Intersection Design Day

Avondale Estates Intersection Improvement/Roundabout and Road Diet Feasibility Study

December 6, 2014

CITY OF AVONDALE ESTATES, GA

NELSON NYGAARD

McGee Partners

GHD

EDWARDS-PITMAN ENVIRONMENTAL, INC.

Thanks to our Partners

Atlanta Regional Commission

Georgia Department of Transportation

DeKalb County Traffic Engineering

Thanks to our Volunteers

Department of Public Works

Administration Associates

Community Resident Volunteers

Thanks to our Supporters

Mann Mechanical

Wild Heaven Craft Brewery

Trees Atlanta

The Market in Avondale

Red Born Nurseries

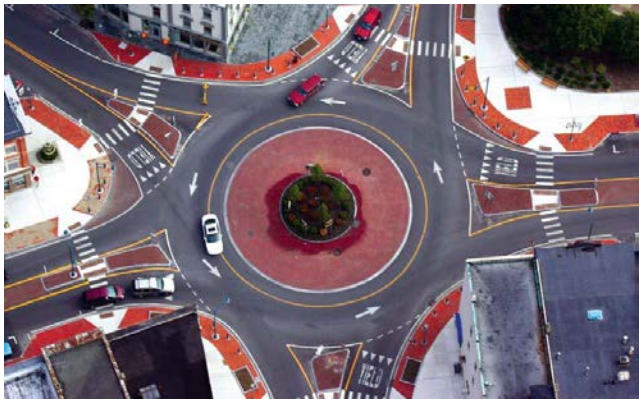
Steve Sanchez

Today's Event

Understand the feasibility study

Learn more about street and intersection design options (road diets, roundabouts)

Set up a demonstration project outside

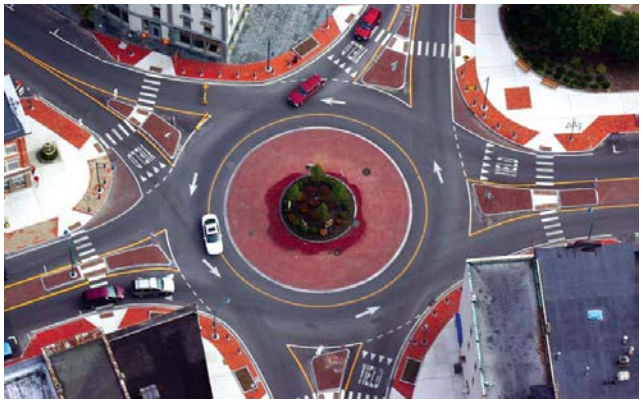


The feasibility study

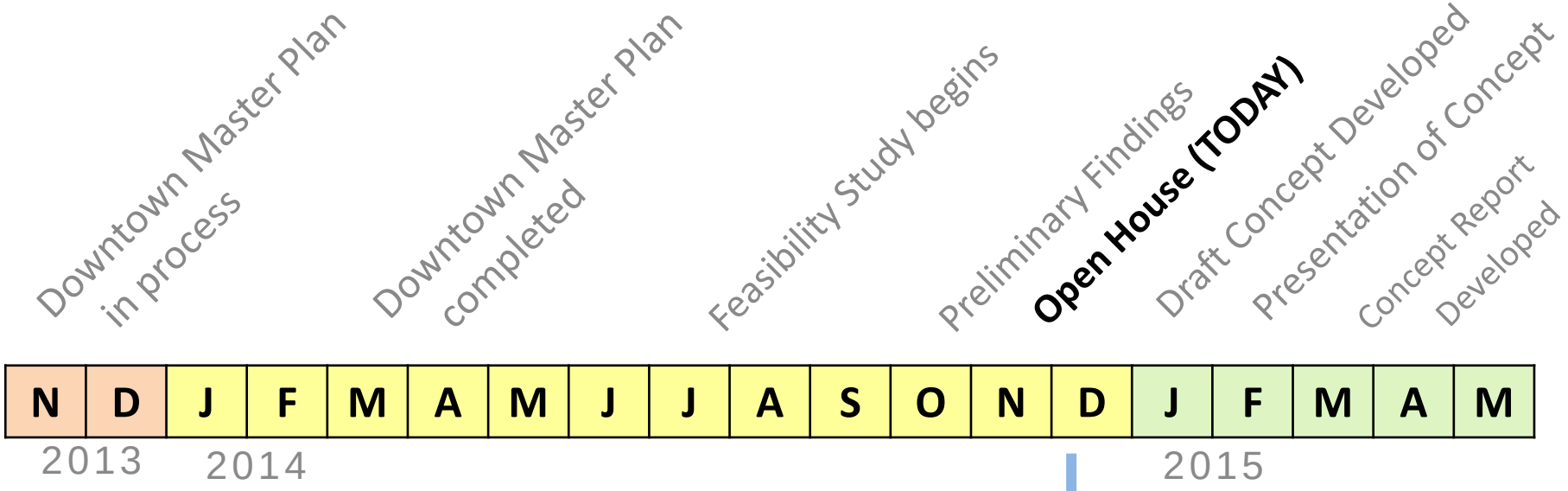
A follow-up to the downtown master plan

Explores road diet, crosswalk and intersection treatment recommendations in more detail

Prepares a Concept Report to formally launch a project with GDOT



Sequence of Events



Today's open house:

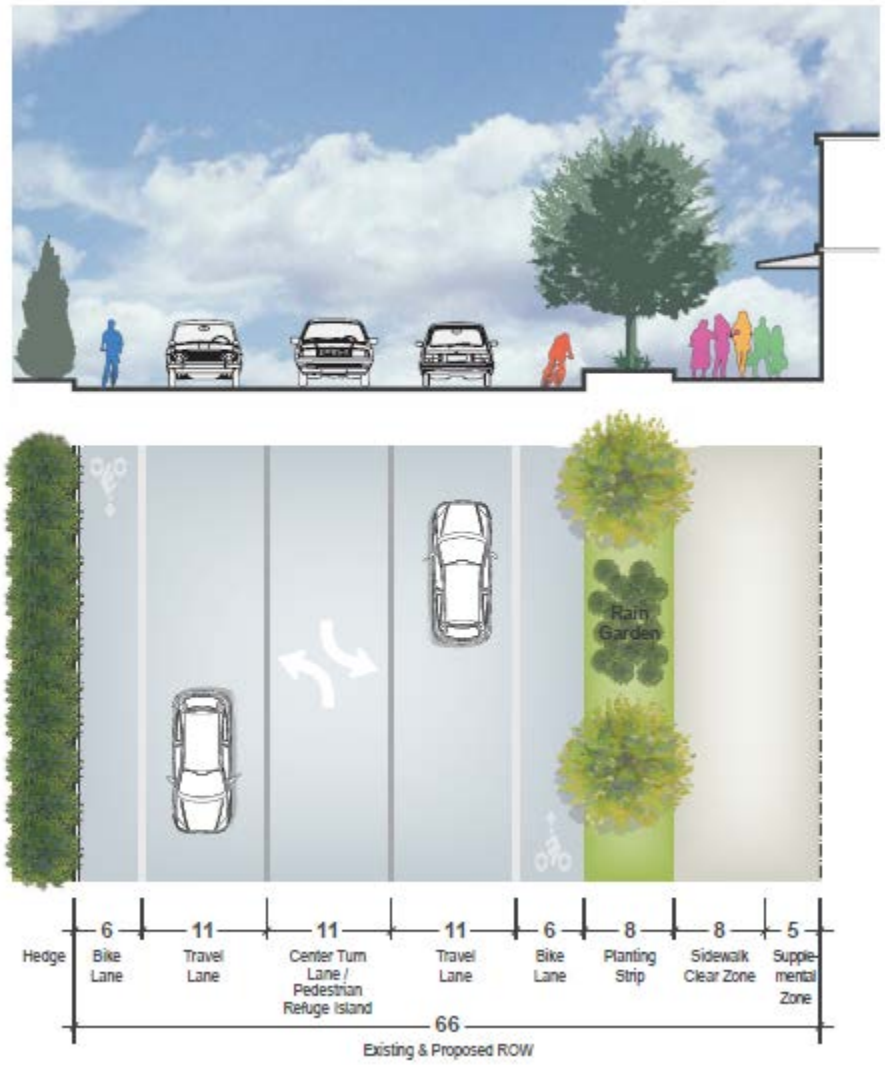
- Recap of master plan recommendations
- Presentation of our initial findings (what is and isn't feasible)
- Working out details of an emerging concept design

Downtown Master Plan

Recommendations

The Road Diet

Master Plan's principal recommendation



Uses existing ROW and converts five-lane cross section to three lanes

Bike lanes throughout corridor; expanded buffers and sidewalks on north side

Pedestrian Refuge Islands

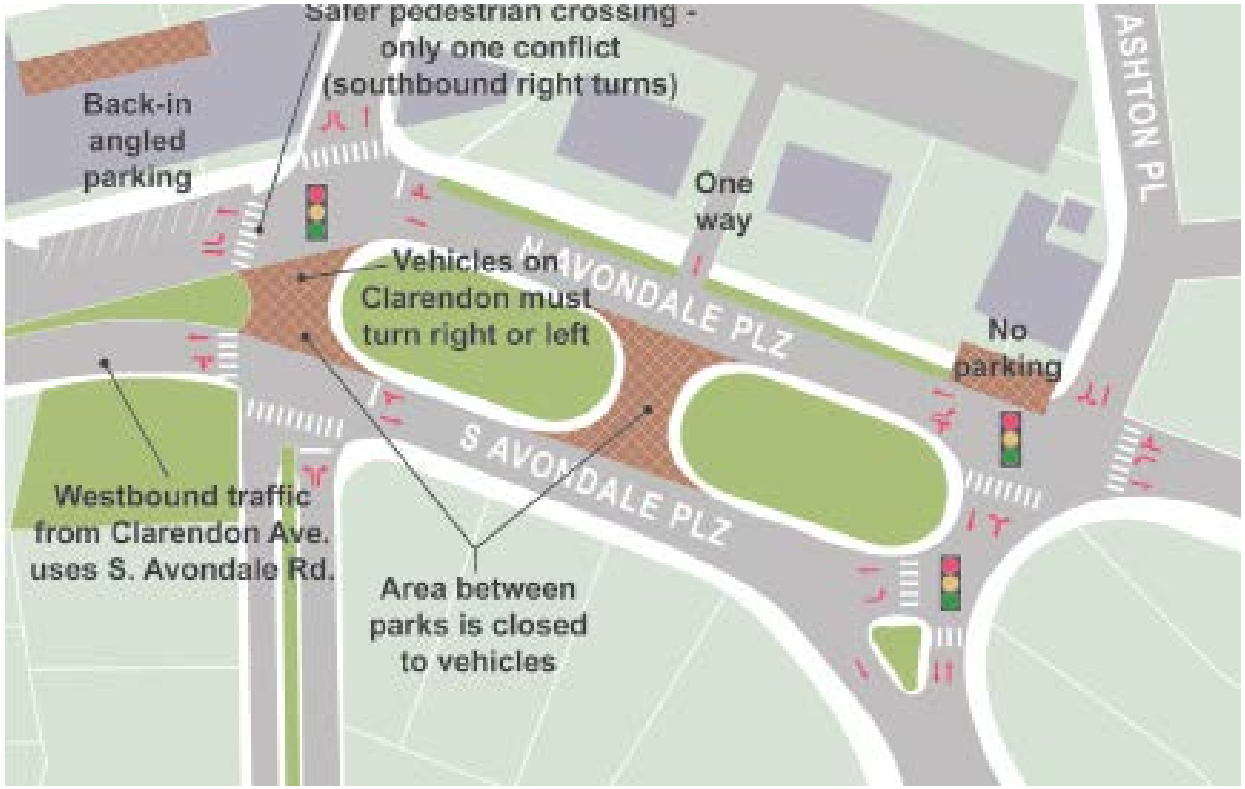
Complements the roundabout for safer midblock crossings

Proposed near Maple and Oak

Additional crossings/medians may be possible given driveway locations and key pedestrian 'desire lines'

US 278/Clarendon Avenue

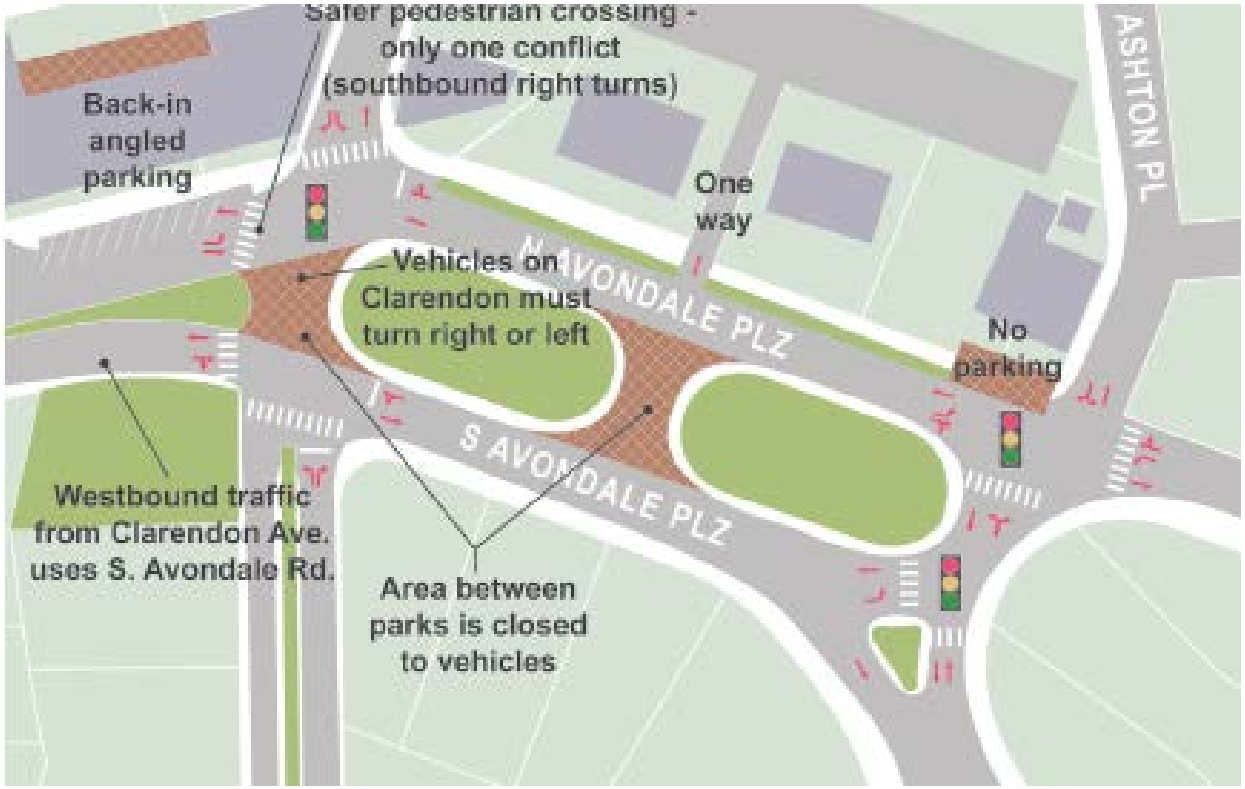
First Option: Offset T



Essentially an extended roundabout that uses the Avondale Plaza streets for circulation

US 278/Clarendon Avenue

First Option: Offset T



Essentially an extended roundabout that uses the Avondale Plaza streets for circulation

US 278/Clarendon Avenue

Second Option: Roundabout

Places roundabout at main N Clarendon/278 intersection, with partial closures to South Avondale Road and Plaza

US 278/Clarendon Avenue

Third Option: Prohibiting Left Turns

Reduces a conflict point for pedestrians by prohibiting a left turn from South Clarendon

US 278/Clarendon Avenue

Fourth Option: Protecting Left Turns in Signal Timing

Reduces a conflict point for pedestrians by controlling when a left turn from South Clarendon can happen

Lines up left turns on US 278 on either side of the intersection

Complete Streets

Principles and Benefits

The tremendous potential

Of all trips:

39%

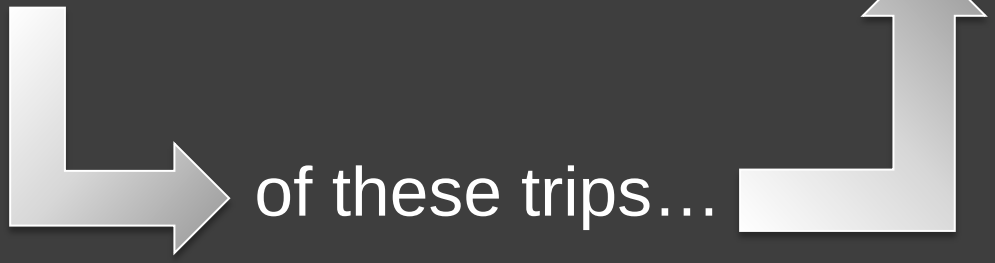
are less than
3 miles

17%

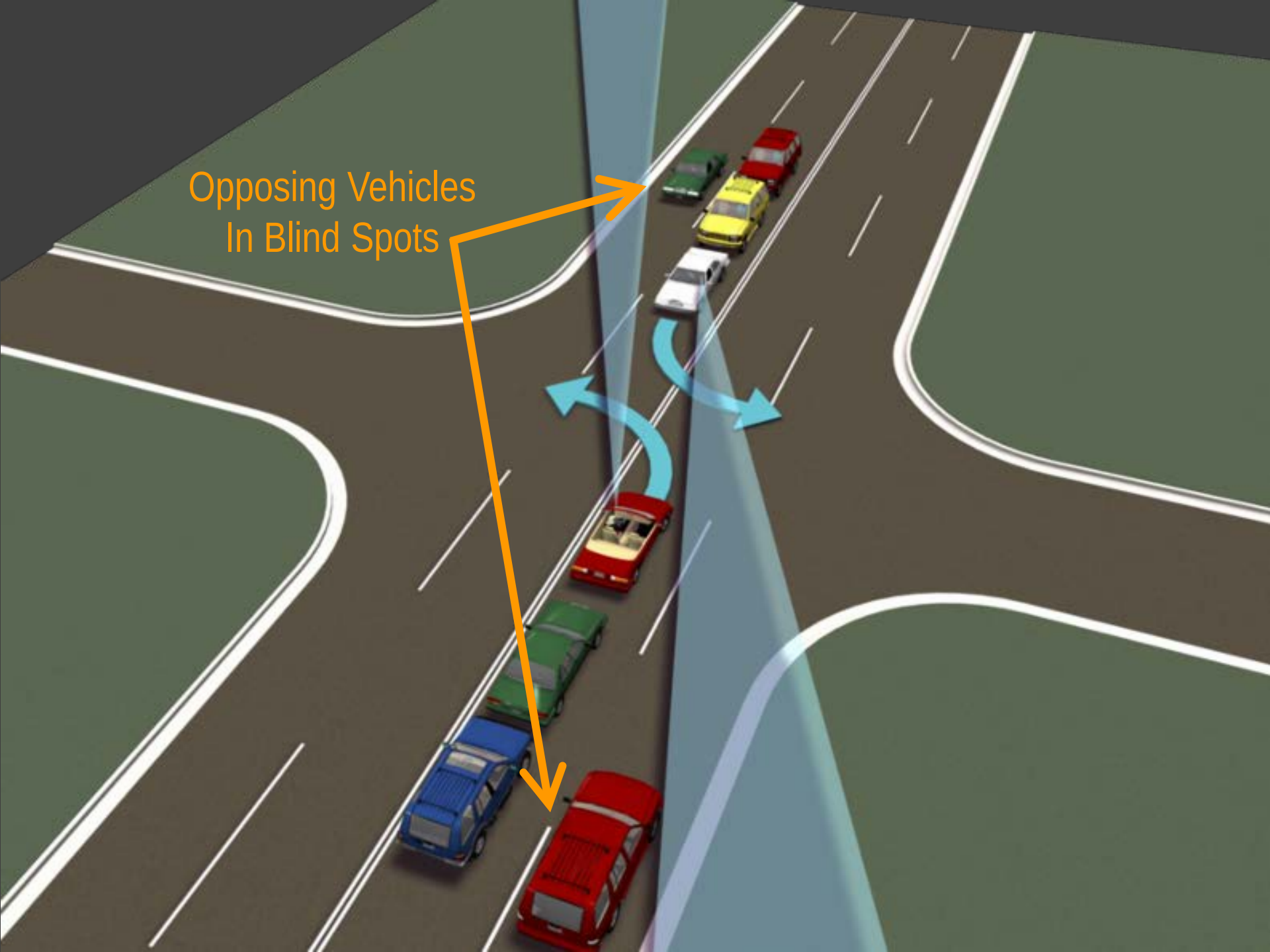
are less than
1 mile

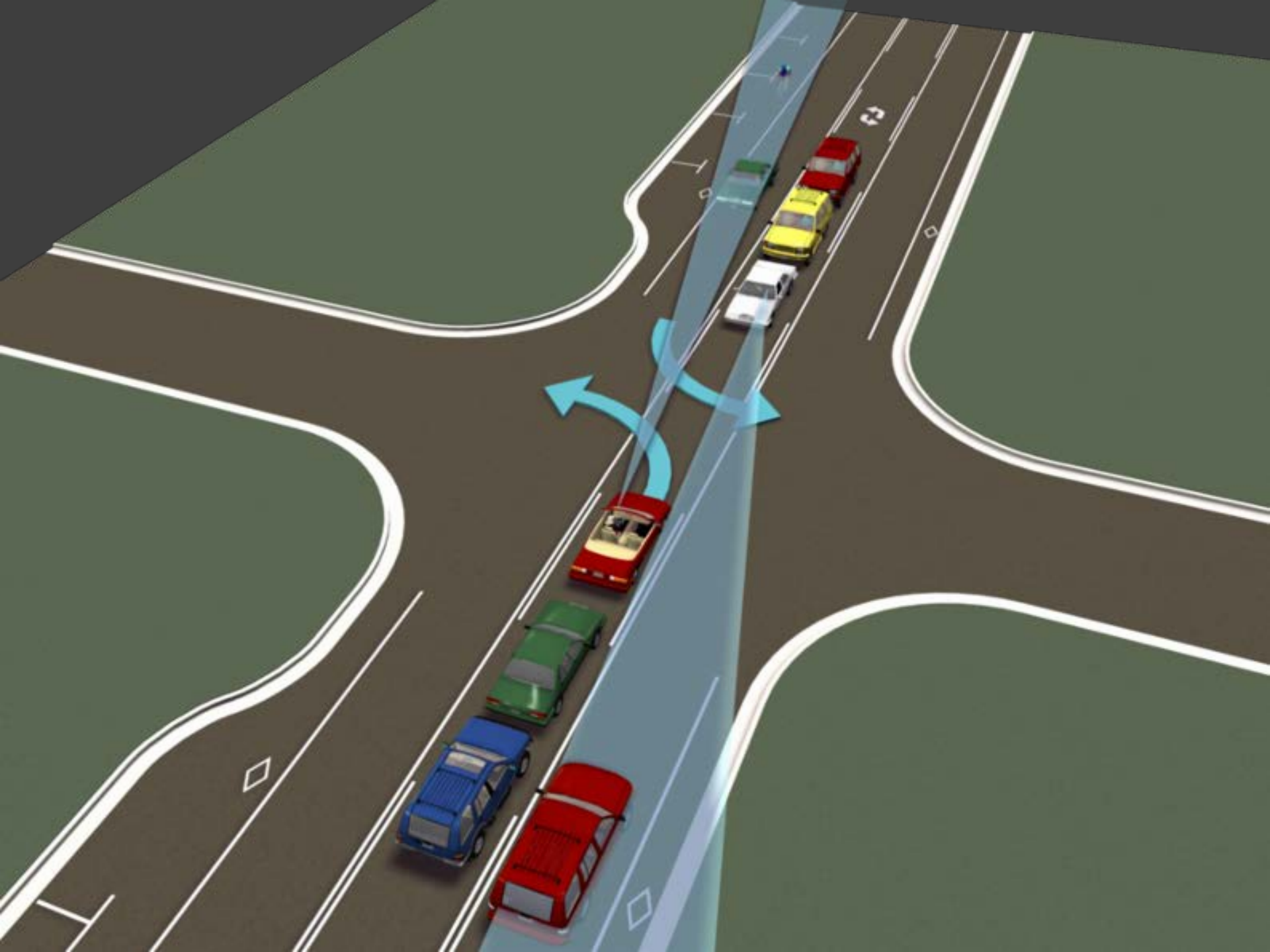
47%

are <u>driven</u>



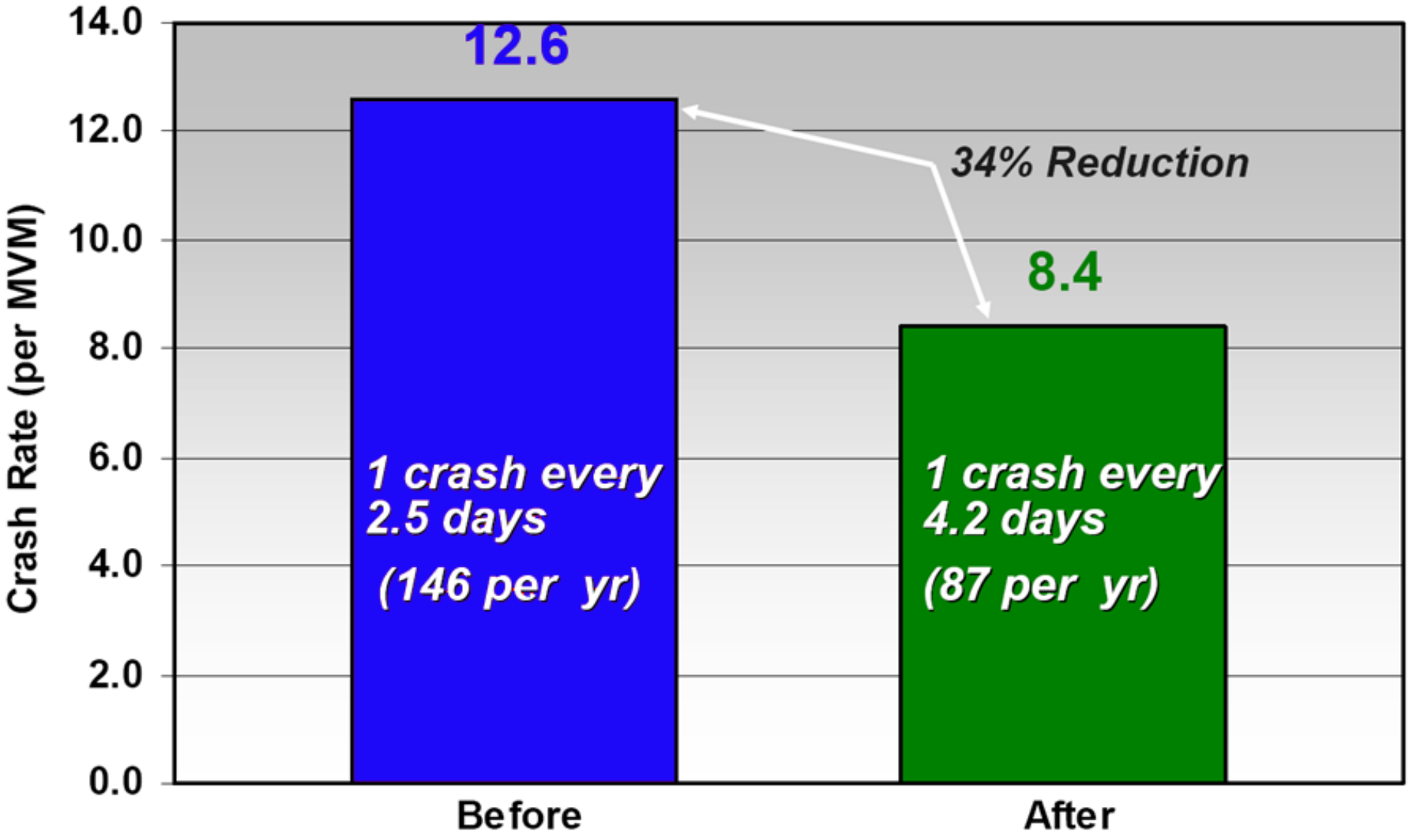
National Household Travel Survey (2009)


Opposing Vehicles
In Blind Spots



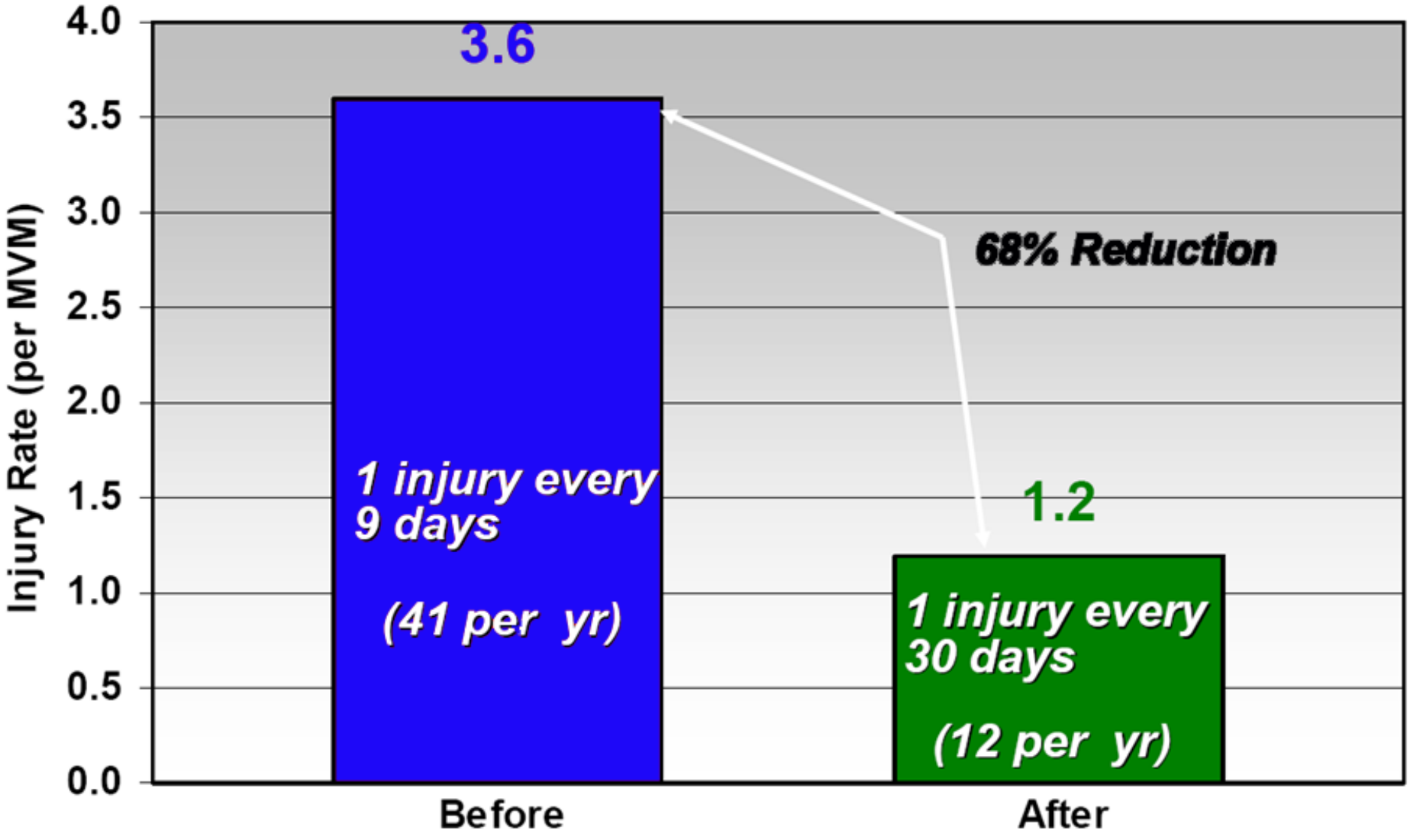

Edgewater Drive – Orlando, FL

Safety Enhancements



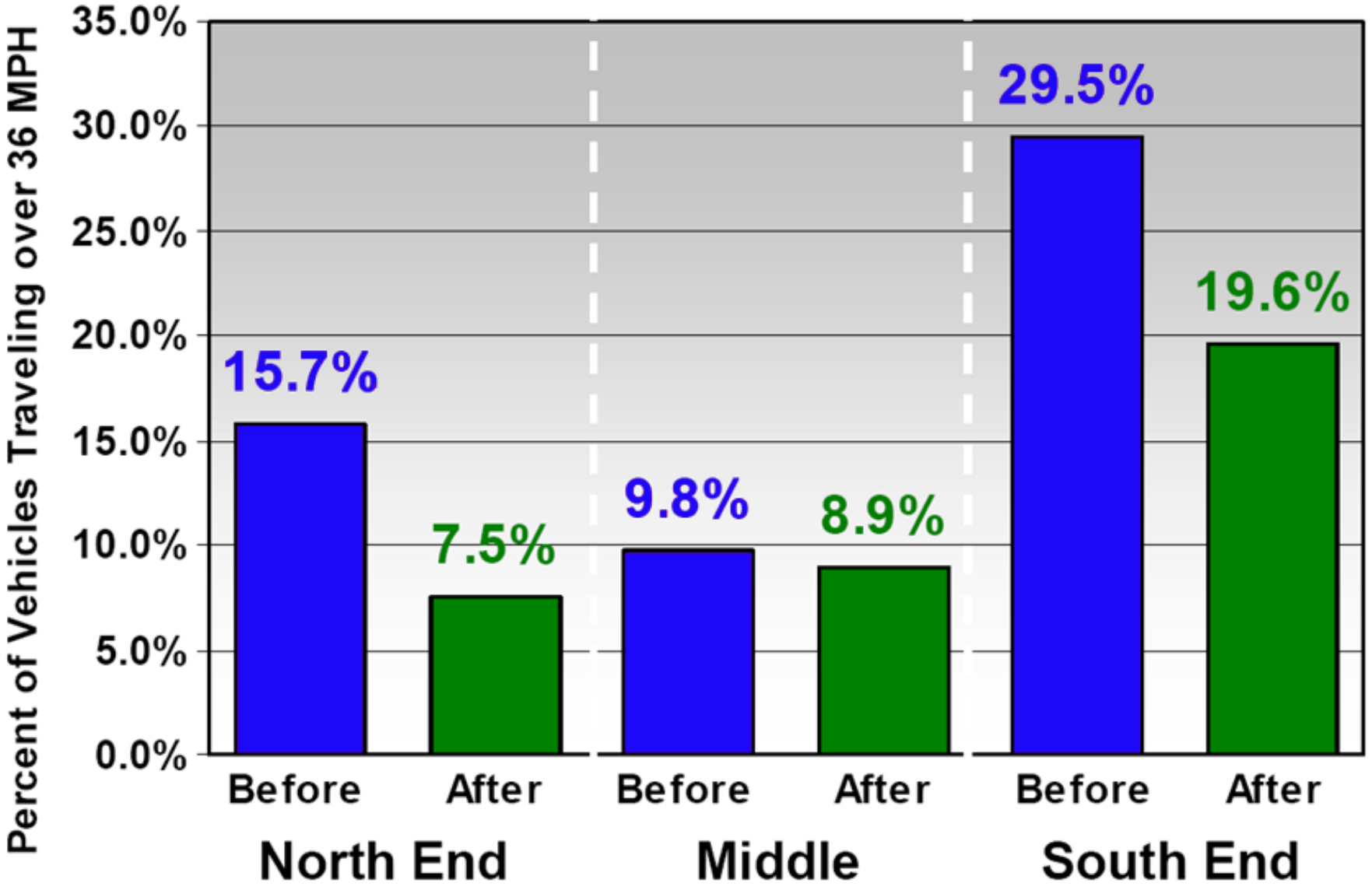
Data: Edgewater Drive, Orlando, FL

Safety Enhancements



Data: Edgewater Drive, Orlando, FL

Safety Enhancements



Data: Edgewater Drive, Orlando, FL

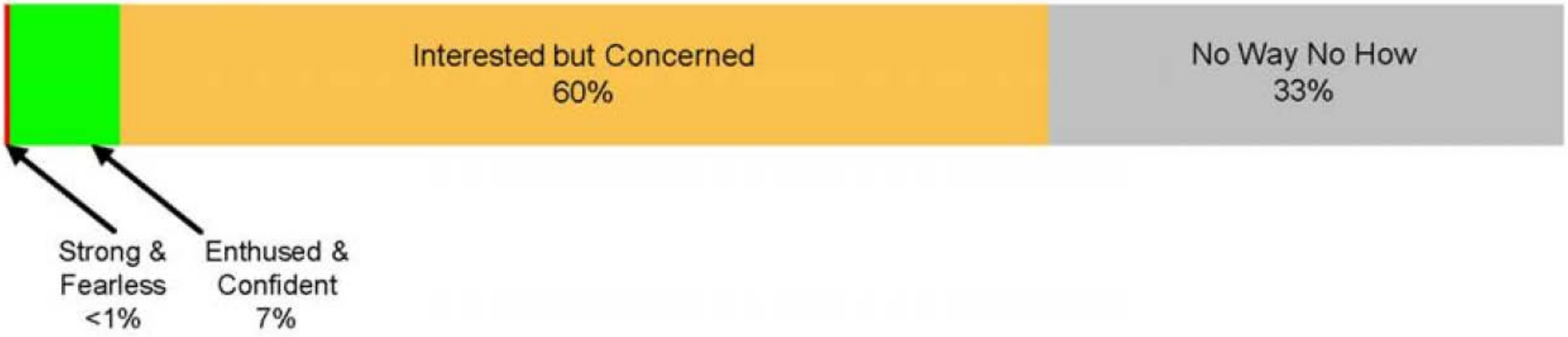
Safety Enhancements

Areas of Successful Road Diet Implementation - Collision			
Location	**Street**	**Change**	**Collision Reduction**
Seattle, WA	8th Avenue, NW, in Ballard Area	4 Lanes to 3	18 to 7 61%
Seattle, WA	24th Avenue, NW, From NW 85th St. to NW 65th Street	4 Lanes to 3	14 to 10 28%
Seattle, WA	Dexter Avenue, N, East side of Queen	4 Lanes to 3	19 to 16 59%
Seattle, WA	Greenwood Avenue	4 Lanes to 3	24 to 10 58%
Seattle, WA	North 45th Street	4 Lanes to 3	45 to 23 49%
Seattle, WA	Martin Luther King Jr. Way, North of I-90	4 Lanes to 3	15 to 6 60%

Areas of Successful Road Diet Implementation - Volume Changes				
Location	**Street**	**Change**	**ADT Before**	**ADT After**
Oakland, CA	High Street		22,000	24,000
San Francisco, CA	Valencia Street		22,200	20,000
San Leandro, CA	East 14th Street		17,700	16,700
Santa Monica, CA	Main Street	4 Lanes to 2+TWLTL+Bike Lanes	20,000	18,000
Orlando, FL	Edgewater Drive		20,500	21,000
Charlotte, NC	East Boulevard		21,400	18,400
Reno, NV	South Wells Avenue		18,000	17,500
East Lansing, MI	Abbott Road		15,000	21,000
East Lansing, MI	Grand River Boulevard	4 Lanes to 2+TWLTL+Bike Lanes	23,000	23,000
Duluth, MN	21st Avenue East		17,000	17,000
Ramsey, MN	Rice Street		18,700	16,400
Helen MT	U.S. 12		18,000	18,000
Toronto, ON	Danforth	4 Lanes to 2 + Turning Pockets + Bike Lanes	22,000	22,000
Toronto, ON	St. George Street	4 Lanes to 2 + TWLTL + Bike Lanes	15,000	15,000
Lewistown, PA	Electric Avenue	4 Lanes to 2+TWLTL+Bike Lanes	13,000	14,500
Bellevue, WA	Montana Street	4 Lanes to 2+TWLTL+Bike Lanes	18,500	18,500
Bellevue, WA	120th Avenue, NE	4 Lanes to 2+TWLTL+Bike Lanes	16,900	16,900
Covington, WA	State Road 516		29,900	32,800
Kirkland, WA	Lake Washington Boulevard - South of 83	4 Lanes to 2+TWLTL+Bike Lanes	23,000	25,900
Seattle, WA	Dexter Avenue, N, East side of Queen	4 Lanes to 2+TWLTL+Bike Lanes	13,606	14,949
Seattle, WA	North 45th Street	4 Lanes to 2+TWLTL	19,421	20,274
Seattle, WA	Madison Street	4 Lanes 2+TWLTL	17,000	18,000
Seattle, WA	West Government Way/ Gilmen Avenue W., From West Ruffner St. to 31st Avenue W	4 Lanes 2+TWLTL+Bike Lanes	17,000	18,000

Bike Travelers

What Is the Market?



Source: Portland Department of Transportation

Bike Travelers

What Is the Market?

Source: Portland Department of Transportation


RAWFORD
GOLD JEWELRY

HOW DID BIKE TRAFFIC ON THE STREET CHANGE AFTER ONE YEAR OF THE PROTECTED LANE?

AUSTIN, TX

BARTON SPRINGS

+58%

BLUEBONNET

+46%

RIO GRANDE

+126%

CHICAGO, IL

DEARBORN

+171%

MILWAUKEE

+21%

PORTLAND, OR

MULTNOMAH

+68%

WASHINGTON D.C.

L STREET

+65%

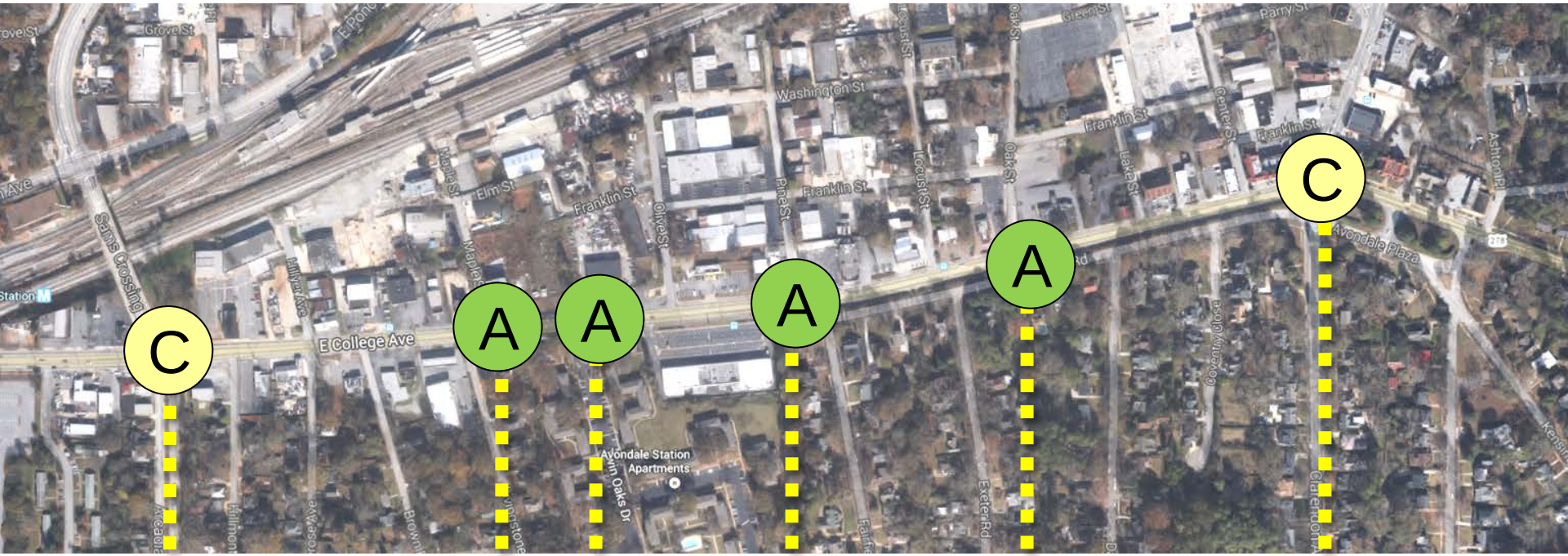
SAN FRANCISCO, CA

FELL

+46%

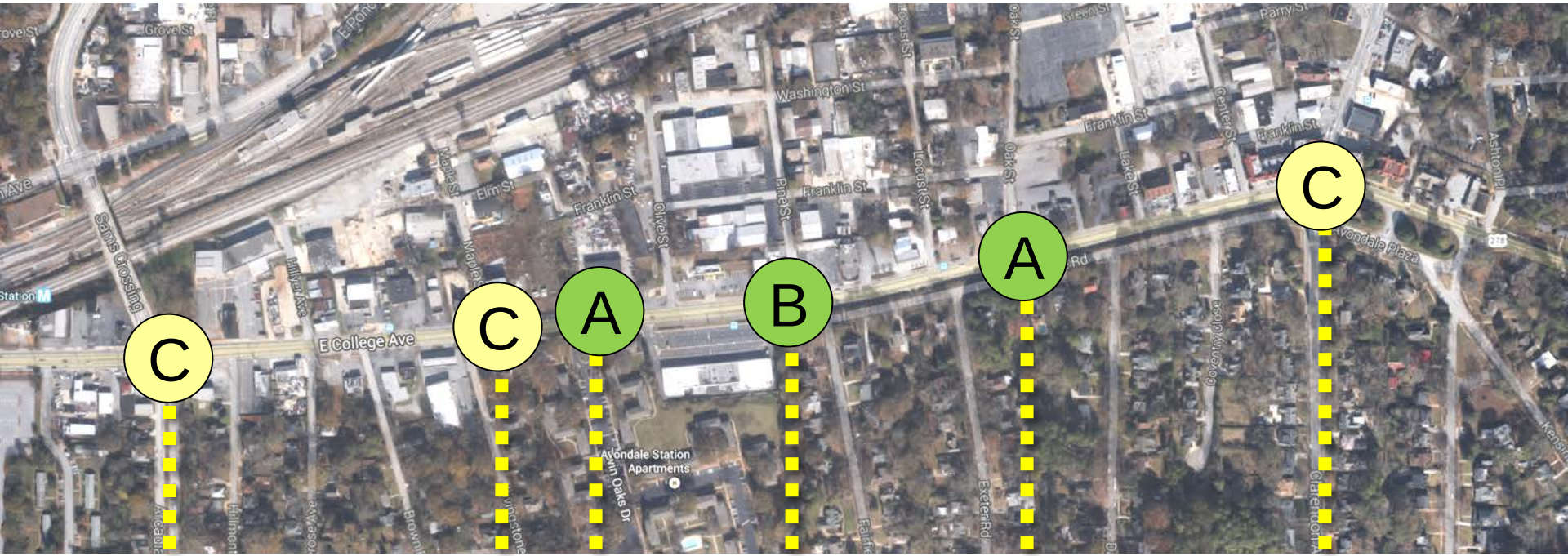
The road diet and traffic

Today's Traffic – Intersection Levels of Service (PM)



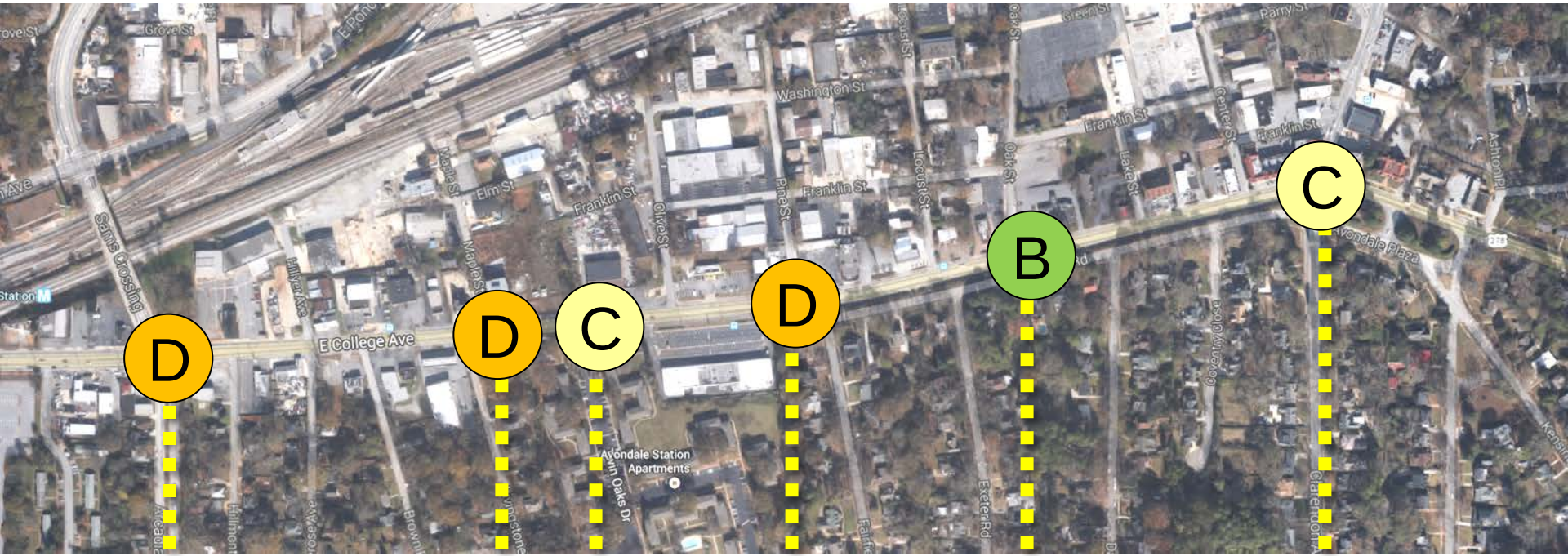
The road diet and traffic

Road Diet Installed – Intersection Levels of Service (PM)



The road diet and traffic

Road Diet and Future Traffic – Intersection Levels of Service (PM)



The road diet and traffic

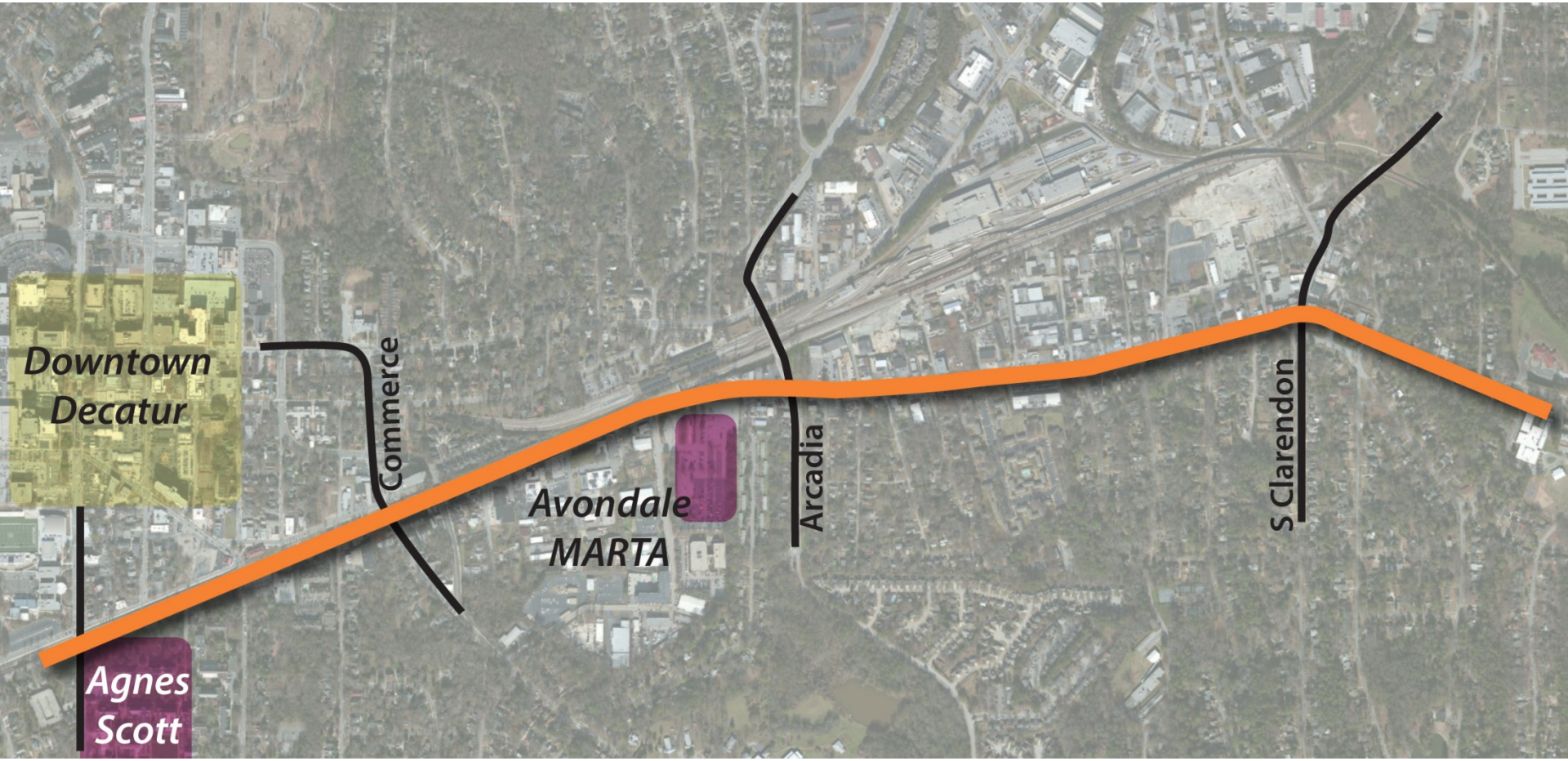
How does the corridor really work for you?

AM Peak (westbound is peak direction)

	Eastbound Travel Time	Westbound Travel Time
Today's road and traffic	1.9 min	**4 min**
Today's traffic with the road diet	1.9 min	**3.6 min**
2024 traffic and road diet	1.95 min	**5.2 min**

The road diet and traffic

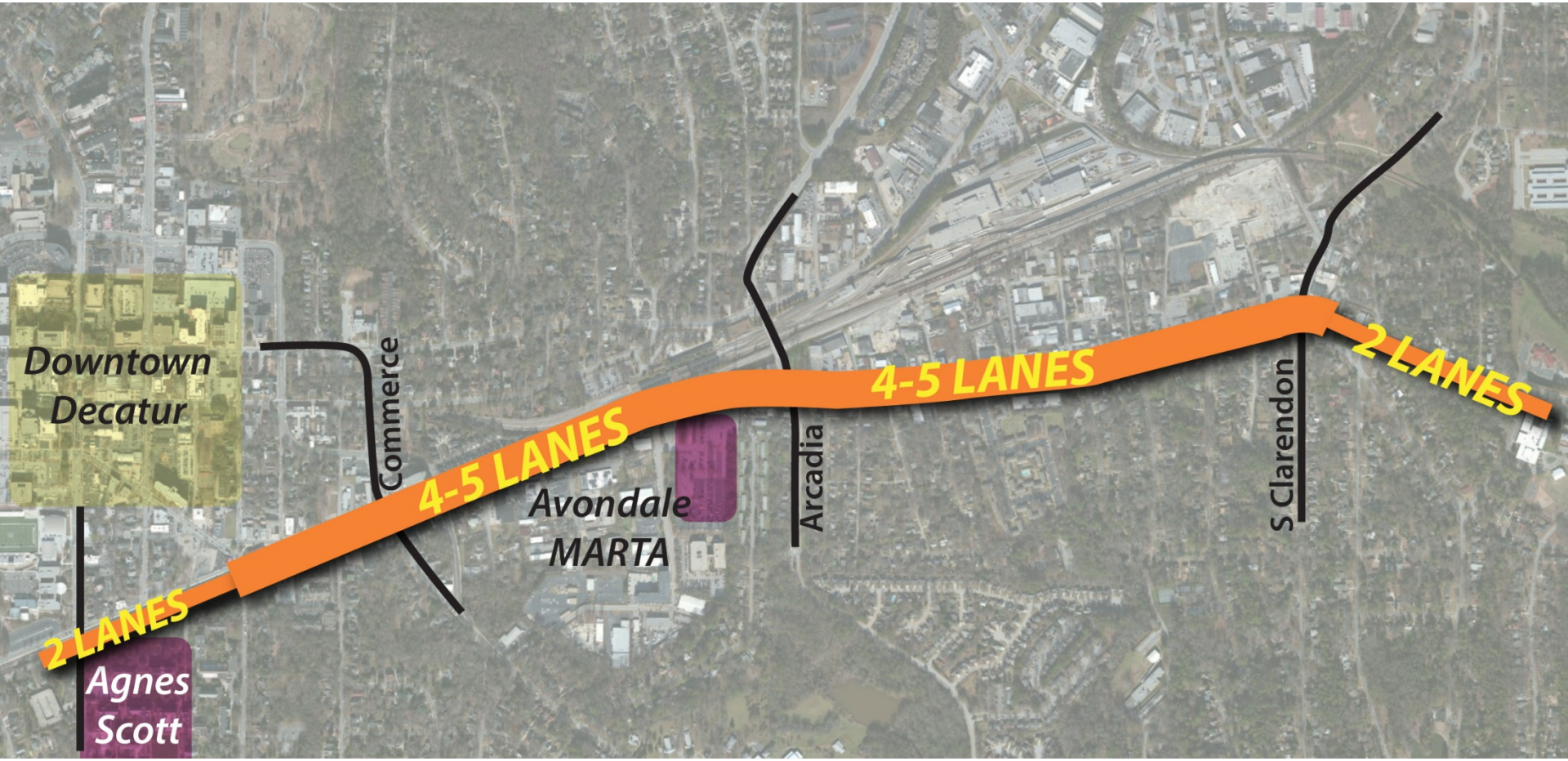
How does the corridor really work for you?



The road diet and traffic

How does the corridor really work for you?

Outside of Avondale Estates and eastern Decatur, the corridor is already 2 lanes



The road diet and traffic

How does the corridor really work for you?

PM Peak (eastbound is peak direction)

	Eastbound Travel Time	Westbound Travel Time
Today's road and traffic	**2.2 min**	2.3 min
Today's traffic with the road diet	**2.9 min**	3 min
2024 traffic and road diet	**4 min**	3.6 min

The road diet and traffic

How does the corridor really work for you?

Worst-case estimated changes, compared to today's commute times

	Road diet with today's traffic	Road diet with future traffic
Morning peak-hour travel	***25 seconds less***	**1 min, 5 sec**
Afternoon peak-hour travel	**45 seconds**	**1 min, 50 sec**

The road diet and traffic

How does the corridor really work for you?

Worst-case estimated changes, compared to today's commute times

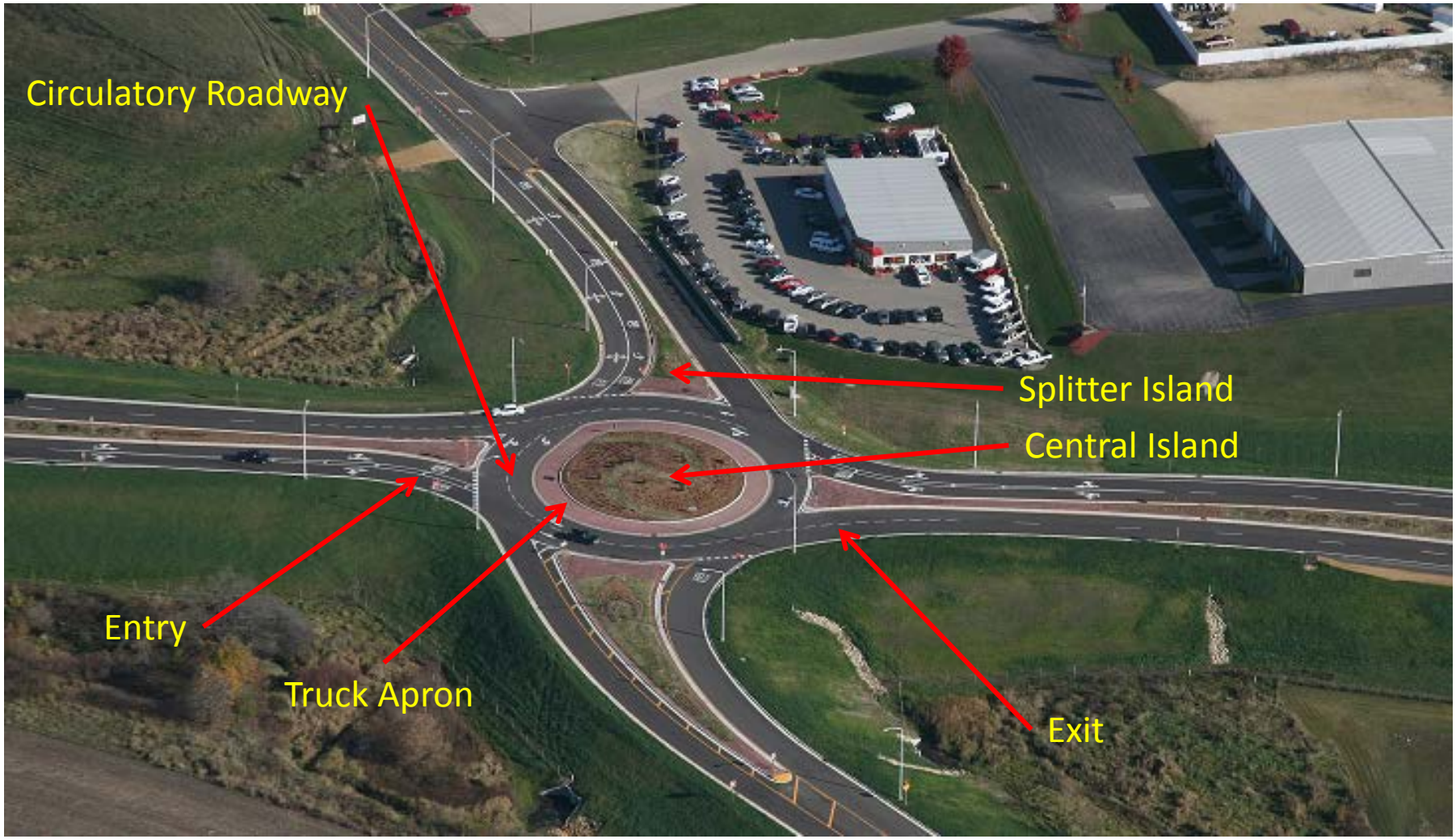
	Road diet with today's traffic	Road diet with future traffic
Morning peak-hour travel	***25 seconds less***	**1 min, 5 sec**
Afternoon peak-hour travel	**45 seconds**	**1 min, 50 sec**

Is this a worthwhile tradeoff for a safer, more attractive street?

Roundabouts

What is a roundabout?

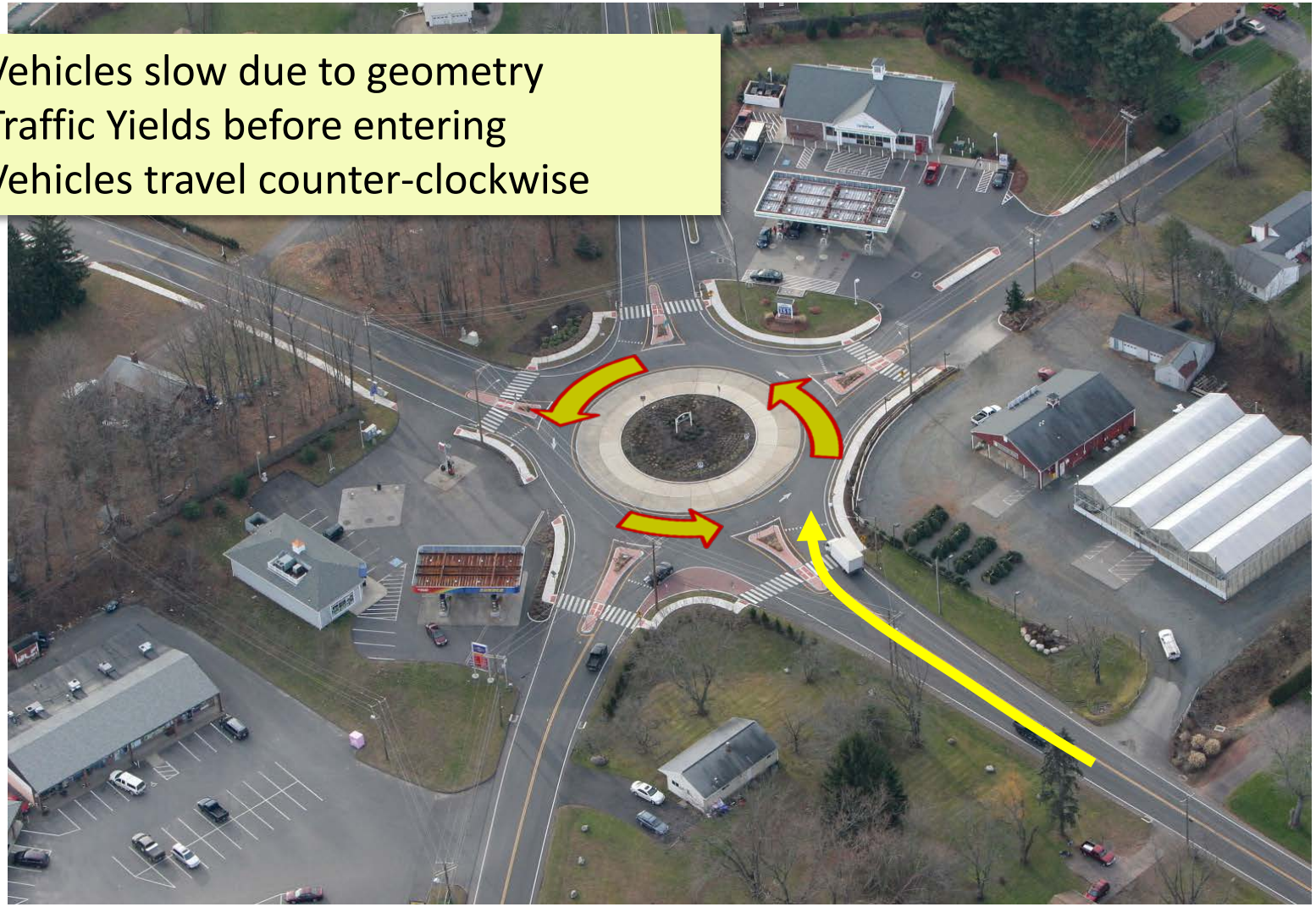
A form of intersection design that eliminates the need for a signal to control traffic.



How do roundabouts work?

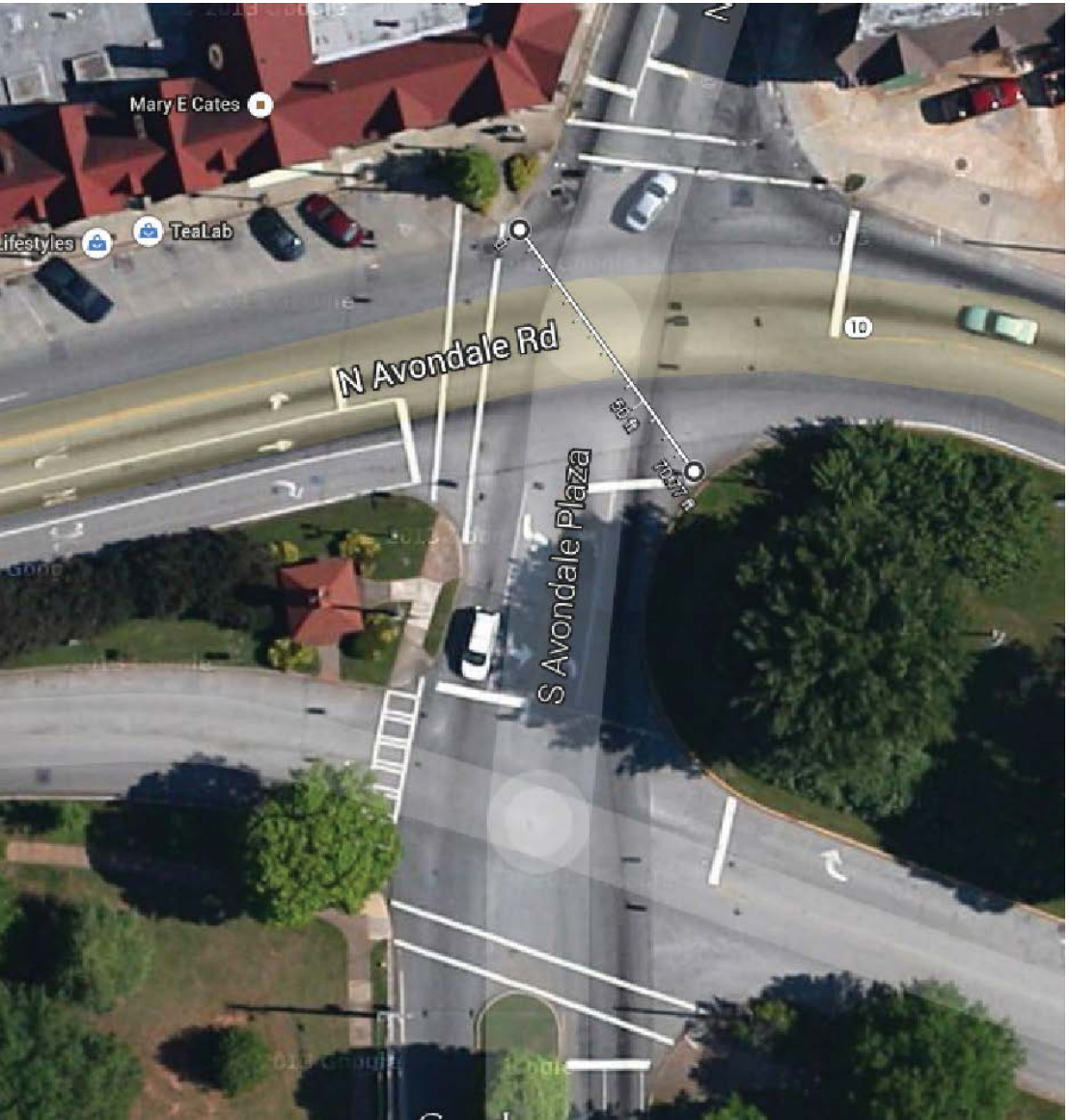
The basic rule: entering traffic yields to traffic in the circle.

- Vehicles slow due to geometry
- Traffic Yields before entering
- Vehicles travel counter-clockwise



The roundabout at Clarendon

Balancing function with surrounding constraints



The roundabout at Clarendon

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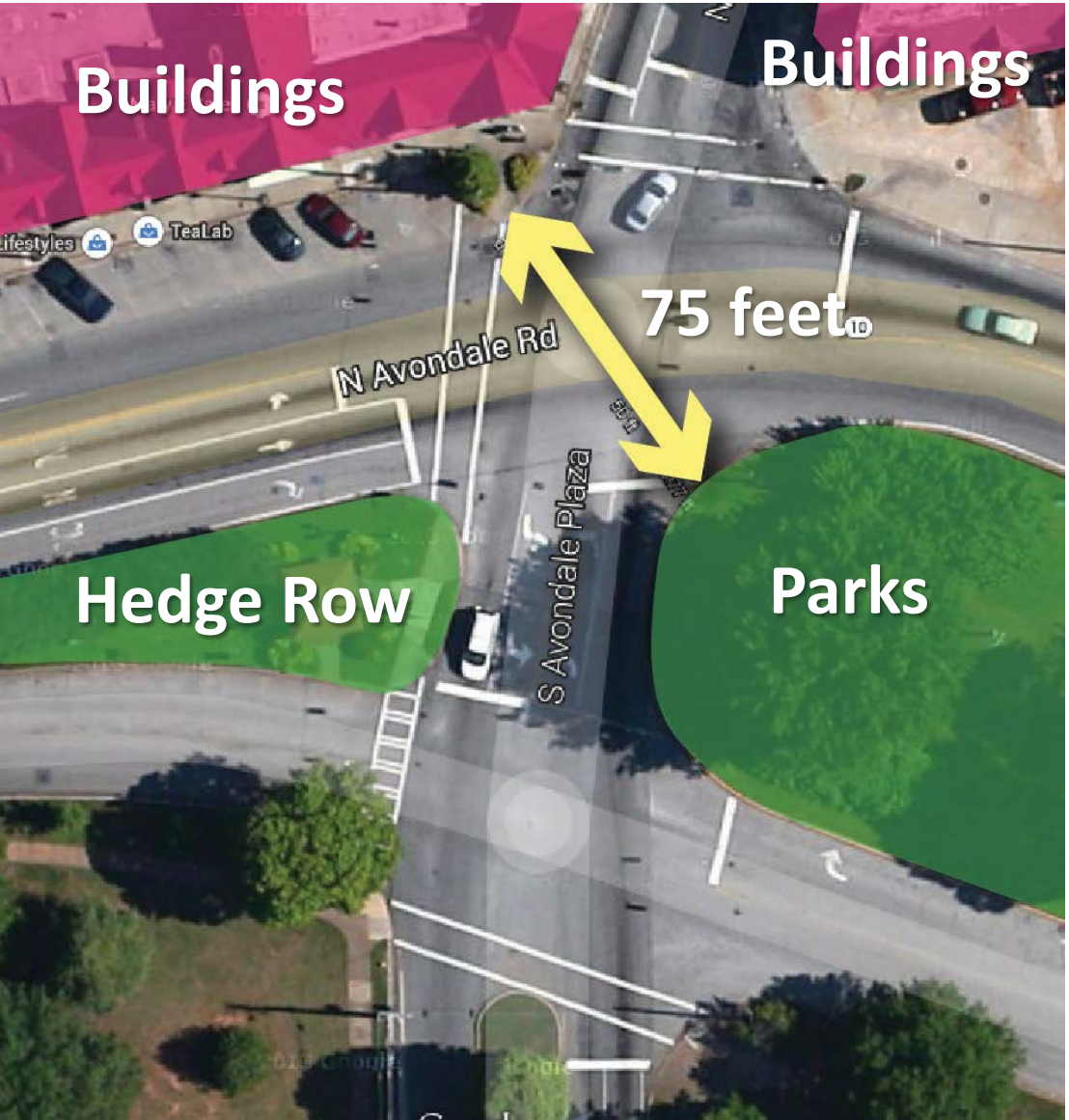


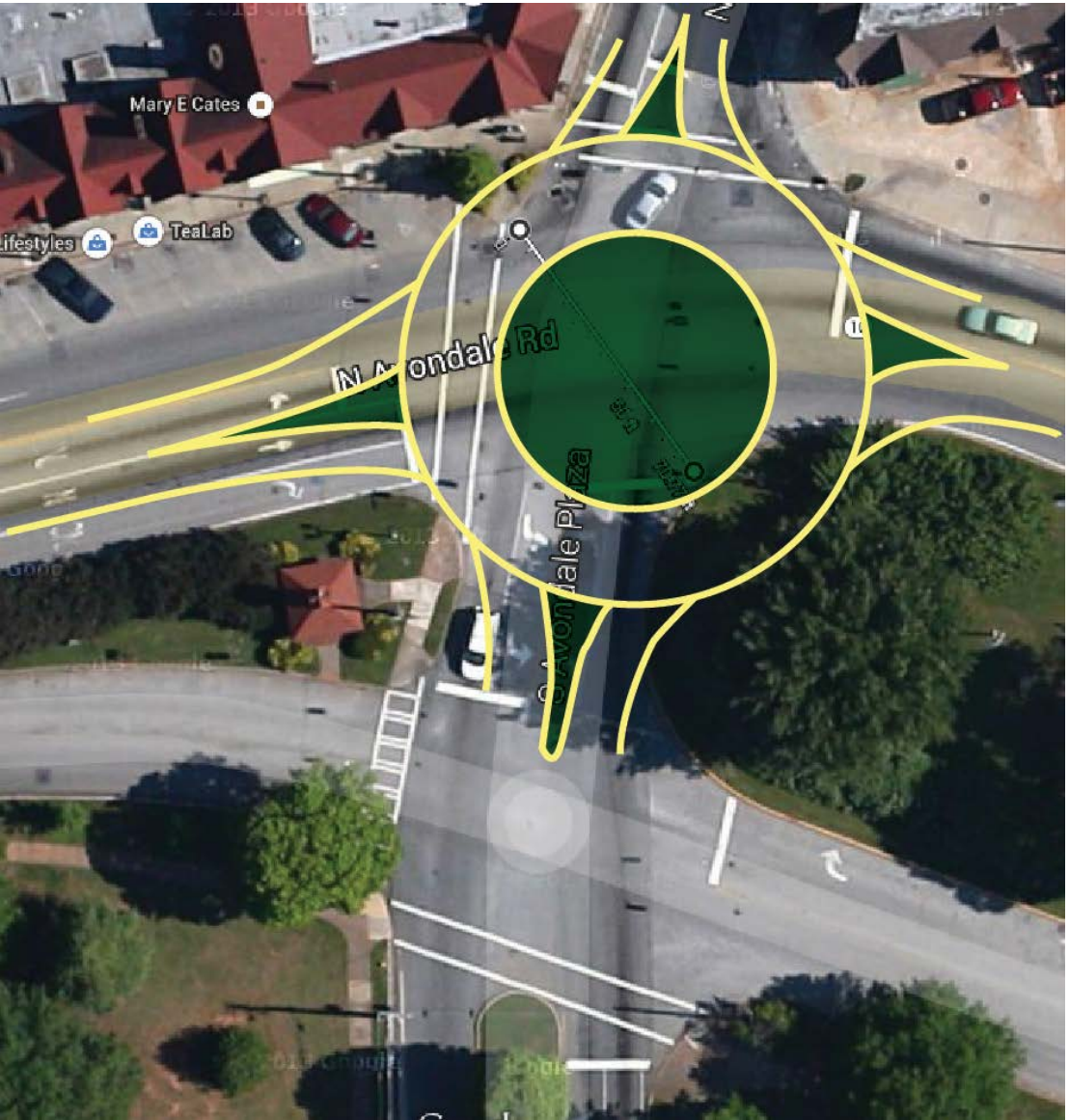
Intersection's narrowest point is relatively constrained

Plaza parks and hedge row on south

Little room outside of travel lanes before parking and buildings

The roundabout at Clarendon

Options: Conventional Roundabout

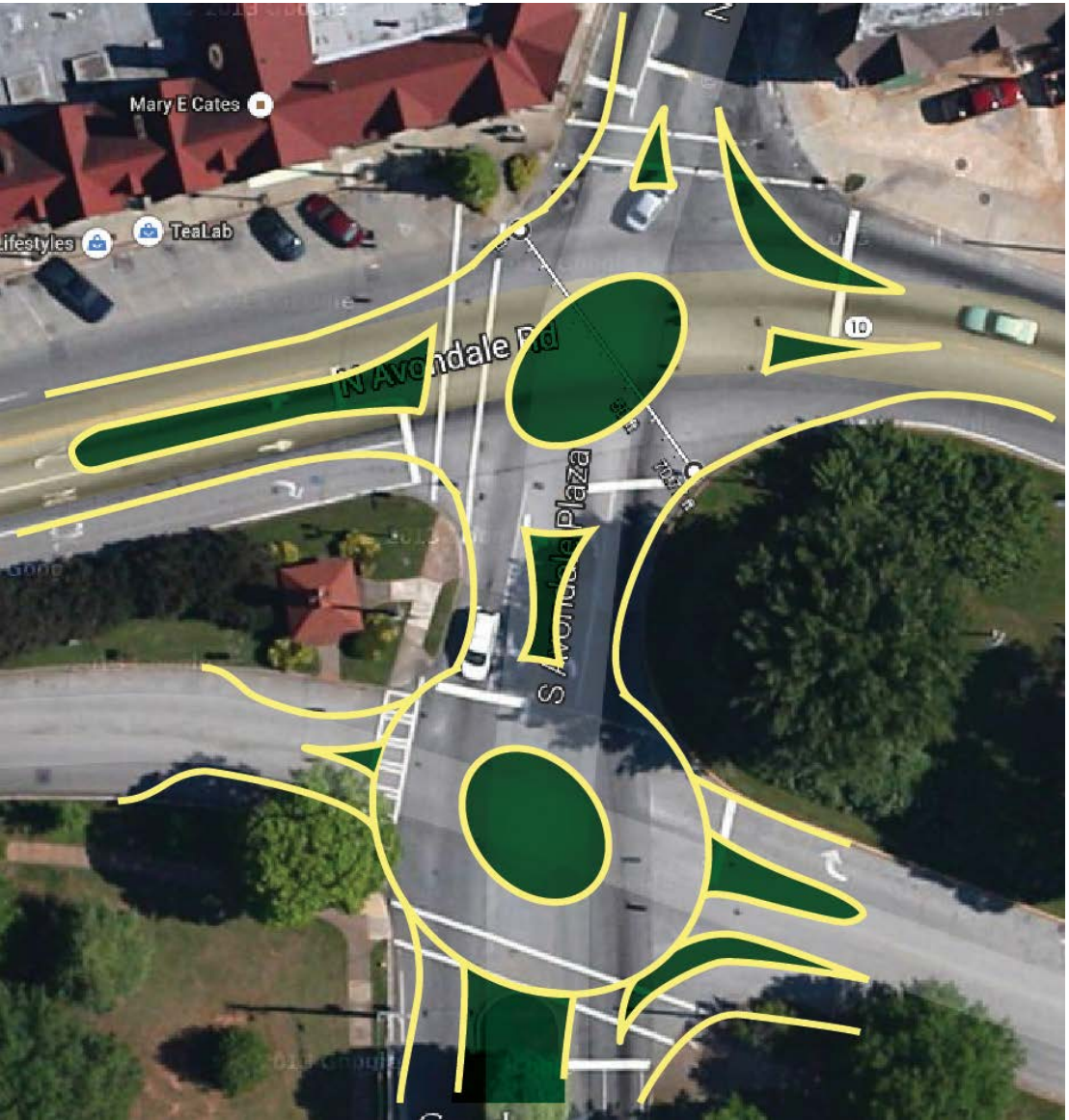


Single lane roundabout: some impact on plaza island, hedge row could be avoided

Does not handle current or projected traffic without increased delay

The roundabout at Clarendon

Options: Two Smaller Circles

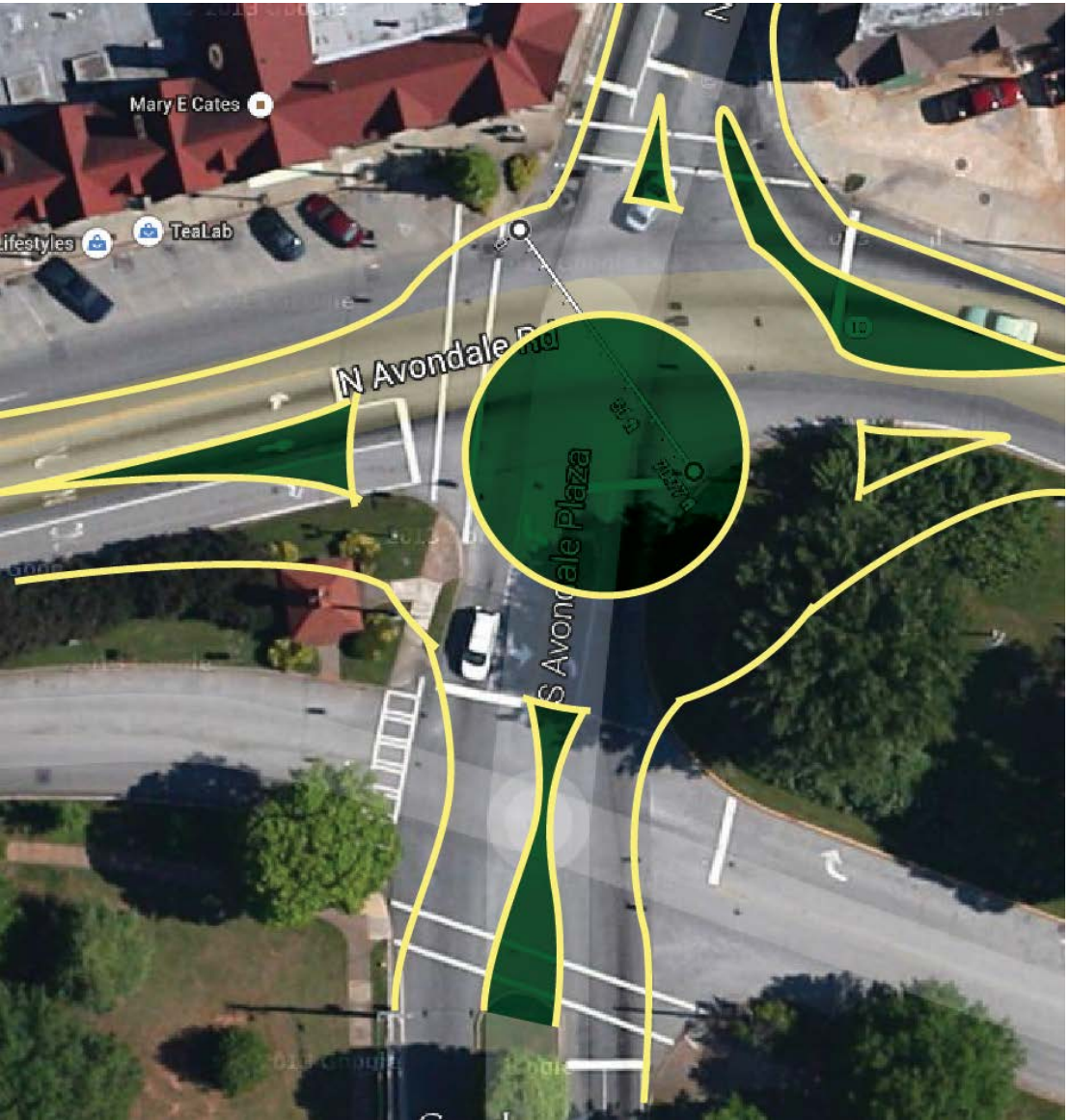


A different approach, but one that could fit into current intersection geometry

Even smaller in size; also not capable of handling current or projected volumes

The roundabout at Clarendon

Options: Larger Circle



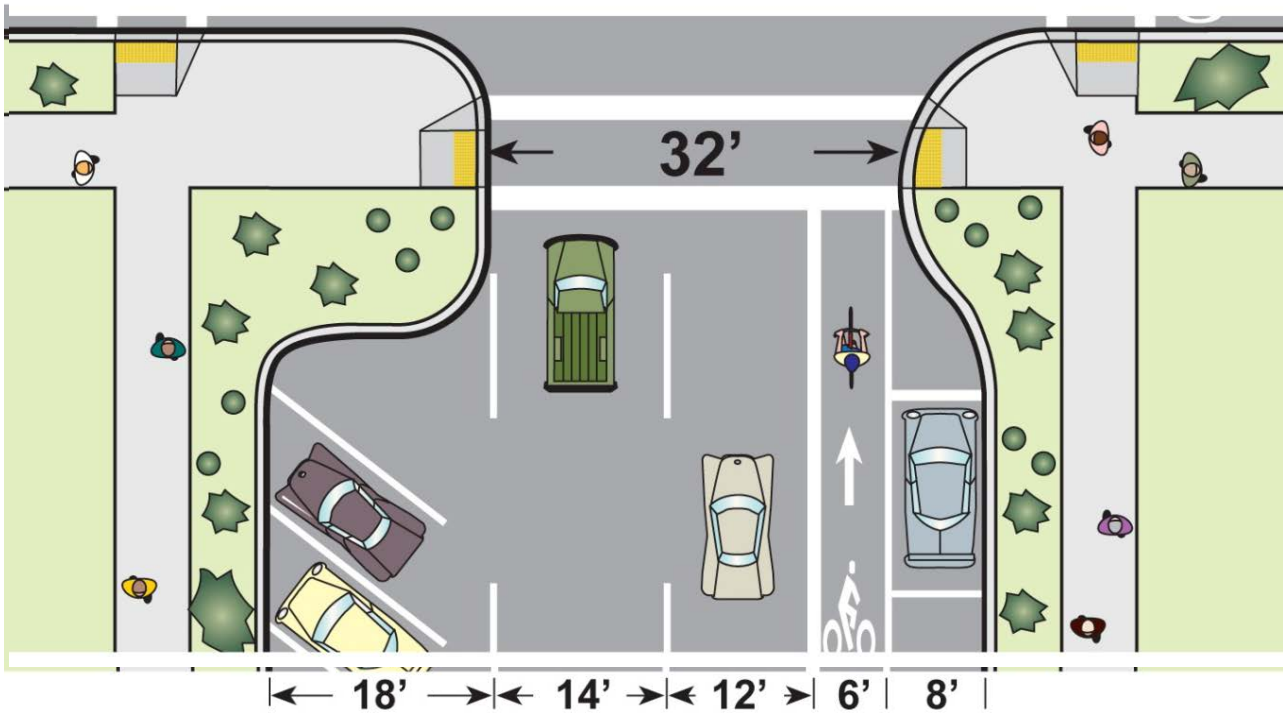
A single-circle roundabout with two lanes in the roadway can handle traffic…

…however, this has a substantially greater impact on historic property.

Intersection Design
Options

Other Options: Curb extensions

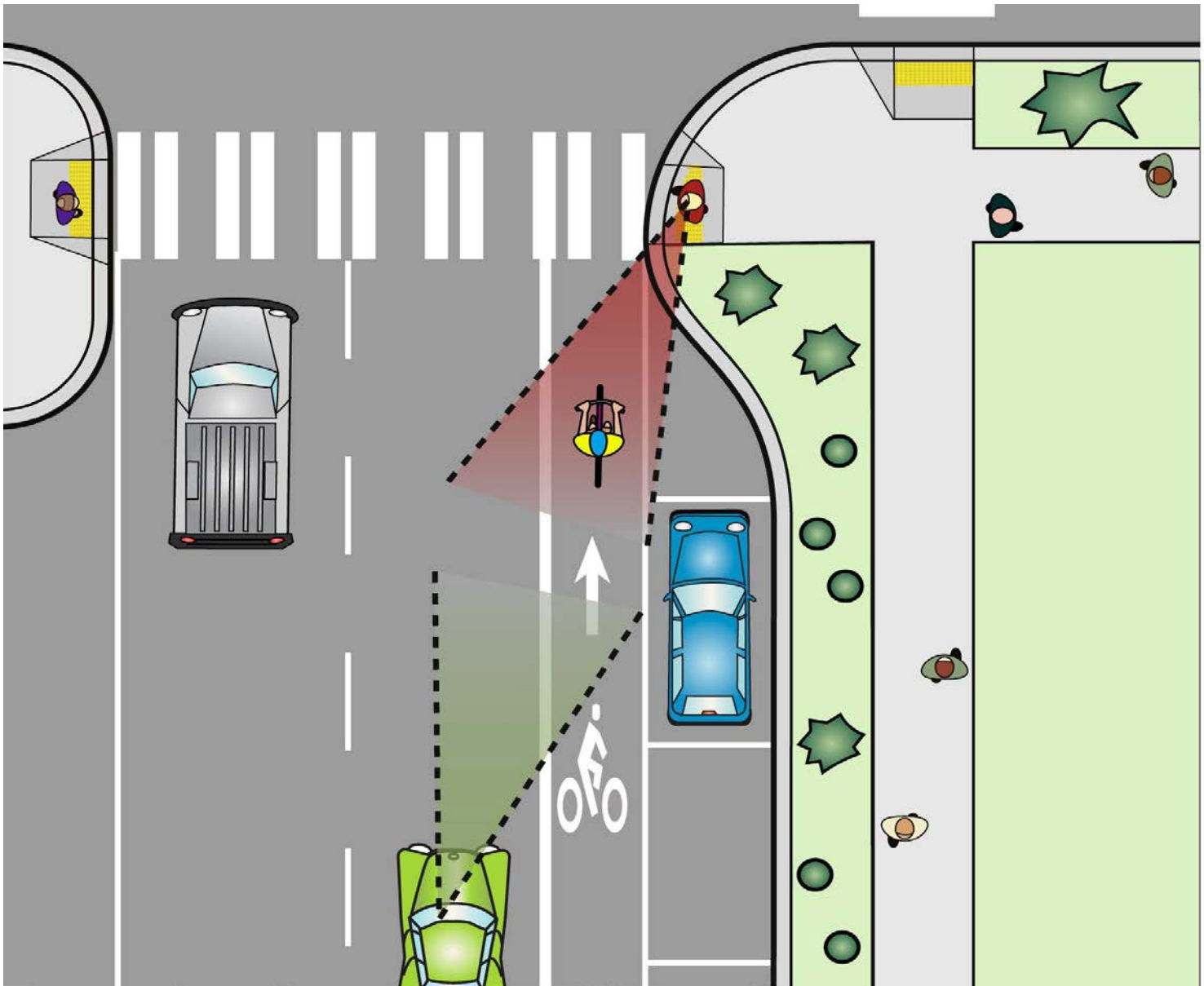
Don't just reduce crossing distance



Other advantages

- Better visibility (both ways)
- Traffic calming
- Room for street furniture

Curb extensions and Safety



Midblock Crossings

Rectangular Rapid Flash Beacon

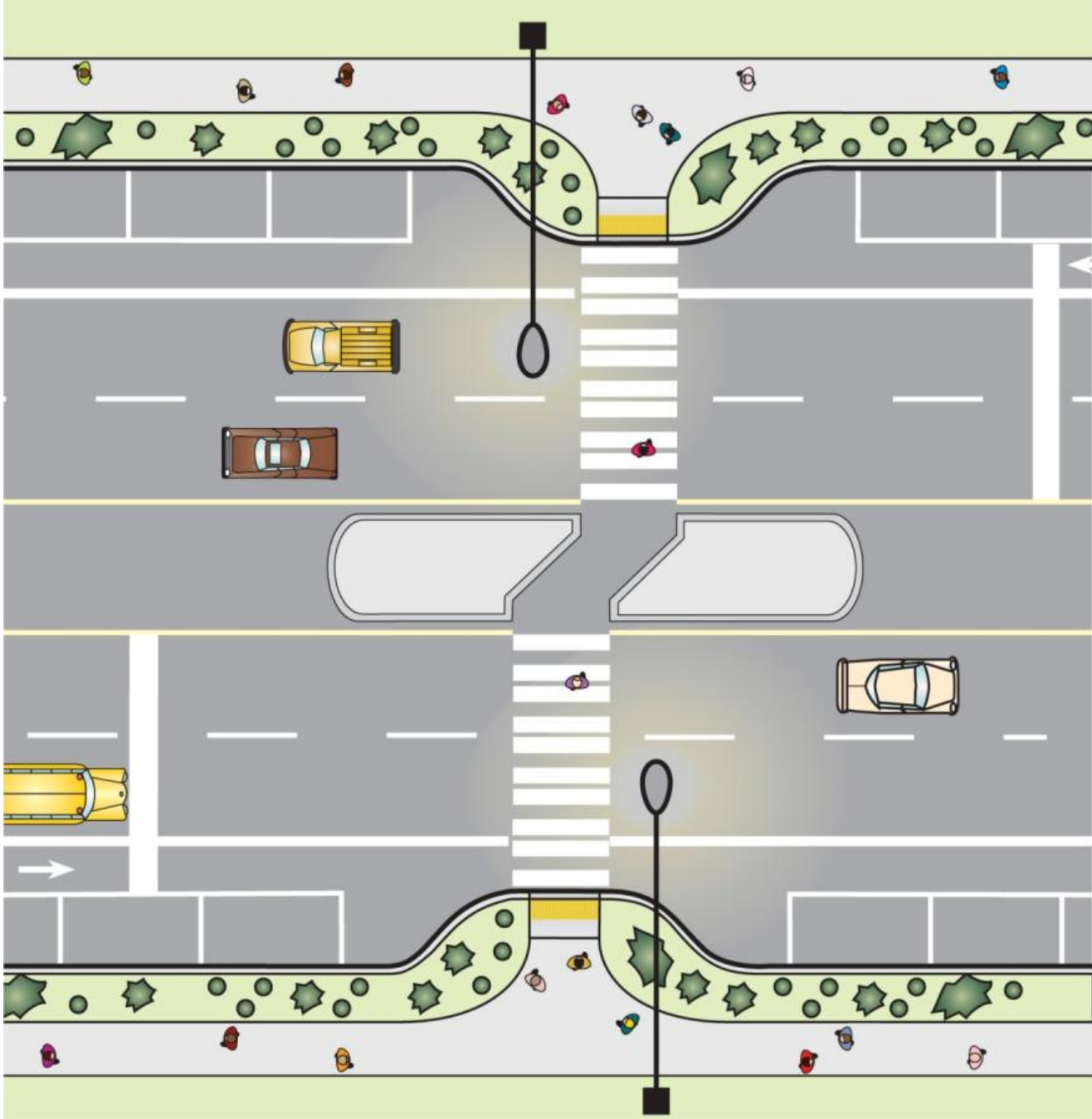
- Studies indicate motorist yield rates increased from about 20% to 80%
- Beacon is yellow, rectangular, and has a rapid “wig-wag” flash
- Beacon located between the warning sign and the arrow plaque
- Must be pedestrian activated (pushbutton or passive)

Beacons required on the both right side and on the left side or in a median if practical

Crossing island at marked crosswalk

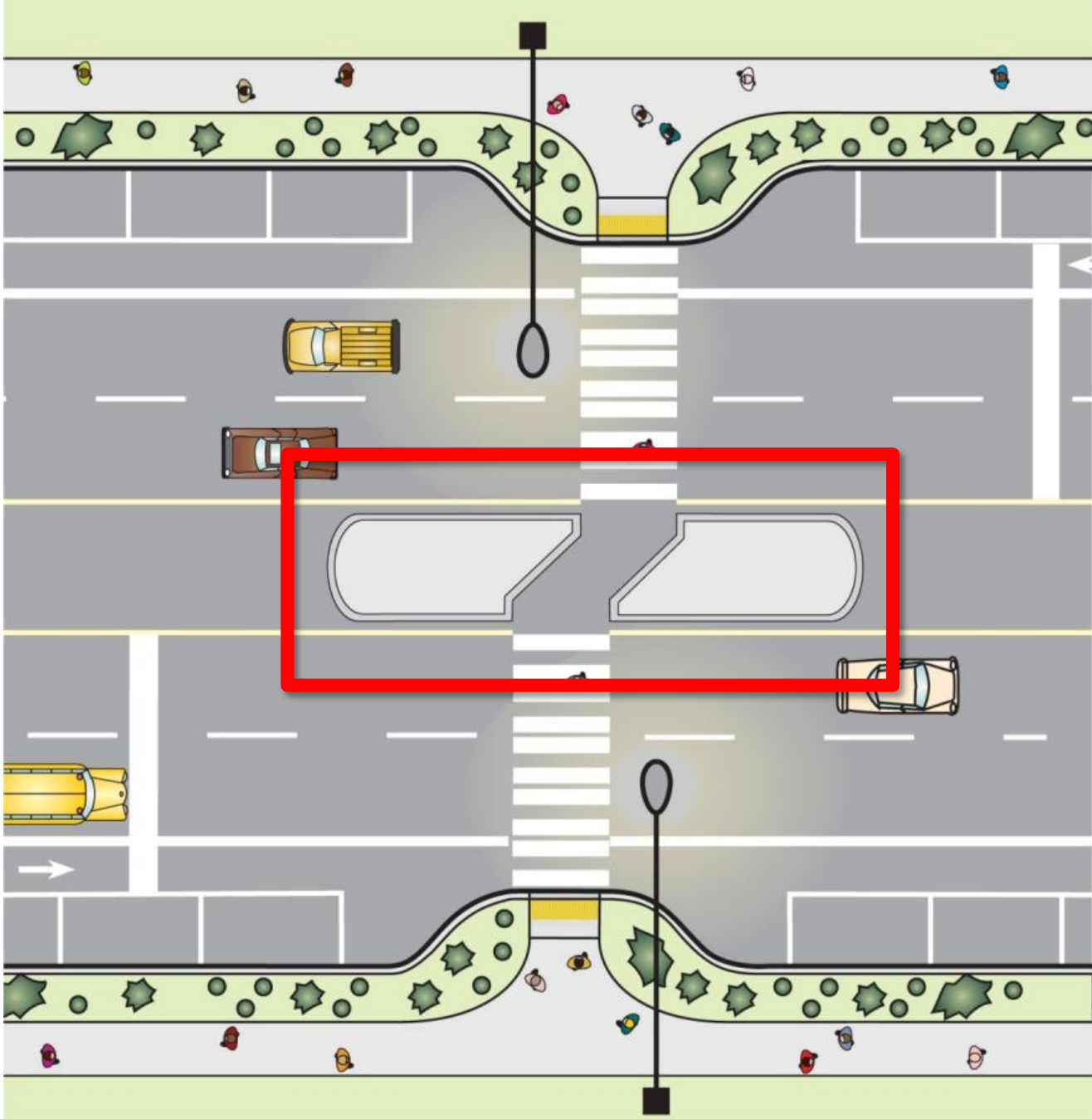
Breaks long complex crossing into two simpler crossings

Can be used even on three-lane sections



Crossing island at marked crosswalk

Use of medians at these locations – and at others throughout the corridor – can help promote pedestrian safety



Next Steps Today

Table ‘training sessions’ (30-40 minutes)

- Learn about roundabouts, road diets, crossing improvements
- Share ideas and discuss design implications and tradeoffs with the project planning team

Questions and Answers (10-15 minutes)

Demonstration Project (outside)

- Organize into teams (the number you picked up at sign-in)