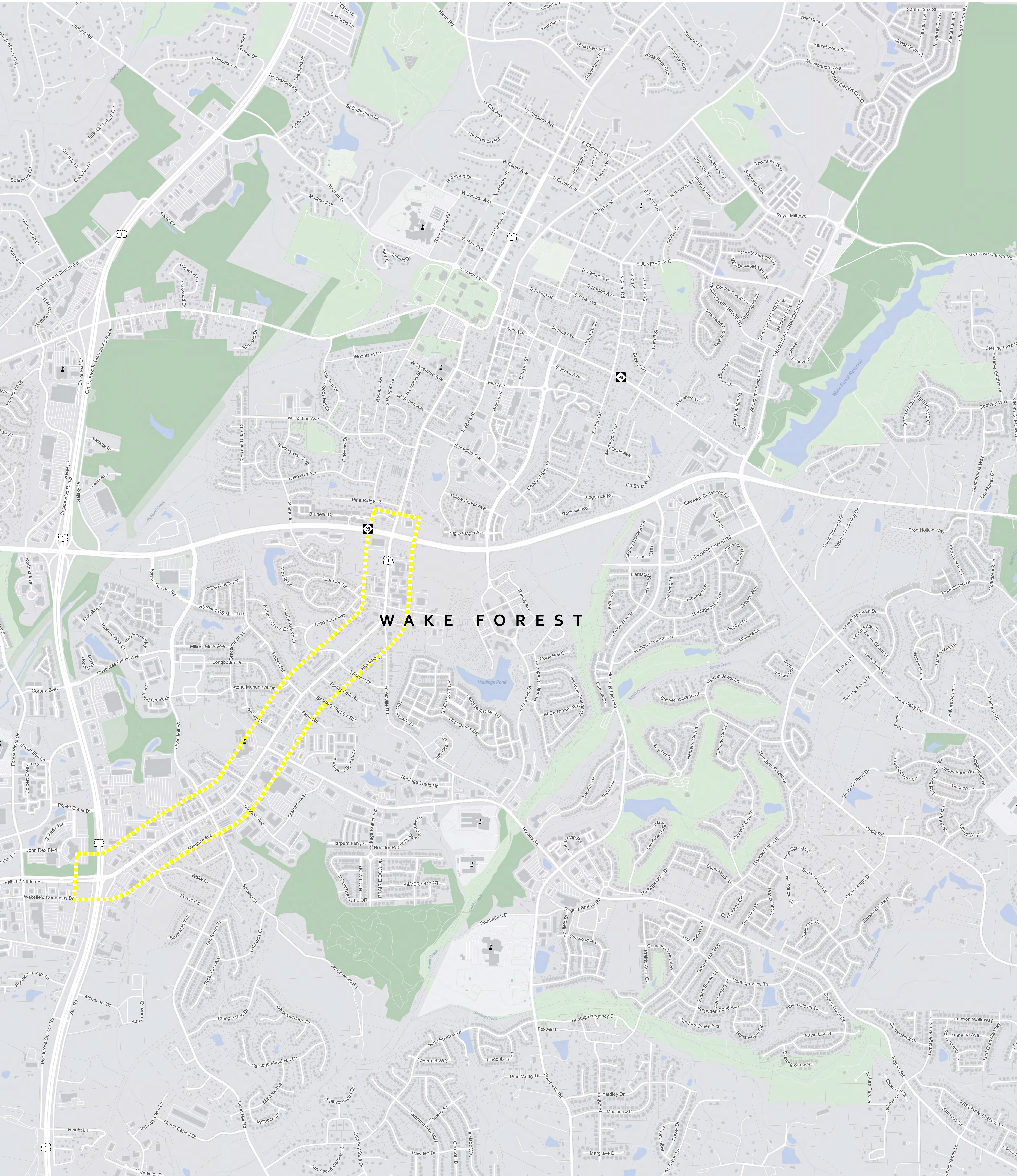


## LIVE

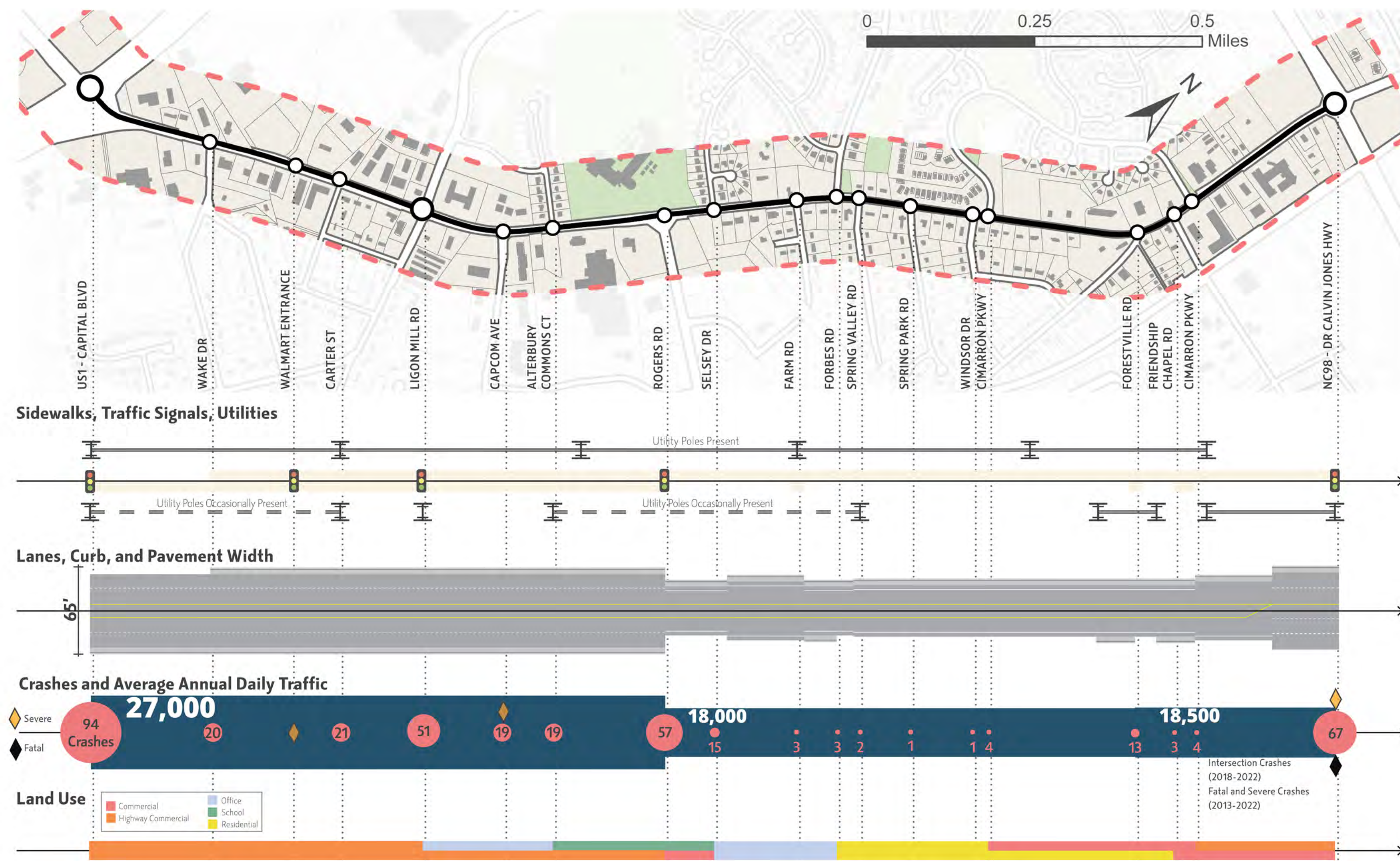
## WORK

## PLAY





## CORRIDOR PROFILE



## WHAT DOES SOUTH MAIN STREET LOOK LIKE?

### TRANSITIONAL:

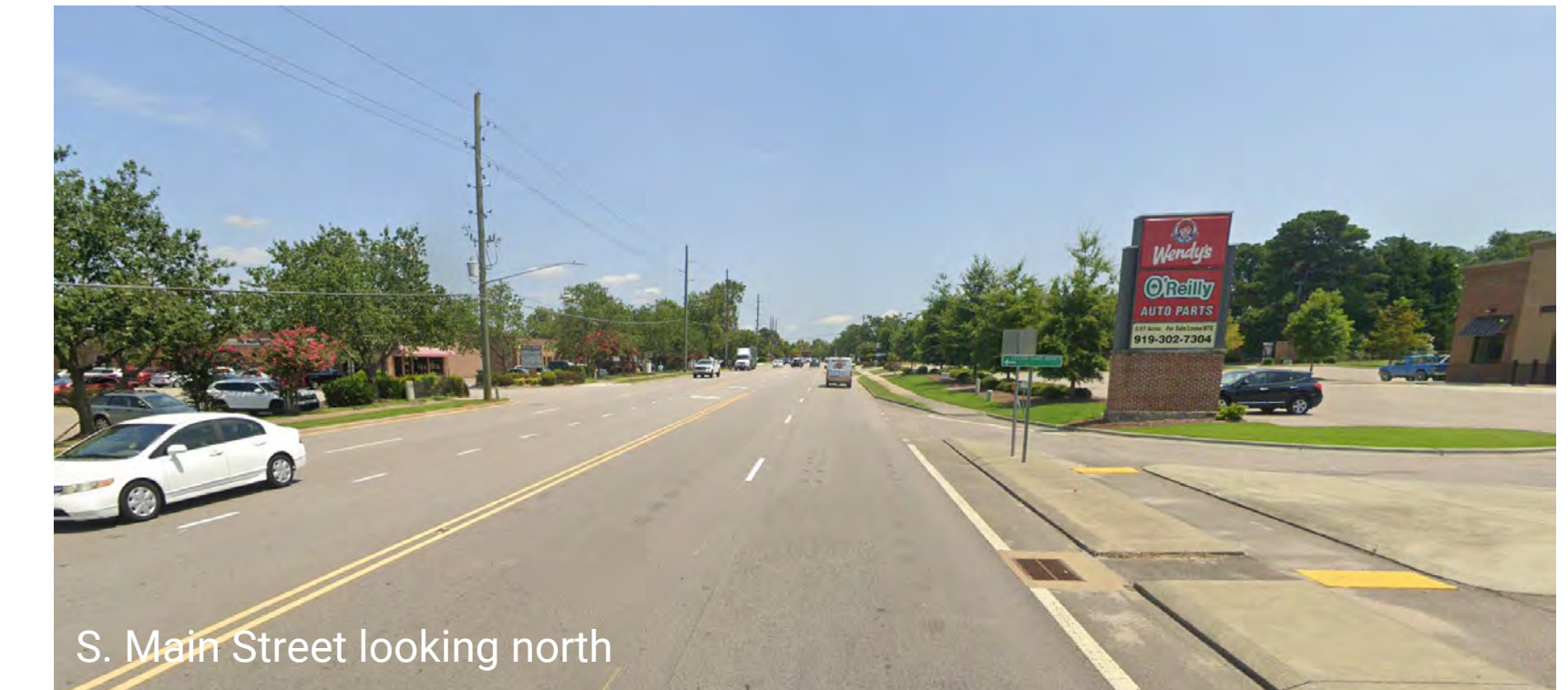
- **A gateway to Downtown Wake Forest:** the study area begins at US 1 / Capital Boulevard, a freeway and major regional connector, and ends near historic downtown.
- **S-Line:** the future S-Line high speed rail corridor passes near the study area, with future transit-oriented development planned near Forestville Road.

### HISTORIC:

- **Old Forestville:** several historic properties and districts are found near the Forestville Road intersection. These buildings are part of our community history.

### AUTO-ORIENTED:

- **Built for cars, not people:** development along South Main Street features large surface lots, big setbacks, and numerous driveways – all discourage biking & walking, and make driving more unsafe.



## HOW DOES THE CORRIDOR SERVE ALL USERS?

## KEY THEMES AND TAKEAWAYS:

### 1. DRIVERS, BICYCLISTS AND PEDESTRIANS HAVE VERY DIFFERENT EXPERIENCES ON SOUTH MAIN STREET.

- A **high crash rate** means drivers may feel unsafe while driving. Congestion is creeping up, but manageable.
- **Big sidewalk and bike lane gaps** and **high traffic volumes** prevent nearly all users from biking or walking.

### 2. SAFETY -- FOR ALL USERS OF SOUTH MAIN STREET -- IS A PARAMOUNT CONCERN.

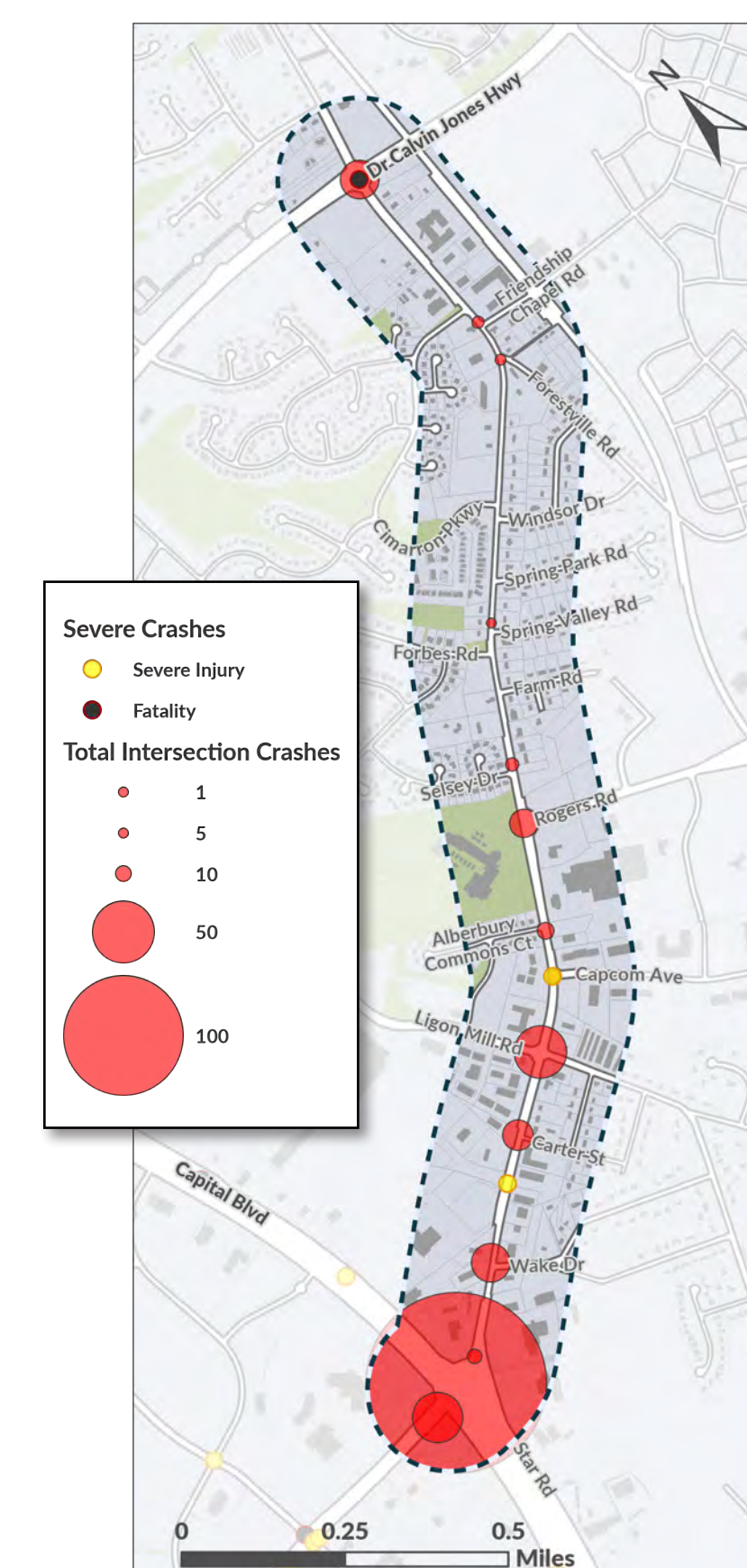
- Intersection crashes are significant all along South Main Street – adding to safety concerns for drivers as well as pedestrians. US 1 / Capital Boulevard, Capcom Drive, and Rogers Road stand out as very unsafe.

### 3. ROGERS ROAD IS A CRITICAL INTERSECTION FOR A GROWING CORRIDOR.

- One of the highest-crash locations, it also marks a change in volumes for the corridor – **lower north of Rogers**.
- **Wake Forest Middle School** pickup and dropoff times greatly impact this intersection's performance.

### VOLUMES, CRASHES & SAFETY

Crash rate on South Main Street **2.37x higher** than similar roads in NC!



#### North of Rogers Road:

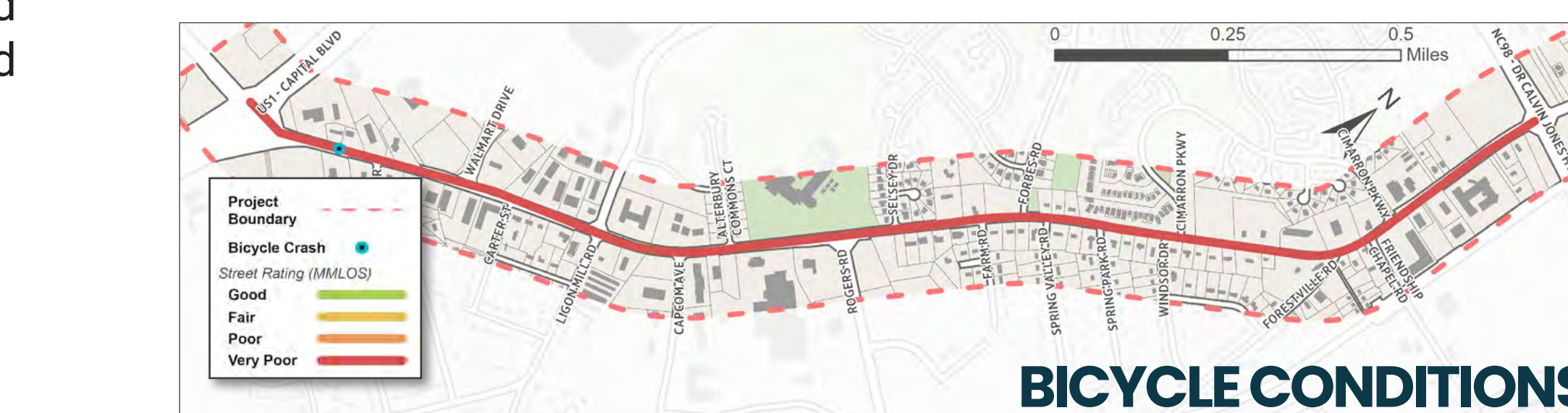
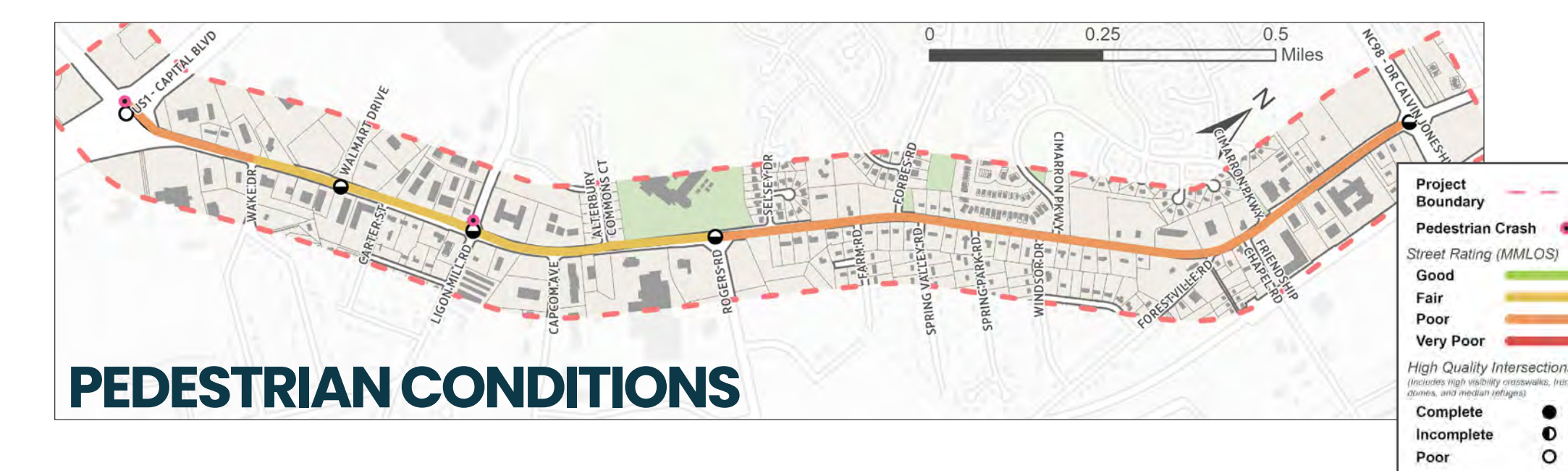
- **Declining!**
- **2005:** 20,000 vpd
- **2021:** 18,500 vpd
- **-1%/year**

#### South of Rogers Road:

- **Growing!**
- **2005:** 24,000 vpd
- **2021:** 27,000 vpd
- **+2%/year**

### TRAVEL CONDITIONS

- **Vehicles:** comfortable, but unsafe
- **All others:** uncomfortable, unsafe



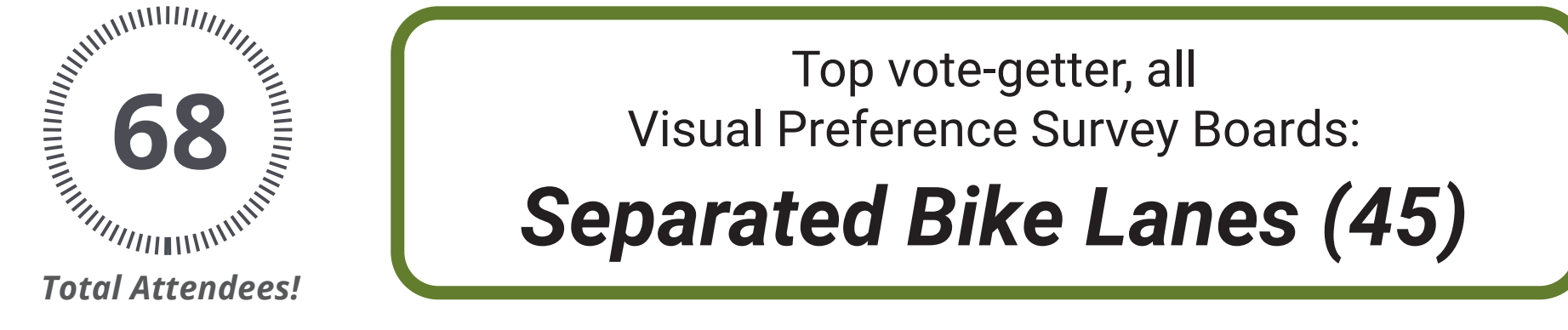


## OUTREACH: WHAT HAVE WE DONE TO DATE?

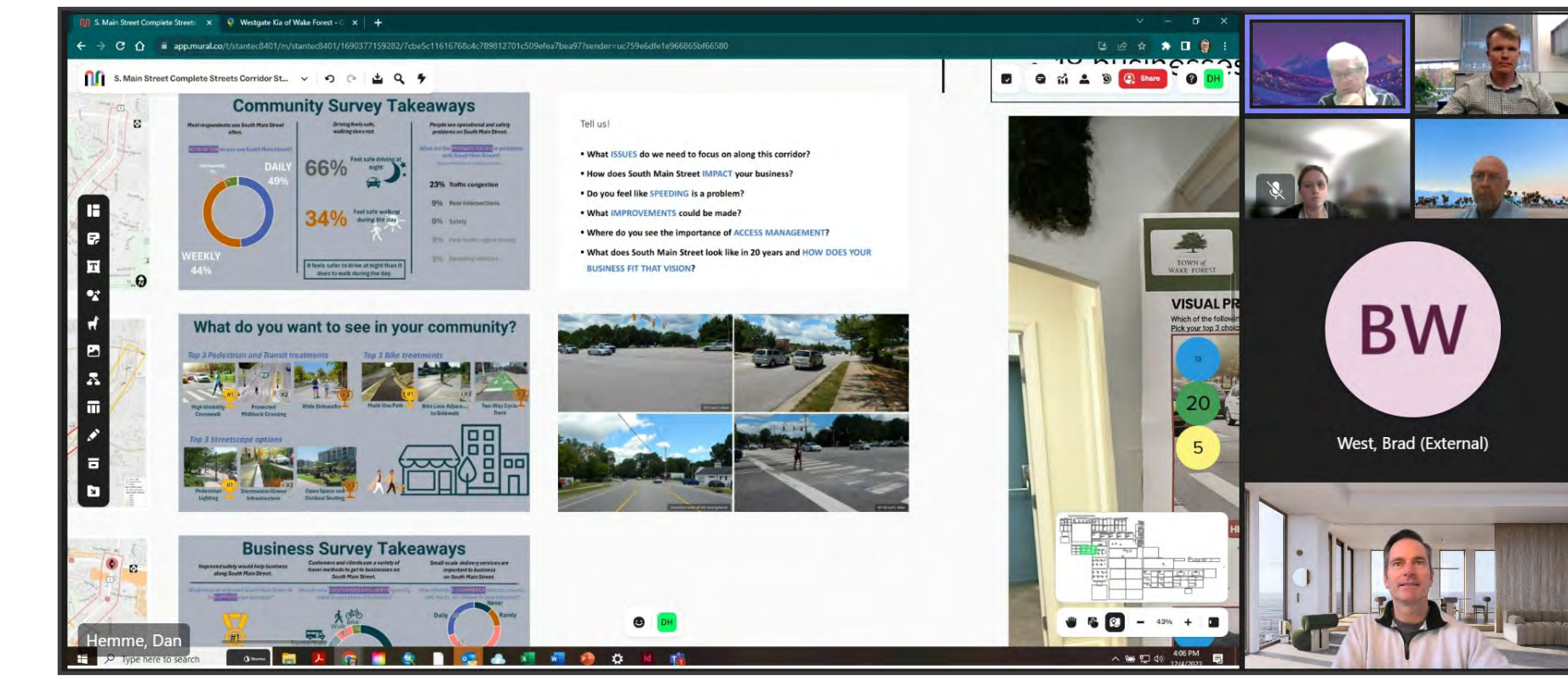


Community feedback has played a central role in this planning process, and tonight is a continuation of all of our efforts to date! In each phase of the project, we've reached out to you: whether through our online engagement tools, like the **Online Survey** and **Interactive Map**, in-person meetings, like our first **Open House** and tonight's event, or through targeted stakeholder discussions with **Business Owners**, **Emergency Services**, **NC Department of Transportation Staff**, **Historic Preservation representatives**, and **Wake Forest Middle School**.

## OPEN HOUSE #1



## FOCUS GROUPS



## KEY THEMES AND TAKEAWAYS:

### 1. RESIDENTS WANT SEPARATION FROM TRAFFIC, BOTH ALONG AND ACROSS THE CORRIDOR.

- Residents are looking for safe means to get across South Main Street. More crosswalks are needed, and the distance between safe crossing locations must be reduced.
- Top responses for pedestrian treatments: High-Visibility Crosswalks and Protected Midblock Crossings (38%).

### 2. CONGESTION AND SPEEDING ARE SIGNIFICANT ISSUES FOR OPERATION AND SAFETY.

- Traffic flows aren't uniform throughout the day, and South Main Street backs up when users need it most – and at important intersections.
- Wide lanes and poor signal timing encourage speeding and create a "freeway" feel to South Main Street.

### 3. SOUTH MAIN STREET IS VITAL TO WAKE FOREST RESIDENTS' DAILY ROUTINE.

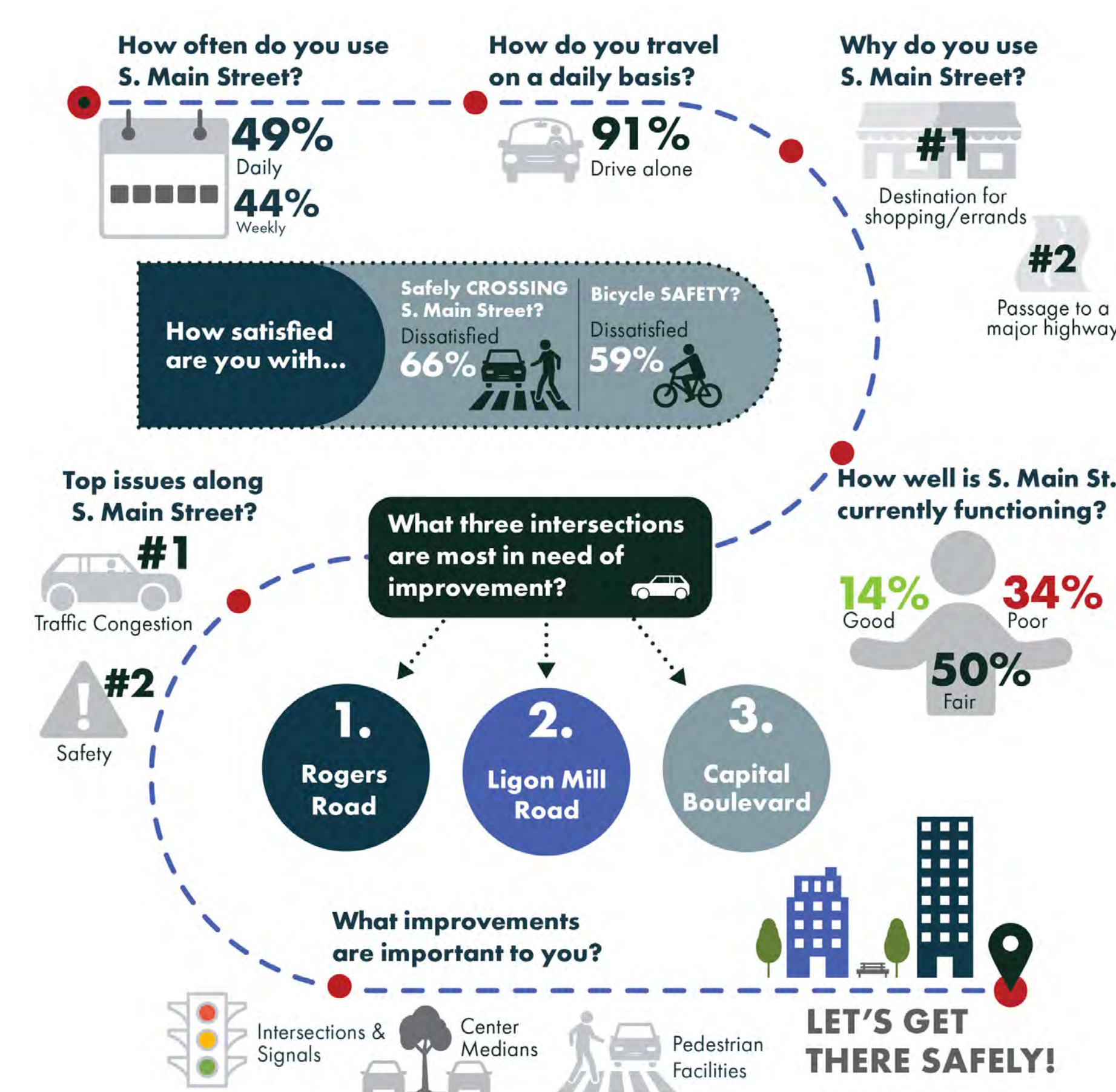
- 93% of survey respondents use South Main Street at least once per week, and 4% of all respondents use the corridor every single day.
- Residents use South Main Street both as a destination for shopping and as passage outside of Wake Forest.

## SURVEY RESULTS



"Rogers Road isn't safe, middle schoolers always cross there and it's dangerous."

"Not sure how you get people to not do 45 in a 35 MPH zone"

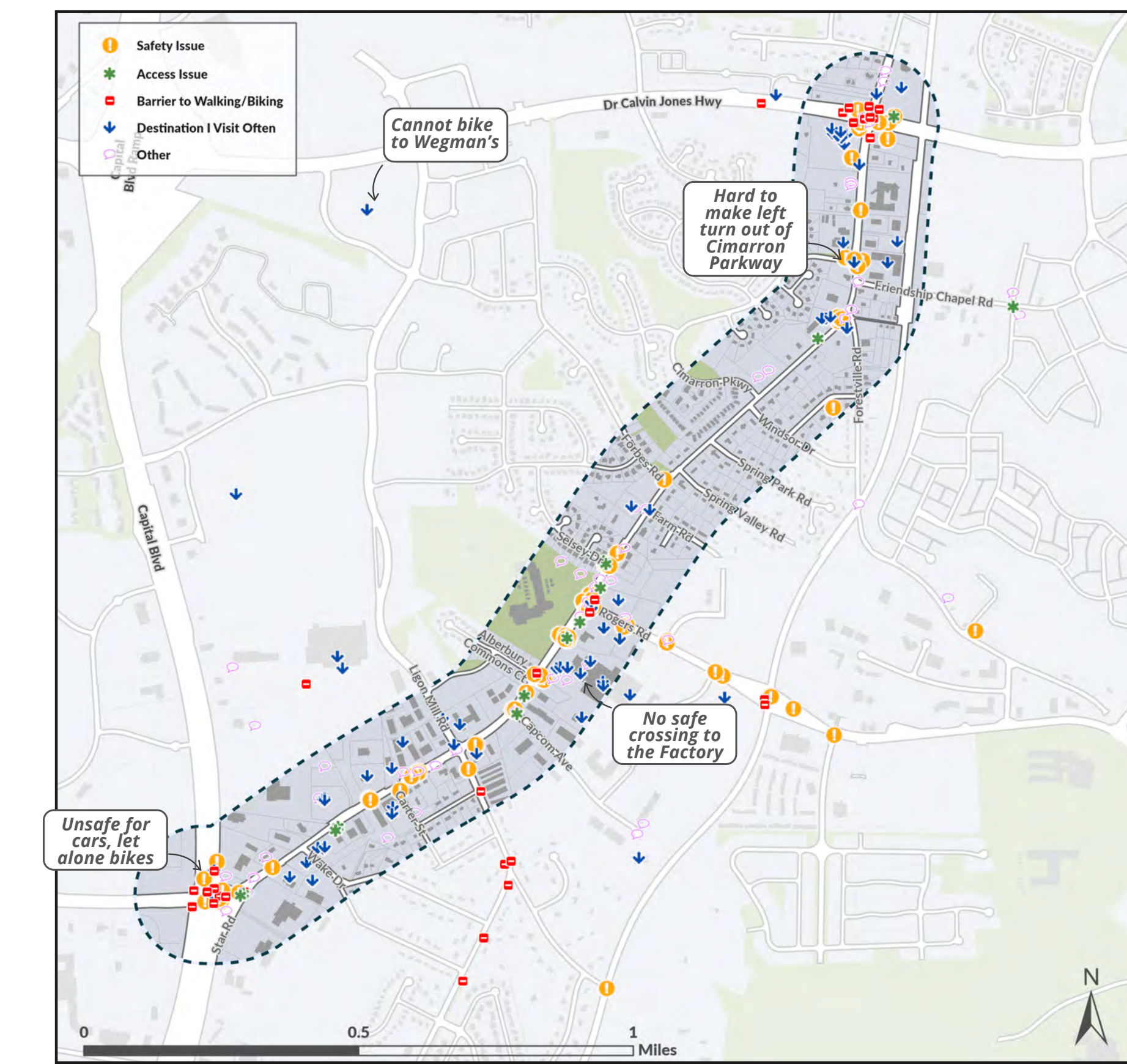


## INTERACTIVE MAP RESULTS



**81** Safety Issues identified by the public

**69** Destinations respondents visit often





## THREE-LANE SECTION

ROGERS ROAD TO NC 98 / CALVIN JONES HIGHWAY

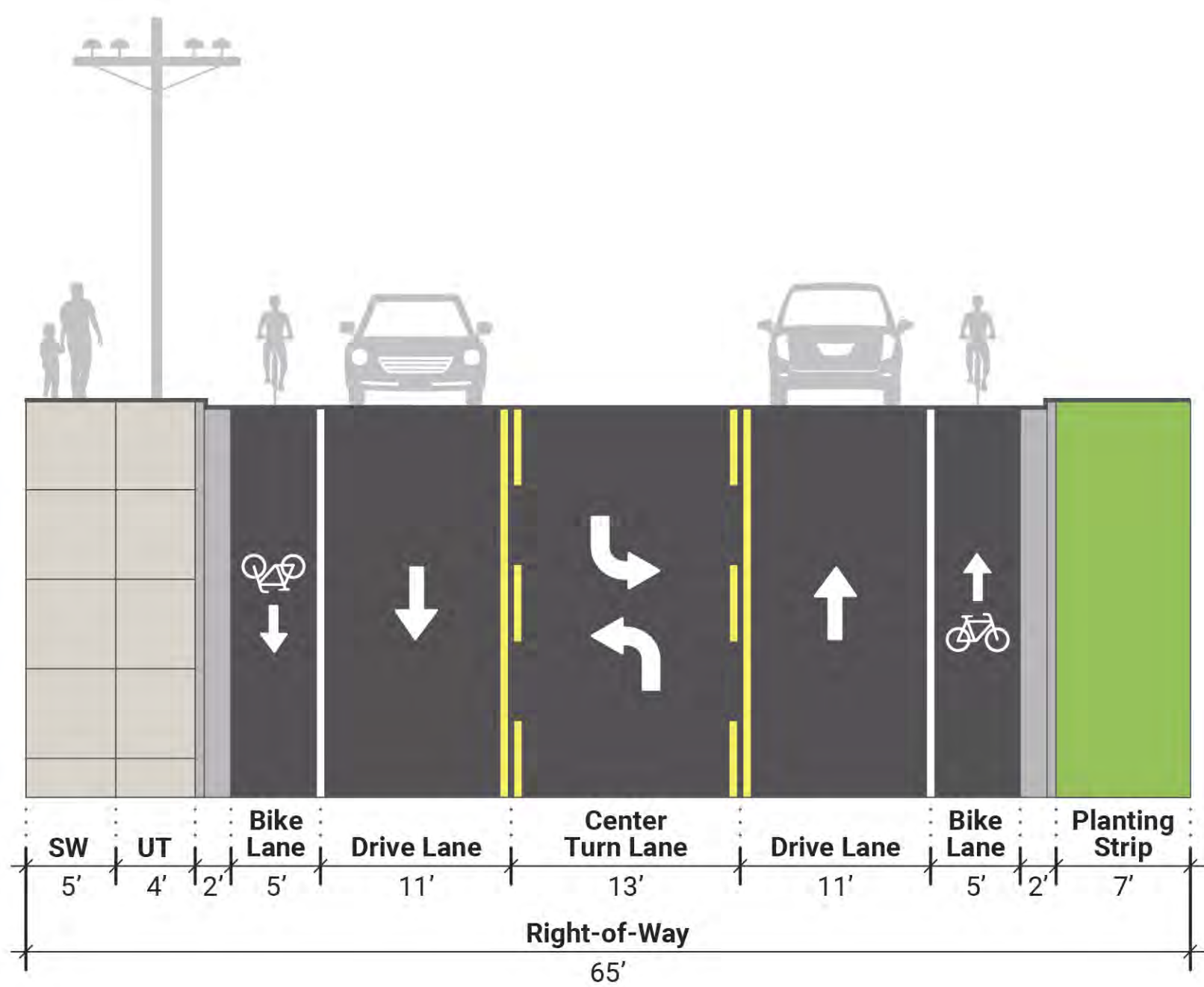


## FIVE-LANE SECTION

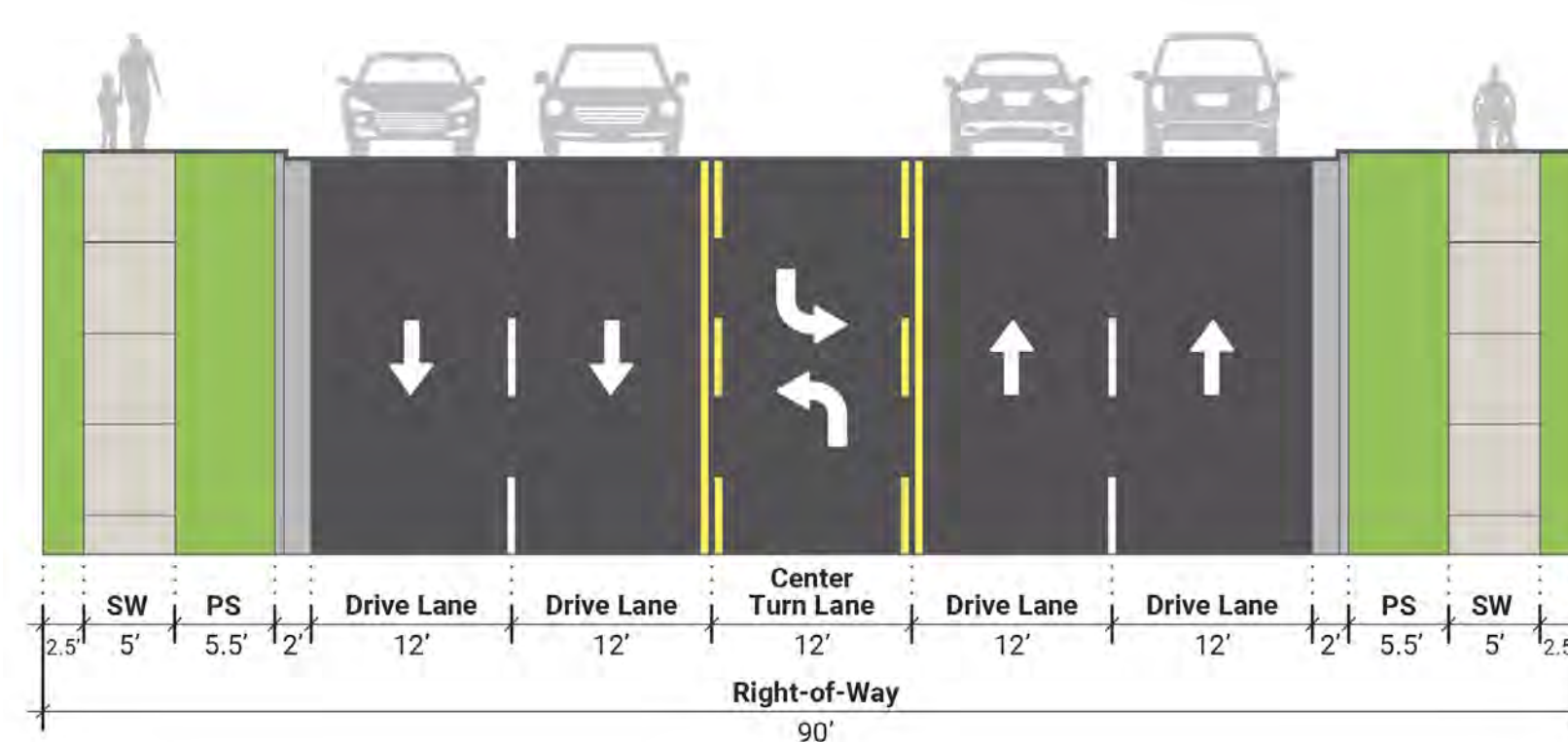
US1 / CAPITAL BOULEVARD TO ROGERS ROAD



## EXISTING CROSS-SECTIONS

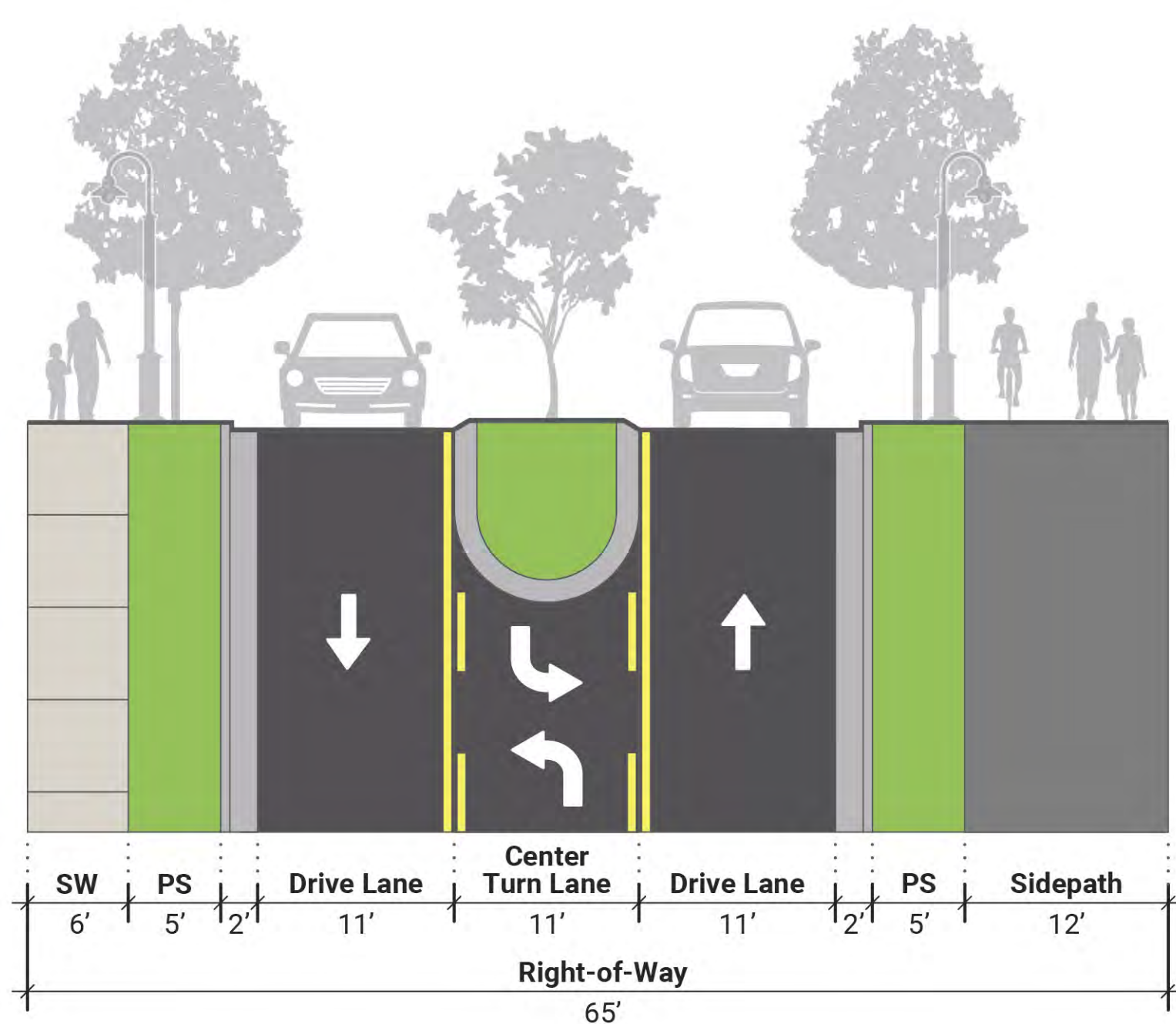


- **Three lanes:** two travel lanes (11'), one center two-way left-turn lane (13')
- **Sidewalks:** north side only (5'), none on south side
- **Bike facilities:** traditional bike lanes (5') on both sides



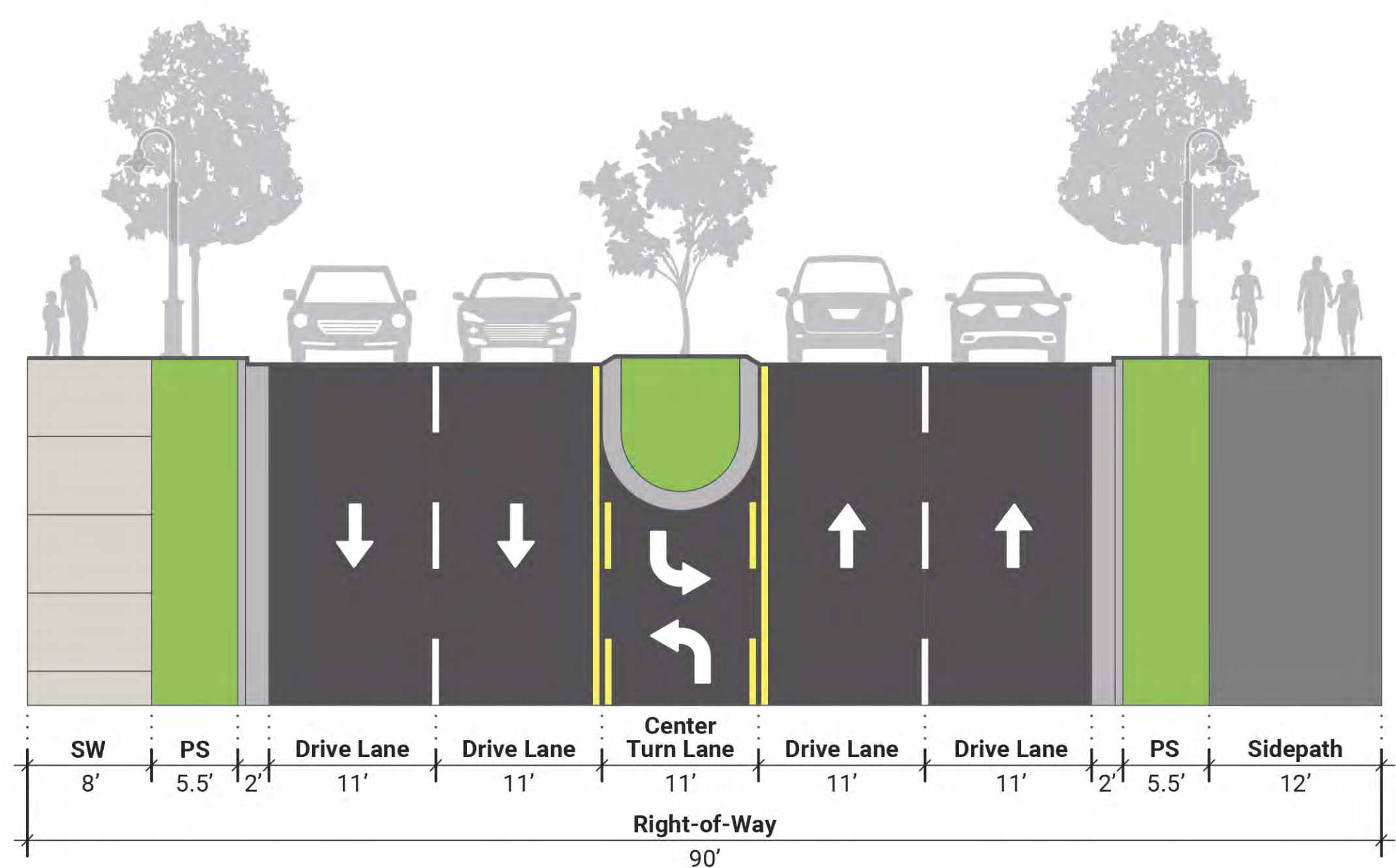
- **Five lanes:** four travel lanes (12'), one center two-way left-turn lane (12')
- **Sidewalks:** 5' sidewalk on both sides
- **Bike facilities:** none existing

## PROPOSED CROSS-SECTIONS



- **Three lanes:** two travel lanes (11'), one center left-turn lane (11')
- **Median:** pocket center median islands to restrict left-turn movements

- **Sidewalks:** north side only (6')
- **Bike facilities:** 10' to 12' shared-use path (south side only)



- **Five lanes:** two travel lanes (11'), one center left-turn lane (11')
- **Median:** pocket center median islands to restrict left-turn movements

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## THREE-LANE SECTION

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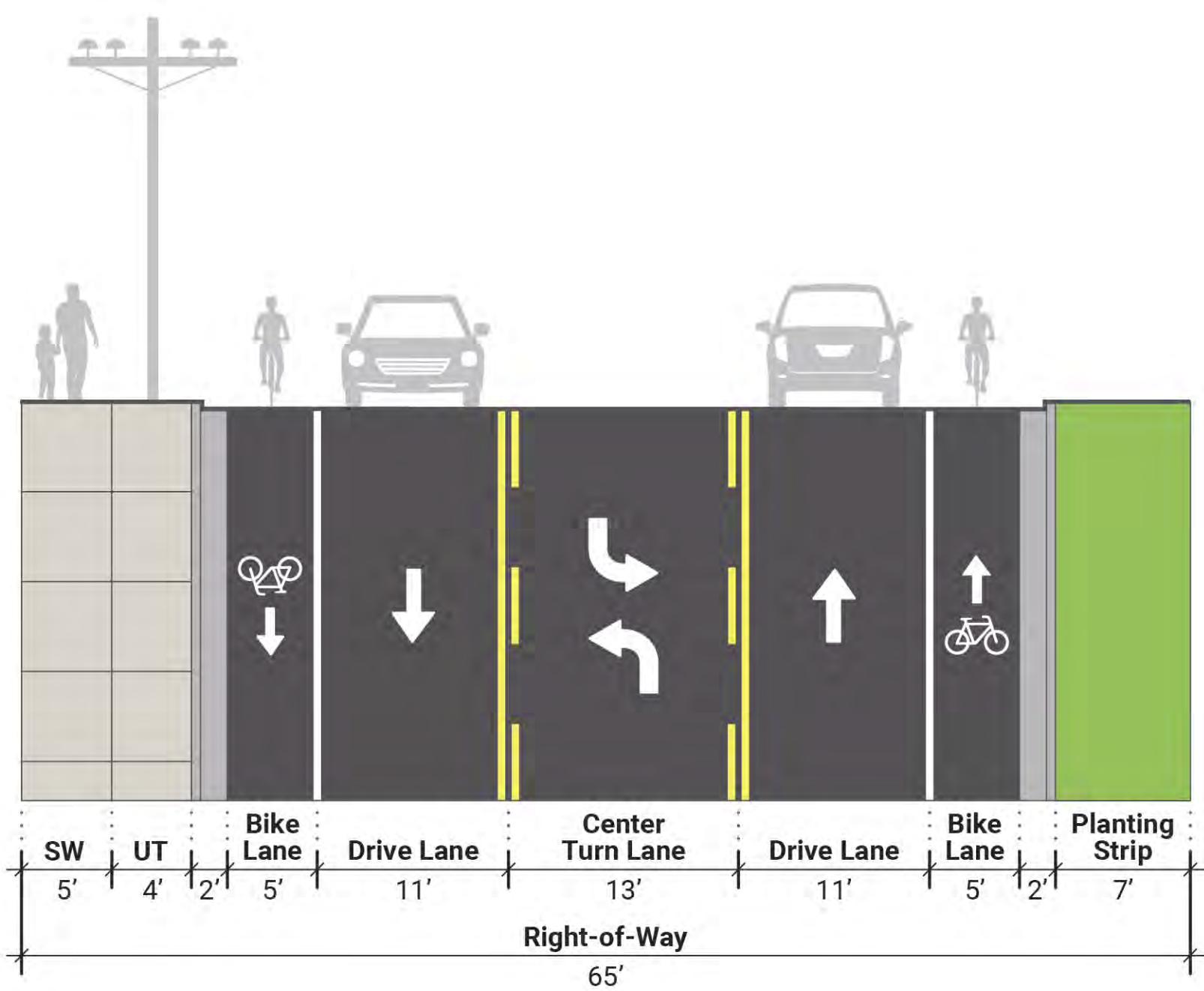


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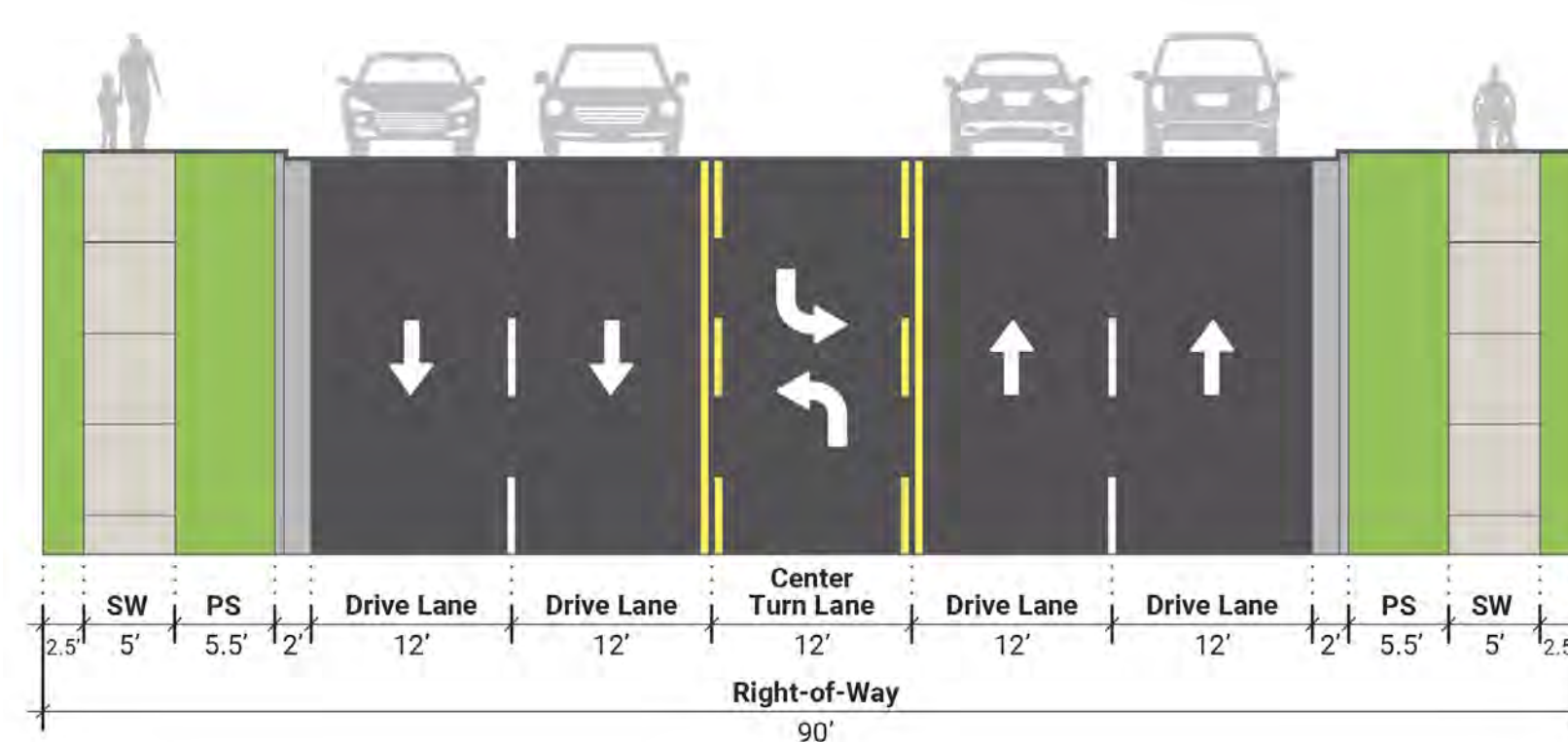
US1 / CAPITAL BOULEVARD TO ROGERS ROAD



## EXISTING CROSS-SECTIONS

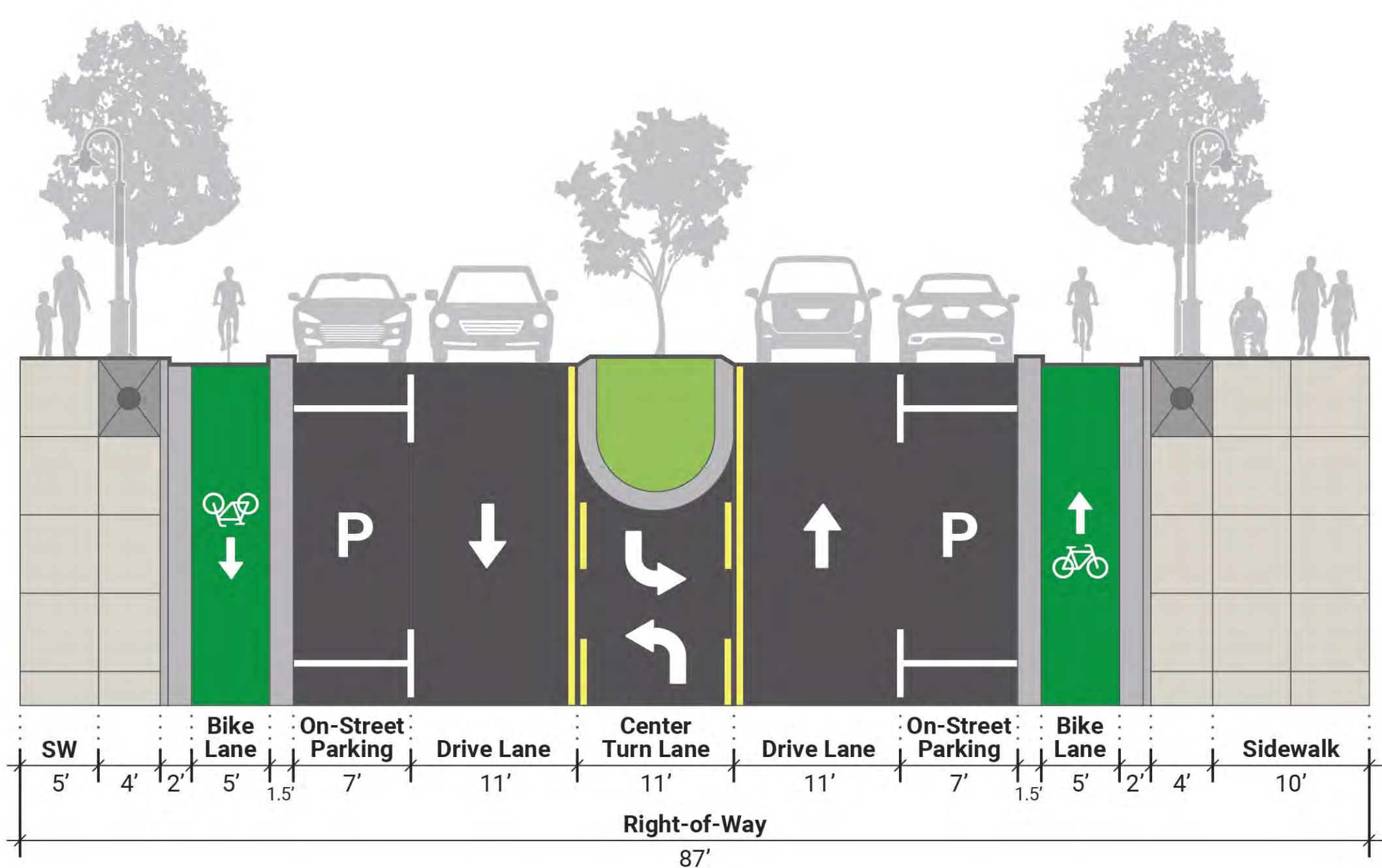


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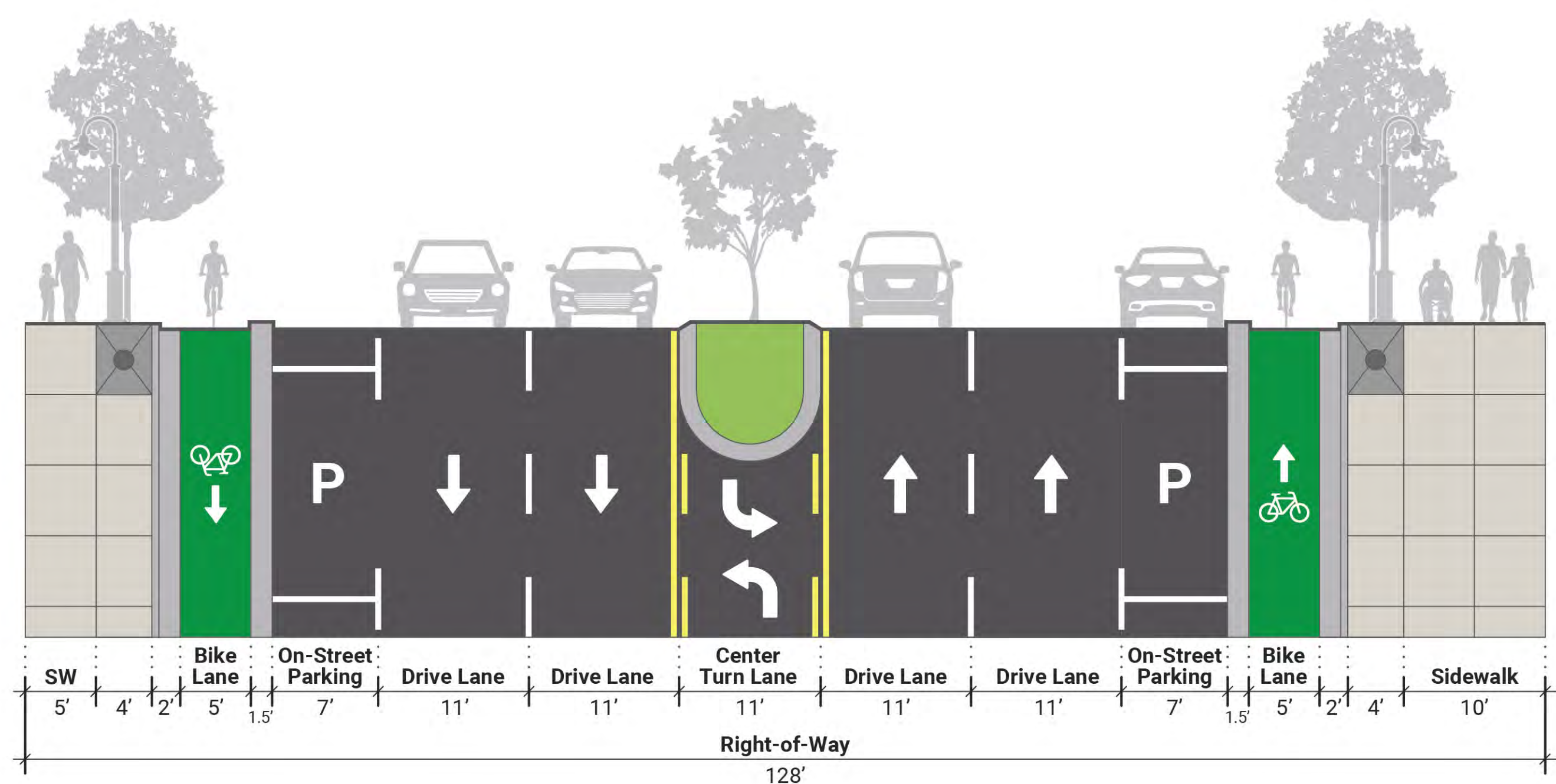


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## PROPOSED CROSS-SECTIONS



- **Three lanes:** two travel lanes (11'), one center turn lane (11')
- **Median:** pocket center median islands to restrict left-turn movements
- **Sidewalks:** north side (5'), south side (10')
- **Bike facilities:** separated bike lanes (5') with 1.5' monolithic curb
- On-Street Parking (7') (305 spaces)



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- On-Street Parking (7') (305 spaces)





## ROUNDABOUTS

### DESIGNING FOR LARGE VEHICLES, FIRE TRUCKS & AMBULANCES

Well-designed roundabouts are no impediment to large vehicles. Modern roundabouts have several features to serve large vehicles without causing delays:

- **Aprons:** Traversable sections of the center island or even splitter medians allow large vehicles to easily pass over.
- **Design Vehicle Standards:** Turning radii for large trucks can be accommodated in the size and shape of the roundabout.
- **Curb-to-Curb Width:** Curb widths at entrance and departure points from the roundabout can be widened to facilitate passing stopped vehicles.
- **Roll Curb:** Curbs with a slanted or sloping face, rather than a vertical one, to ease transition from the roadway onto the apron.

### ROUNDABOUTS V. SIGNALIZED INTERSECTIONS

Roundabouts have several advantages over traditional signalized intersections that can help to improve operations on South Main Street:

- **Continuous traffic flow:** With roundabouts, traffic only needs to yield before entering the roundabout, rather than wait for a green light.
- **Traffic calming:** Drivers must slow down before entering the roundabout, typically reducing speeds to between 15 and 20 miles per hour.
- **Predictable movement:** Traffic flows counterclockwise, reducing the likelihood of head-on, right-angle and left-turn crashes.



## HIGH-QUALITY INTERSECTIONS

There are currently few safe, convenient opportunities to cross South Main Street for bicyclists and pedestrians. Both concepts respond to feedback that crossing South Main Street must be safer. Here are some design features at intersections that enhance the pedestrian experience:



### CURB EXTENSIONS

- Shortens intersection crossing distance for pedestrians, reducing the time spent in the roadway.
- Creates opportunities for green infrastructure, like bioretention or biofiltration planters.
- Extensions create protected bays for on-street parking.



### HIGH-VISIBILITY CROSSWALKS

- Higher-visibility patterns, like bars, make crossing locations more visible to drivers and pedestrians.
- FHWA studies show these patterns can reduce pedestrian injury crashes by up to 40%.



### PEDESTRIAN REFUGE ISLANDS

- Raised island along the road's centerline with a cutout for pedestrians to rest while crossing.
- Reduces crossing distance for especially wide intersections.





## SEPARATED BIKE FACILITIES

Public feedback overwhelmingly favored biking and walking treatments that created separation from heavy, fast-moving traffic on South Main Street. Both concepts feature different types of separated bike facilities that provide greater safety for those on two wheels – which makes South Main Street safer for all users, including those of different ages and abilities:



### SEPARATED BIKE LANES [PARKING PROTECTED]

- Separates bicyclists from moving vehicles with both curbing and parked cars.
- Eliminates conflict between bicyclists and cars pulling in or out of parking spaces.
- Pedestrians have exclusive use of the sidewalk.



### SHARED-USE PATH

- Paved bikeway and walkway above the curb adjacent to a roadway's travel lanes.
- Intended for use by both bicyclists and pedestrians sharing space on the path.
- Pedestrians have exclusive use of the sidewalk.



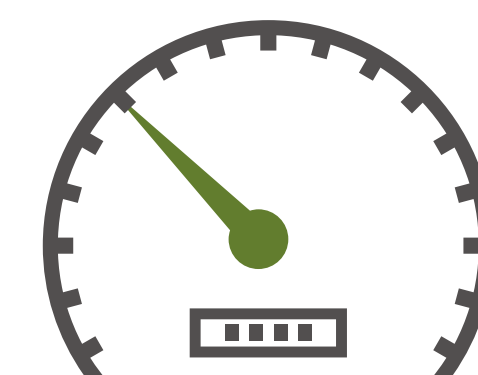
### SEPARATION THROUGH INTERSECTIONS

- Green paint and bike lane markings through the intersection raise visibility.
- For share-use paths, bicyclists and pedestrians share crosswalks.
- Pedestrians have exclusive use of the sidewalk.

## URBAN TREE CANOPY

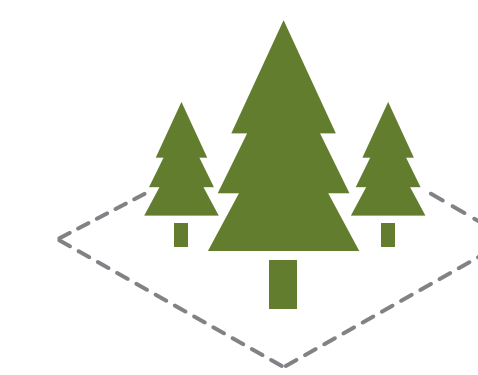
Shade trees play an important role in improving South Main Street for all users, not merely for bicyclists and pedestrians. Improving our tree canopy along the corridor can help to reduce traffic speeds, reduce our street surface temperatures, improve stormwater runoff management, *and* improve the experience for bicyclists and pedestrians:

### CALMING TRAFFIC



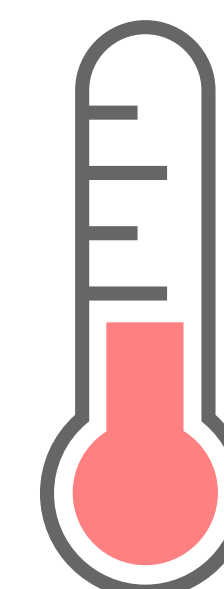
Trees create verticality & enclosure – “side friction” – that can slow speeds by as much as 15 MPH.

### GREEN INFRASTRUCTURE



Trees capture rainwater before it reaches pervious surfaces and creates filtration opportunities – *both of which reduce runoff.*

### COOLING DOWN



Sidewalks and streets store and radiate a lot of heat. Trees shade these surfaces and reduce temperatures *by 20 degrees or more.*

### BETTER FOR BIKING & WALKING



Trees create additional vertical separation from moving traffic, increasing safety for all.



## HOW DO THESE CONCEPTS COMPARE TO EACH OTHER?

**How do these concepts stack up?** Each has its own advantages over the other depending upon the considerations that went into their development. To evaluate both concepts against each other, four criteria were developed to consider how each responds to the challenges South Main Street faces today, and in the future:

**Safety:** does the design make South Main Street safer for all users?

**Bicycle & Pedestrian:** does the design enhance the experience & usability of the corridor for biking & walking?

**Capacity:** how does the design impact the traffic flow and capacity on South Main Street?

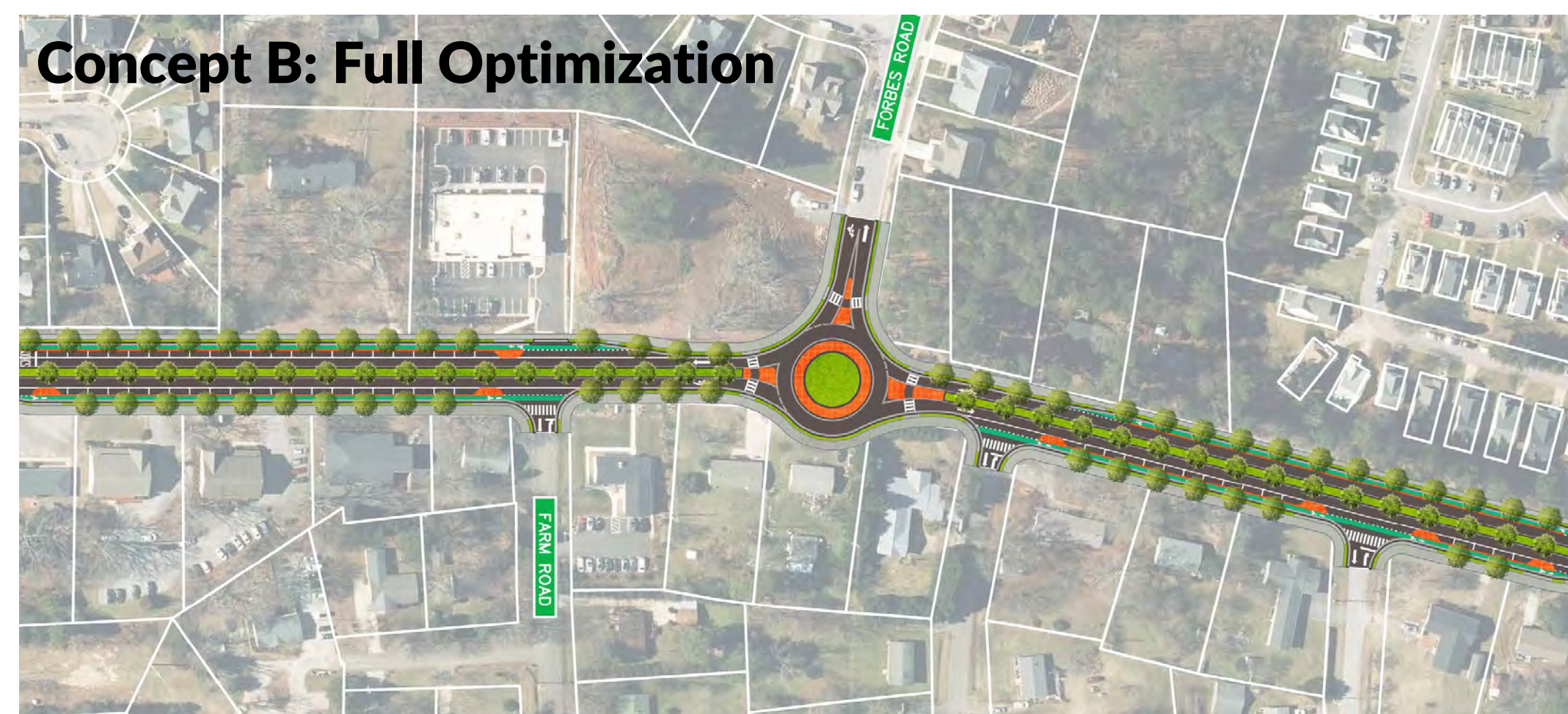
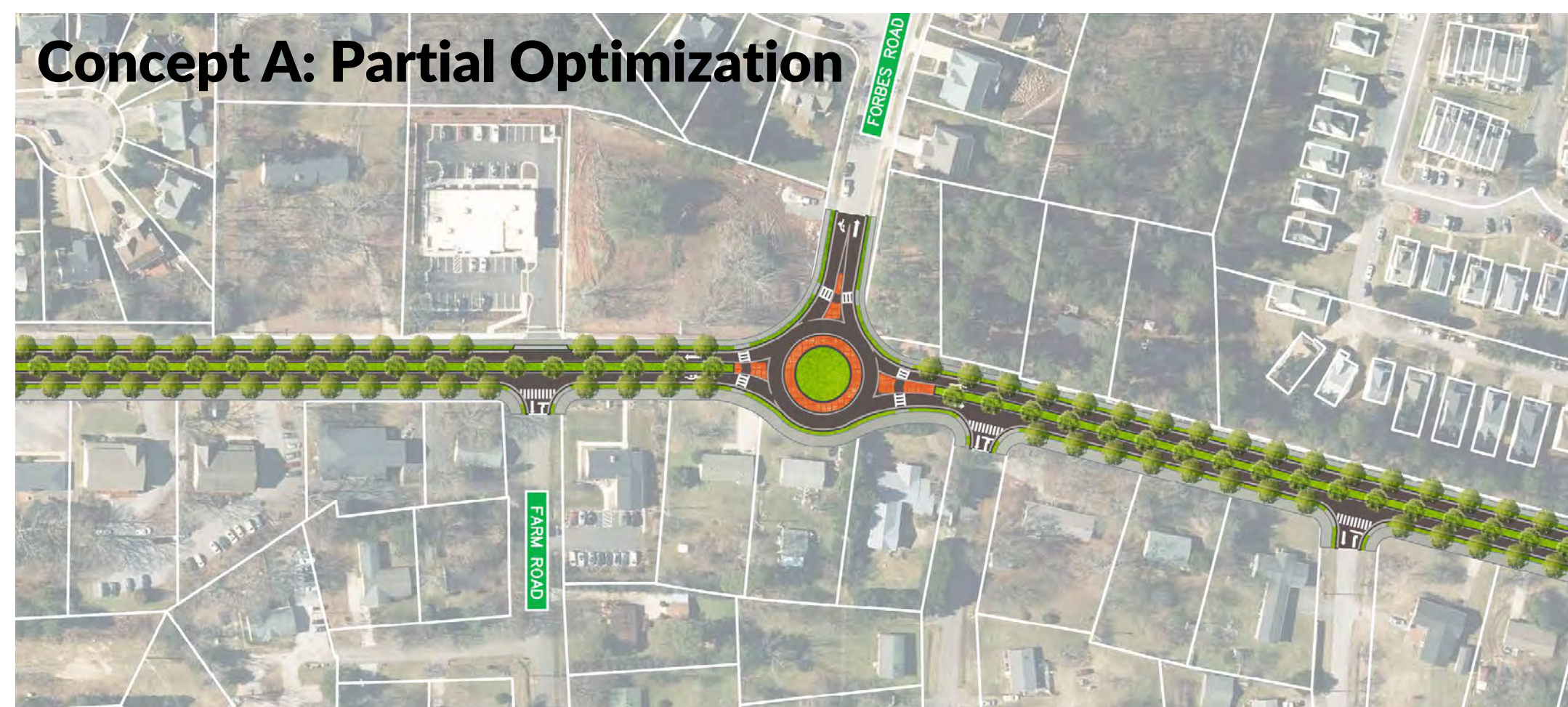
**Impact:** how does the design impact the surrounding natural and built environment?

### LEGEND

- Significant Improvement
- Partial Improvement
- No Improvement

Note: A high-level cost analysis will be performed as part of this study, once a preferred design has been determined. The analysis will use 2024 cost inputs for planning and budget forecasting purposes.

Further engineering and design work will be needed prior to construction, which may impact this cost estimate.



	Concept A: Partial Optimization	Concept B: Full Optimization
<b>Safety: Does the design make South Main Street safer for all users?</b>		
<b>Conflict Points:</b> <i>Reduces points where two vehicles can collide -- with each other or bicyclists &amp; pedestrians</i>		
<b>Traffic Speeds:</b> <i>Includes design treatments like roundabouts and "side friction" to reduce traffic speeds</i>		
<b>Bike &amp; Pedestrian Safety:</b> <i>Includes separation from traffic for biking &amp; walking with physical barriers for ease of use</i>		
<b>Emergency Response:</b> <i>Includes pulloff areas for emergency services &amp; disabled vehicles to allow uninterrupted traffic flow</i>		
<b>Bike &amp; Pedestrian Improvements: does the design enhance the experience &amp; usability of the corridor for biking walking?</b>		
<b>Sidewalk Gaps &amp; Usability:</b> <i>Filling in missing sidewalk links, dead-ends, and sharing space with bicyclists</i>		
<b>Bike Gaps &amp; Usability:</b> <i>Filling in missing bikeway links, dead-ends, and sharing space with pedestrians</i>		
<b>Crosswalk Enhancement:</b> <i>Includes visibility, pedestrian refuges, and opportunities for signal improvements</i>		
<b>Capacity: how does the design impact traffic flow and capacity on South Main Street?</b>		
<b>Intersection wait times:</b> <i>How long it takes to pass through an intersection or turn onto a street</i>		
<b>Automobile volume capacity:</b> <i>How many automobiles can the design support?</i>		
<b>Bike &amp; Pedestrian capacity:</b> <i>How many bicyclists and pedestrians can the design support?</i>		
<b>Parking capacity:</b> <i>Are there opportunities to increase parking for existing &amp; future development?</i>		
<b>Impacts: how does the design impact the surrounding natural and built environment?</b>		
<b>Adjacent Properties:</b> <i>Minimizes the physical impacts to properties along the corridor</i>		
<b>Stormwater Infrastructure:</b> <i>Provides opportunities for rain gardens, bioretention swales, and underground retention</i>		
<b>Increased Tree Canopy &amp; Vegetation:</b> <i>Provides opportunities for shade trees and plantings</i>		





# TELL US YOUR THOUGHTS!



**WHAT DID YOU THINK? WHAT DID YOU LIKE / DISLIKE? WE WANT TO KNOW!**

A large, empty rectangular area with a dashed border, intended for providing feedback or thoughts.