AGNOLI BARBER & BRUNDAGE, INC.
Professional Engineers, Planners & Surveyors

Alternate Street Design, P.A.

Estero Parkway Roadway/ Landscape Design Phase 1 Design Alternatives

Focus on Roadway Configuration

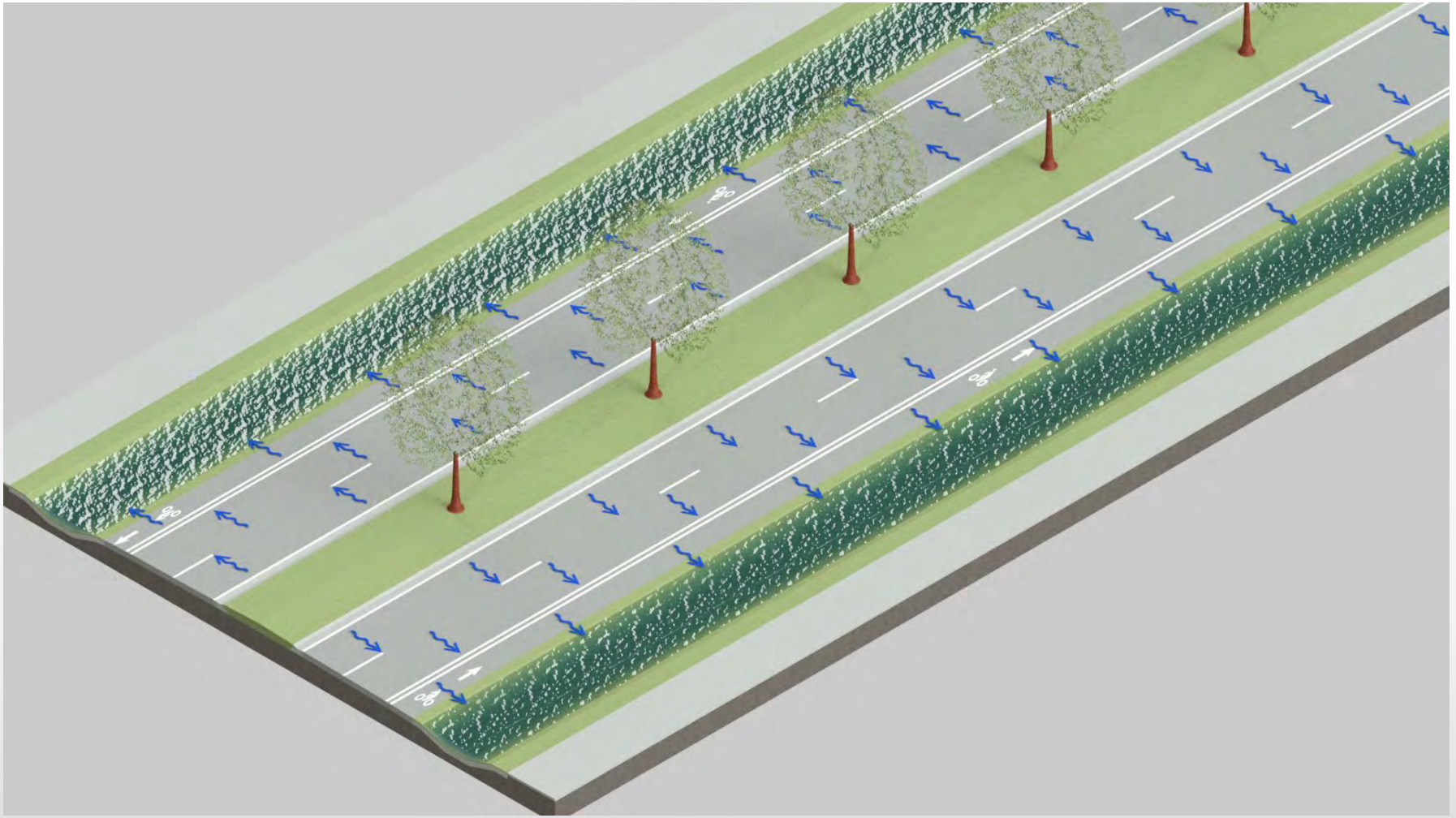
- Outside edge of pavement to outside edge of payment – including median
- This will become the “base” from which the rest of the project will be designed and built in Phases 2 and 3.

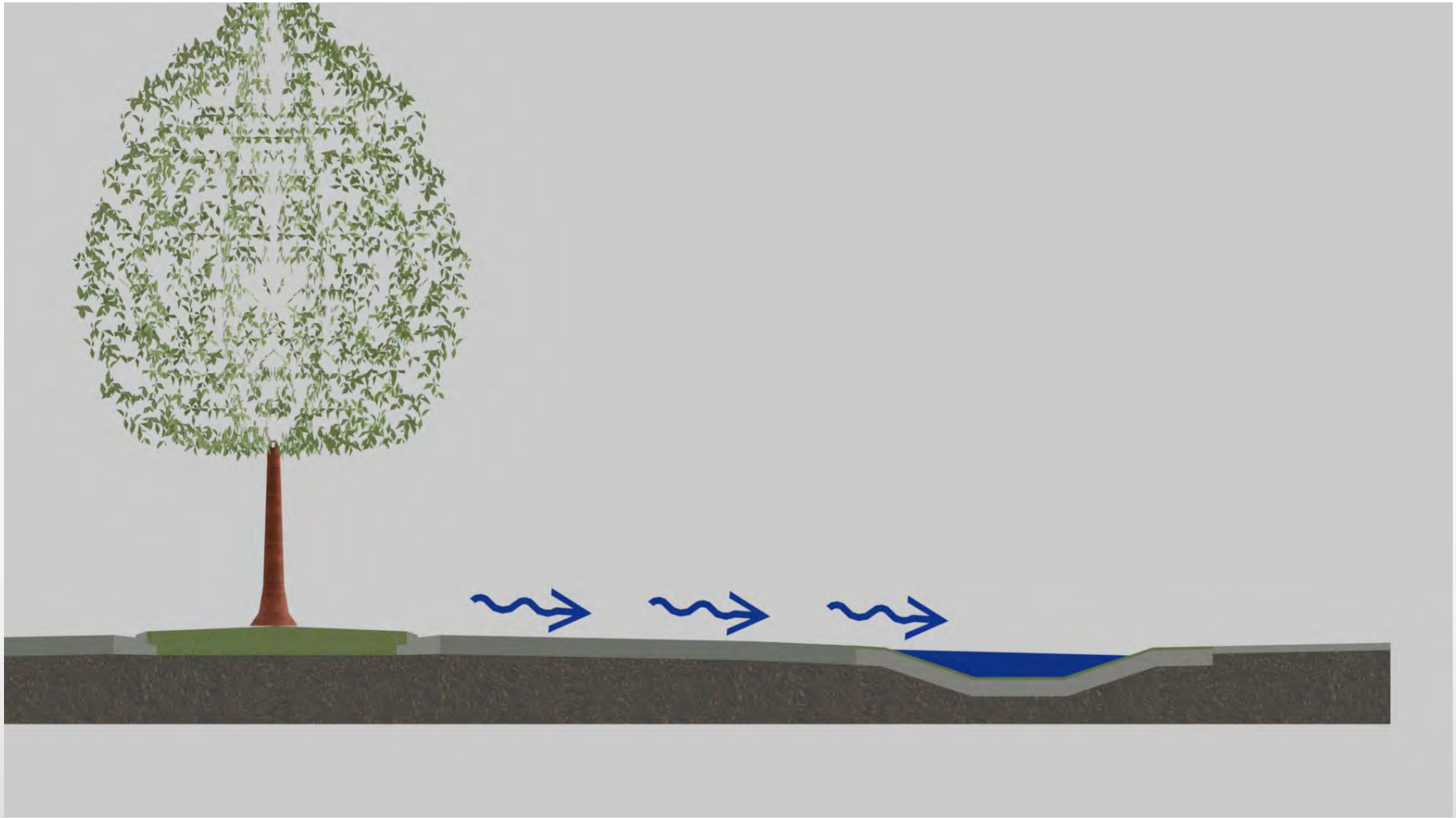
Three Items of Direction

1. Lane widths and on-road bike lanes
2. Addition of concrete separator to function as “curb and gutter” for drainage
3. Addition of roundabouts – locations and configurations

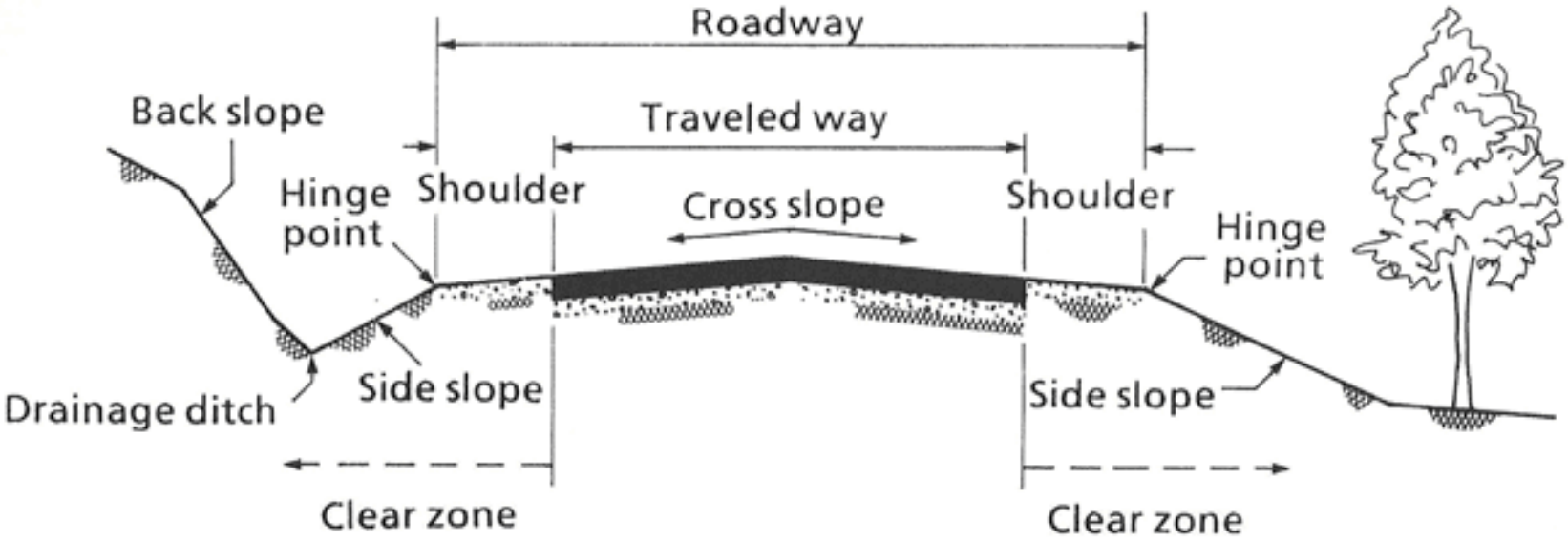
Existing Conditions and Design Challenges

Current “Rural” Section



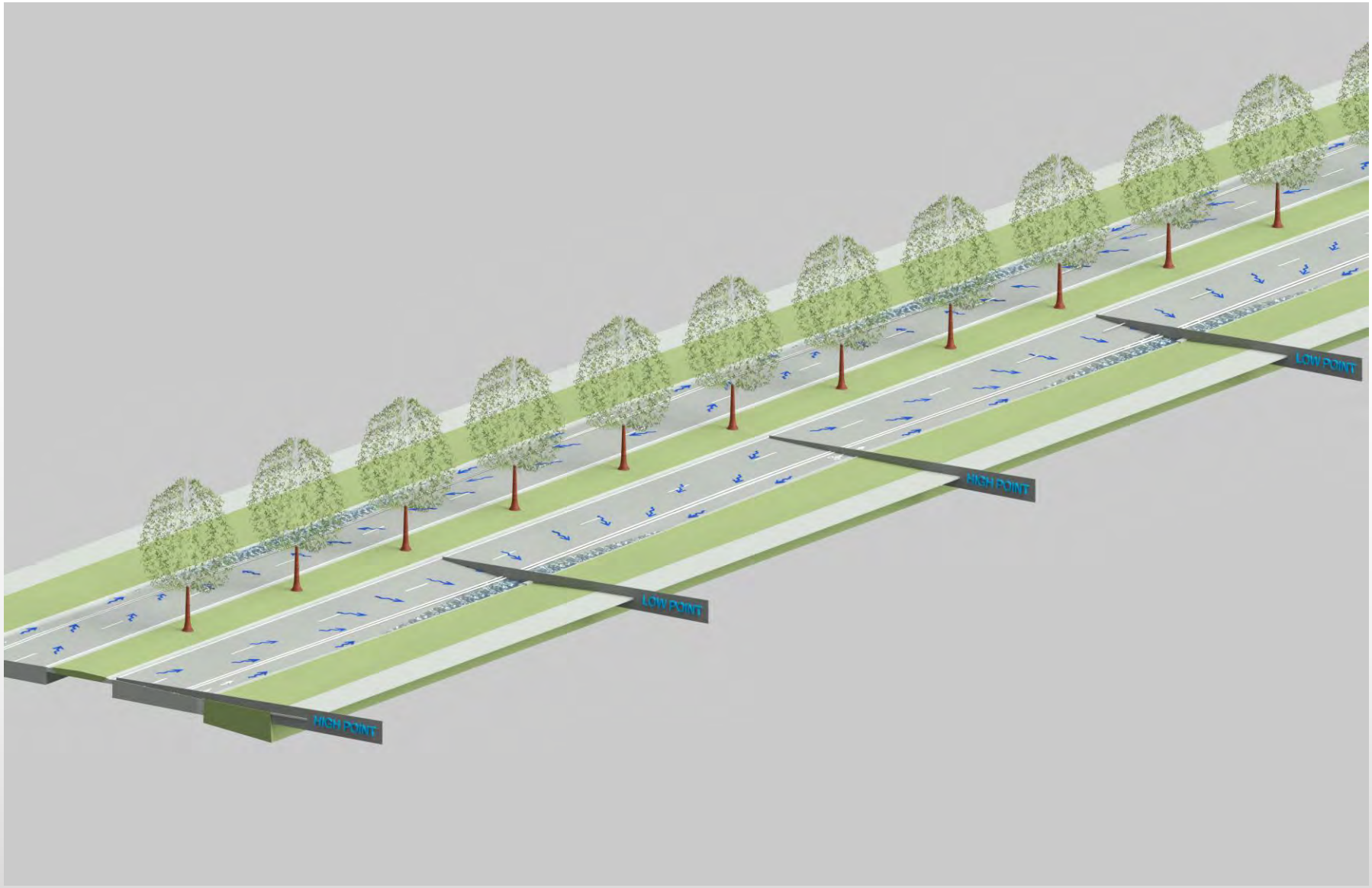


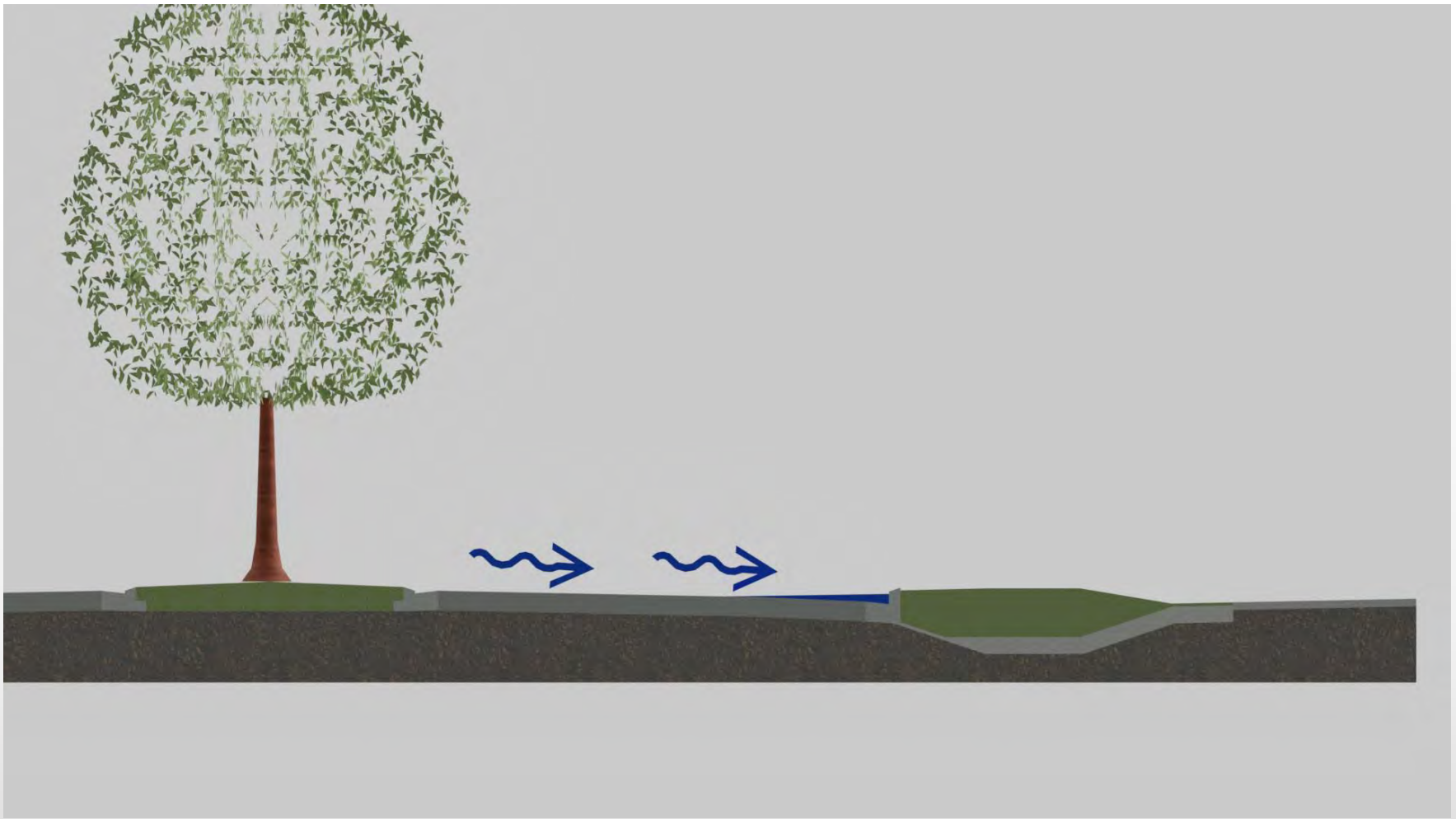
Clear zone illustration



Hinge Point	Point where the slope rate changes.
Clear Zone	A traversable area that starts at the edge of the traffic lane, includes the shoulder, and extends laterally a sufficient distance to allow a driver to stop or return to the road before encountering a hazard or overturning

Typical “Urban” Section

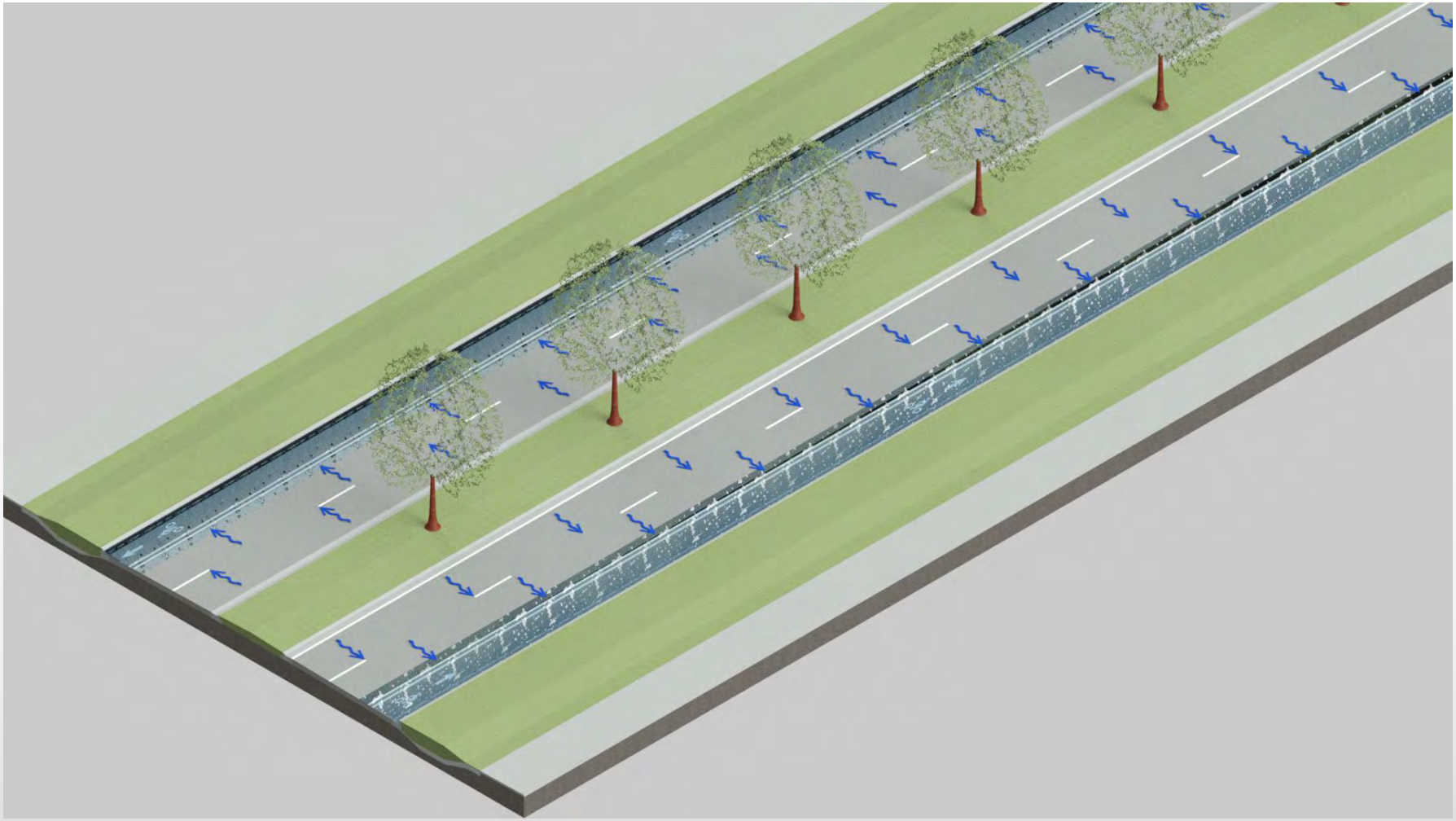




Can we just add Type F curb and gutter to the existing roadway?

- No. Survey has shown existing Estero Parkway to be very flat 0% to 0.1% (FDOT min. 0.3%).
- Would produce ponding at edge of pavement.

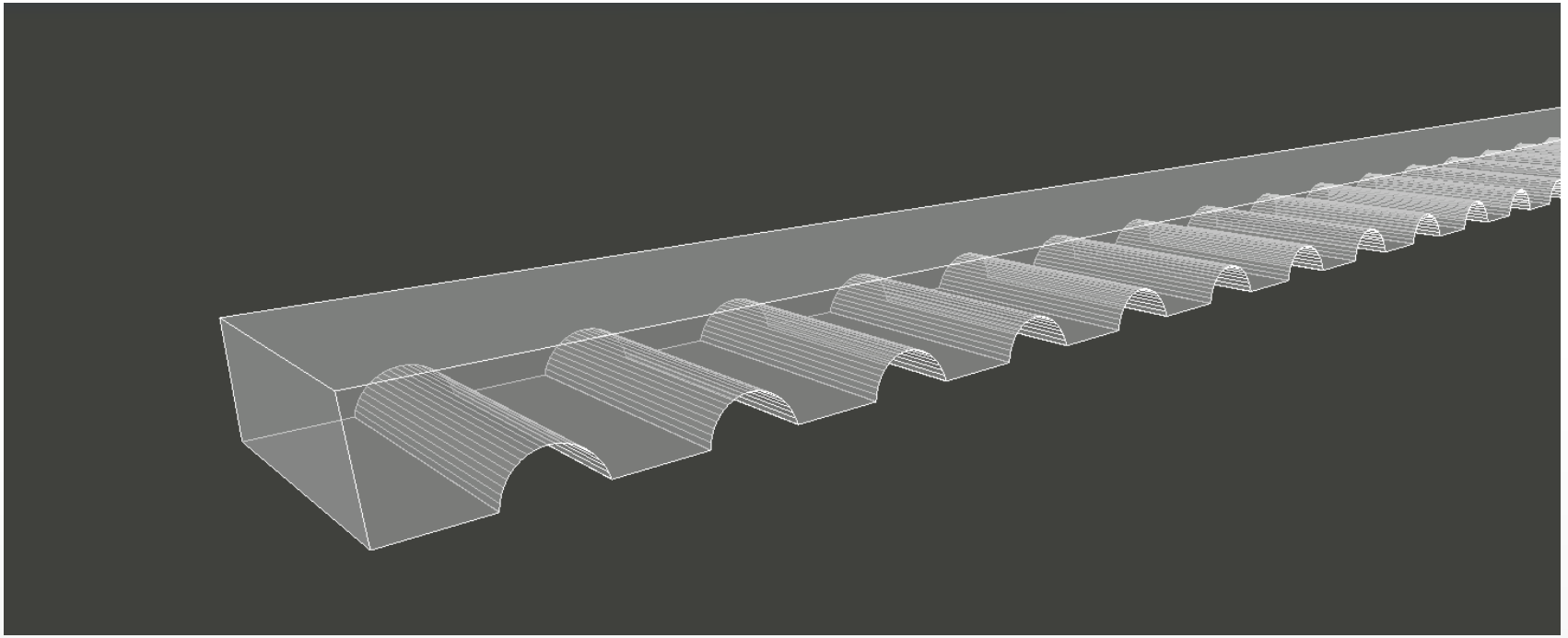
Current “Rural” Section with Standard Curb and Gutter

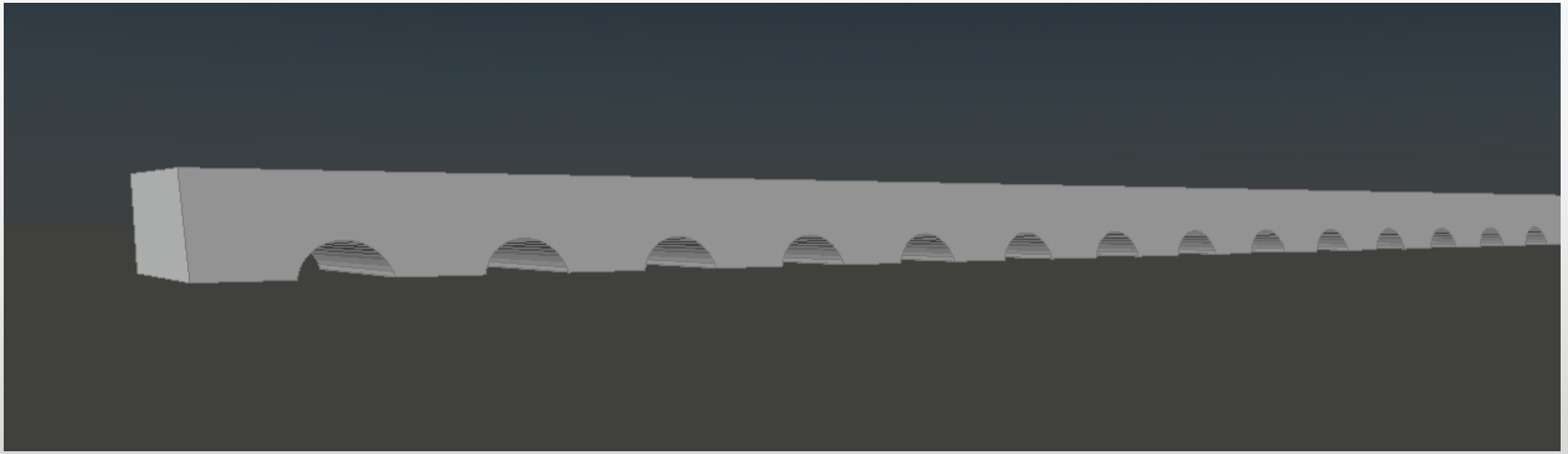


Other options to reduce the clear zone:

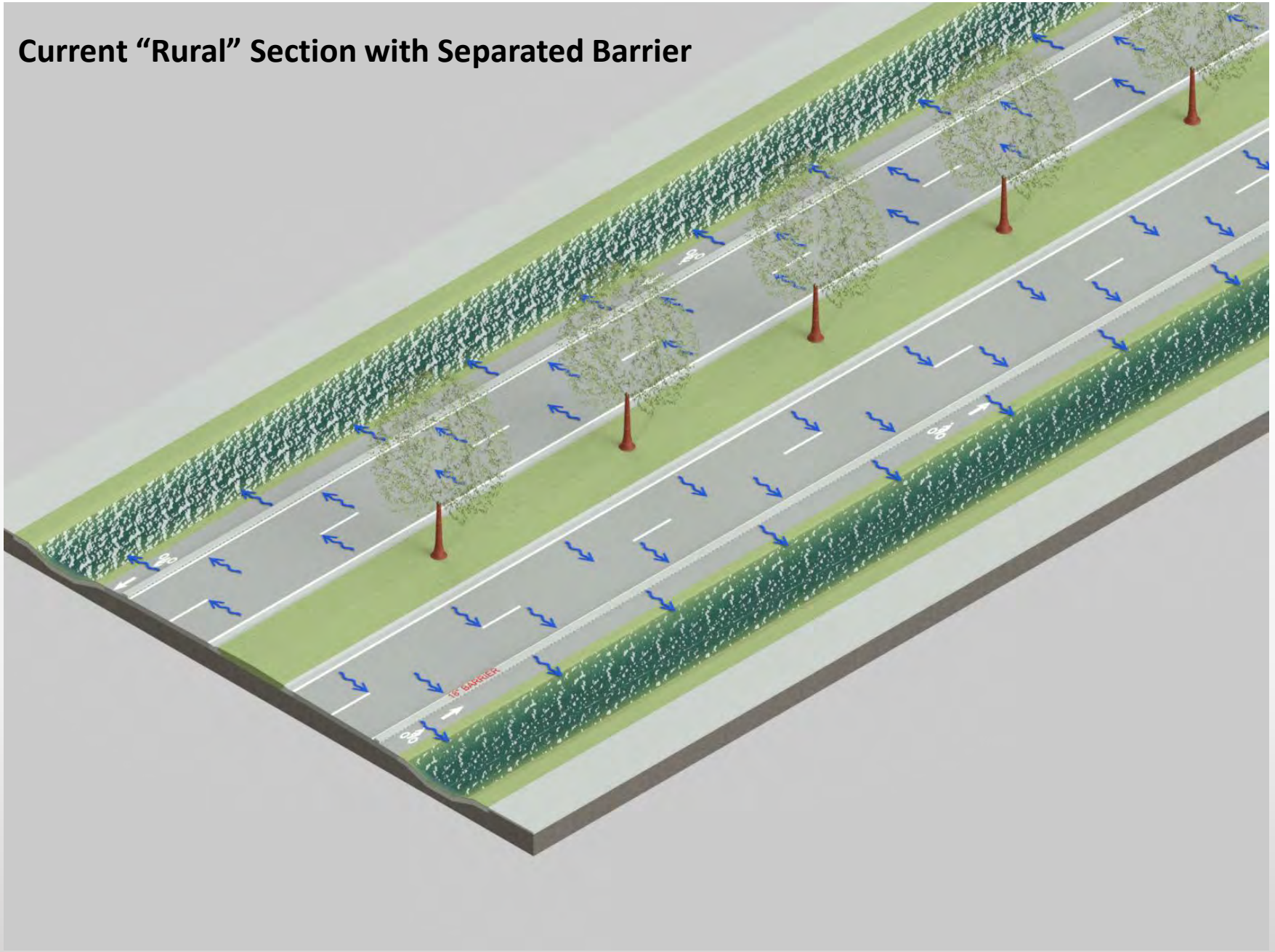
1. Add slotted drains to curb and gutter. Cost $150 to $200/lf. $2.5M to $3.4M for project.

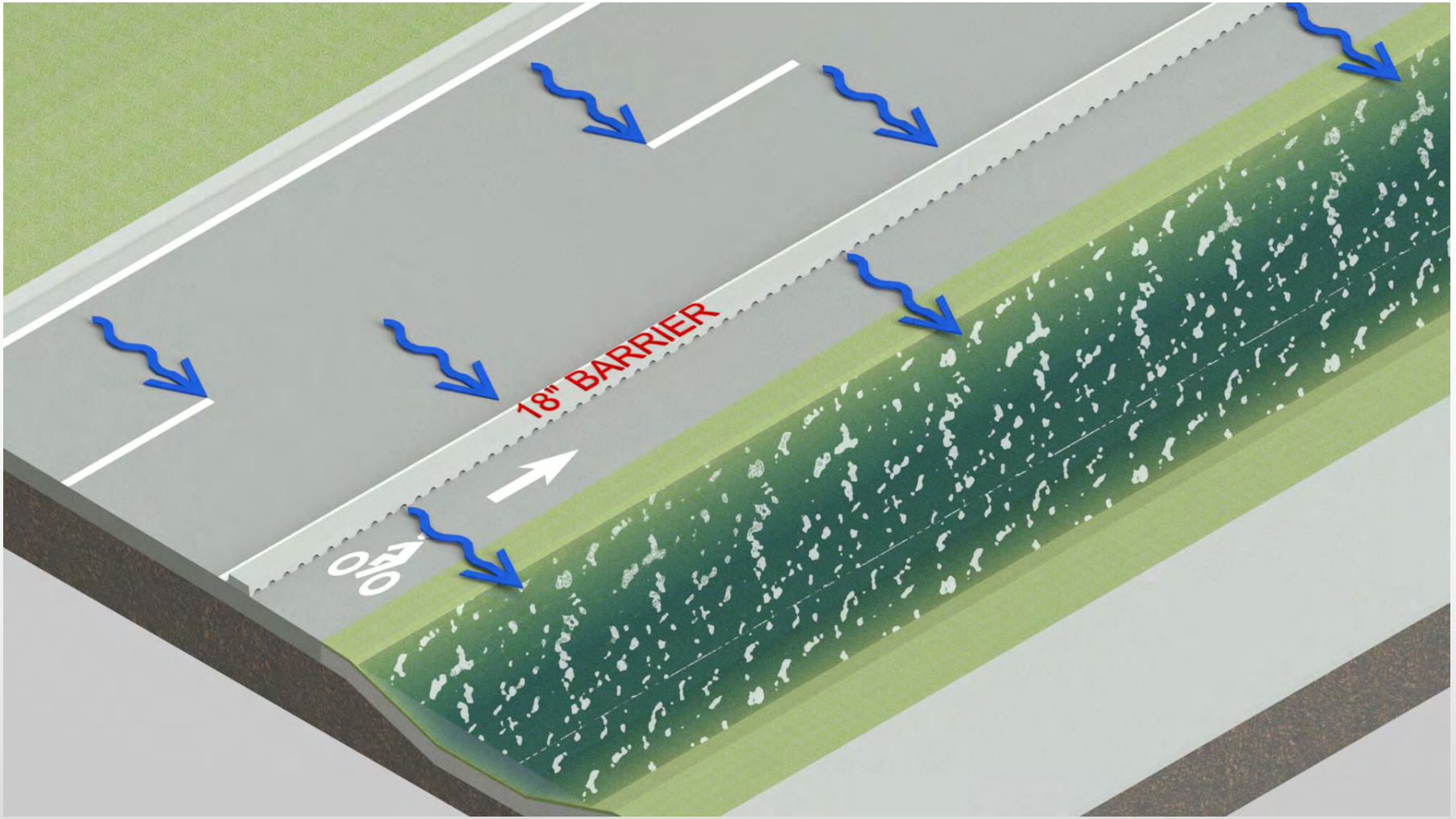
2. Alternate concrete separator design.
   - Build arches into separator to allow flow-through drainage.



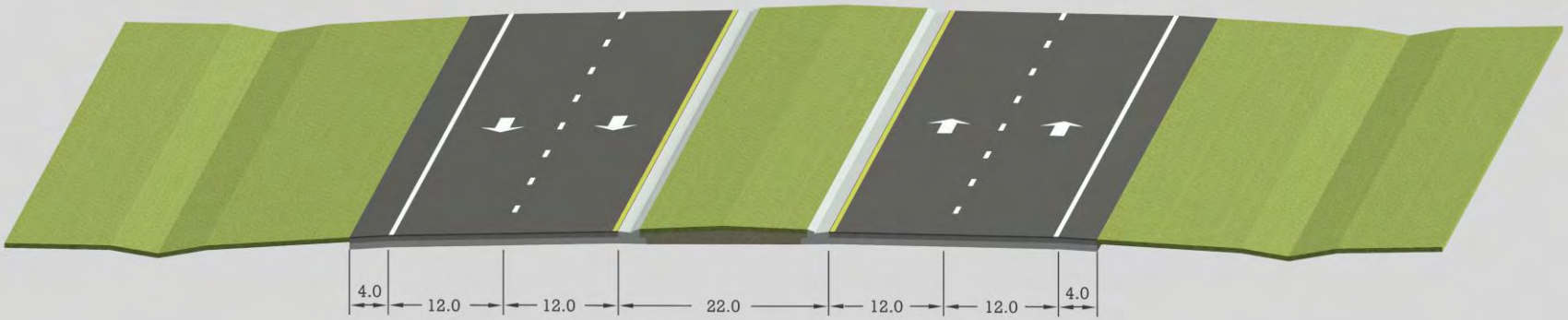


Current “Rural” Section with Separated Barrier




18" BARRIER
2%

Roadway Design Options



Median Options

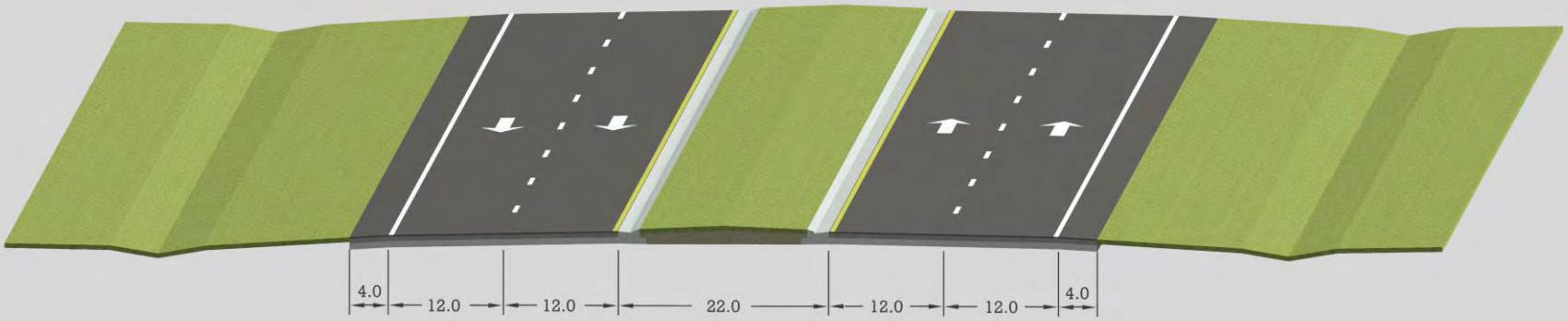
1. Add bike lanes to median:
   - While it physically separates bicyclists, it would cause several problems:
     - Conflict with left-turning vehicles.
     - Difficult to get into center lane.
     - Eliminate median plantings.

2. Reduce median width to provide additional space for bike lanes:
   - Only gain 3’± on each side.
   - Remove/replace existing curb and gutter at a cost of $500,000.
   - And, reduce median landscaping.

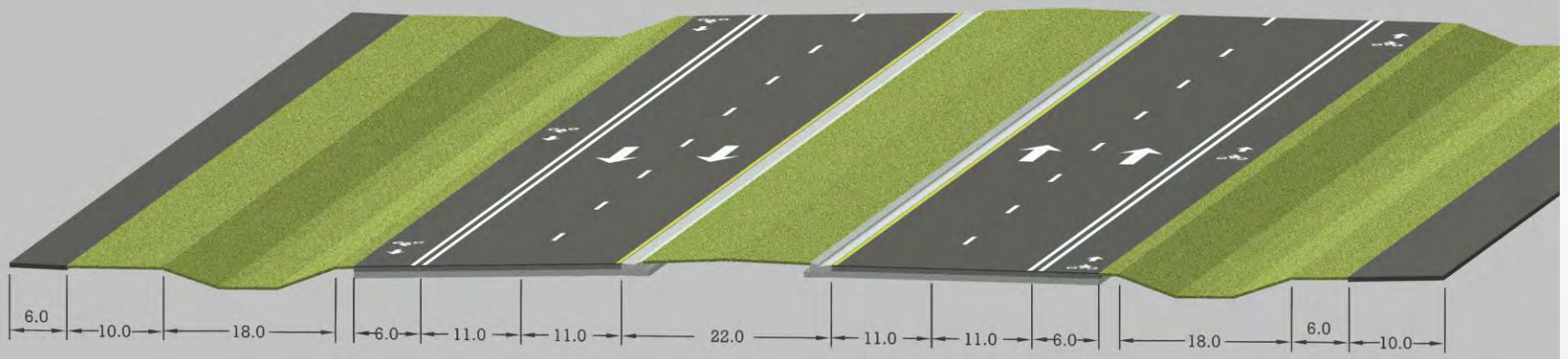
Conclusion: keep existing median.

Keep Existing Footprint

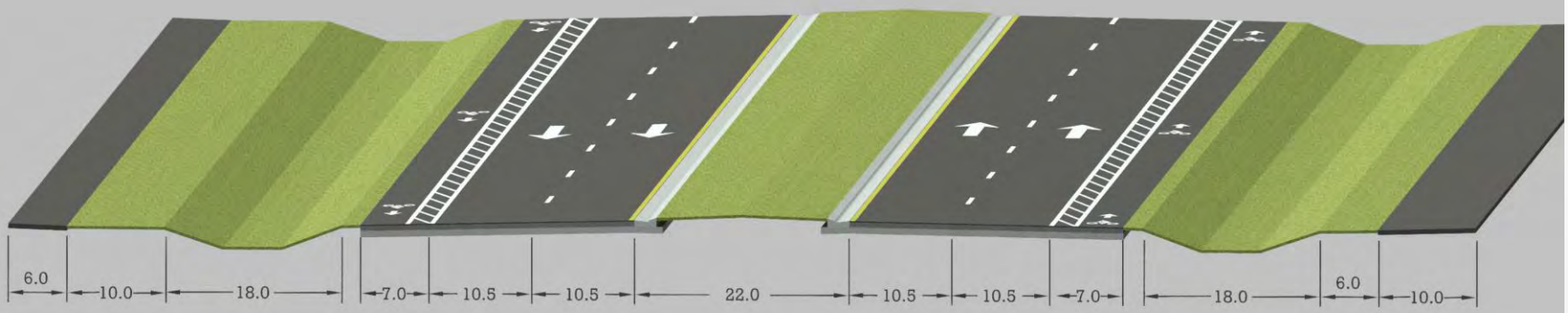
- 2 – 12’ travel lanes
- 4’ paved shoulder
- 28’ width total



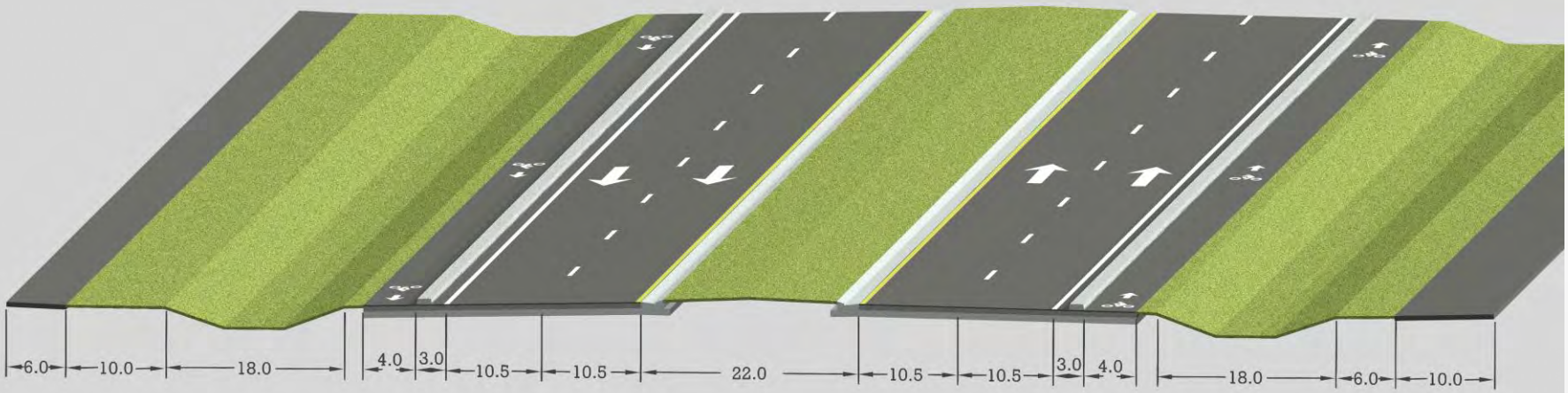
- 2 – 11’ lanes
- 6’ buffered bike lane



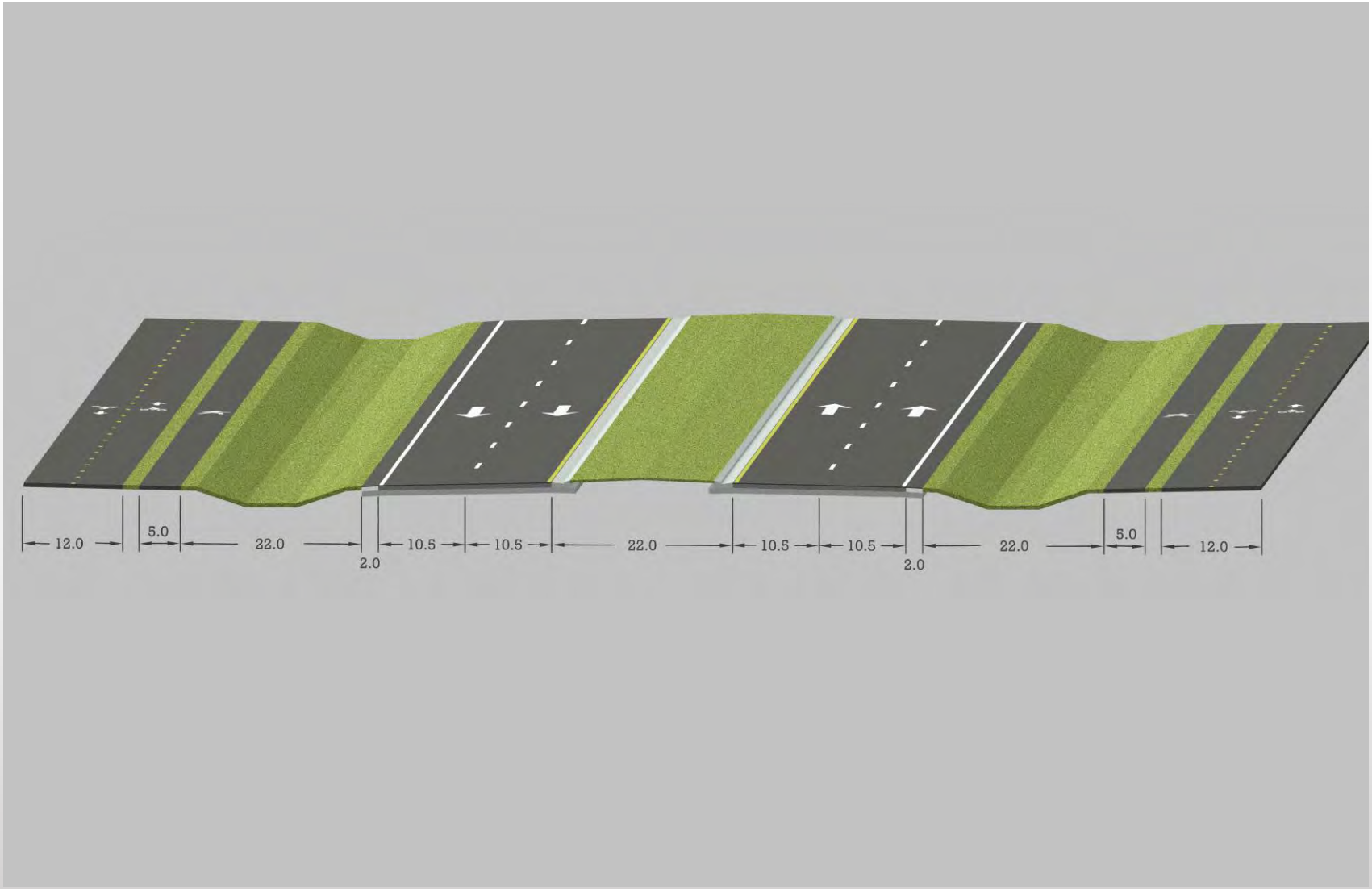
- 2 – 10.5’ lanes
- 7’ buffered bike lane



- 2 – 10.5’ lanes
- Barrier separated bike lane



Remove Pavement and Re-Purpose it Within the Right of Way?



Road Concepts with Roundabouts

Objectives:

- Calm traffic:
  - Drivers along Estero Parkway
  - Drivers using the side streets
  - Pedestrians walking along and, most importantly, crossing the Estero Parkway
  - Bicyclists traveling along and crossing Estero Parkway

- Create a more pedestrian- and bicycle-friendly street

- Beautify Estero Parkway

- Best and most method is by adding roundabouts. The question is, how many and how big?

Following are several options that can be easily modified.

2-Lane Option

Intersection	Level-of-Service	Average Delay (sec)	95th Percentile Queue (ft.)	Volume/ Capacity ratio
US-41	E	72.0	3,133 N	1.109
US-41 - Traffic Report Analysis Estero Road Results	D*	41.3	1,553 N**	1.03
Osprey Cove Boulevard	B	10.7	221 W	0.719
Caladesi Drive	B	10.7	221 W	0.719
Cascades Isle Blvd	A	8.6	124 W	0.598
Cypress View Drive	B	10.2	154 W	0.647
Three Oaks Parkway	A	9.1	119 S	0.529
Ben Hill Griffin Parkway	B	15.8	426 N	0.785

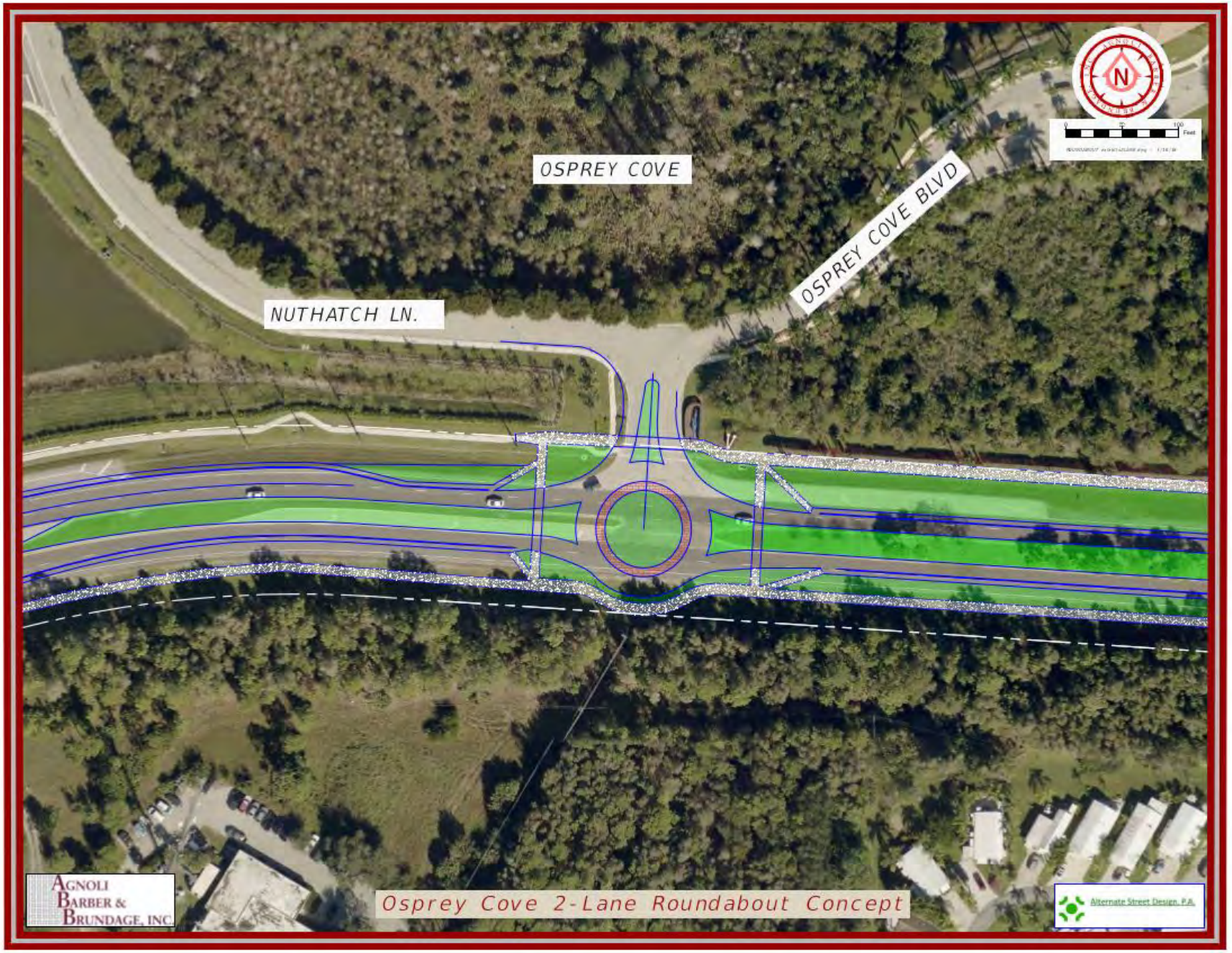
4-Lane Option

Intersection	Level-of-Service	Average Delay (sec)	95th Percentile Queue (ft.)	Volume/ Capacity ratio
US-41	E*	59.2	2,804	1.018
Osprey Cove Boulevard	A	4.7	49 W	0.311
Caladesi Drive	A	4.7	49 W	0.311
Cascades	A	5.5	62 W	0.381
Cypress View Drive	A	8.6	129 W	0.399
Three Oaks Parkway	A	9.1	119 S	0.529
Ben Hill Griffin Parkway	B	15.8	426 N	0.785

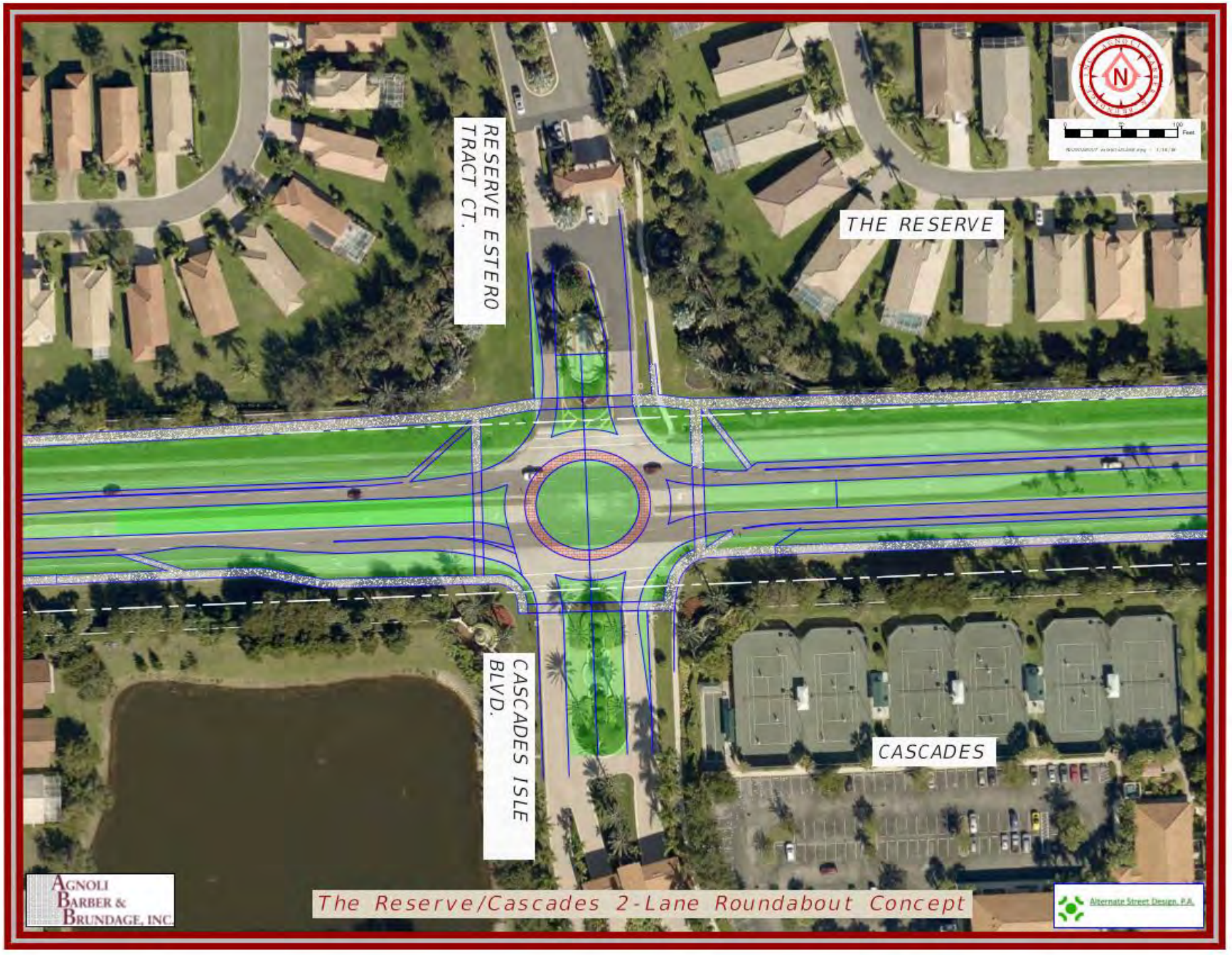
*When roundabouts are over-designed, they can cause, and we often see, an increase in crashes due to poor driver behavior.

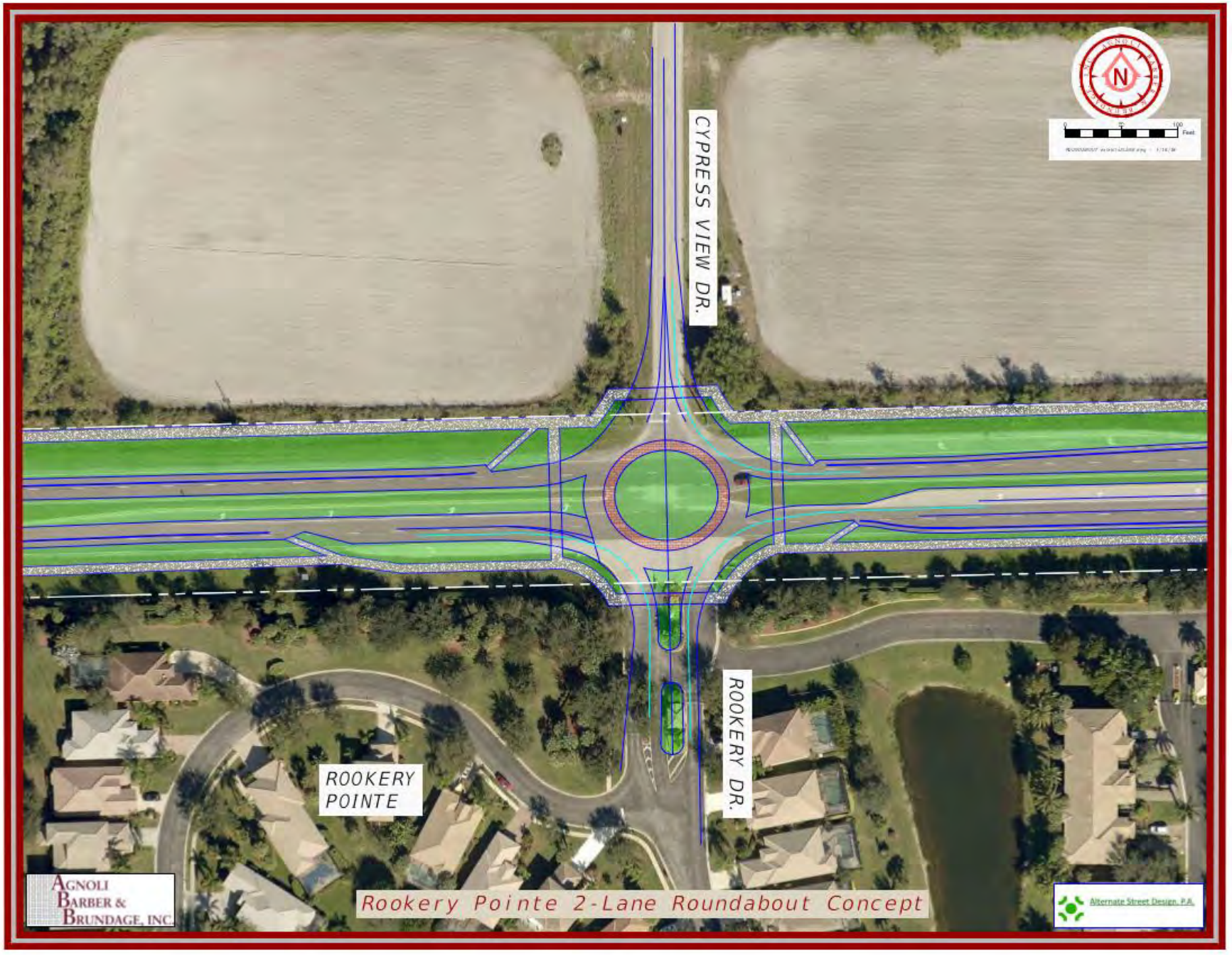
Two-Lane Designs

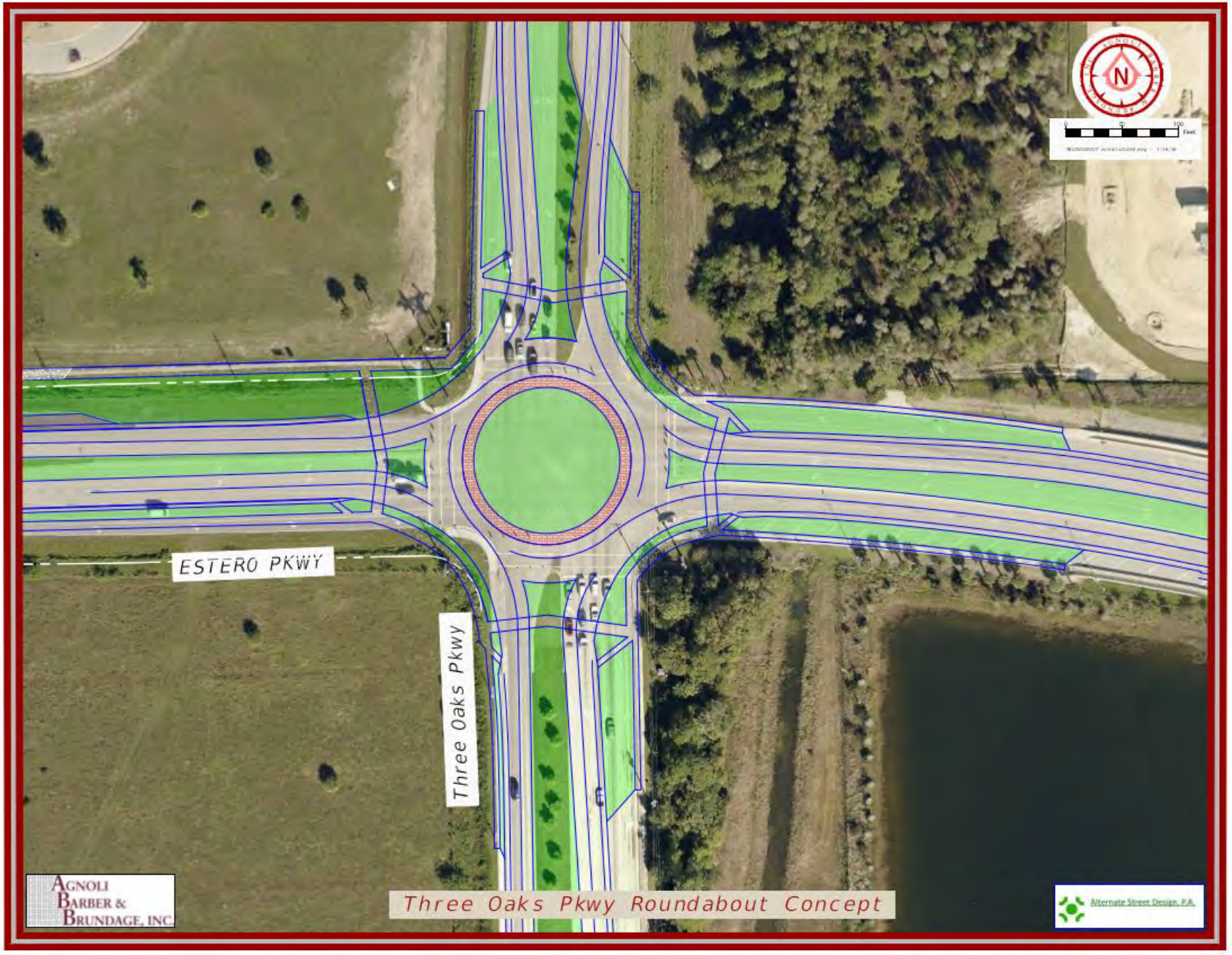

N
0
750
1500
Feet
OSPREY COVE
OSPREY COVE BLVD
CALADESI DR
BELLE LAGO
THE RESERVE
RESERVE ESTERO TRACT CT
CASCADES ISLE BLVD
CASCADES
CYPRESS VIEW DR
ROOKERY DR
ROOKERY POINTE
TUSCANY PARK DR
THREE OAKS PKWY
I-75
BEN HILL GRIFFIN PKWY
US 41
AGNOLI BARBER & BRUNDAGE, INC
2-Lane Roundabout Concept
Alternate Street Design, P.A.

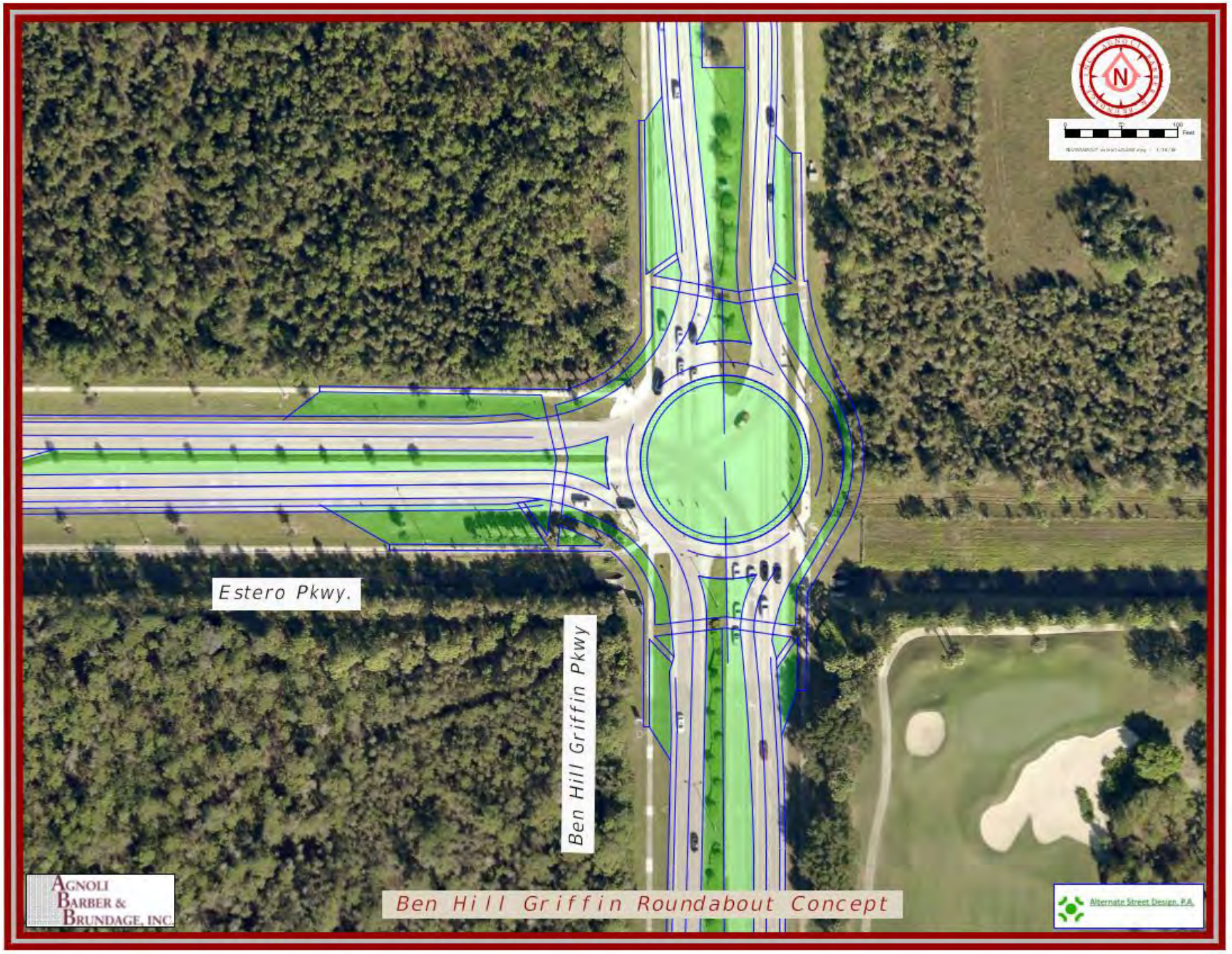

OSPREY COVE
OSPREY COVE BLVD
NUTHATCH LN.
N
0
50
100
Feet
AGNOLI BARBER & BRUNDAGE, INC.
Osprey Cove 2-Lane Roundabout Concept
Alternate Street Design, P.A.


CALADESI DR.
BELLE LAGO
CASCADES
AGNOLI BARBER & BRUNDAGE, INC
Belle Lago 2-Lane Roundabout Concept
Alternate Street Design, P.A.

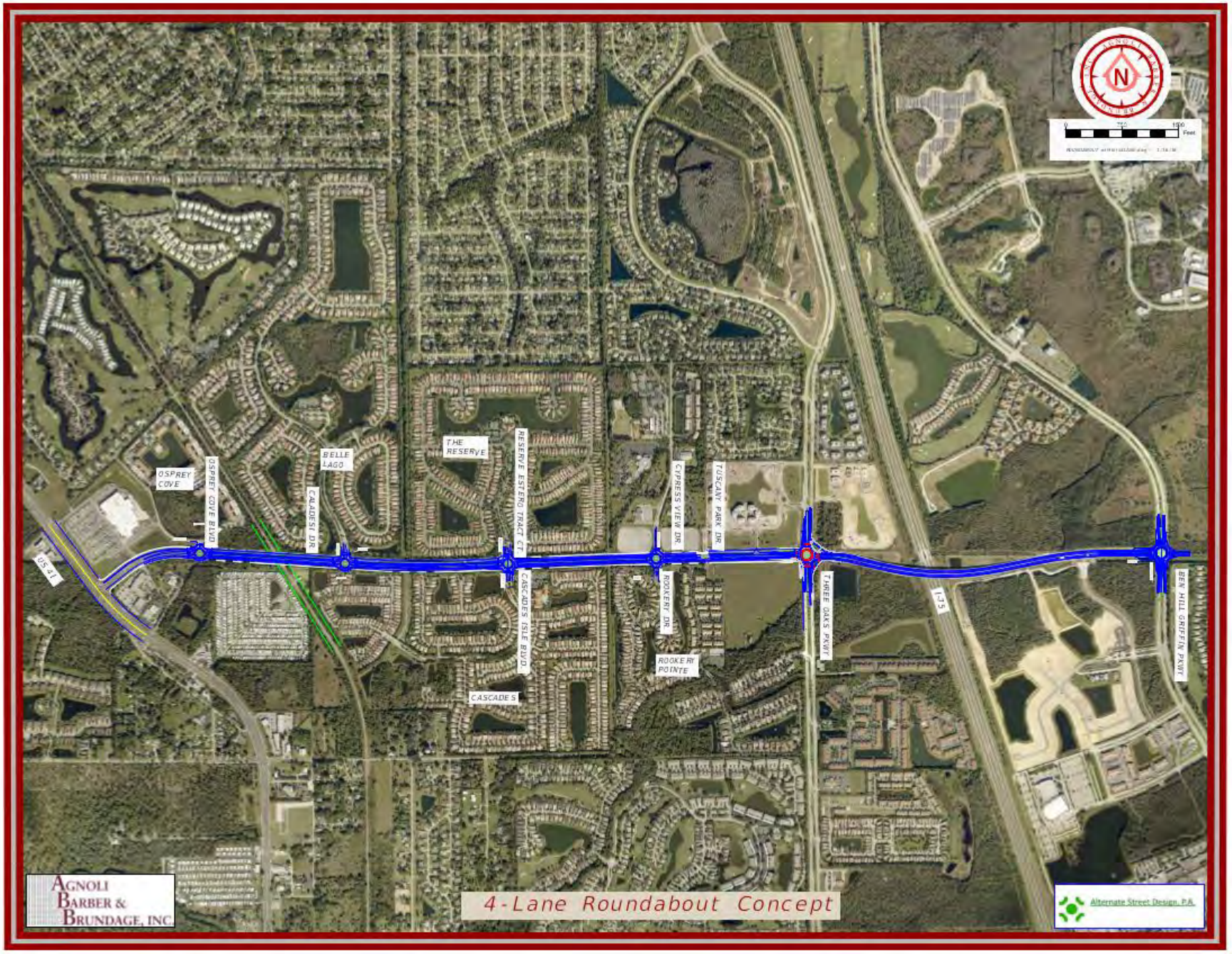

RESERVE ESTERO TRACT CT.
THE RESERVE
CASCADES ISLE BLVD.
CASCADES
N
0
50
100
Feet
AGNOLI BARBER & BRUNDAGE, INC.
The Reserve/Cascades 2-Lane Roundabout Concept
Alternate Street Design, P.A.


CYPRESS VIEW DR.
ROOKERY POINTE
ROOKERY DR.
Rookery Pointe 2-Lane Roundabout Concept
AGNOLI BARBER & BRUNDAGE, INC.
Alternate Street Design, P.A.


ESTERO PKWY
Three Oaks Pkwy
Three Oaks Pkwy Roundabout Concept
AGNOLI BARBER & BRUNDAGE, INC.
Alternate Street Design, P.A.

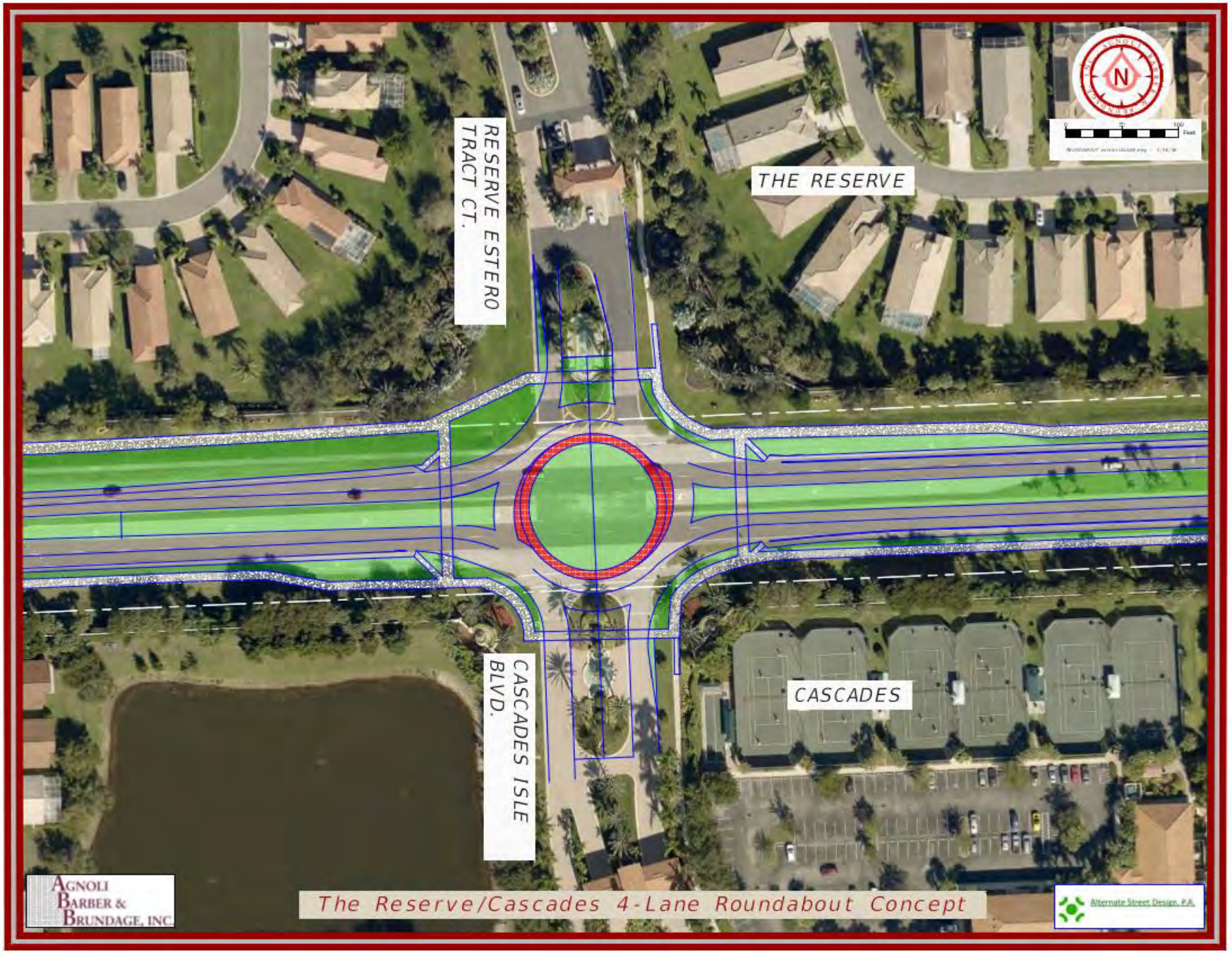

N
0
50
100
Feet
Estero Pkwy.
Ben Hill Griffin Pkwy
Ben Hill Griffin Roundabout Concept
AGNOLI
BARBER &
BRUNDAGE, INC.
Alternate Street Design, P.A.

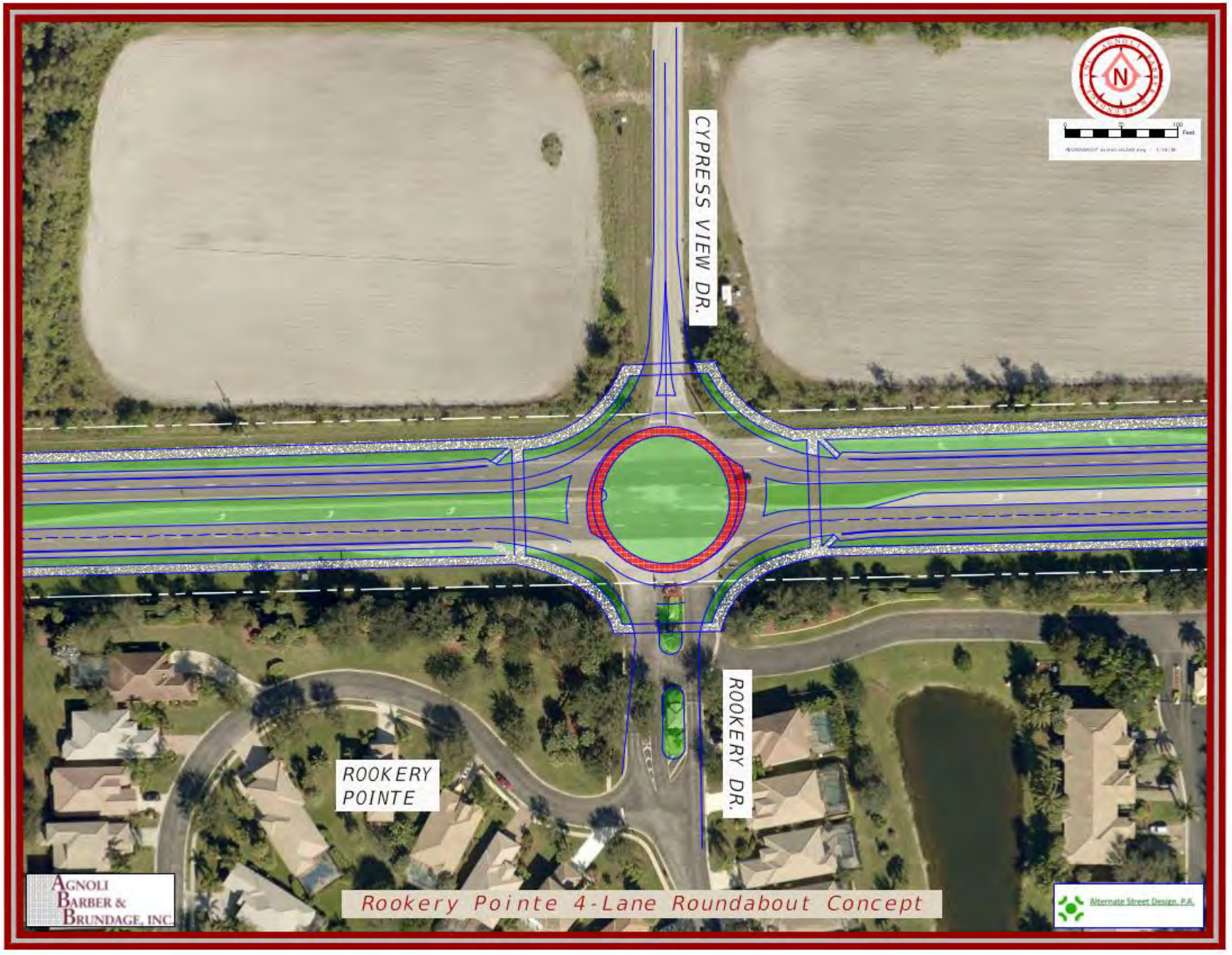
Four-Lane Designs

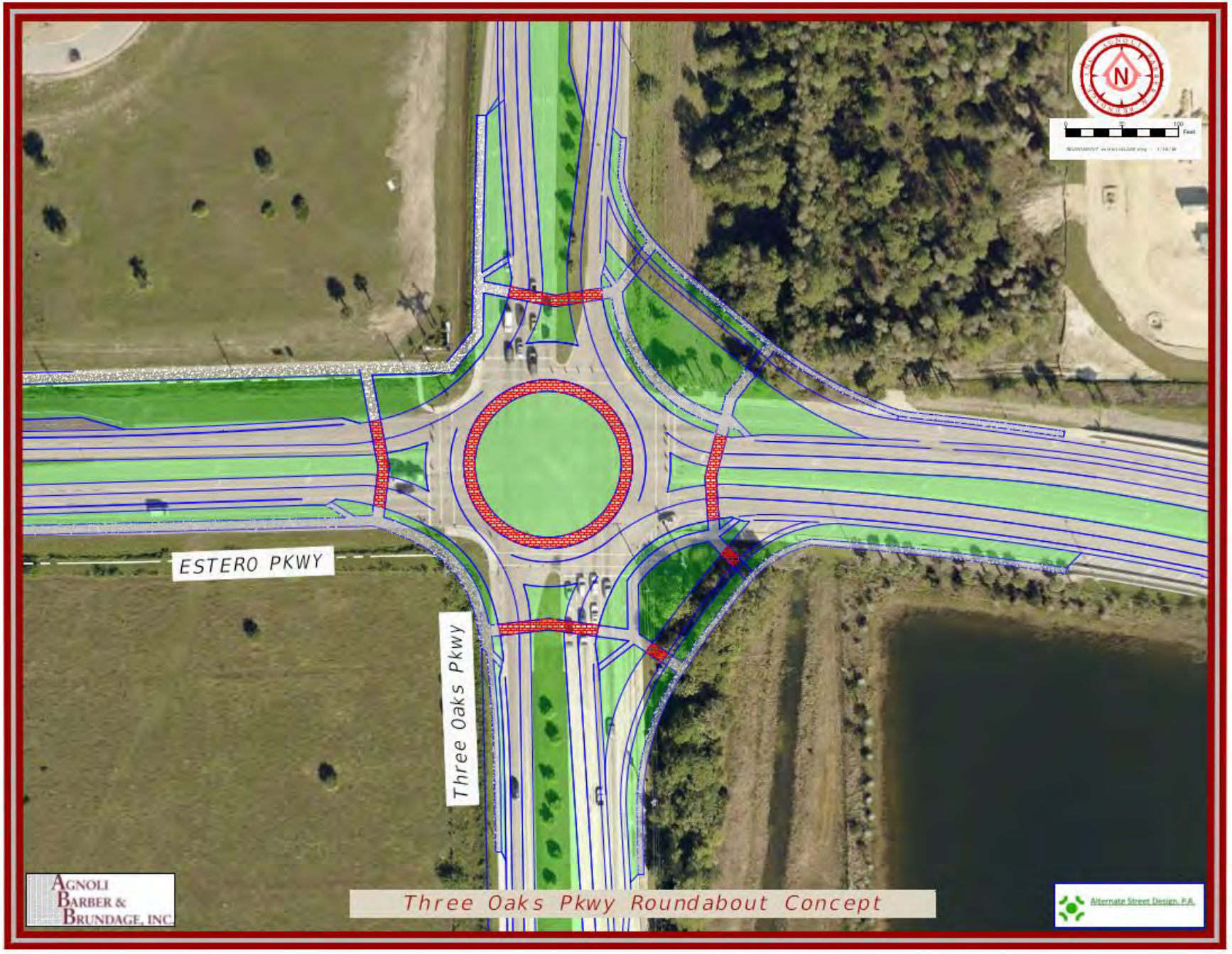

OSPREY COVE
OSPREY COVE BLVD
BELLE LAGO
CALADESI DR
THE RESERVE
RESERVE ESTERO TRACT CT
CYPRESS VIEW DR
TUSCANY PARK DR
US 41
CASCADES ISLE BLVD
ROOKERY DR
ROOKERY POINTE
CASCADES
THREE OAKS PKWY
I-75
BEN HILL GRIFFIN PKWY
N
Feet
AGNOLI BARBER & BRUNDAGE, INC
4-Lane Roundabout Concept
Alternate Street Design, P.A.

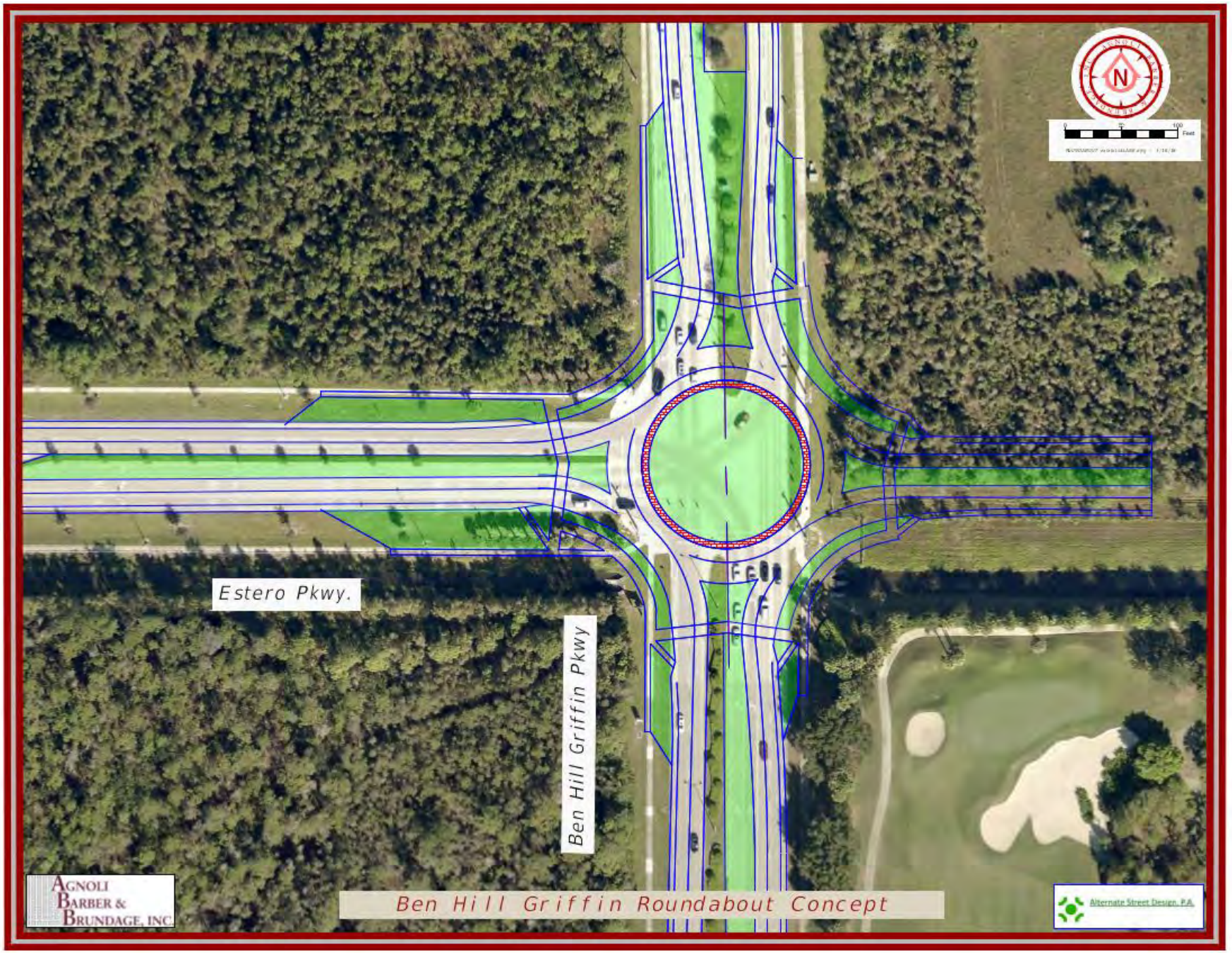

OSPREY COVE
OSPREY COVE BLVD
NUTHATCH LN.
AGNOLI BARBER & BRUNDAGE, INC.
Osprey Cove 4-Lane Roundabout Concept
Alternate Street Design, P.A.


CALADESI DR.
BELLE LAGO
CASCADES
Belle Lago 4-Lane Roundabout Concept
AGNOLI BARBER & BRUNDAGE, INC.
Alternate Street Design, P.A.


RESERVE ESTERO TRACT CT.
THE RESERVE
CASCADES ISLE BLVD.
CASCADES
AGNOLI BARBER & BRUNDAGE, INC.
The Reserve/Cascades 4-Lane Roundabout Concept
Alternate Street Design, P.A.

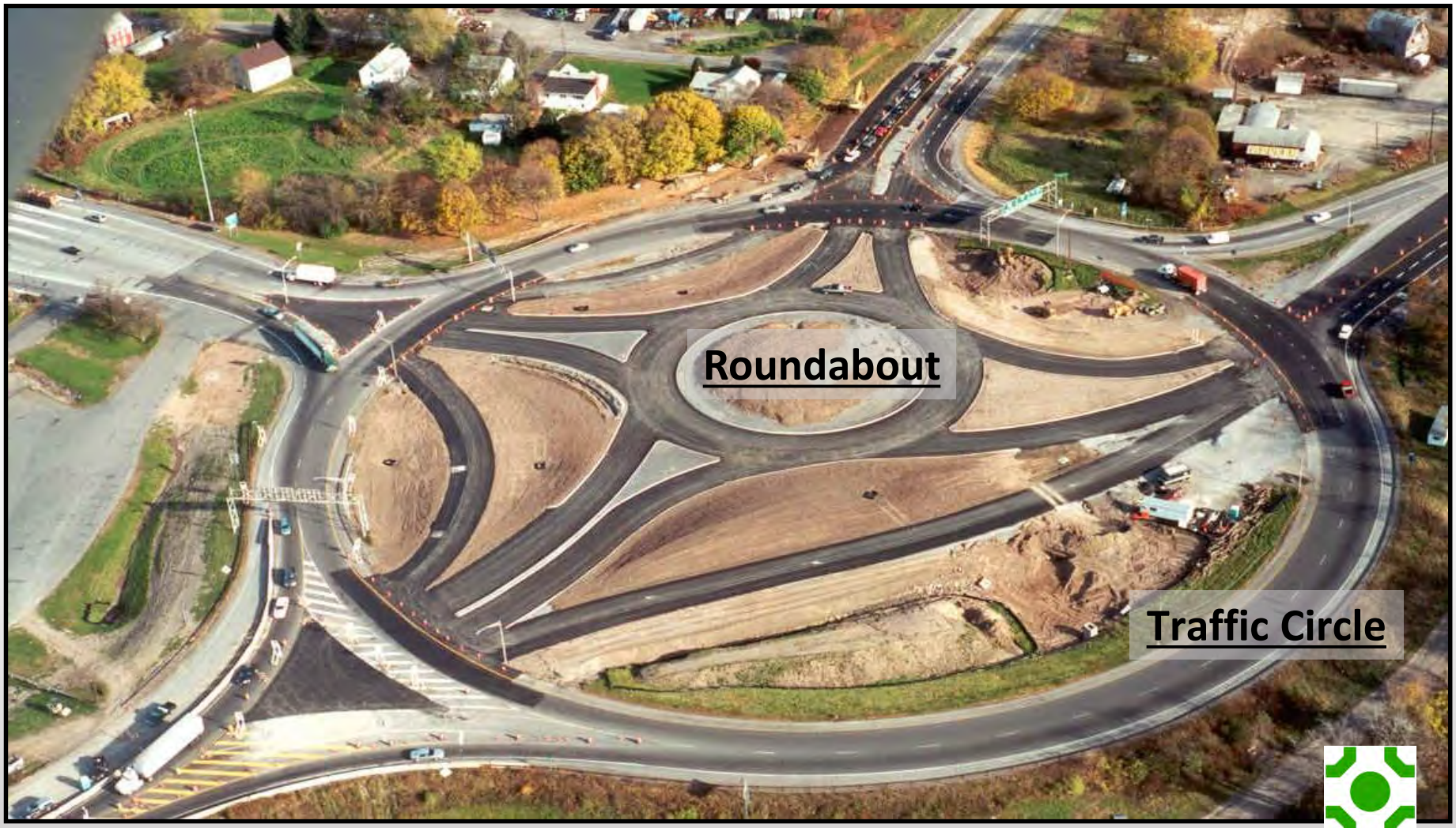

CYPRESS VIEW DR.
ROOKERY DR.
ROOKERY POINTE
N
0
50
100
Feet
AGNOLI BARBER & BRUNDAGE, INC.
Rookery Pointe 4-Lane Roundabout Concept
Alternate Street Design, P.A.

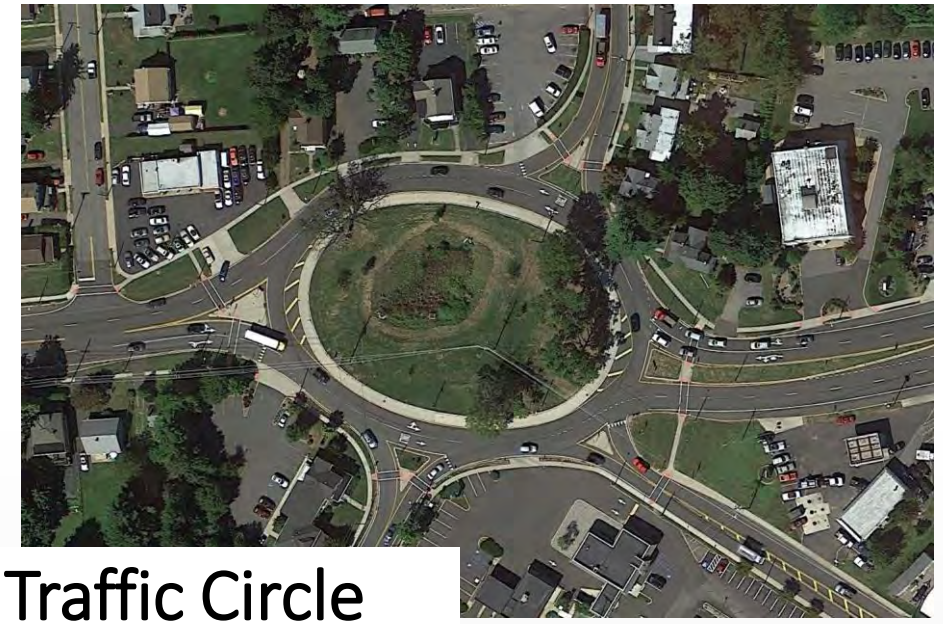

ESTERO PKWY
Three Oaks Pkwy
Three Oaks Pkwy Roundabout Concept
AGNOLI BARBER & BRUNDAGE, INC.
Alternate Street Design, P.A.


Estero Pkwy.
Ben Hill Griffin Pkwy
Ben Hill Griffin Roundabout Concept
Agnoli Barber & Brundage, Inc
Alternate Street Design, P.A.

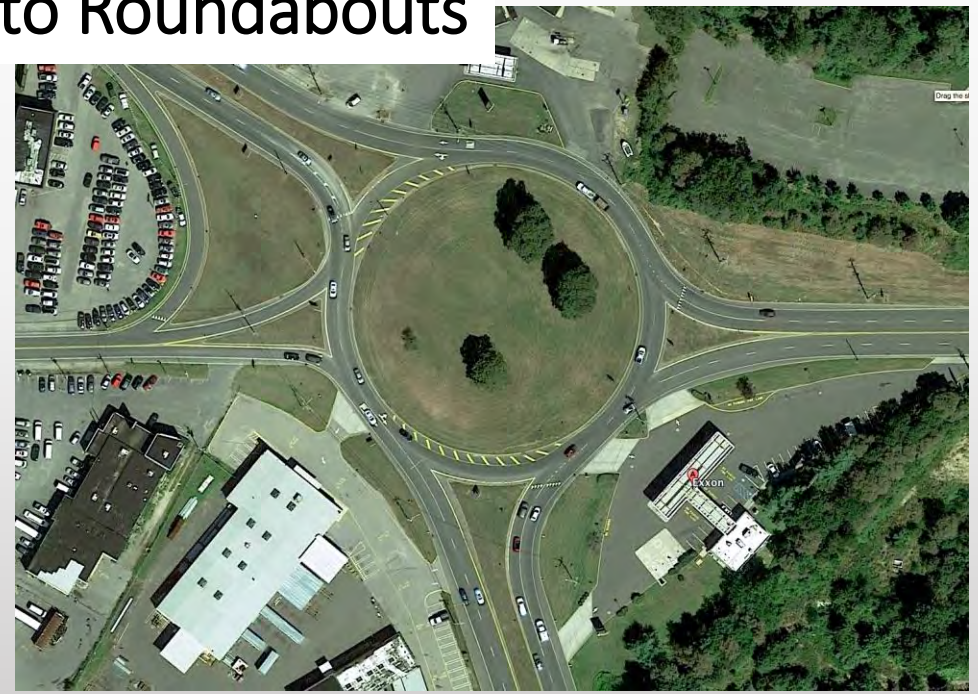
Roundabouts are not Traffic Circles

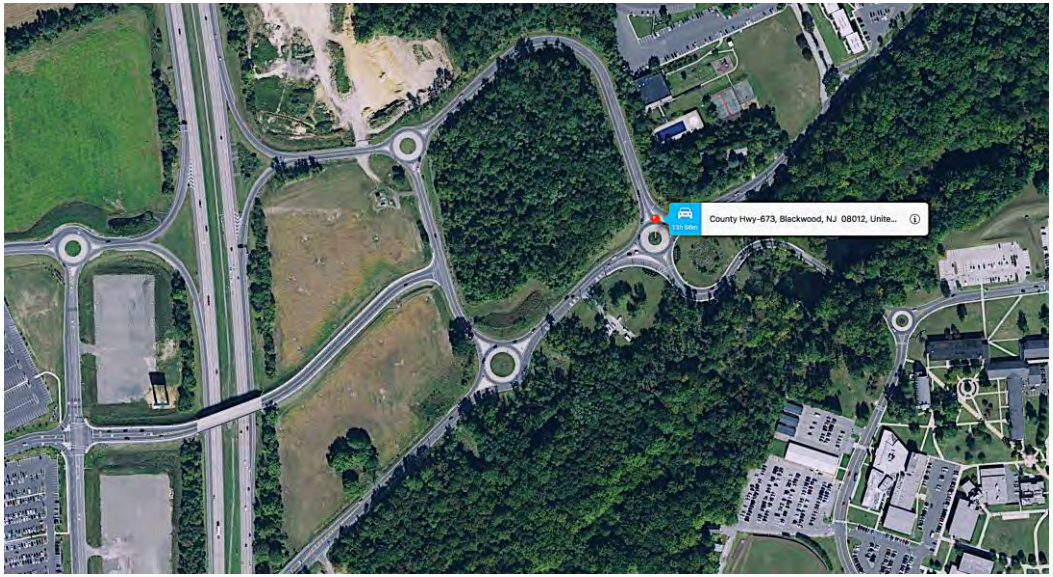
Princeton, NY



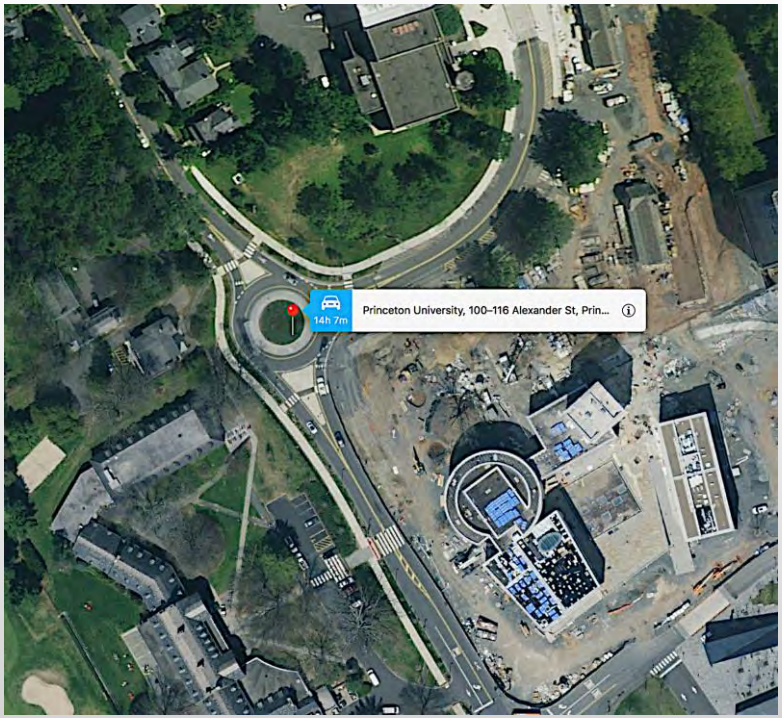


New Jersey Traffic Circle Conversions to Roundabouts





New Roundabouts in New Jersey



Safety of Roundabout v. Signals

- Signalized intersections comprise 25% of road network but have 20% of all crashes
- Red light cameras can reduce right-angle crashes but increase rear-end crashes
- Most dangerous and severe crashes are the right angle (run the red light) and the left turn
- Crashes typically increase when signals are installed – they are not a safety treatment - FHWA
- Roundabouts reduce crash severity and possible all crashes
- Two-lane roundabouts typically have more crashes than one-lane roundabouts – more conflict points
- Overdesign may cause additional crashes.

Road Capacity

Road capacity is determined by intersection with the least capacity, not the number of lanes

New concept - Fat intersections/Skinny Roads

Many lanes at signals are for storage

US-41 at 6 mile Cypress Parkway

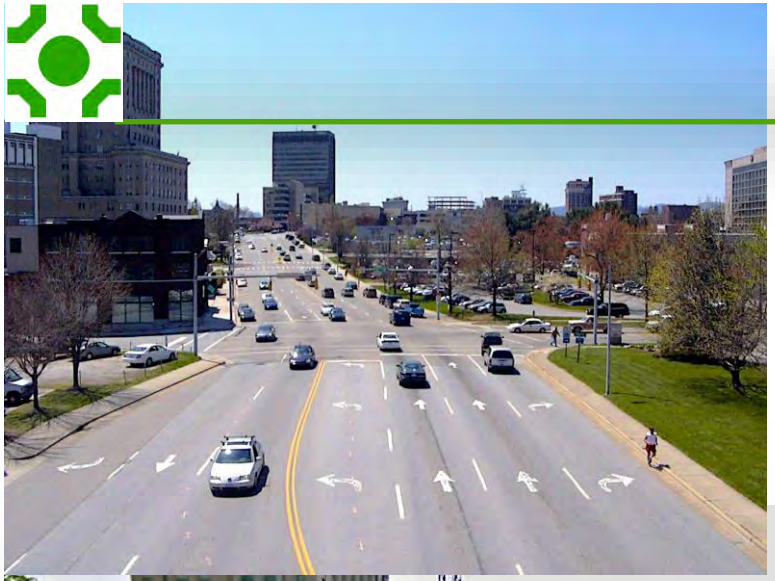
US 41 at Corkscrew Road

Prairie Star Parkway, Lenexa, KS

Cattlemen Road, Sarasota, FL

La Jolla Blvd, San Diego – 5 to 2 lanes, 21,000 vpd
Estero Parkway 18,8700

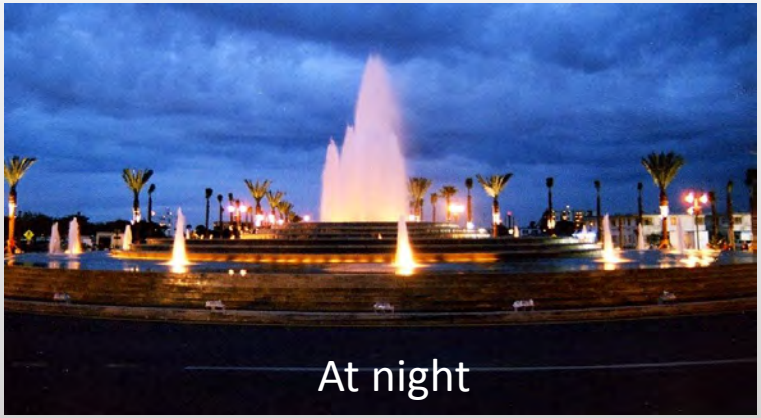
Before and After - College Street
Asheville, NC



Clearwater Beach

From 8 to 4 lanes, with 3 signalized intersections

To a 6 leg, 2-lane roundabout



58,400 vehicles, 6,000 pedestrians,
350 bicyclists in one day

Williams Road at Via Coconut

Questions/Comments

Village with a Vision…

the Village of ESTERO