



Are Roundabout Good for Business and Access Management?



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Presentation Outline

- **Introduction about RBT and AM**
- **Examples**
- **Are Roundabout Good for Business!**
- **Conclusions & Recommendations**



Abstract

Modern roundabouts have been shown to be a **safe and efficient** alternative to more traditional roadway intersection designs.

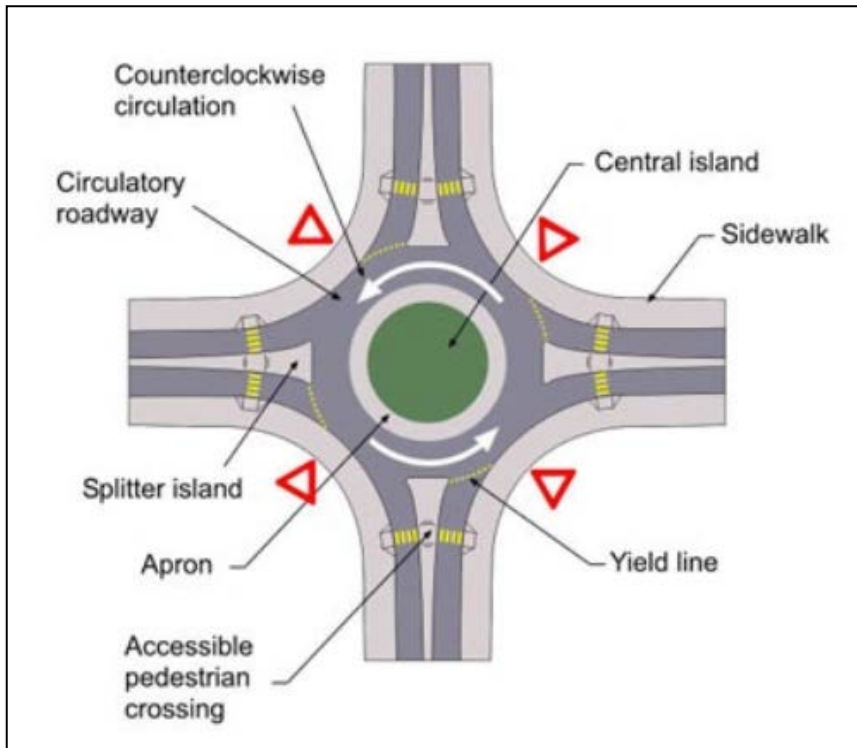
Modern roundabouts **improve safety, reduce congestion,** and maintain integrity of arterials by **balance mobility and access** and extend the life of infrastructure.

With changing the **side street characteristics** and **slower speeds** near roundabout **does it help and support business!** Is it easy for **ingress and egress!**

This presentation will address specific questions by showing some roundabout examples to recommend changes and to include **access management resources** within roundabout and **driveway guides.**

Roundabouts (RBT)

- A roundabout is a one-way, circular intersection in which traffic flows around a center island.
- Circular shape, yield control on entry, and geometric features that create a **low-speed environment**.



Key Features

Yield control
Circulatory roadway
Central island
Splitter island
Pedestrian access
Landscaping
Truck apron
Signing and marking



Access Management: A Key to Safety and Mobility

- Access Management:
 - Refers to the design, implementation, and management of entry and exit points (e.g., driveways) between roadways and adjacent properties.
- Driveway Location and Conflict Points
 - One of the key elements of access management is **managing the potential conflict points** that occur when streets and driveways intersect.



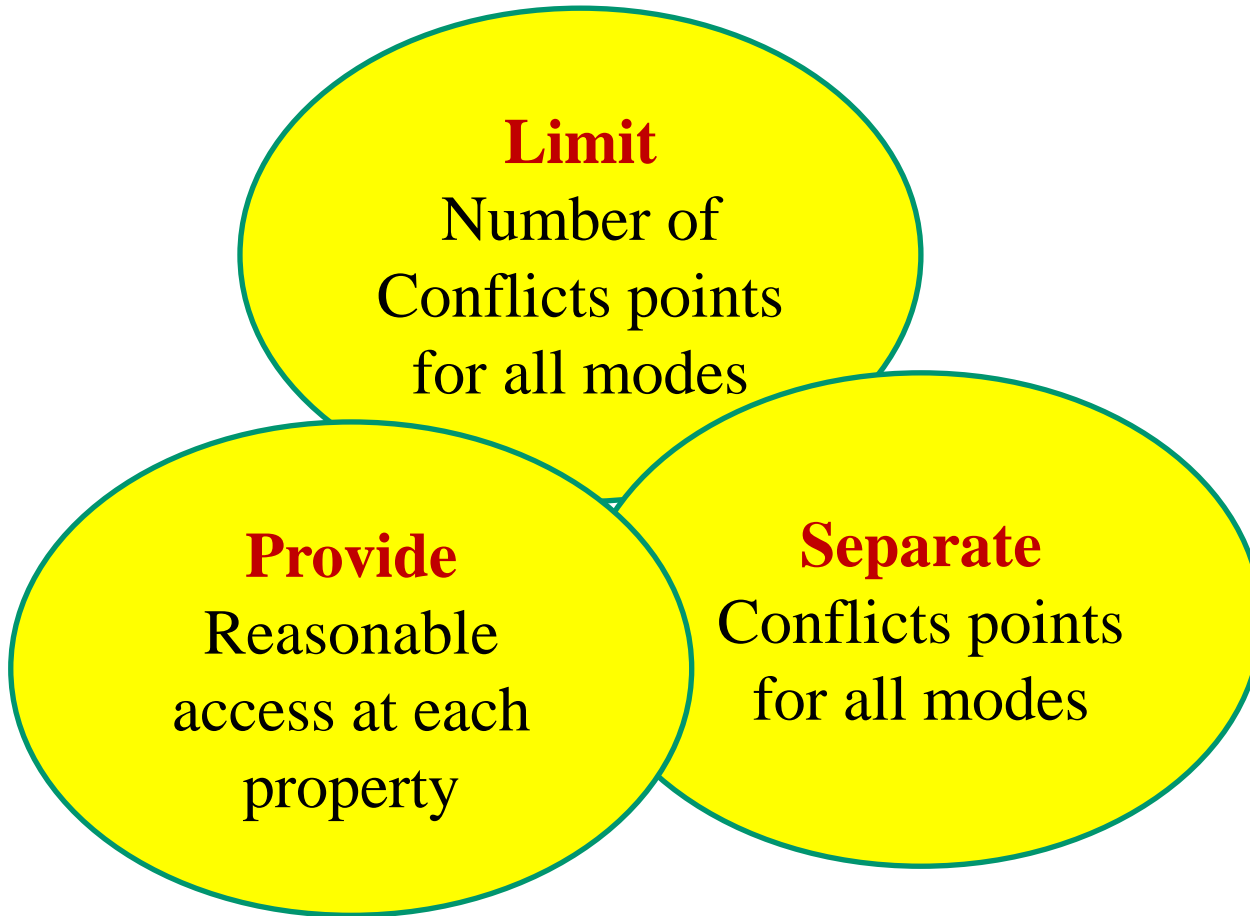
Access Management (AM)

According to the 2014 TRB Access Management Committee annual meeting, the definition of Access Management (AM):

- “Access management is the **coordinated** planning, regulation, and design of access between roadways and land development.
- It involves a range of **methods** that promote the efficient and safe movement of people and goods by reducing conflict on the roadway system and at its interface with other modes of travel...
- These methods include **improvements** to benefit of transit, pedestrians, and bicyclists as well as different treatments for urban, suburban, and rural settings....”



Key Points of AM





Access Management (AM) Tools and Techniques

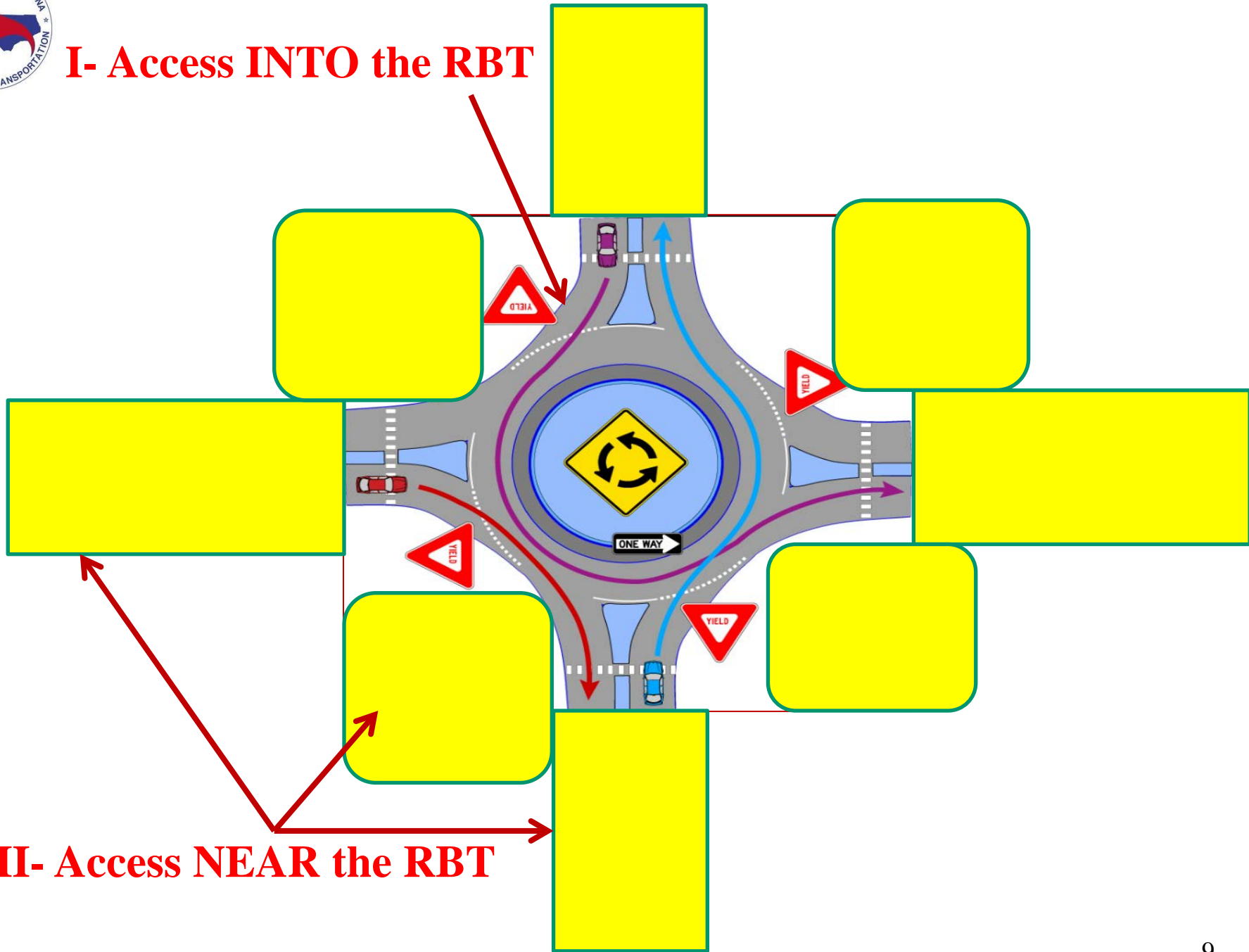
- Some examples of common and highly effective AM techniques:
 1. Use a raised center median
 2. Provide **roundabouts** to facilitate median treatments and U-turns at key locations

....

- etc.



I- Access INTO the RBT

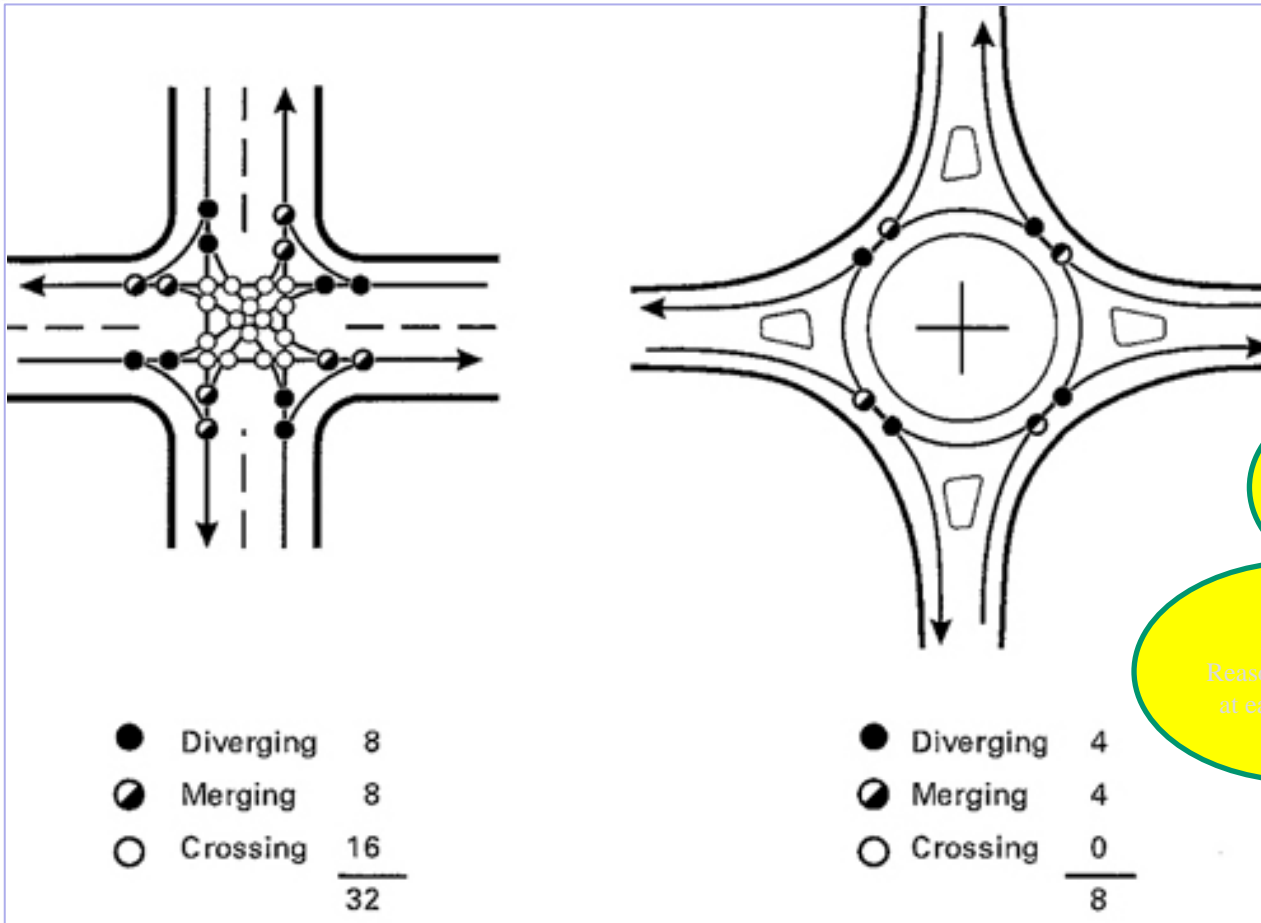


II- Access NEAR the RBT

III- Access in the RBT Corridors



Benefits of Roundabouts

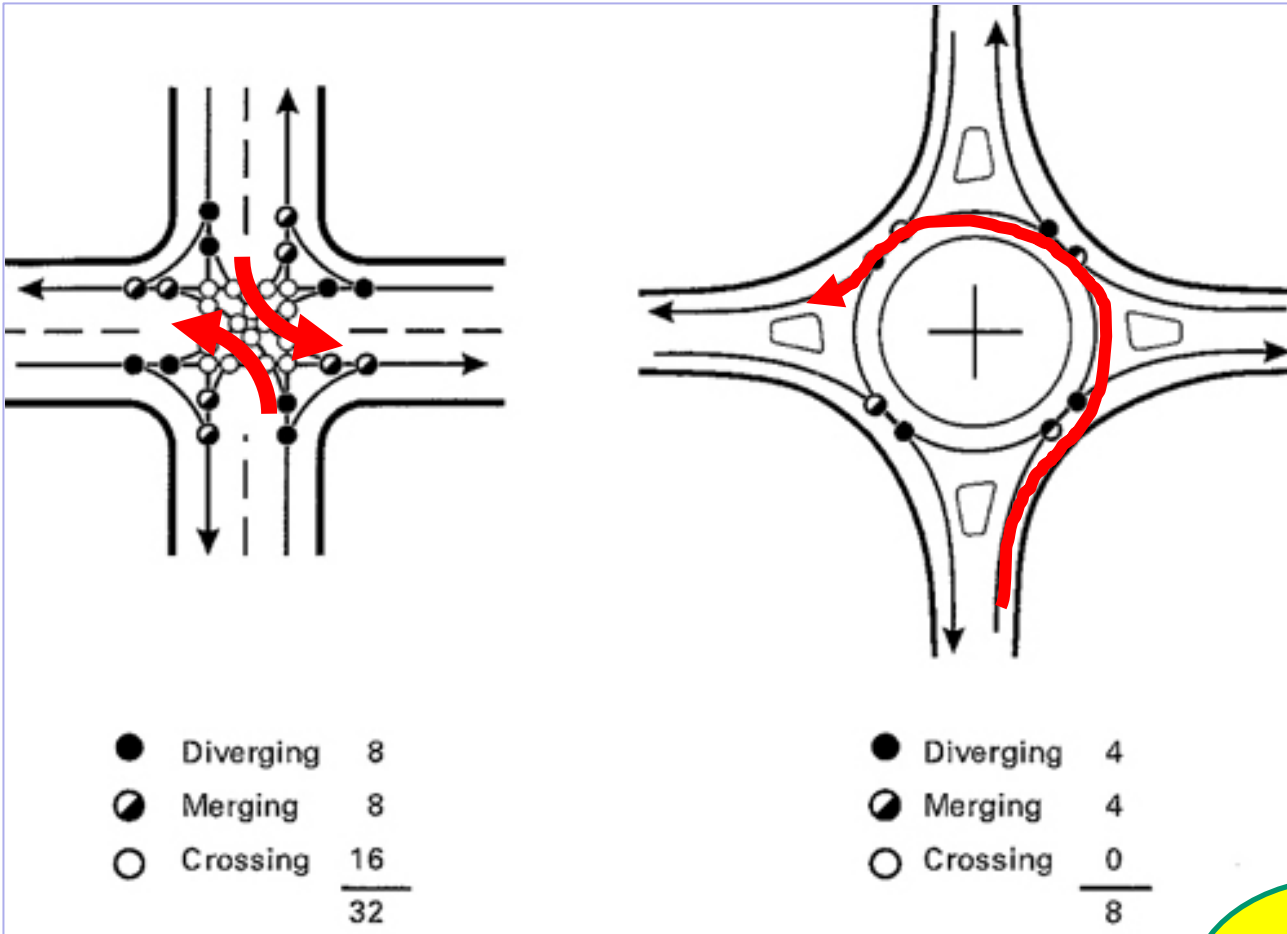


- Limit**
Number of
Conflicts points
for all modes
- Provide**
Reasonable access
at each property
- Separate**
Conflicts points
for all modes

Intersection Conflicts Roundabout vs. Conventional Intersection

Reducing the Number and Types of Conflict Points

(RBTs) are a **FORM** of (AM)

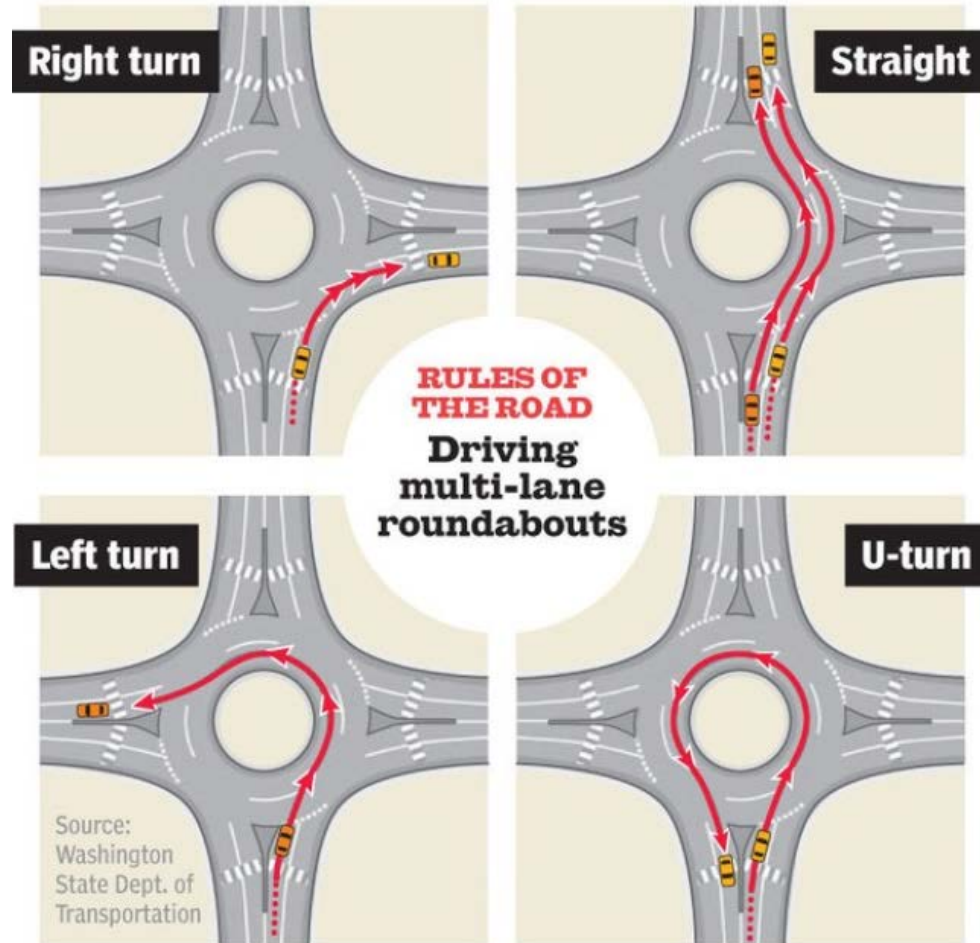
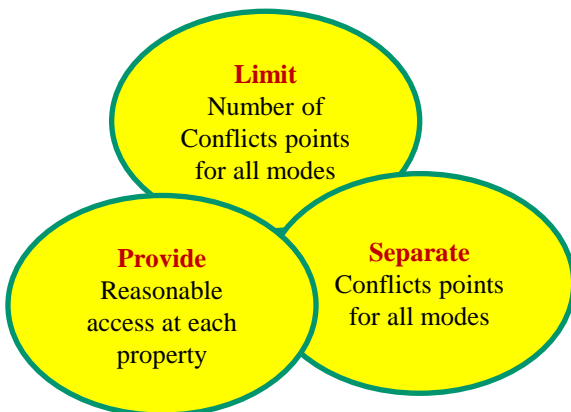


RBT accommodates **left turns** and allow the removal of **directional left-turn lanes**

- Limit Number of Conflicts points for all modes
- Provide Reasonable access at each property
- Separate Conflicts points for all modes

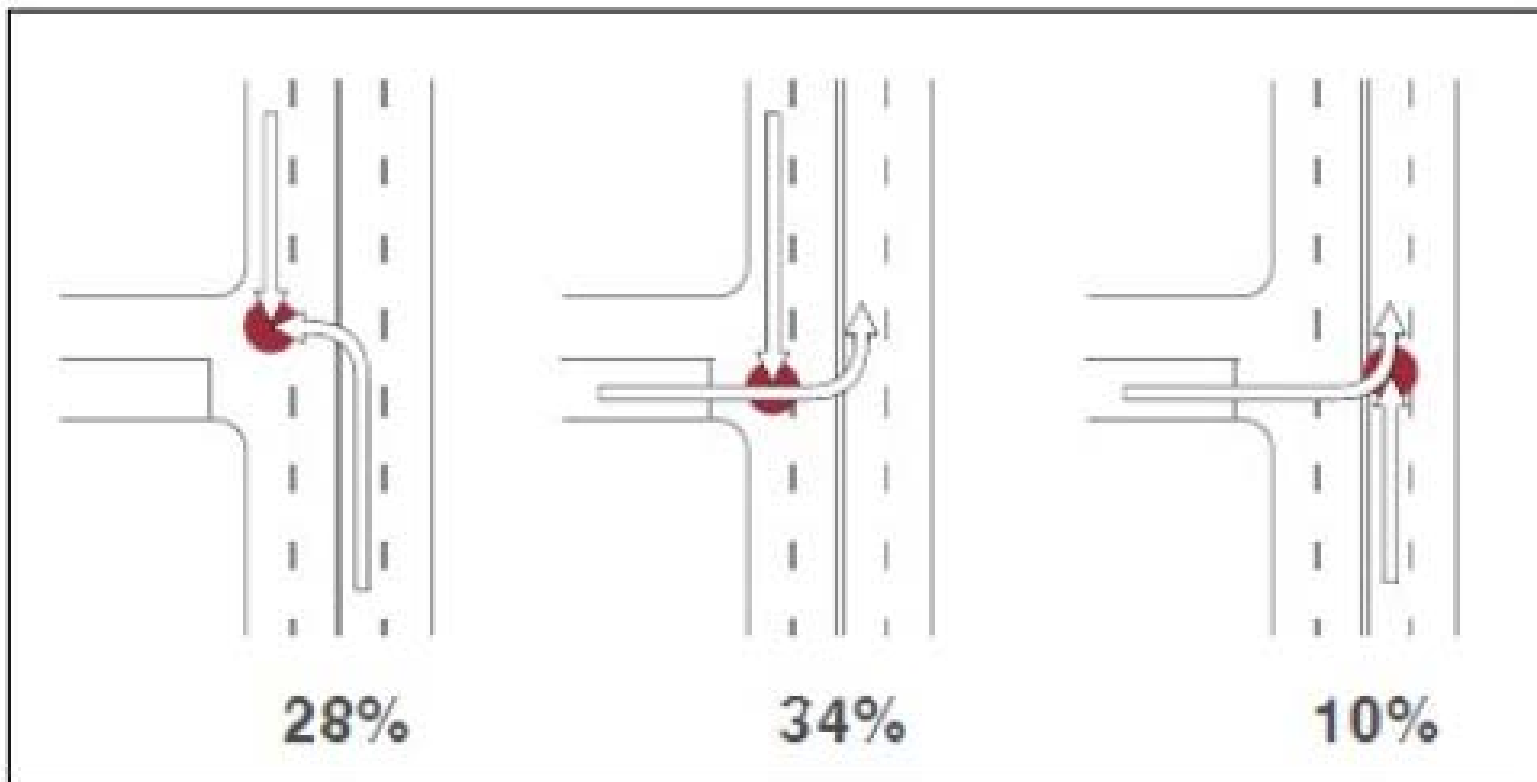
RBT and Access Management

- RBT accommodates **left turns** and allow the removal of **directional left-turn lanes**.
- RBT facilitates **U-turns**.
- RBT enables **left-turn restrictions at driveways**.





Why is Access Management (AM) Necessary?



Crash Percentages for Turning Motorists to and from the Driveway

Eliminating Left-Turn Movements at Driveways is Beneficial from a Safety Perspective



Other Benefits of Roundabouts

Traffic Safety

Reduce total crashes by 35% and injury crashes by 76%.

Pedestrian Safety

Reduced vehicle speeds, focus on one traffic stream.

Traffic Calming

Reduce vehicle speeds using geometric design.

Operational Performance

Lower overall delay than other controlled intersections.



Other Benefits of Roundabouts

Ongoing Operations and Maintenance

Lower operating and maintenance costs than a traffic signal.

Environmental Factors

Less noise, fuel consumption and fewer air quality impacts.

Land Use

Provide transition areas between different environments.



Business & Aesthetics

Islands offer opportunity for landscaping and art displays.



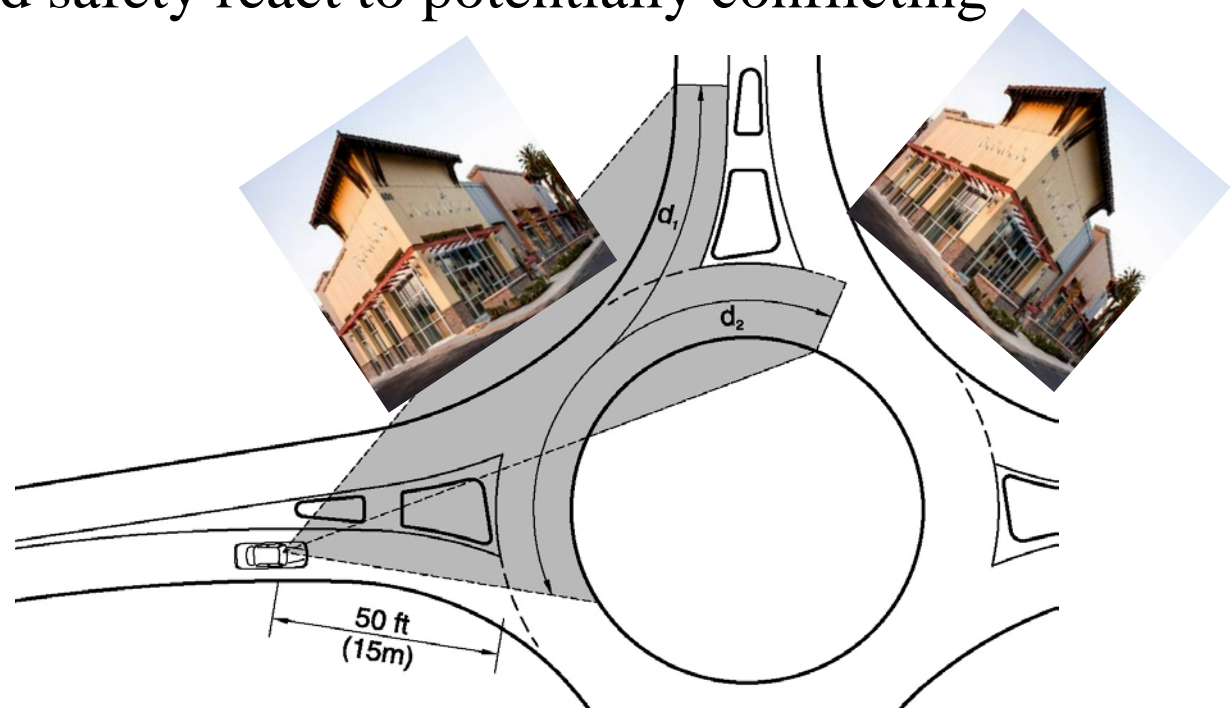


What are the Impact of the AM within RBT and Driveway?

- Radius
- Corner Clearance
- Stopping Site Distance (SSD)
- Intersection Sight Distance (ISD)
- Types of Driveways
- Driveway location and Spacing
- Medians
- Access to major Activity Centers
- Right-turn lanes
- Left-turn lanes
- Area Type: Commercial or Residential

Sight Distance and Visibility

- Adequate sight distance and visibility are needed for a roundabout to operate safely
- Intersection sight distance is evaluated at each entry to ensure a driver can see and safety react to potentially conflicting vehicles.



<http://safety.fhwa.dot.gov/intersection/resources/needsidrpt/sect01.cfm>

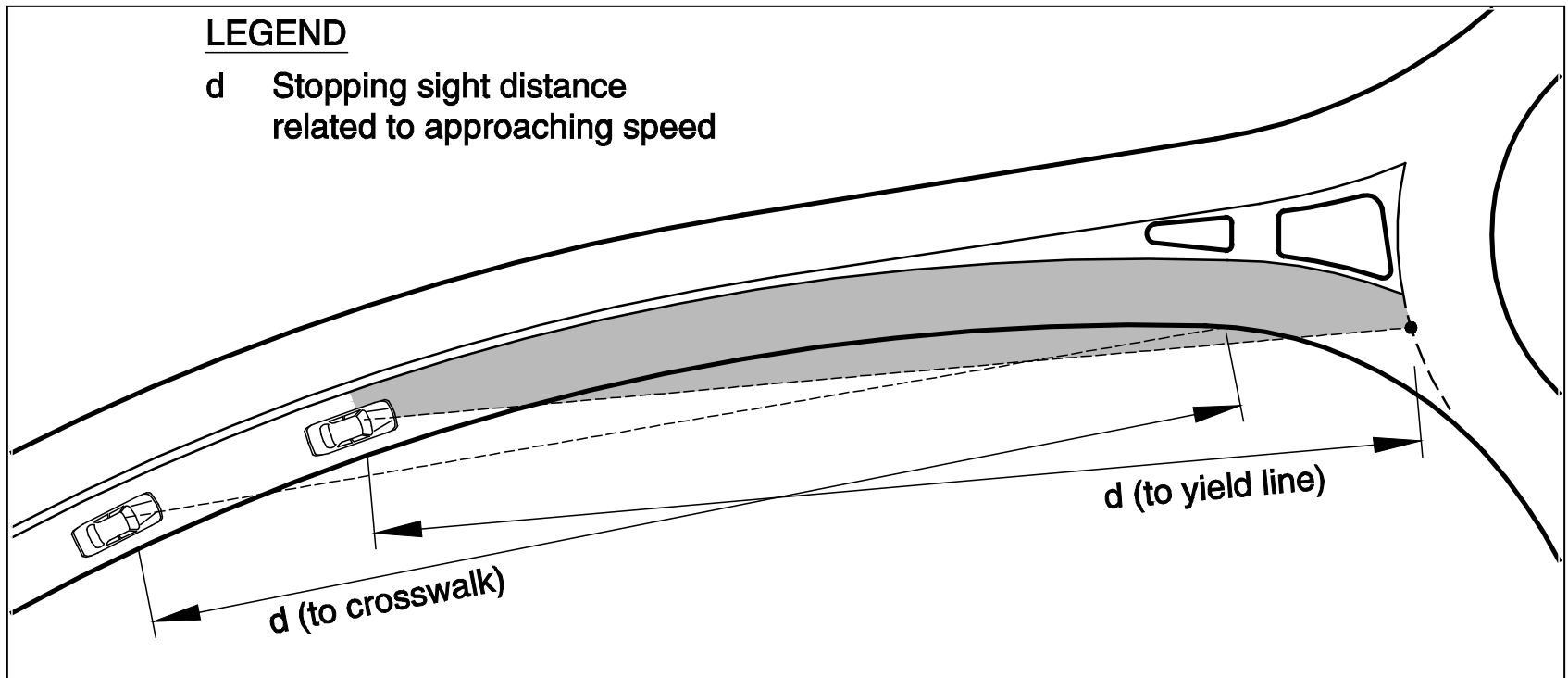
Intersection Sight Distance (FHWA, 2006)

d_1 = Entering stream distance
 d_2 = Circulating stream distance



Stopping Sight Distance (SSD)

- **SSD** should be provided at every point within a roundabout and **on each approach**.
- The roundabout should be visible from a distance and focus the attention of drivers.

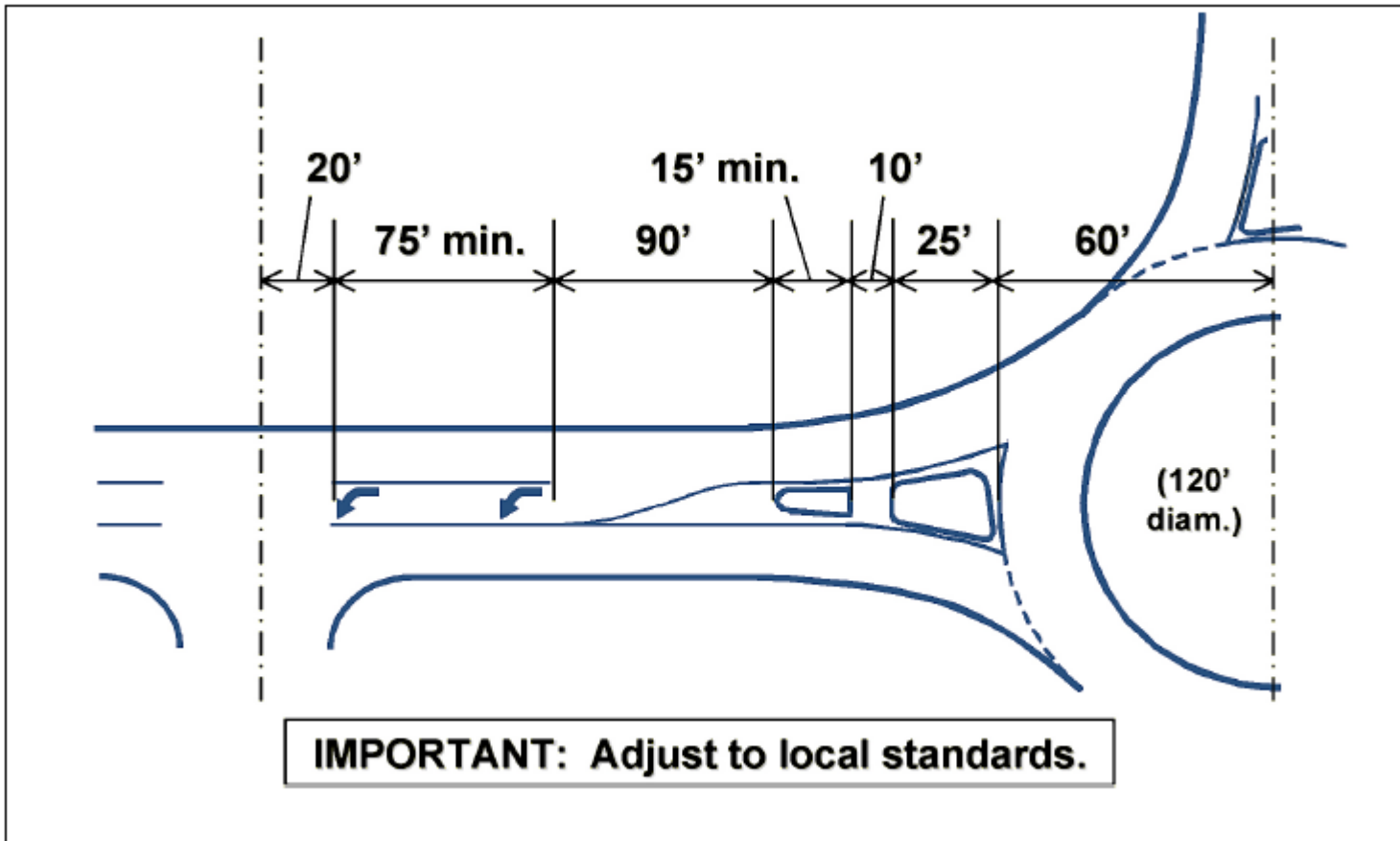




Guidance?

- There are a large amount of guidance:
 - A Roundabout Handbook,
 - A Median Handbook,
 - A Driveway Spacing Guide,
 - A Bicycle/Pedestrian Handbook, and
 - A Driveway Information Guide.
- **Little** has been found on Roundabouts and Access Management/Driveway Guidance.

Access near the Roundabout



(Rodegerdts et al., 2010)



Some Important Questions and Challenges:

What are the AM issues?

What are the relationships between AM, capacity, and safety at roundabouts?

How does AM impacts the Safety of road users, including pedestrians and bicyclists?

Which is most critical for AM with different Land Uses: commercial or residential?

Does AM restricts nearby driveways?

What are key components of AM, such as driveways, and medians, near by RBTs?



Example 1

**Forward St. & La Jolla Blvd.
La Jolla, CA**

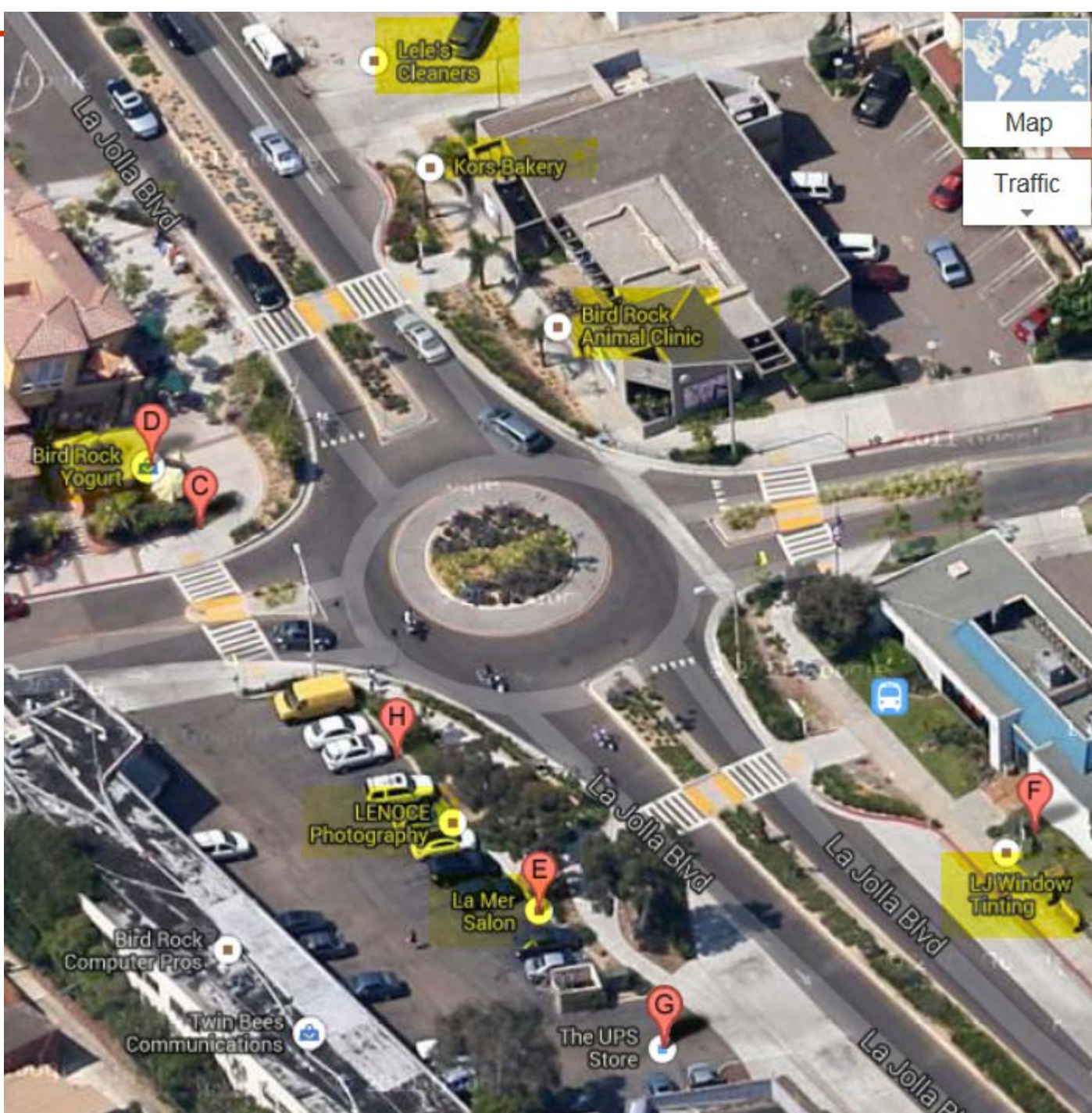


Forward St. and La Jolla Blvd., La Jolla, CA



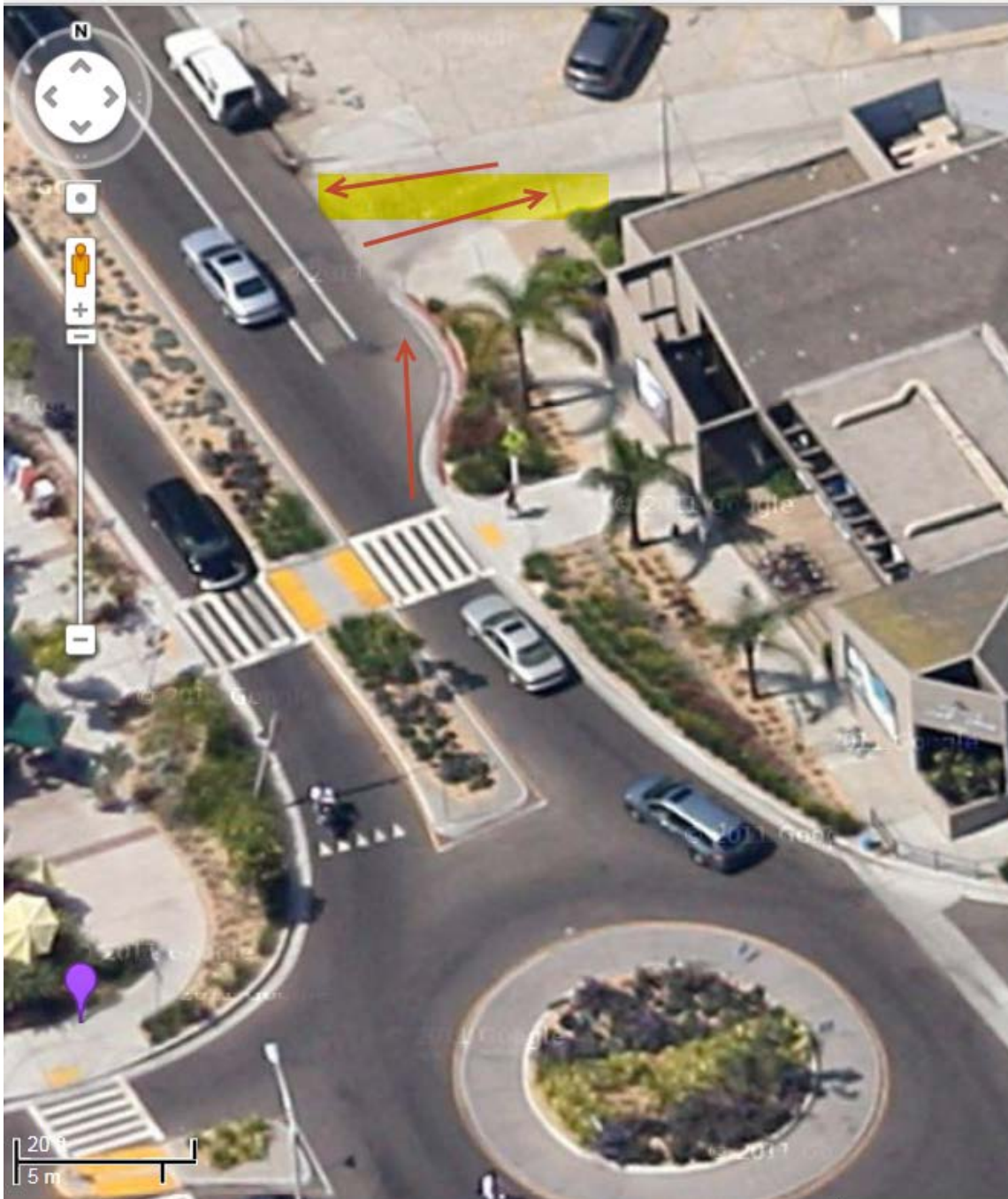
near San Diego, CA







- Starbucks
- Chiropractic
- Massage Studio
- Salon
- Window Tinting
- Apartments
- UPS Store
- Bakery
- Restaurants



Questions



1- Is this an adequate distance?

99.792 ft.

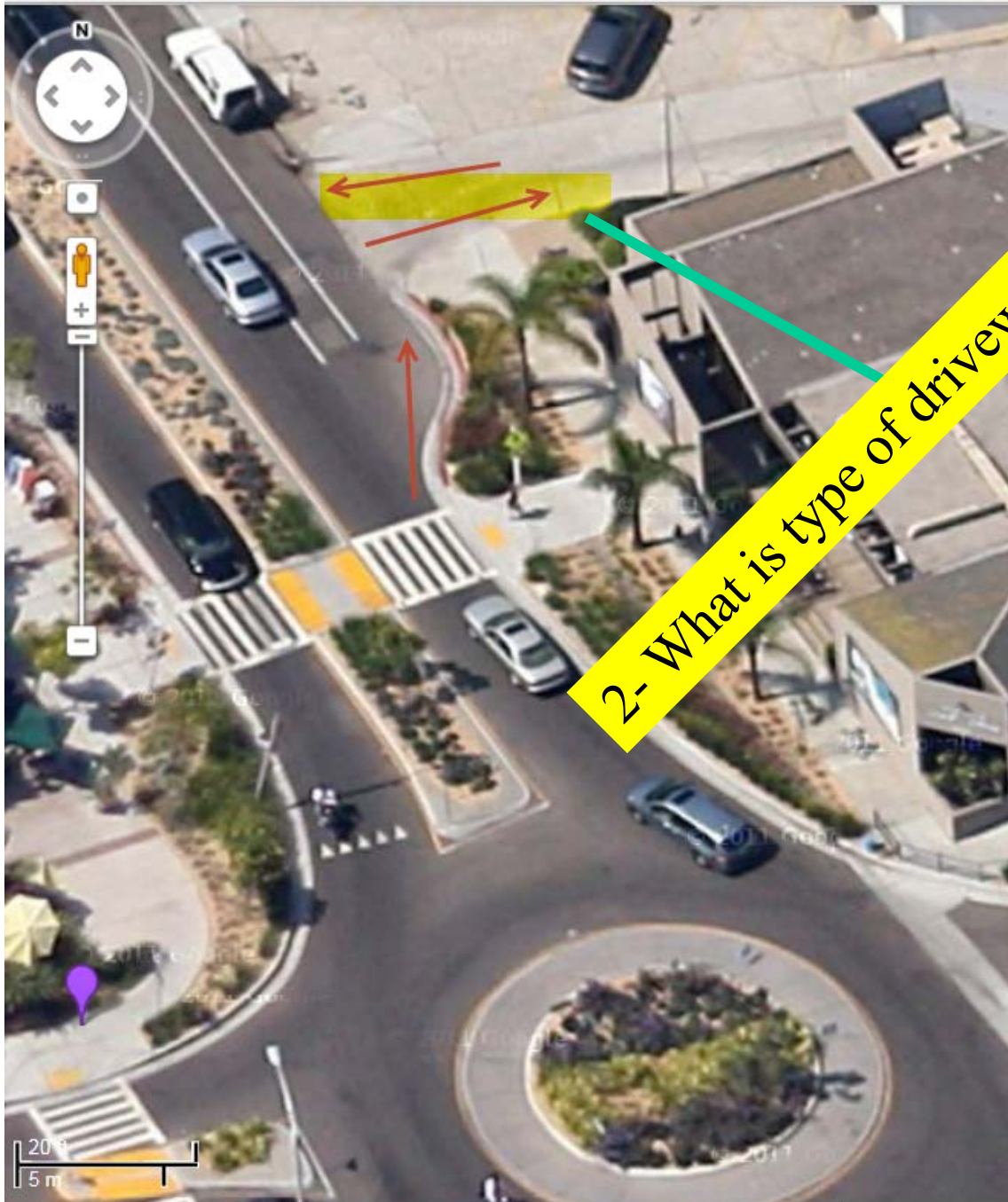




Taper Length

43.824 ft.





Questions

2- What is type of driveways?

**RIGHT-IN /
RIGHT-OUT
DRIVEWAYS**



Questions

3- Do you allow parking?



© 2014 Google Image Date: April 2012

Report a problem



Imagery ©2014 Google Map data ©2014 Google - Edit in Google Map Maker Report a problem





1- What is distance?
Not good! Inadequate
ZERO





Parking Cars?
Not good!

Report a problem

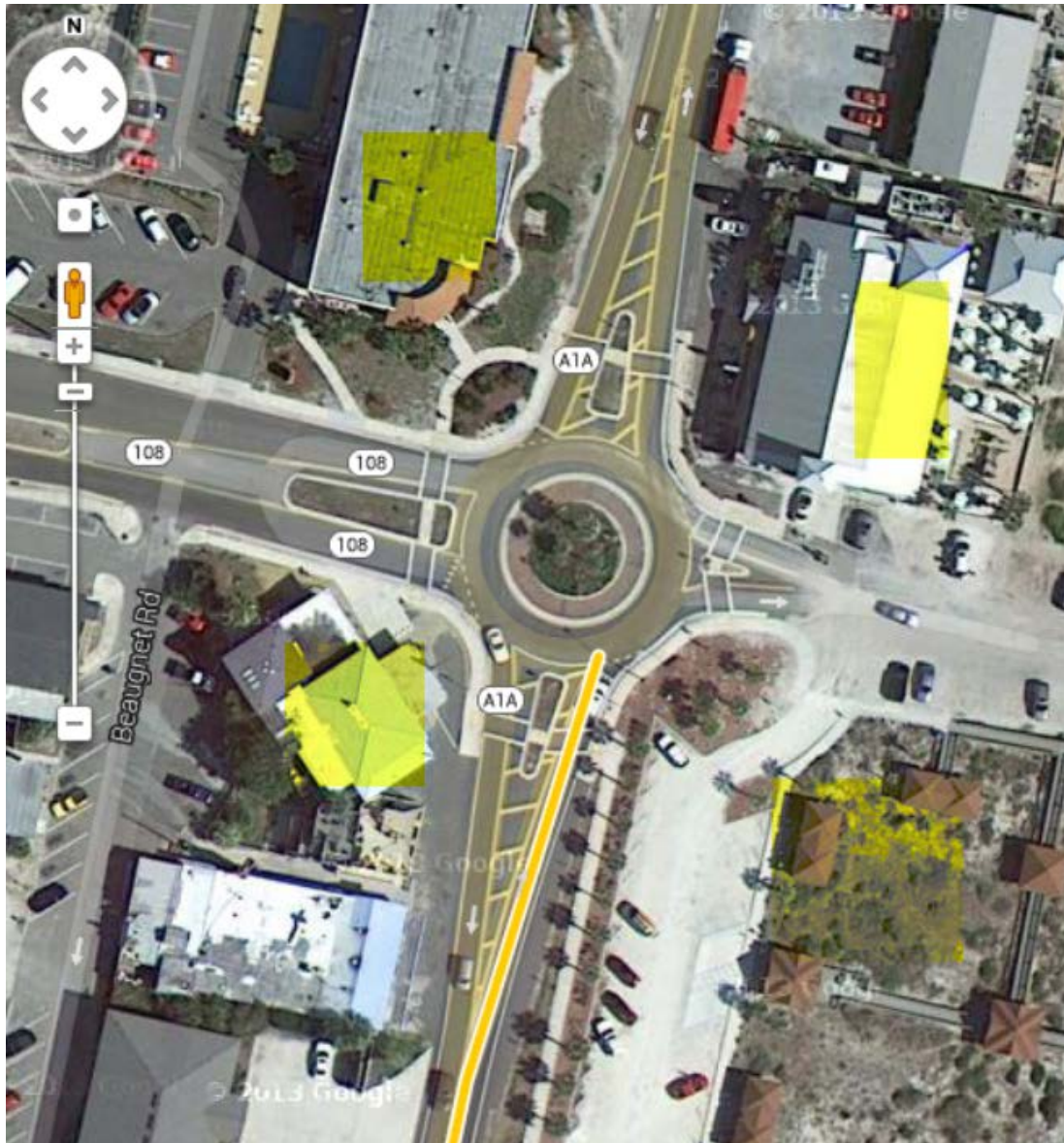


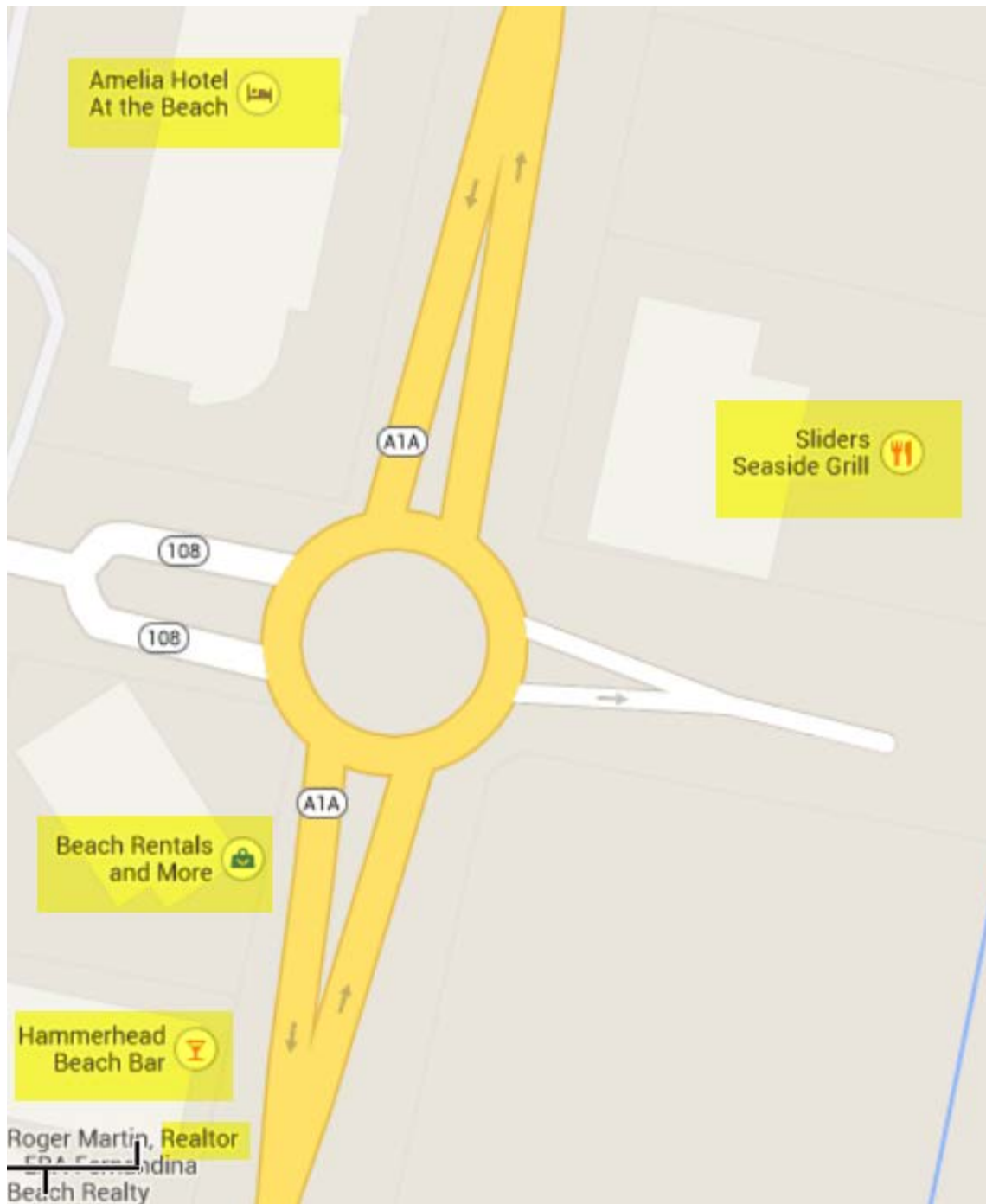
Example 2

**Sadler Rd. & South Fletcher Ave. (Hwy108)
Fernandina Beach, FL**



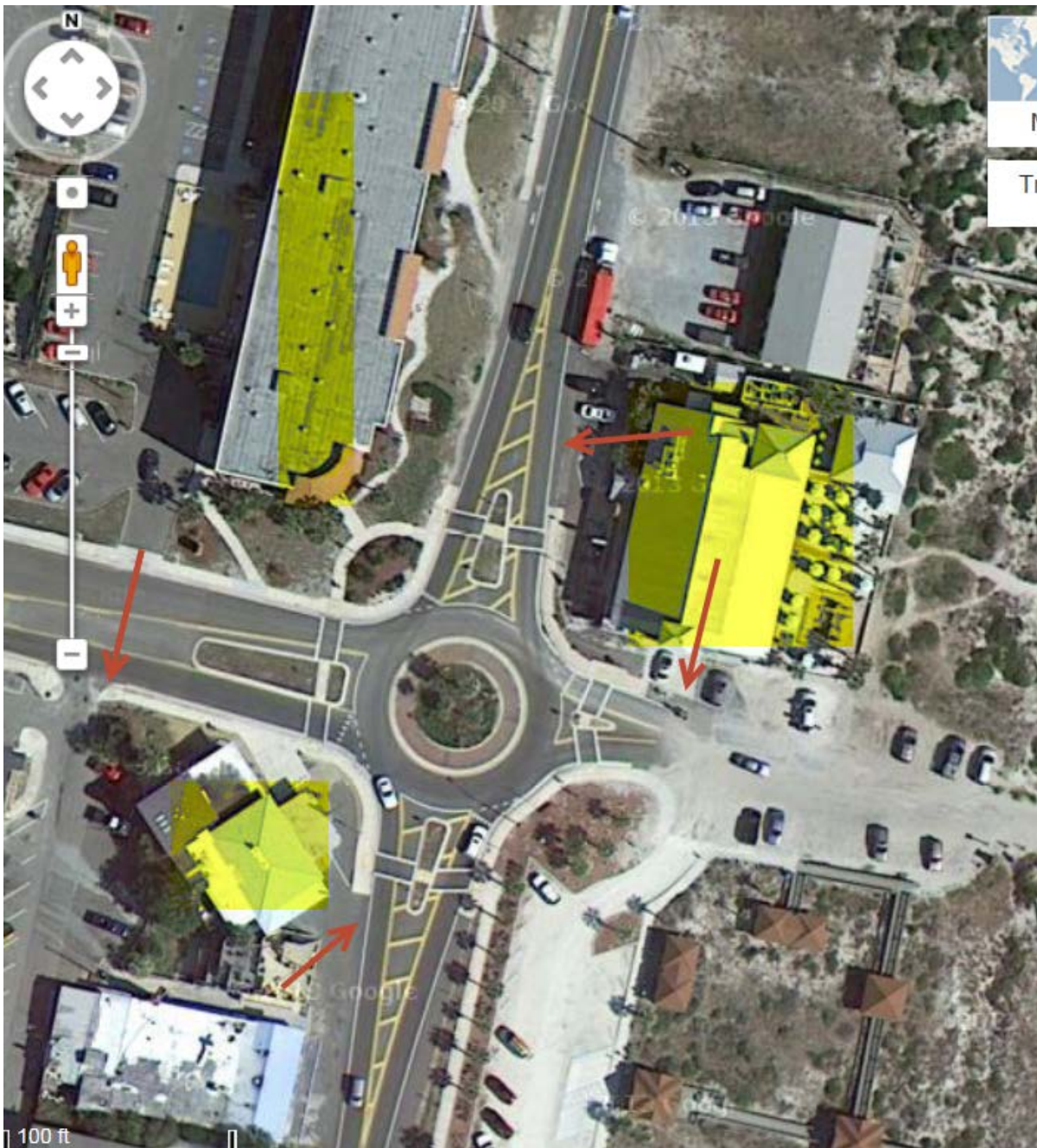
Sadler Rd. , South Fletcher Ave. (Hwy108) Fernandina Beach, FL





Roger Martin, Realtor
ERA Ferndina
Beach Realty

- Hotel
- Grill
- Rentals
- Bar
- Relator
- Restaurants



Two driveways
from each side
of a business

Access to and
from every
direction



Grill





Hotel



Restaurants Strip







Example 3

**Curry Rd. & Hamburg St.
New York, NY**



NY



Sunoco Gas Station

**RIGHT-IN /
RIGHT-OUT
DRIVEWAYS**



130.944 ft.

0.0248 miles
[Elevation Graph](#)





64.944 ft.





Example 4

Hillsborough St. Roundabout Raleigh, NC

Hillsborough St. Roundabout - Raleigh, NC





Business
Parking
Area





**Hillsborough Street and W. Morgan Street
Raleigh, NC**



Changing the Side Street Characteristics

Sidewalks were installed and more crosswalks and pedestrian crossing signals.

Bicyclists are able to travel on a 5-foot-wide buffer lane between parked cars and street traffic.

The RBT makes **on-street parking** available on both sides by adding more parking spaces.

For example: RBT off Hillsborough Street in Raleigh (.... More than 100 parking spaces added to the 77 currently available....)

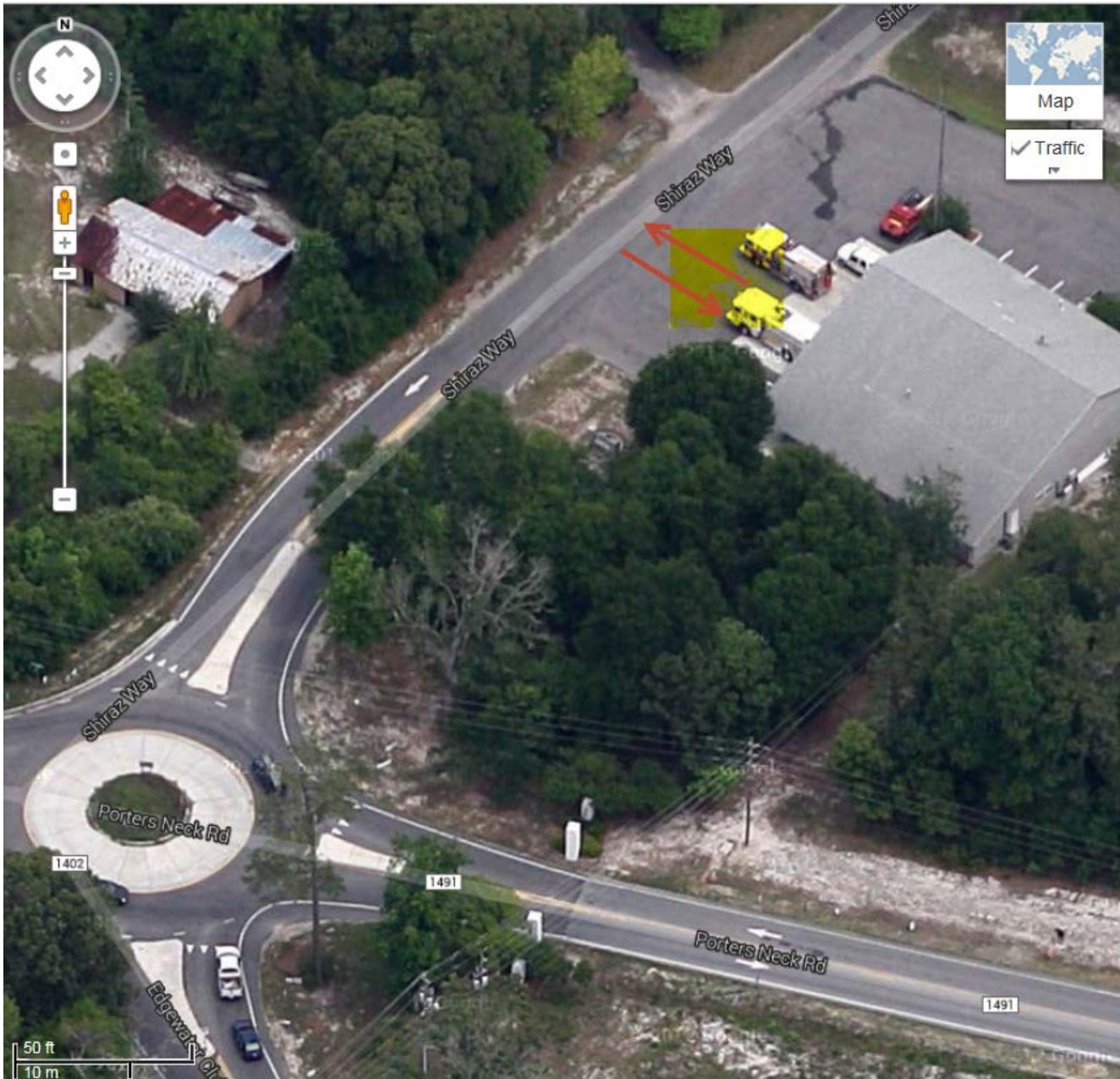


Example 5

Porters Neck Rd. & Shiraz Way Wilmington, NC



Porters Neck Rd. & Shiraz Way, Wilmington, NC



Fire station



204.864 ft.





Are Roundabout Good for Business?





Reactions to Roundabout are Mixed....

- “That’s certainly the biggest **fear** that we have a roundabout....,” she said.
- “It’s a problem when **jobs are in danger...**”.
- “They’ve taken **plenty of time to prepare us**
- ..One is in a **bad location..**
- ..Oh my God...it is **coming to our business**
- ..reducing access with a roundabout will **‘kill’** the business.

Negative Feedback



Reactions to Roundabout are Mixed....

- **median inserted** in the middle of the entrance customers use to enter and leave
- concern is due to an **issue with the design** or if it is the result of motorist behavior
- going to **lose three months of business** due to construction blocking off the entrance to business parking lot
- Customers will **not be able to access the business**
- For nearby residents and businesses, however, the **construction has proven to be an aggravation**. They say the city didn't give them **enough warning** to prepare for road closures, and signs in the area have been **confusing** for drivers.
- Closure signs on streets that lead to the business have added to **confusion**
-

Negative Feedback



Reactions to Roundabout are Mixed

- and the city's downtown seems to be **cleaner** and **quieter** without the stopped traffic.....
- There other benefits to roundabouts, including
- **Slow down** to 15-25 mph when entering.
- **Reduction in fuel** use and pollution
- **Watch for pedestrians, bicyclists,**

Positive feedback



Reactions to Roundabouts are Mixed

“A lot of **people like** roundabouts.
...It’s always better **not having to stop at red
lights.**”

Positive feedback



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Jan 6, 2014, 11:50am EST

Retailing & Restaurants

Dumpling shop coming to Raleigh's Hillsborough Street



Amanda Jones Hoyle
Staff Writer-
Triangle Business Journal
[Email](#) | [Twitter](#)

A new dumpling and noodle shop has signed a lease for a Raleigh restaurant space near the Hillsborough Street roundabout at Pullen Road.

The Marco & Luca Dumpling Store plans to open by March of 2014, says Stacy Mbithi with the TradeMark Morris commercial real estate firm in Chapel Hill, who represented the restaurant owners in the lease



Businesses are attracted to a Roundabout



Find

Near San Francisco, CA

Home About Me Write a Review Find Friends Messages Talk

Roundabout Diner and Lounge

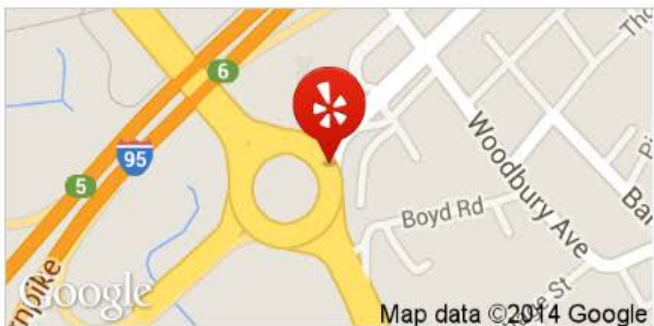
★★★★☆ 96 reviews [Details](#)

\$\$ · Diner · Breakfast & Brunch [Edit](#)

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Businesses Name is related to a Roundabout

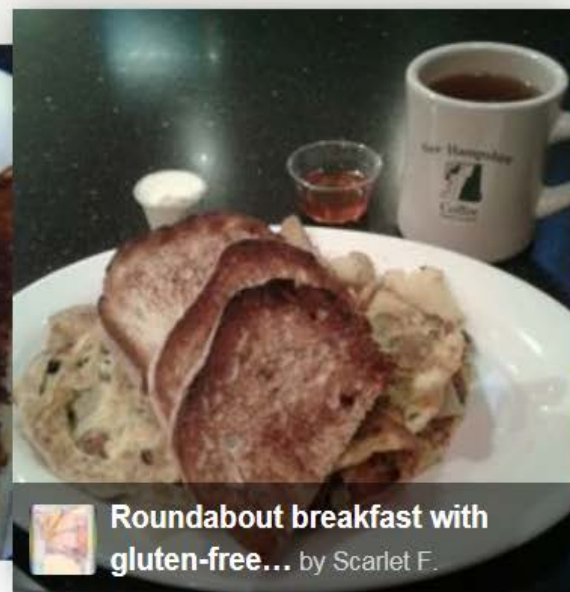


580 US Highway 1 Bypass
Portsmouth, NH 03801

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roundaboutdiner.com



Roundabout breakfast with gluten-free... by Scarlet F.



See



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 Best Practices Guide
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HOME > NEWS AND OPINION > ROUNDABOUTS: A TOOL FOR PLACEMAKING >

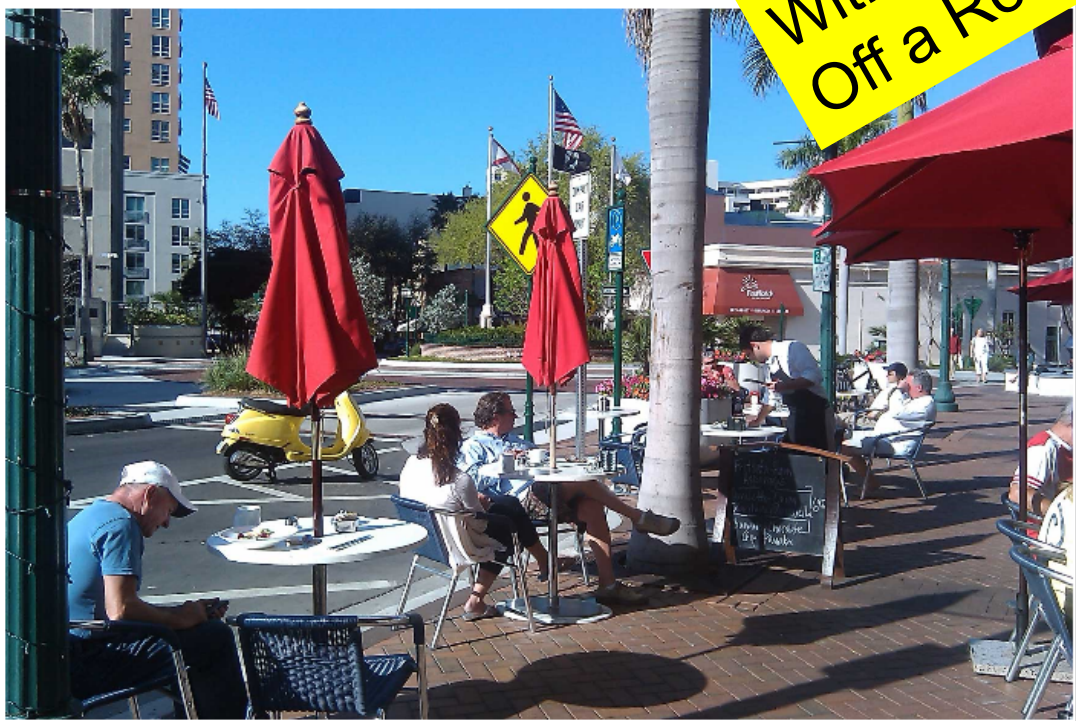
Roundabouts: A tool for placemaking

feature economy streets

Ken Sides and Rick Geller, Better! Cities & Towns

**Businesses
 With sidewalks
 Off a Roundabout**

New Urban Classics
 HOUSE PLANS
 Designs by
Robert Martignoni
 Narrow Lot Designs with
 Alley Load Garages
 Enter discount code
 BCT20 for 20% off order
 Available only at
 bsahomeplans.com



Main Street Roundabout, Downtown Sarasota, Florida: A nice place for sidewalk dining or just relaxing with a good book (Photo by Rod Warner).





What Does Really Matter for a Business Success?

Product (Food) Quality

Outstanding Restaurant

Outstanding Chef, and Pastry Chef

Family Recipes, Secrete Sauce, etc.

Prices

Customer Services

Employee Courtesy

Checkout Speed

Good Management

Advertisements and Marketing

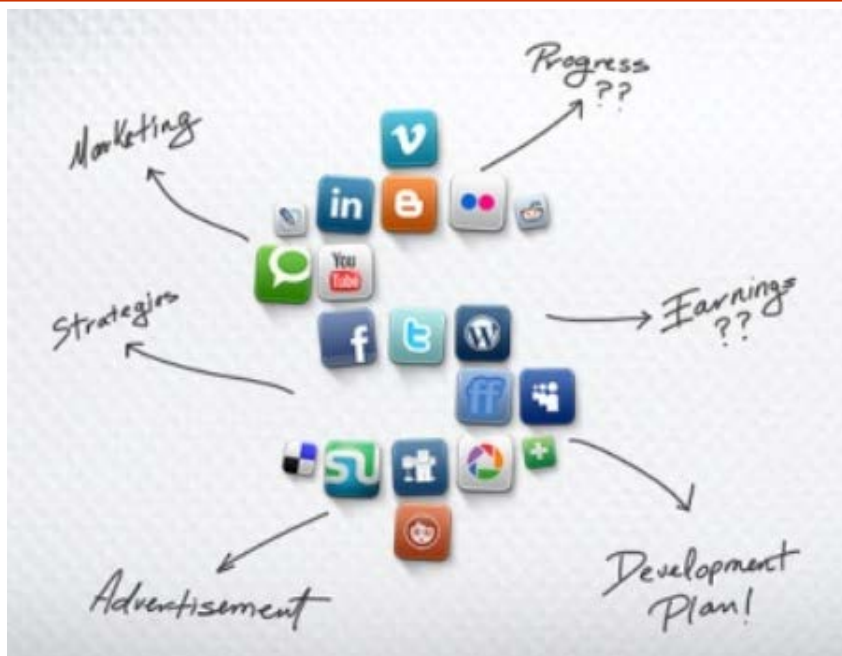
Cleanliness

Loyal: long-term customers



Location, Location, Location

Social Networking





The Worst Business: High Prices and Poor Services

Nothing Related to a Roundabout



Lessons Learned

- Local business **involvement is essential** to RBT /AM project success.
- **Input from business leaders** can help generate project support throughout the community as well as ideas for improvements that will improve the community's economy.



NCDOT VISULIZATION

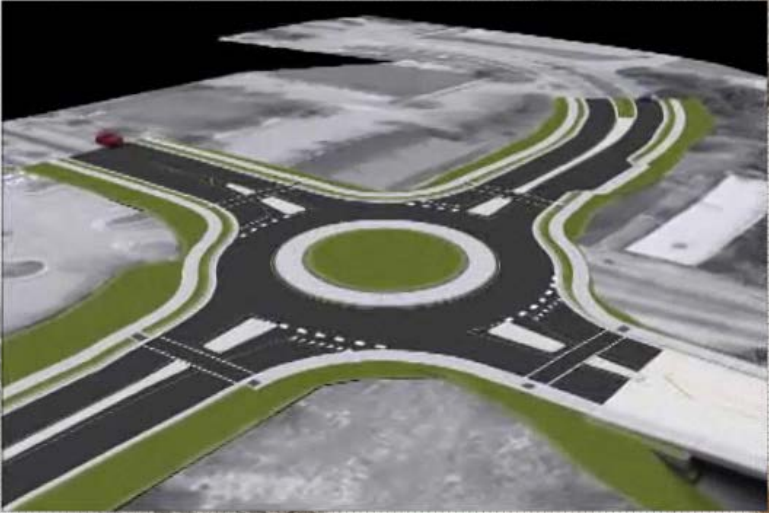
North Carolina Department of Transportation
Enterprise
VISUALIZATION

HOME CONTACT SEARCH!
NC DOT


NC DOT
NC DOH
NC GOV

- SITE MAP**
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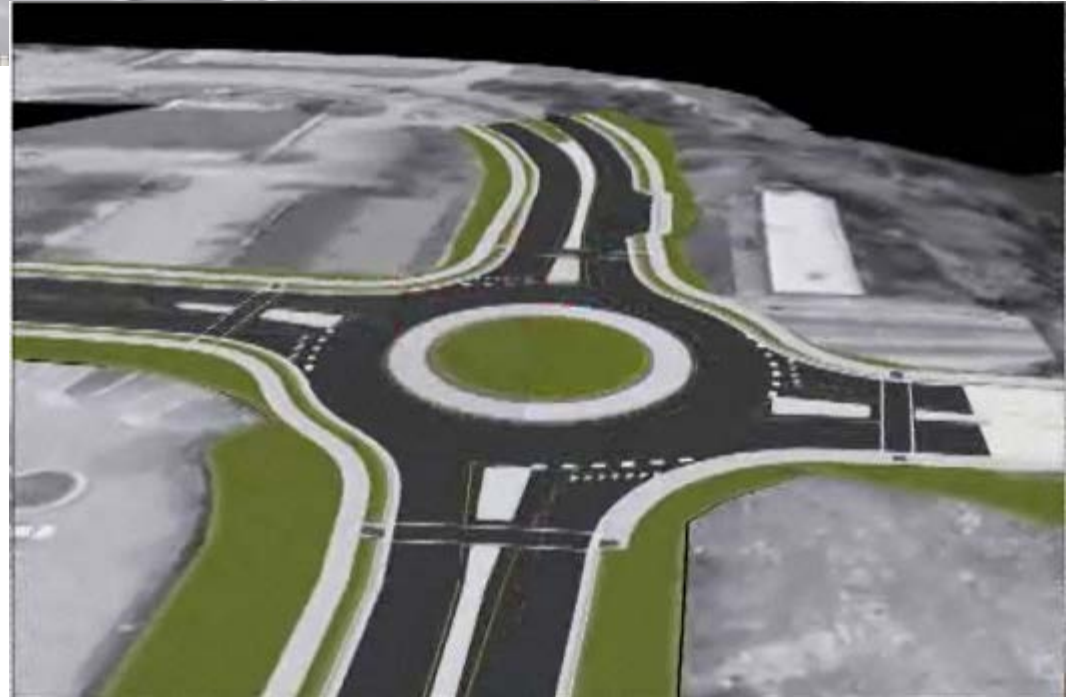
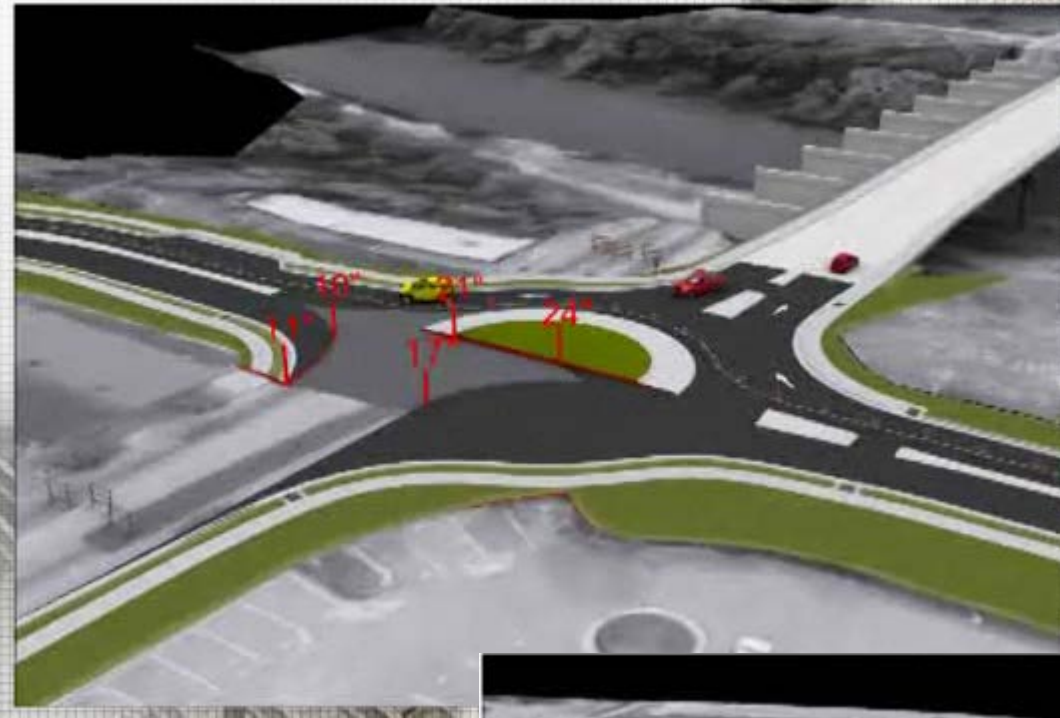
Portfolio - Animations



Navigation controls: play, pause, stop









Conclusions & Recommendations (1 of 3)

- Roundabouts are fine for business.
- In a community only 2 things really matter for retail (1. Good employment and 2. Good paychecks).
- Retail needs access.
- Installation of a roundabout will have resulted in slower speeds, but lower travel times and less delay at business access points.



Conclusions & Recommendations (2 of 3)

- Adding landscaped medians and pedestrian walkways will be stimulated economic activity.
- Recommend to have more about Roundabouts and Access Management/Driveway Guidance.



Conclusions & Recommendations (3 of 3)

- **Good Planning** between a Roundabout and Access Management Principles will:
 - Reduce vehicular conflicts and increase safety;
 - Create a more aesthetically pleasing area;
 - Create a more pedestrian-friendly environment;
 - Reduce delays for entering traffic at major street;
 - Reduce queue delays to reduce travel time.



The 2nd International Conference on Access Management

(AM2014)

September 25th~27th
2014, Shanghai, China

Dear Majed Al-Ghandour:

We are pleased to inform you that the following paper you have submitted to the 2nd International Conference on Access Management (AM2014) is accepted by the AM Academic Committee.

Paper Title: Experimental Analysis of a Direct Access Driveway at a Roundabout:
Performance with One or More Slip Lanes

Author(s): Majed Al-Ghandour

Your paper will be included in the conference proceeding of AM, which will be published by American Society of Civil Engineers (ASCE) and be cited by EI. Please do take the comments and suggestions of the reviewers into account in the revision to further improve the quality of your paper.

The AM2014 will be held from September 25th to 27th 2014 in Shanghai, China. You are invited to attend the conference and make a presentation of your work for 20 minutes. Wish you have a great time in Shanghai.

Further information of AM 2014 please refer to AM website <http://www.am2014.cn> or contact AM Organizing Committee by email scientificam2014@163.com

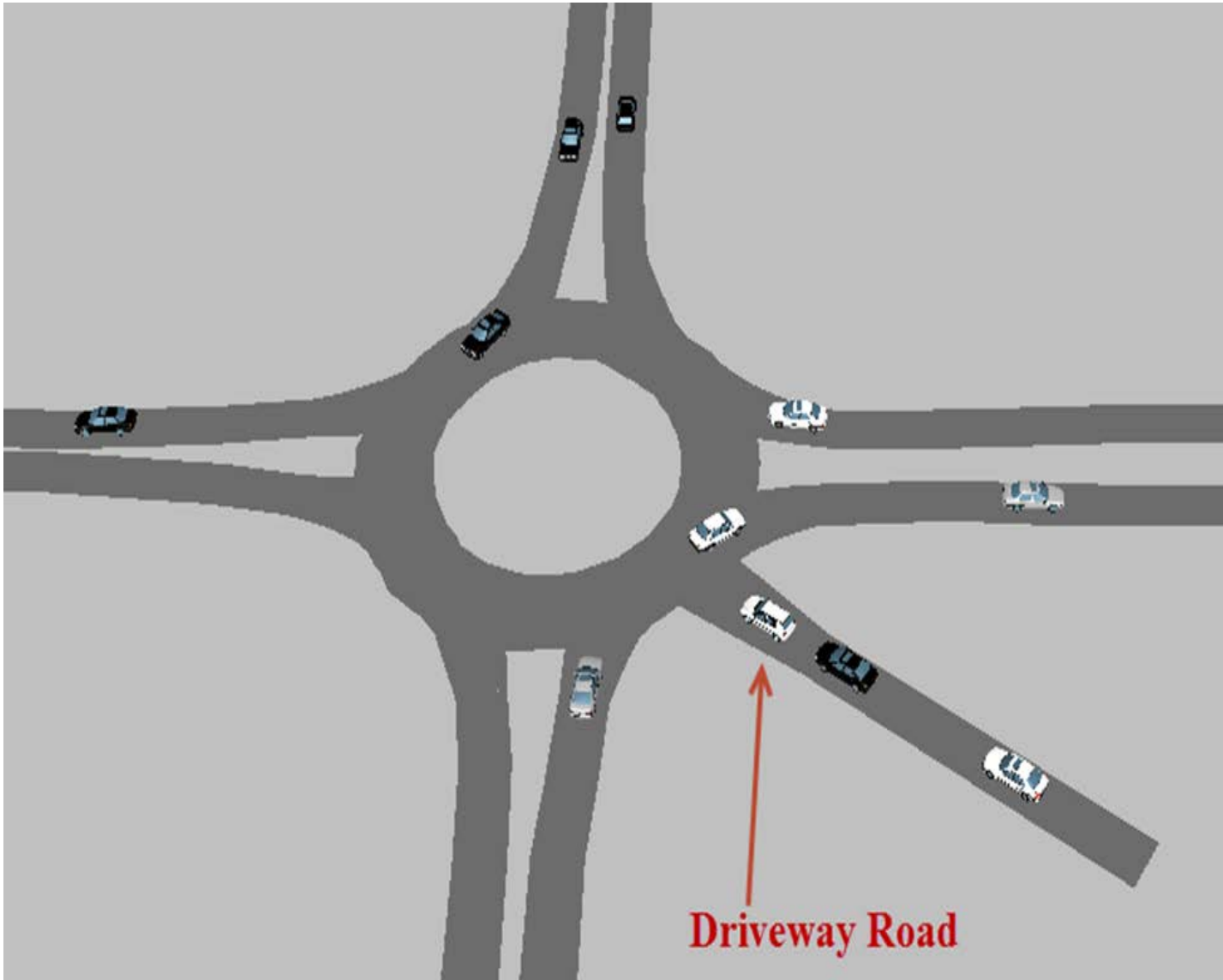
Sincerely,

The AM Organizing Committee

School of Transportation Engineering Tongji University

12th May 2014







Disclaimer

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This data in this presentation cannot be construed to be a legal document.



Optimum Solutions

A Roundabout with AM Shanghai, China





Optimum Solutions

A Roundabout with AM Germany





Cited References

- FDOT Project BDK77 977-22, Steiner, R. L., Washburn, S., Elefteriadou, L., Gan A. “Roundabouts and Access Management.”, Final Report, March 2014.
- NCHRP Report 672: Roundabouts: An Informational Guide, 2nd Edition (Rodegerdts et al., 2010).
- NCHRP Report 548 A Guidebook for Including Access Management in Transportation Planning, (Rose et al., 2005).



Contact Information & Questions

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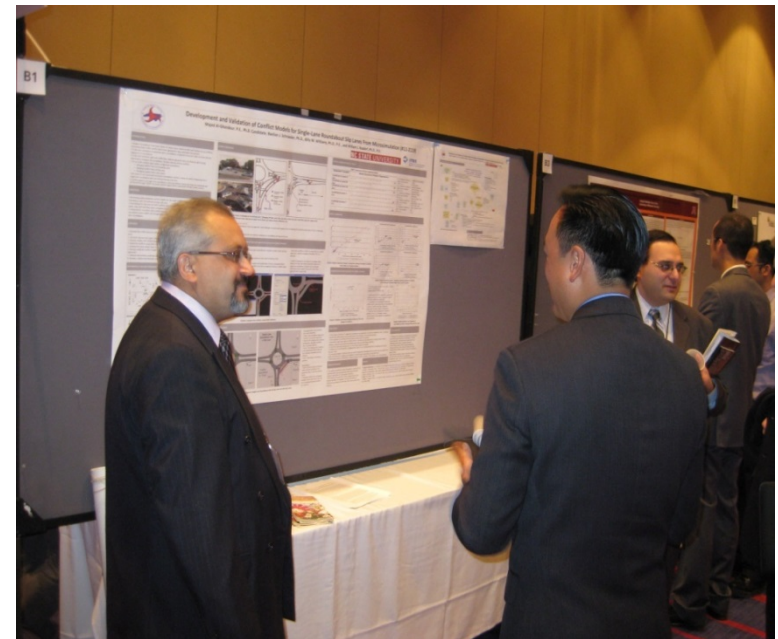
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