

# Siena Drive and Lakeview Avenue

PRESENTED BY

Jonathan K. Jacobs, PE  
Transportation Engineer



TOWN of  
WAKE FOREST

# Why are we here?

- Safety Concerns with existing conditions
  - Drivers not adhering to stop signs
  - Drivers speeding
  - Unlevel Terrain promotes speeding
  - Extra wide roadway promotes speeding
  - Posted 25mph Speed Limit
  - Siena Drive is a very wide roadway
  - Residential area
    - Children Playing
    - School
    - Vehicles backing out of driveways

What issues have you noticed at this intersection????



# Law Enforcement Presence



- Due to complaints, Wake Forest Police has increased presence in the area
- Numerous citations have been written at this location (15 in one hour on one occasion)
- Both excessive speeds and running the stop sign along Siena and Lakeview



# Speed Study

- Wake Forest Police Department installed a speed detection sign along Northbound Siena Drive
- The study found (May 2019 through August 2019)...
  - Average 931 vehicles per day travel along Siena Drive
  - Busiest hour is 5:00 PM (97 vehicles)
  - Top Speeds (53mph, 48mph, 45 mph)
  - Average vehicle speed - 24 mph
  - 85% Speed – 29 mph



# All-Way Stop Intersections

- 4-way or All-Way stop intersections rely on Stop Signs to control the flow of traffic
  - They can be confusing as Drivers may have trouble determine who has the right-of-way
  - Drivers perform a “rolling stop” making it difficult to determine who was there first
  - False sense of safety because drivers assume the other driver will stop
  - Confusing for pedestrians as they do not know when to cross
  - Accidents occur from people running stop signs



# Option #1

## ➤ Increase Stop Awareness

- Increase the size of the stop signs along Siena Drive in both directions
- Increase the size of the stop ahead signs along Siena Drive in both direction
- Paint Stop Bars on the pavement
- Install painted pedestrian crosswalks

## ➤ Pros

- Increase driver awareness
- Low cost/easy to install

## ➤ Cons

- Drivers may still not adhere to new signage
- Drivers are still encouraged to speed due to wide roadway



MUTCD R1-1  
Stop Sign



MUTCD W3-1  
Stop Ahead Sign



Stop Bar along S. Franklin Street at Wait Ave



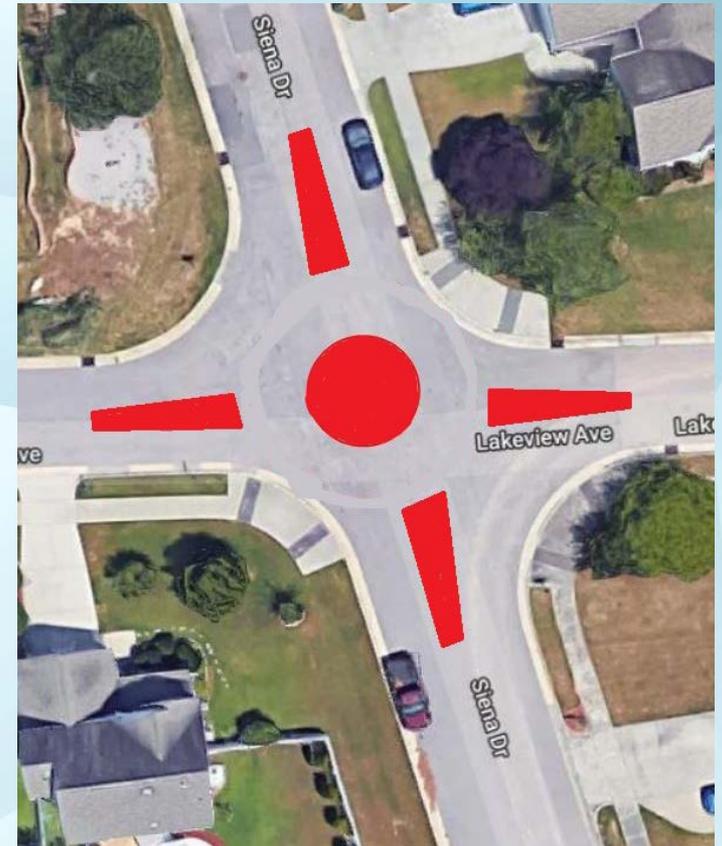
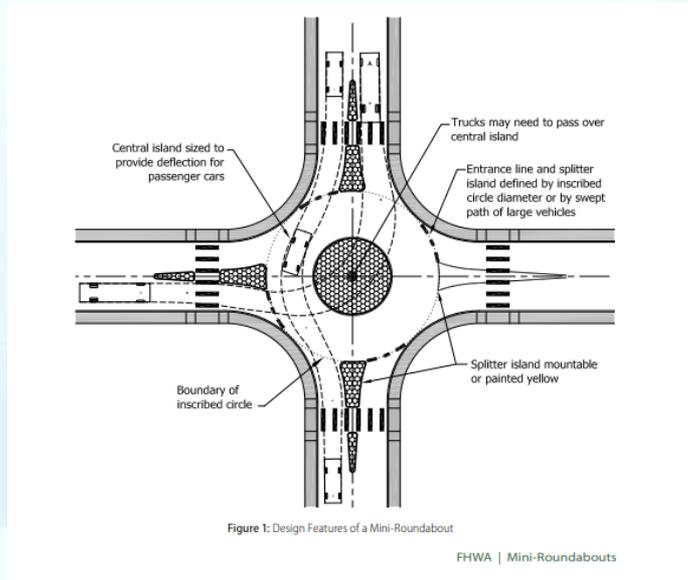
# Option #1A

- Increase signage/roadway striping
  - Increase the size of the stop signs along Siena Drive in both directions
  - Increase the size of the stop ahead signs along Siena Drive in both direction
  - Paint Stop Bars on the pavement
  - Install painted pedestrian sidewalks
  - **Install small islands to add additional stop signs**
    - **Traffic Calming effect**
- Pros
  - Increased driver awareness
  - Lower speeds due to narrower lanes
  - Lower cost option and easier to install
- Cons
  - Drivers may still ignore stop signs



# Option #2

- Construct a Mini-Roundabout
  - Use existing intersection footprint
  - Add new center concrete/landscaped island
  - Add painted crosswalks
  - Optimal for posted speeds less than 35mph



# Option #2

## ➤ Pros

- Compact size; no change to existing footprint
- Provide continuous traffic flow; less delay
- Increase safety for residents and drivers
- Reduce speeds by requiring drivers to maneuver a new median
- Increase driver awareness

## ➤ Cons

- Smaller diameter; harder to maneuver for larger trucks
  - There will be a “truck apron”
- More invasive to existing subdivision
- More extensive construction
- Higher cost

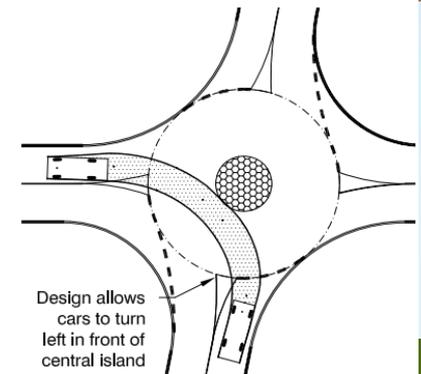
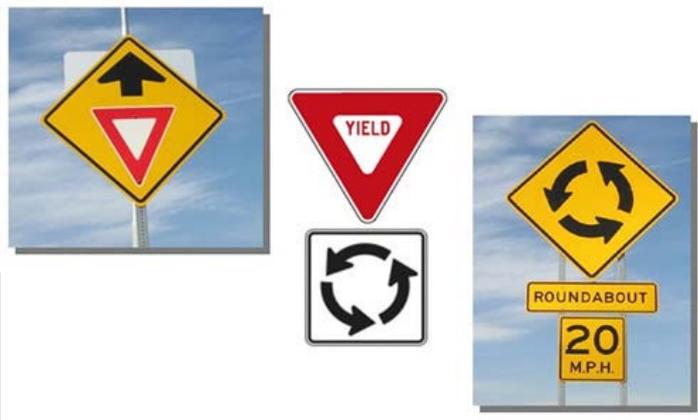
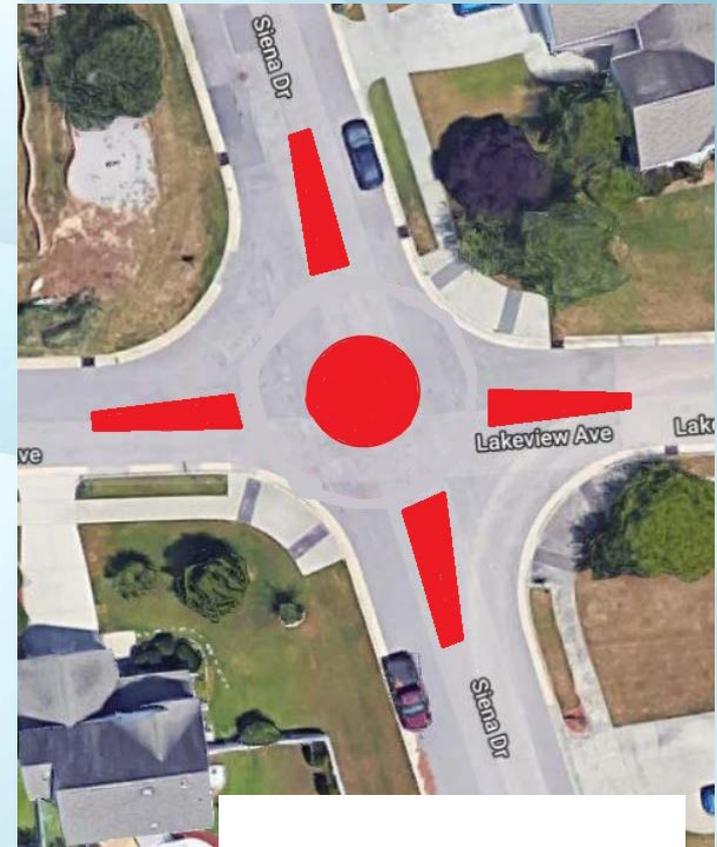


Figure 2: Undesirable Design that Allows Left Turns in Front of Central Island



# What Do You Think???

- Other Possible Options
  - Flashing Stop Sign
  - Paint Stop Ahead on Roadway

