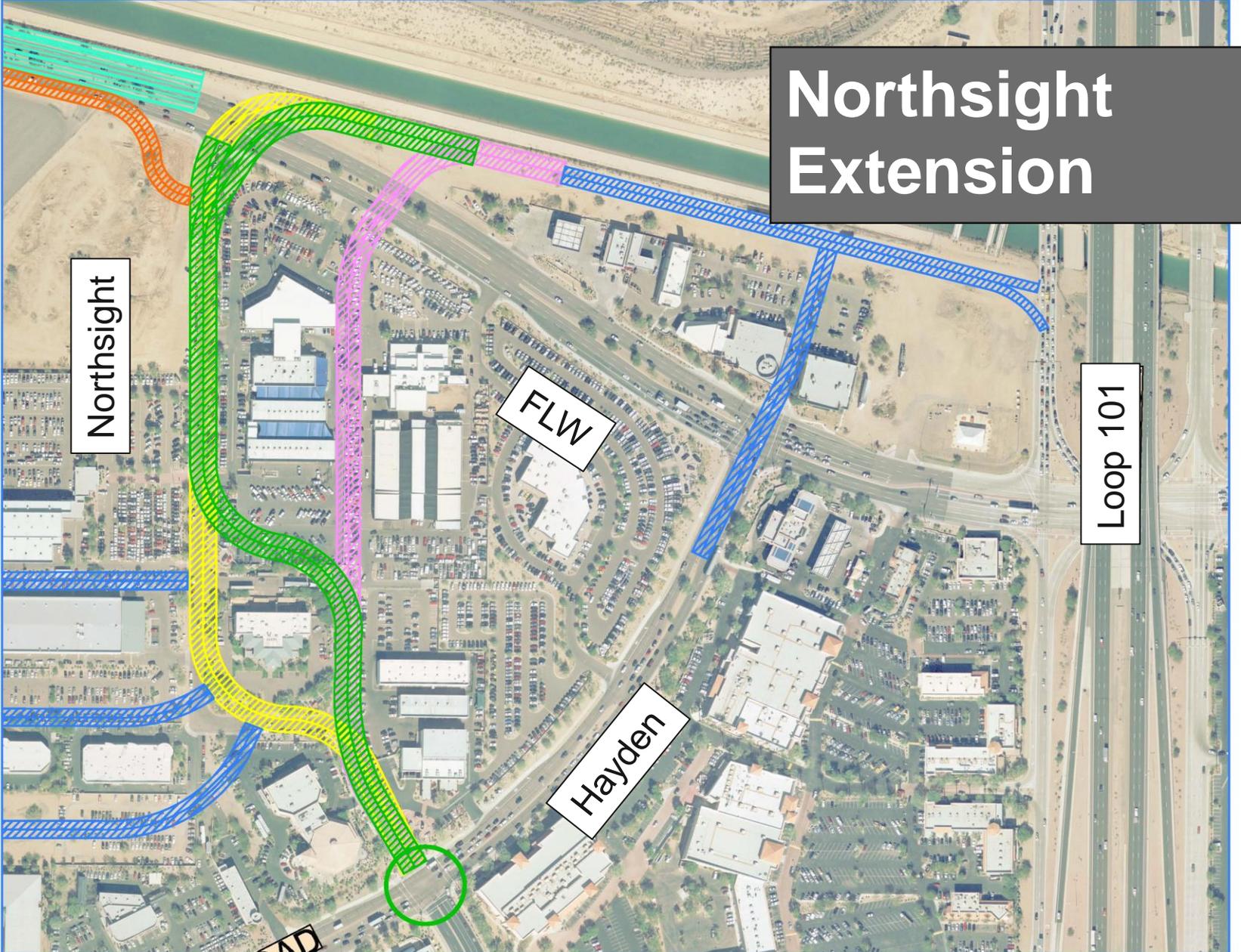
Northsight Extension

Northsight

FLW

Hayden

Loop 101



Northsight Extension

New Signal
Northsight & FLW

Critical Driver
Decision Point

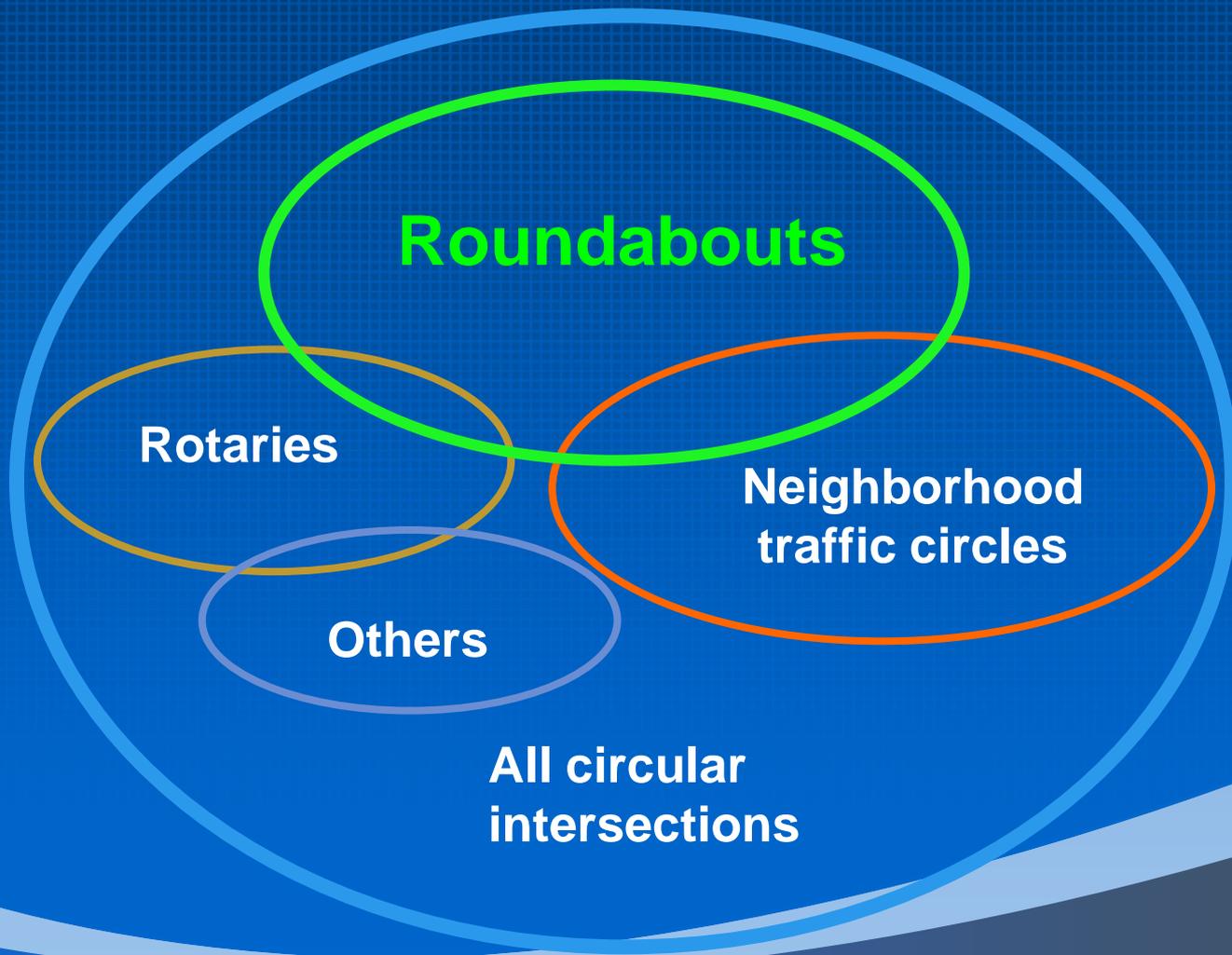
FLW BLVD

Hayden Road

Northsight

101 Freeway

What is a Roundabout?



Roundabout Design

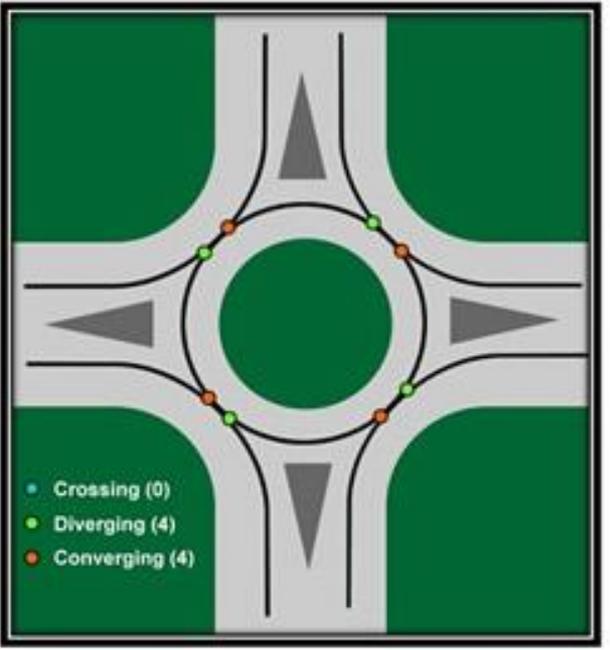
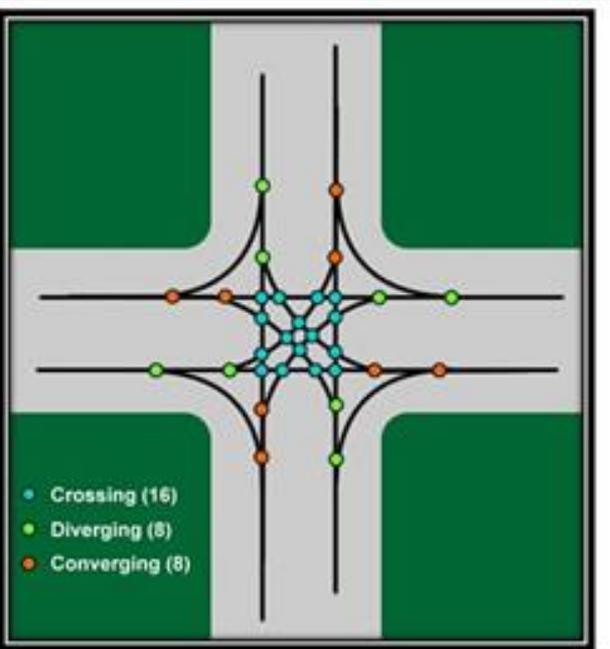
Large Outdated high speed (30 mph plus) Rotary to be removed

New small safe Roundabout (less than 25mph w/ yield on all approaches) replacing old rotary

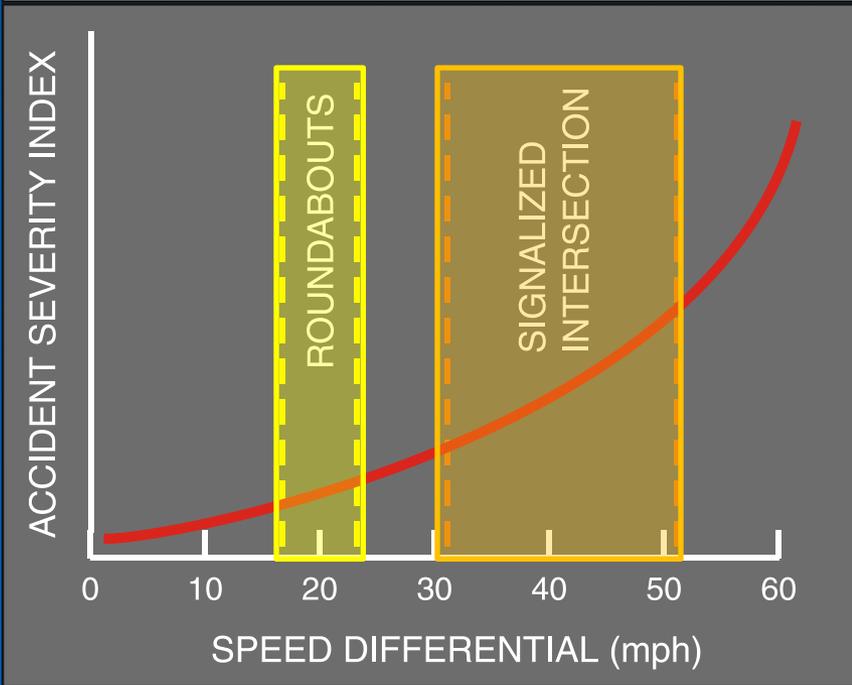
No control with high speed entry
High speed weaving area



Intersection Conflicts



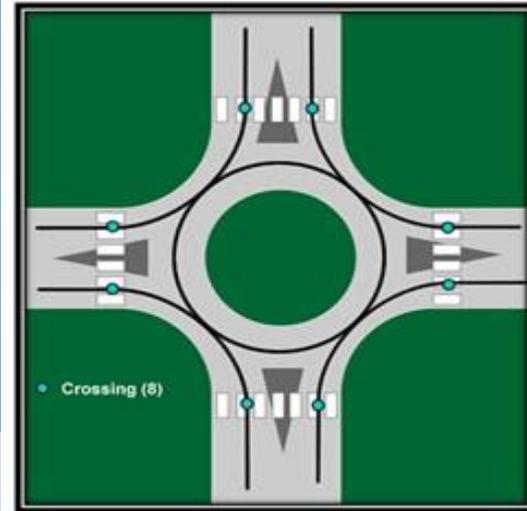
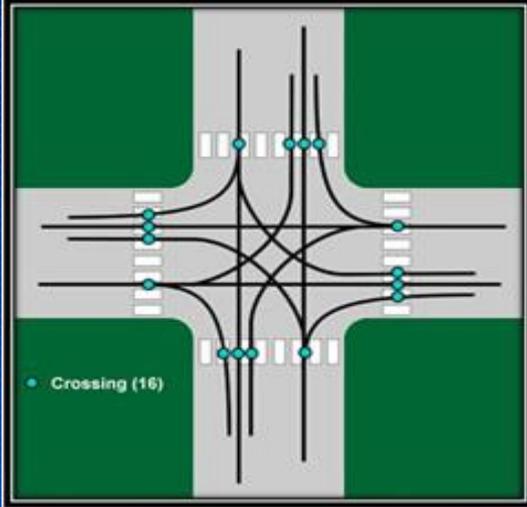
Standard Intersection Conflict Speeds



Roundabout Safety Stats

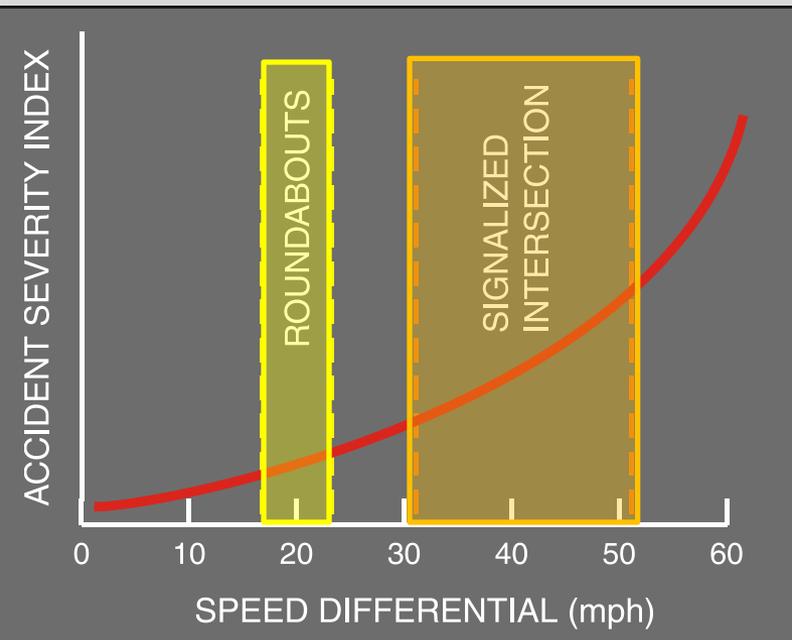
<u>Study</u>	<u>Collisions</u>	<u>Injuries</u>	<u>Serious</u>
• IIHS (24 intersections)	-39%	-76%	-89%
• NCHRP Report 572 (55)	-35%	-76%	-71%
• Maryland (15)	-60%	-82%	-100%
• Golden Colorado (4)	-60%	-94%	
• North Carolina (30)	-46%	-75%	-85%
• Scottsdale (9)	-18%	-34%	

Pedestrian Safety at Roundabouts



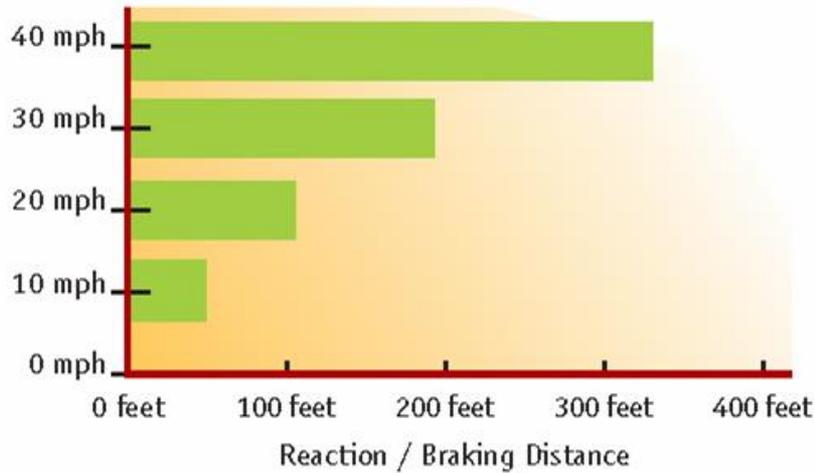
Roundabouts generally are safer for pedestrians than traditional intersections. Studies in Europe indicate that roundabouts can reduce pedestrian crashes by about 75 percent. -IIHS

Standard Intersection Conflict Speeds



Fewer Pedestrian Conflict Points

Travel Speed vs. Reaction and Braking Distance



High speeds increase stopping distance

High speeds increase pedestrian injuries

PEDESTRIAN INJURIES AT IMPACT SPEEDS

MPH

40



85% death

15% injured

30



45% death

50% injured

5% uninjured

20



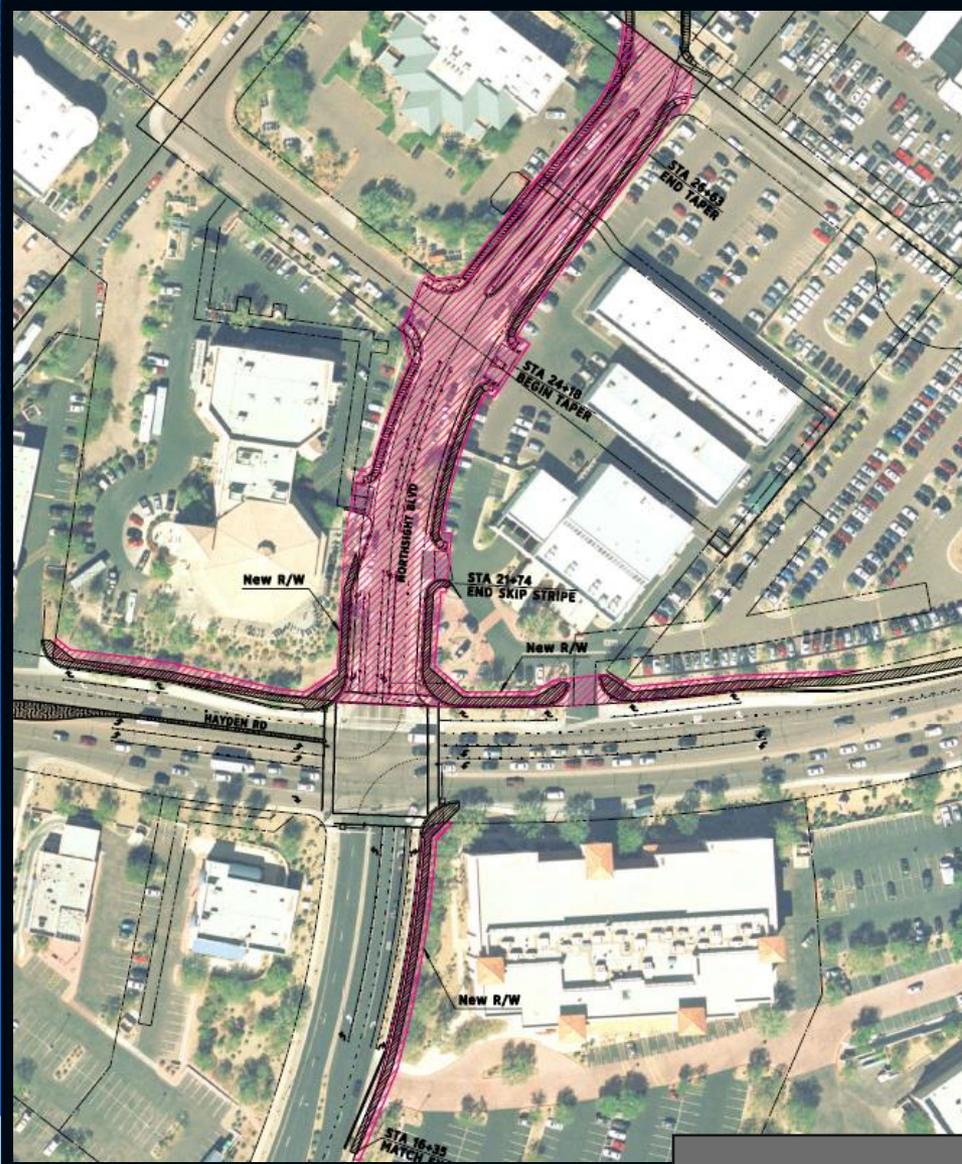
5% death

65% injured

30% uninjured

Northsight Extension





Hayden/Northsight Roundabout Footprint

Right of Way Comparison

Common ROW

Roundabout ROW

Signal ROW

(~6000 sq ft less for roundabout)



Public Input Summary Through December 2011

- Transportation Commission Meetings (10)
- Airport Chamber meetings (2)
- Mayor's Breakfast
- Planning Commission Meetings (2)
- Airport Commission Meetings (3)
- Individual property owners (multiple)
- City Held Public Meeting March 1st 2010
- City Held Public Meeting June 10th 2010
- City Council Presentation July 5th 2011
- City Council Northsight Extension Design Contract Vote October 18th, 2011
- City Council Requests Comparison Presentation October 25th, 2011
- City Held Public Open House December 8th 2011

Public Input Summary – January 2012 to Present

- City Council Authorizes Roundabout for Hayden/Northsight intersection control January 10, 2012
- City Council Authorizes CMAR Design Phase Services April 17, 2012
- City Held Public Open House June 28, 2012
- City Held Public Open House October 25, 2012
- Development Review Board Hearing November 1, 2012
- Individual property owners meetings (multiple)
 - AN Motors – 2/14/12, 6/26/12, 8/1/12, 11/28/12
 - Go AZ – 2/22/12, 6/6/12, 9/12/12, 11/14/12
 - Van Tyul Group – 6/22/12, 9/12/12

Public Input Summary January 2012 to Present

- City Council Presentation July 5th 2011 (no comments & no voting)
- City Council Northsight Extension Design Contract Vote October 18th, 2011
 - Organized campaign against and council votes three times before ultimately eliminating roundabout)
- City Council Requests Comparison Presentation October 25th, 2011
 - Council members discuss and request the item be reconsidered
- City Held Public Open House December 8th 2011
- City Council Presentation Roundabout Vs Signal January 10, 2012
 - City Council Authorizes Roundabout 5-2
- City Council Member asks to bring roundabout back again.
 - City Council votes 4-3 to not bring item back
- City Council Authorizes CMAR Design Phase Services April 17, 2012
- City Held Public Open House June 28, 2012
- City Held Public Open House October 25, 2012
- Development Review Board Hearing November 1, 2012

Before & After Performance:

BEFORE (12-21-12)
HAYDEN ROAD LOOKING NORTHEAST



AFTER (5/7/14)
HAYDEN ROAD LOOKING NORTHEAST



Before Performance: Crash History Northsight/Hayden

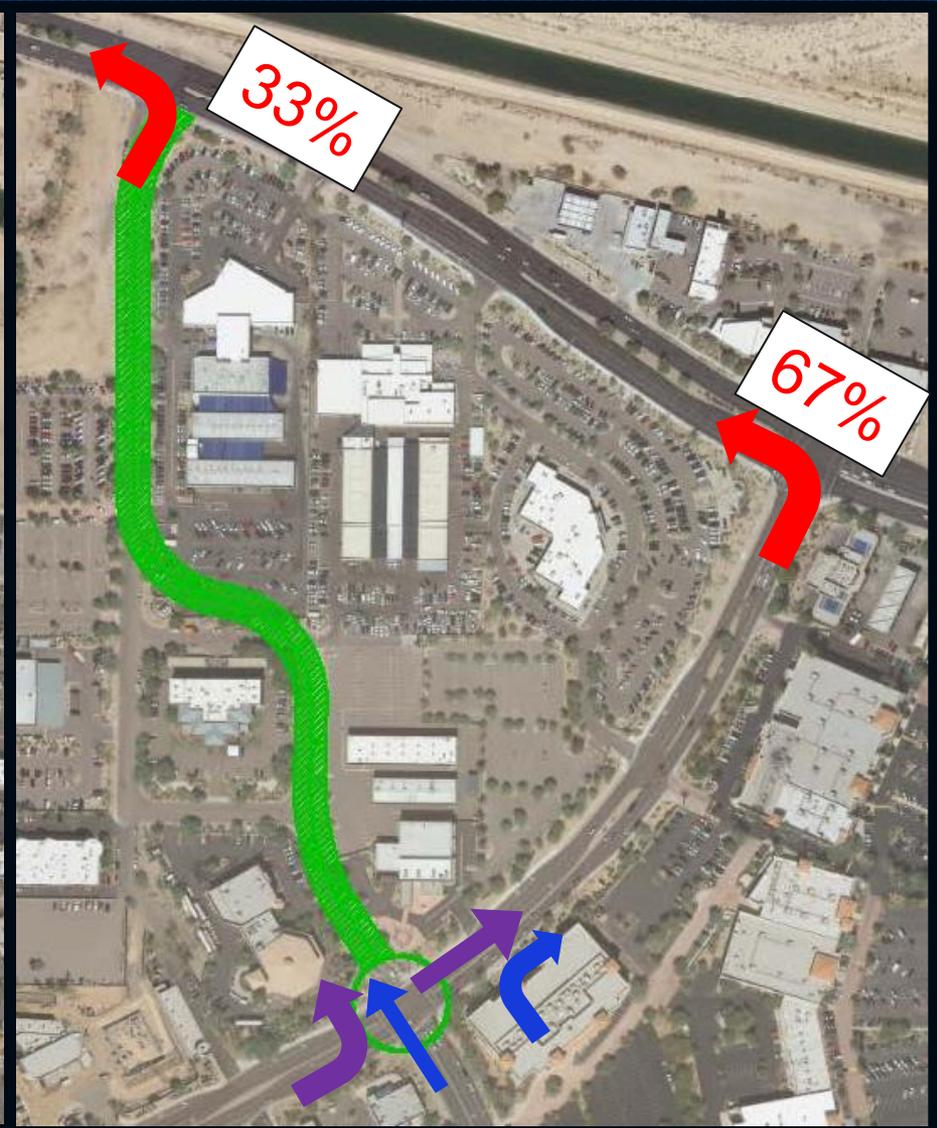
Before Construction					
Year	Crashes	Vehicles-per-day	Crash Rate	Injuries	Injury Rate
2007	11	25,000	1.21	4	0.44
2008	7	30,000	0.64	3	0.27
2009	6	26,500	0.62	1	0.10
2010	5	27,000	0.51	4	0.41
2011	11	27,500	1.10	5	0.50
2012	6	27,500	0.60	2	0.20
6 Years Before	46			19	
Average	7.67	27,250	0.77	3.17	0.32

After Performance: Crash History Northsight/Hayden

After Construction					
Year	Crashes	Vehicles-per-day	Crash Rate	Injuires	Injury Rate
2014	9	35,000	0.70	1	0.08
2015	6			0	
1.5 Years After	15			1	
Average	10.00	35,000	0.78	0.67	0.05

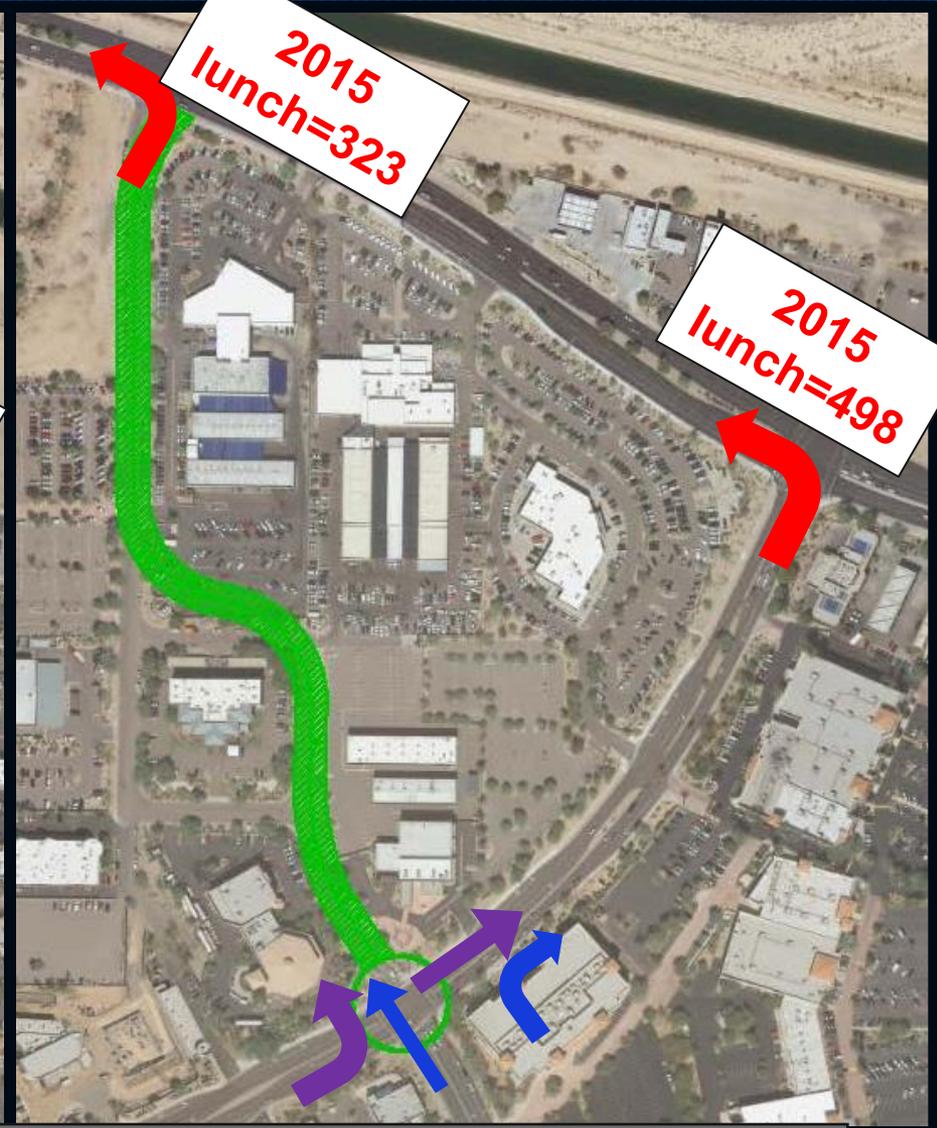
Performance Change Summary: Crash History Northsight/Hayden

Summary					
Year	Crashes	Vehicles-per-day	Crash Rate	Injuries	Injury Rate
Before	8	27,250	0.77	3.17	0.32
After	10	35,000	0.78	0.67	0.05
Change	25% increase	28% increase	No change	79% decrease	84% decrease



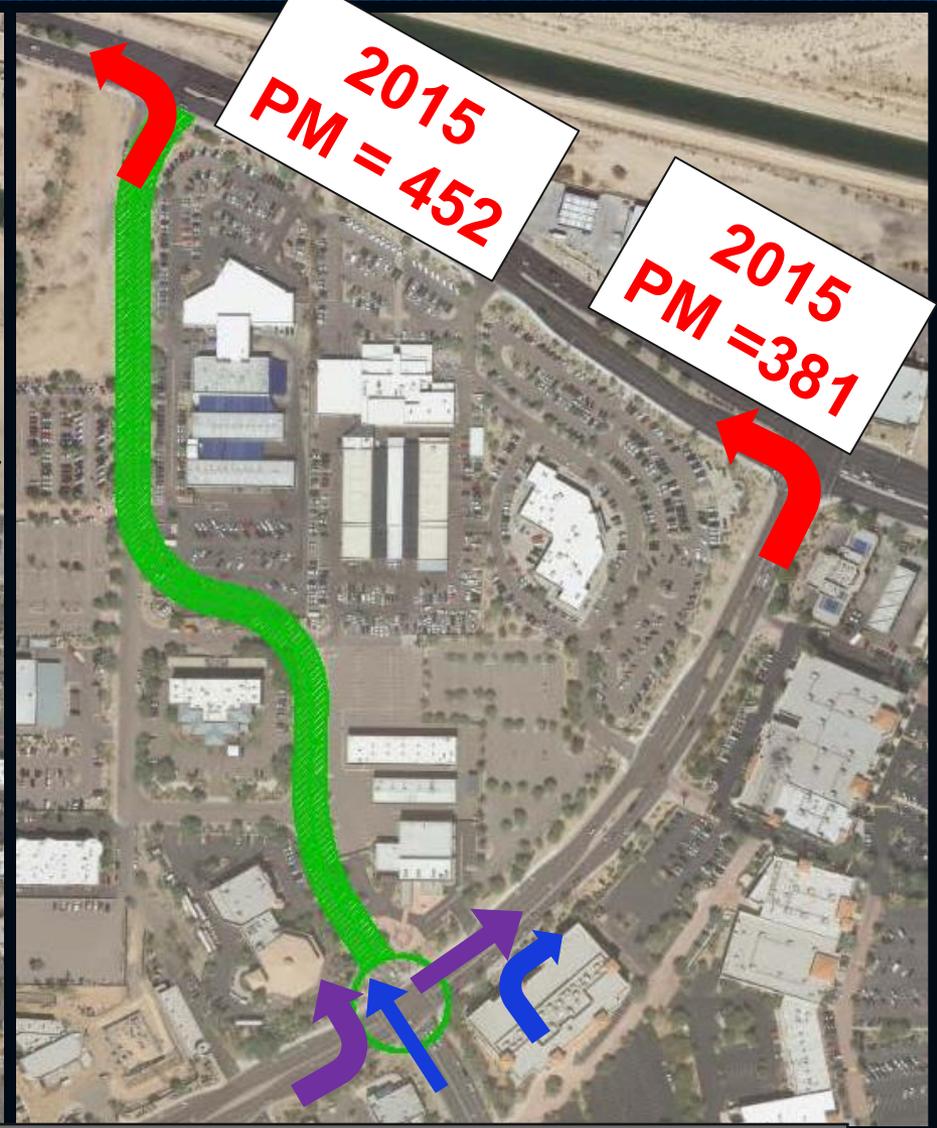
Northsight Extension Bypass Concept
Goal = 20% minimum, 33% planned





Northsight Extension Bypass Concept
(2015 lunch peak volumes = 39%)





Northsight Extension Bypass Concept
(2015 evening peak volumes = 54%)



Travel Time



Travel Time Results

		Pre-Const	Post Const
Path	Via	Time	Time
A-B	Northsight		1:58

B

C

A

Travel Time Results

		Pre-Const	Post Const
Path	Via	Time	Time
A-B	Northsight		1:58
A-B	Hayden	3:26	2:23

B

C

A

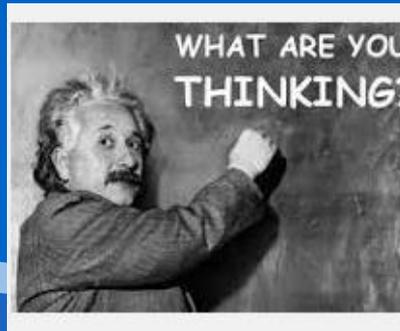
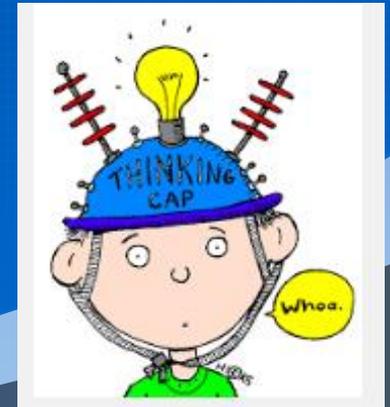
Travel Time Results

		Pre Construction	Post Construction
Path	Via	Time	Time
A to B	Northsight		1:58
A to B	Hayden	3:26	2:23
B to C	FLWB	2:27	1:43

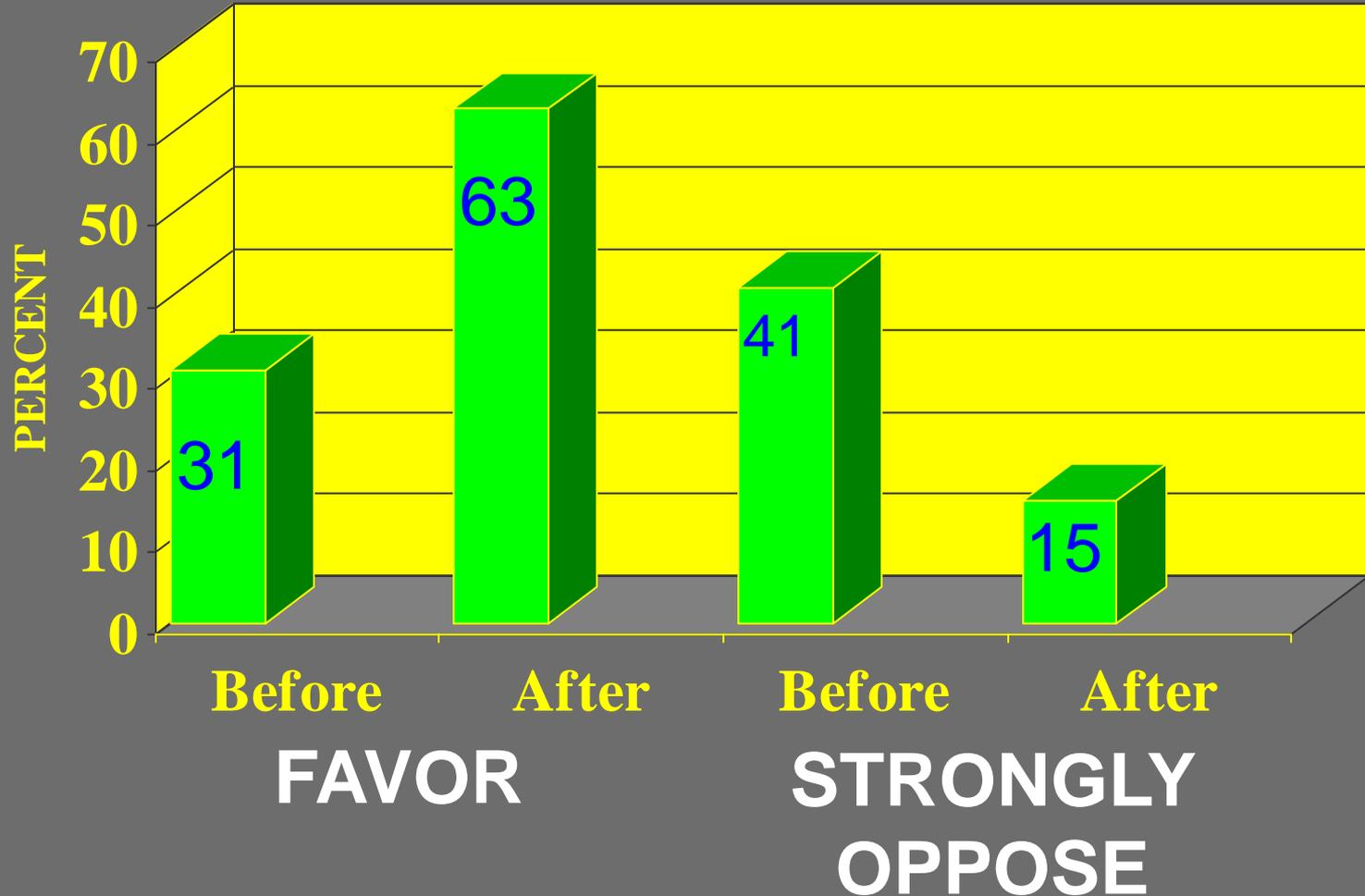


Success!

...but what about public opinion?



Public Education and Outreach



Driver Opinion Survey on Roundabouts -IHS

Scottsdale among U.S. leader in roundabouts, circular intersections

f
44

Michael Clancy, The Republic | azcentral.com 8:11 p.m. MST July 5, 2014

Do you like driving on roundabouts?

- Yes.
- No.
- I've never driven on a roundabout.

Vote

View Results

Scottsdale among U.S. leader in roundabouts, circular intersections

f
44

 Michael Clancy, The Republic | azcentral.com 8:11 p.m. MST July 5, 2014

Do you like driving on roundabouts?

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Vote

View Results

What percentage said Yes ?

Scottsdale among U.S. leader in roundabouts, circular intersections

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44

Michael Clancy, The Republic | azcentral.com 8:11 p.m. MST July 5, 2014

Do you like driving on roundabouts?

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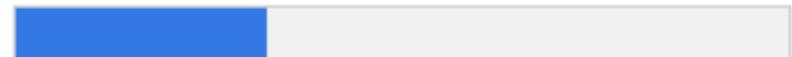
View Results

Thank you for voting!

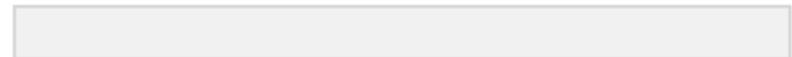
Yes. **67.22%** (121 votes)



No. **32.78%** (59 votes)



I've never driven on a roundabout.
0% (0 votes)



Total Votes: 180



QUESTIONS?

