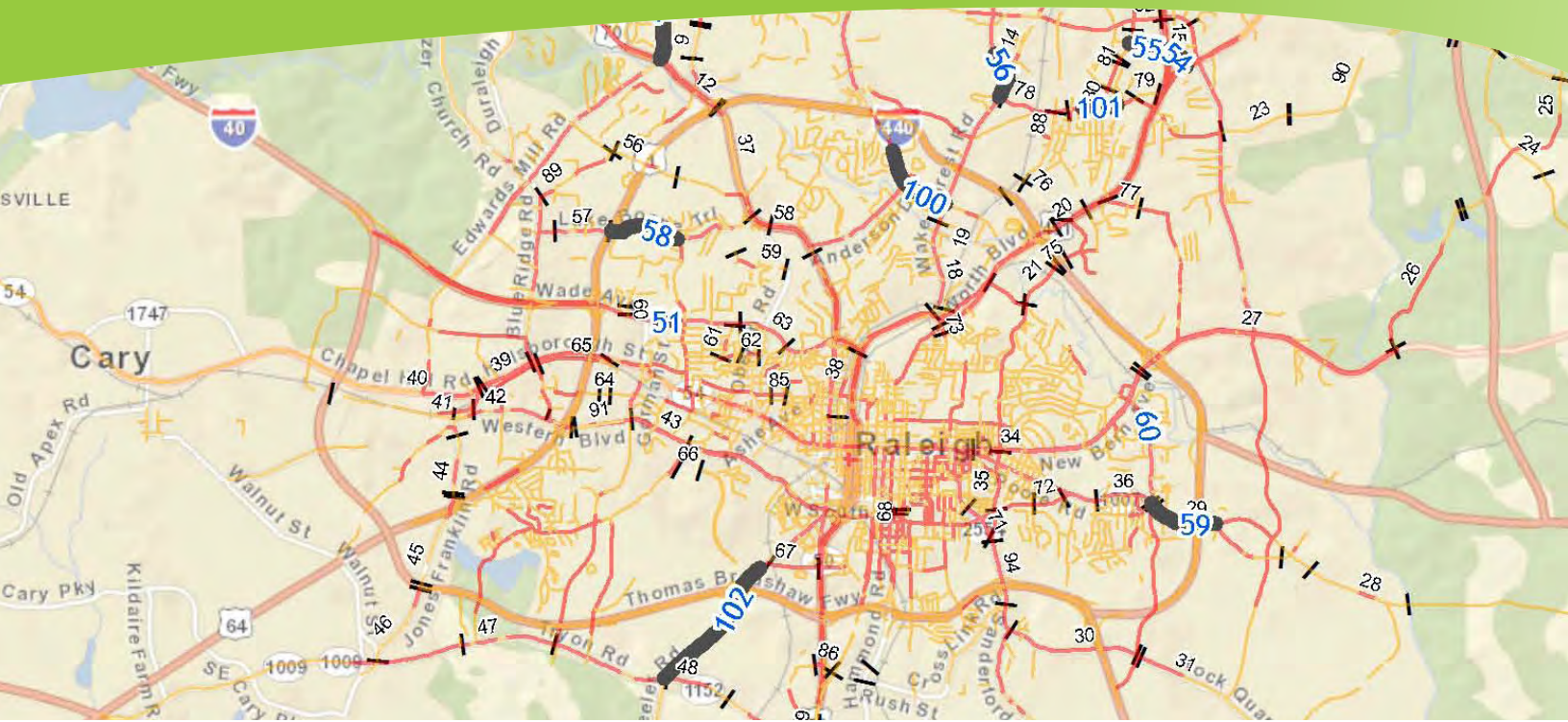


CHAPTER FOUR

PEDESTRIAN FACILITY

RECOMMENDATIONS



This chapter recommends two types of infrastructure improvements:

- » Design concepts for six example locations; and prioritized missing sidewalk links in the City. The example location recommendations show how a mix of treatments can improve the pedestrian network in a defined area. Recommended treatments include sidewalks, pedestrian crossing facilities, and bus stop improvements.
- » A prioritized list of sidewalk projects. Sidewalk projects are scored and ranked using the new method recommended in Chapter 3.

Recommendations included in this chapter are planning-level design concepts. This means that the recommendations are guided by the plan goals and informed by existing conditions, best practices, and opportunities identified during field work. Additional engineering analysis and field work is needed before proceeding with project implementation.

Example Locations

Six locations were identified for field work in order to develop conceptual recommendations to improve pedestrian safety and comfort. These “example locations” were identified from several sources, including the demand and needs analysis, public input, and input from the City’s technical team. Appendix C provides

sample comments from CommunityWalk around each example location.

The example locations are typical of pedestrian conditions in many areas of the City. Thus, these design concepts recommended can be applied elsewhere in the City. The example locations are not in any priority order. Many

of the design concepts are described in Chapter 3, Best Practices, Design Standards and Sidewalks. Overall, recommended design concepts are intended to achieve one or more of the following objectives:

<p>Ensure ADA compliance. All sidewalks and intersection features meet standards set by PROWAAG, NCDOT and the City of Raleigh.</p>	<p>Ensure sufficient crossing time. Adjust signal timing to ensure pedestrians have at least 3.5 feet per second to cross the street.</p>
<p>Make pedestrians more visible to motorists. Remove line of sight barriers to visibility with infrastructure features that place pedestrians in locations where they are more visible to motorists (and vice-versa).</p>	<p>Improve transit access. Establish bus stops and travel ways to/from bus stops (along and across the roadway) that ensure pedestrian safety and comfort.</p>
<p>Install or improve sidewalk conditions. Install sidewalks where missing and repair damaged on non-ADA-compliant sidewalks where they exist.</p>	<p>Slow motor vehicle speeds at potential points of conflicts with pedestrians. Use geometric, operational and signal/signage methods to reduce speeds in order to reduce potential crashes between pedestrians and motor vehicles.</p>
<p>Shorten crossing distances. Use infrastructure features to shorten the distance pedestrians are in travel lanes while crossing the street.</p>	<p>Reduce or eliminate potential points of conflicts with pedestrians. Use strategies to separate pedestrians and motor vehicles in the roadway.</p>

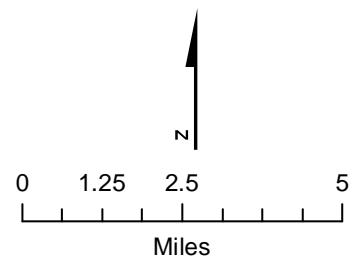
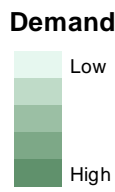
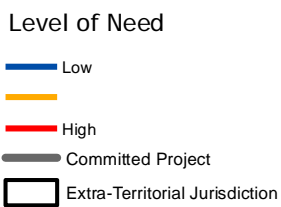
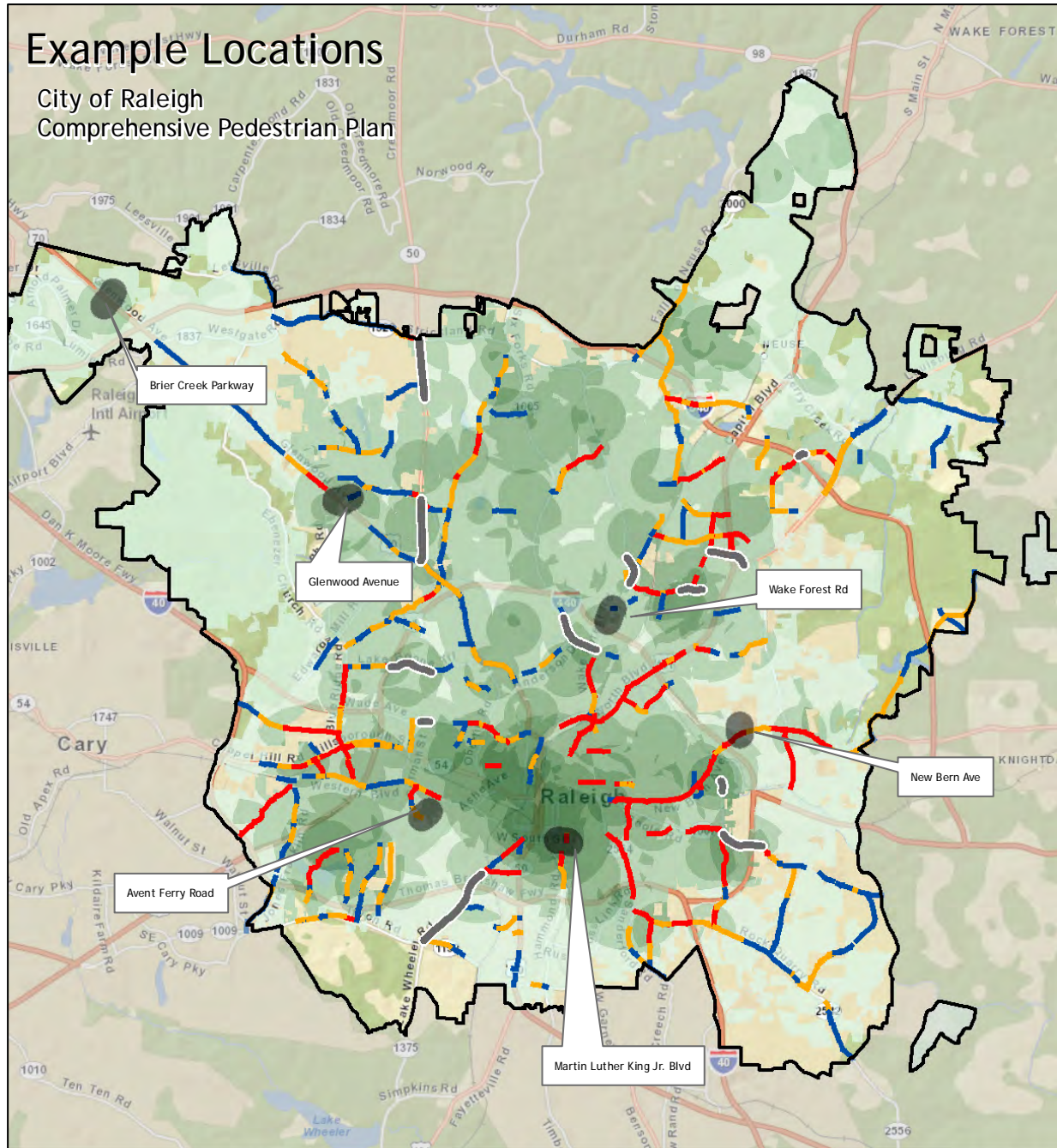
The six locations are up to ¼ mile long and are referenced or bounded by a primary street with selective cross streets as follows:

- » **Avent Ferry Road between Varsity Drive and Centennial Parkway**
- » **Glenwood Avenue (US 70) between Pleasant Valley Road and commercial driveway at Pleasant Valley Promenade**
- » **Brier Creek Parkway between Little Briar Creek Lane and Skyland Ridge Parkway**
- » **Martin Luther King Boulevard between Blount Street and Garner Road**

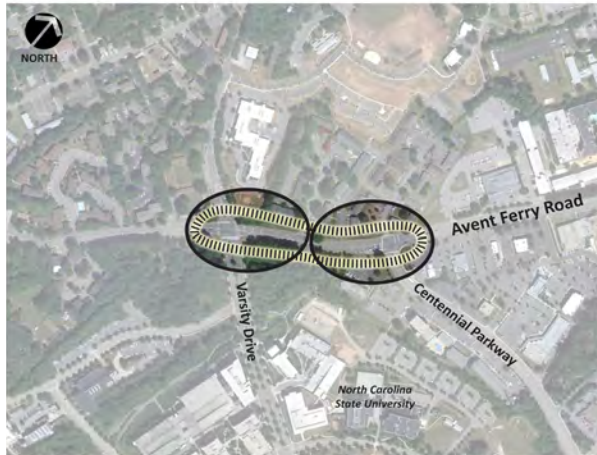
- » **New Bern Avenue between 3600 and 3800 New Bern Avenue**
- » **Wake Forest Road between the Beltline off-ramp and St. Albans Drive**

Map 1. Six Example Locations on demand and needs analysis. shows the six locations. Site-specific maps and more information on each example location follow.

Map 14. Six Example Locations on demand and needs analysis.



Avent Ferry Road between Varsity Drive and Centennial Parkway



Rationale.

The section of Avent Ferry Road has a high level of non-motorized travel – walking, bicycling and transit use, due in large part to the proximity of the North Carolina State University (NCSU) campus, educational and residential facilities, and supporting retail establishments. A bicycle route crosses Avent Ferry Road south of Centennial Parkway. Safety concerns include long pedestrian crossing distances with insufficient pedestrian crossing facilities; pedestrian conflicts with left turns; and missing sidewalks along portions of the segment.

Recommended Design Concepts. Recommended concepts are concentrated at the two intersections, including the bus stops. The recommendations include signal changes, geometric changes within the right-of-way, new signage, and maintenance. Specific recommendations within the segment are summarized in the table below and shown on two maps:

Overall Need

- ✓ High pedestrian, bike and transit use at intersections due to location near NCSU.
- ✓ Pedestrian conflicts with left turns;
- ✓ Lack of facilities/infrastructure (landings, median protection, sidewalks); and
- ✓ Long crossing distances.
- ✓ Bike route on Avent Ferry.

Improvements

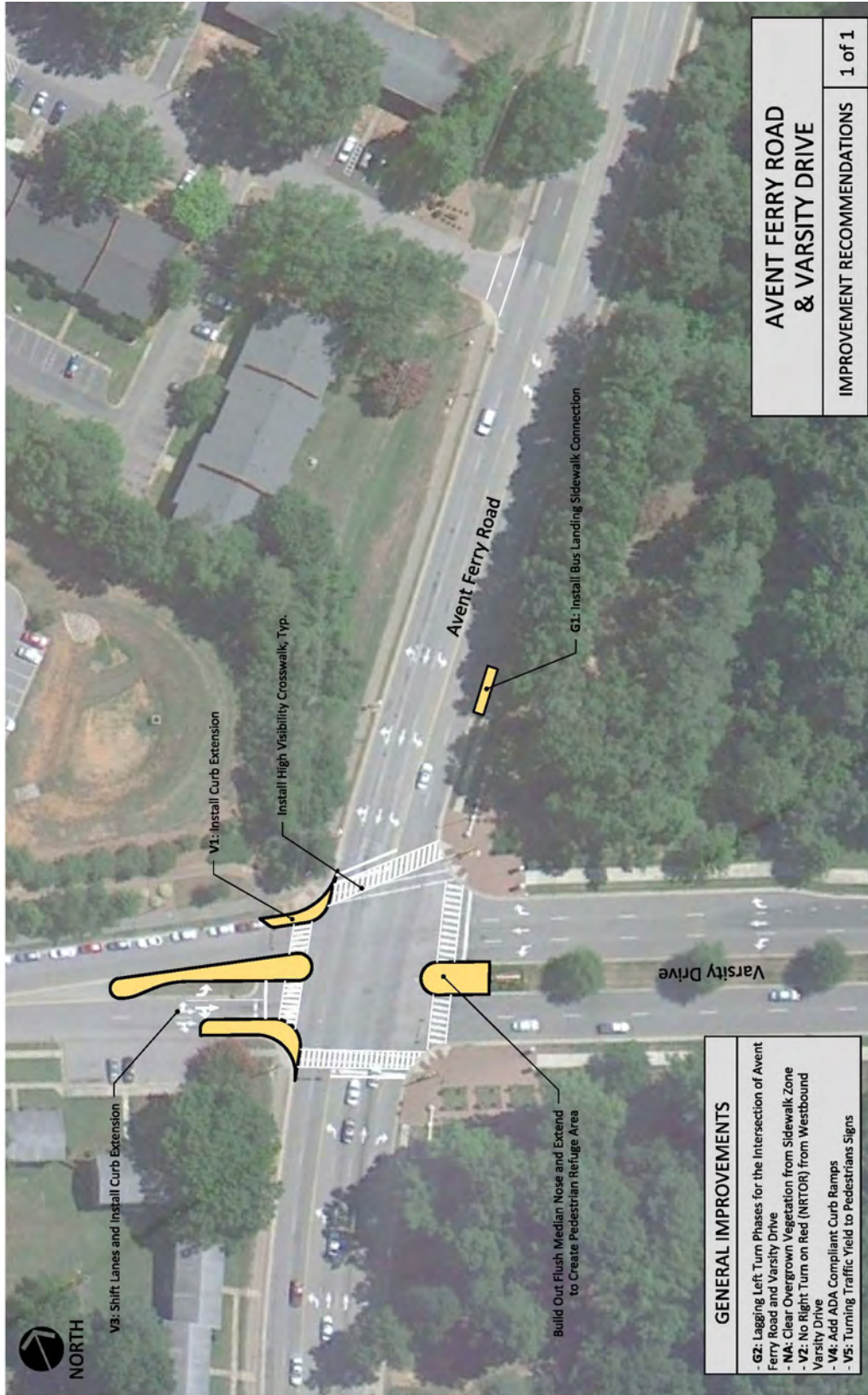
- » Add sidewalks.
- » Shorten crossing distances and improve pedestrian visibility with curb extensions.
- » Provide pedestrian refuges with raised center medians and right turn channelization islands.
- » Realign intersections to reduce pedestrian-vehicle conflicts.
- » Improve signal timing and sequence.



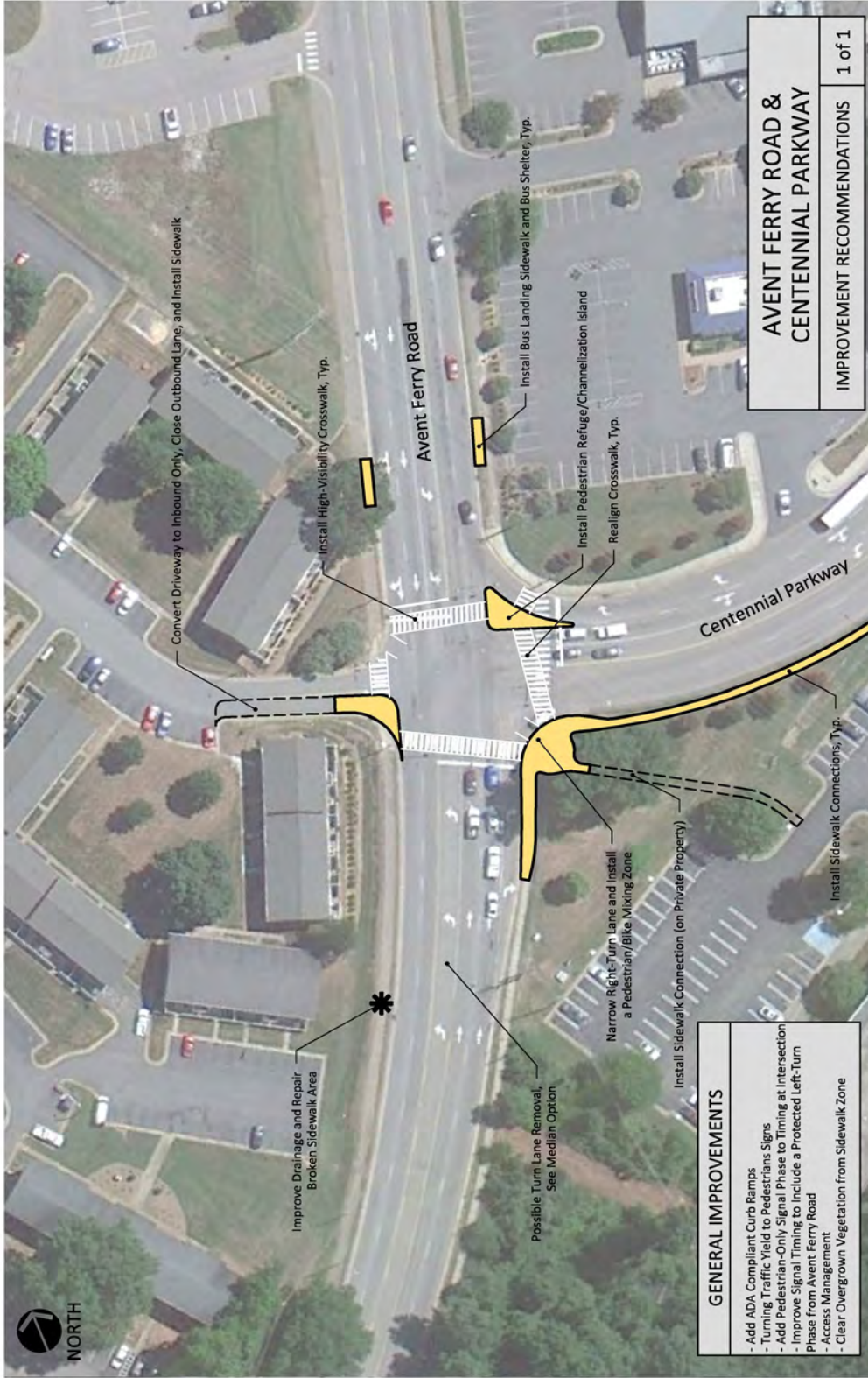
Photo 40. Non-motorized activity at NCSU.

- » Map 2. Avent Ferry Road Example Location Map 1: Varsity Drive.
- » Map 3. Avent Ferry Road Example Location Map 2: Centennial Parkway.

Map 15. Avent Ferry Road Example Location Map 1: Varsity Drive.



Map 16. Avent Ferry Road Example Location Map 2: Centennial Parkway.



AVENT FERRY ROAD BETWEEN VARSITY DRIVE AND CENTENNIAL PARKWAY									
GENERAL		Chapter 3 Reference							
MAP KEY									ADA Compliant
G1	Install landing and waiting pad at bus stops and add pedestrian-oriented lighting at the stop.	Best Practices, Transit Stops, pg X						X	Slow motor vehicle speeds at potential points of conflicts with pedestrians.
G2	Change signal phasing to provide lagging left turn phase for Avent Ferry Road.	Best Practices Overview, Countermeasure table, pg X							Reduce or eliminate potential points of conflicts with pedestrians.
NA	Clear overgrown vegetation from the sidewalk; establish on-going maintenance program.	May include a reference from Chapter 5, BBWR	X						
VARSITY DRIVE									
V1	Curb extensions	Best Practices, Across the Roadway Basics, pg X Intersection Templates, pg X					X		
V2	Eliminate right-turn on red from Varsity Drive.	Best Practices Overview, Countermeasure table, pg X							X
V3	Realign Varsity Drive, shift/restripe lanes, and install curb extension to improve signal operation and reduce pedestrian/vehicle conflicts.	Best Practices, Intersection Templates, pg X						X	
V4	Install ADA-compliant curb ramps on where missing.		X						

AVENT FERRY ROAD BETWEEN VARSITY DRIVE AND CENTENNIAL PARKWAY		ADA Compliant	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
V5	Install "Turning Traffic Yield to Pedestrians" signs.	Best Practices Overview, Countermeasure table, pg X	X					X	
CENTENNIAL PARKWAY									
C1	Install sidewalk on south side of Centennial Parkway, based on pedestrian demand.	Best Practices, Along the Roadway Basics, pg X		X					
C2	Install a raised channelization island with pedestrian refuge.	Best Practices, Intersection Templates, pg X			X				
C3	Recommendations for intersection at Western Manor Apartments driveway:	Best Practices Overview, countermeasures table, pg x.							
	<ul style="list-style-type: none"> Convert driveway at Western Manor Apartments to inbound only. Reduce the driveway width in order to create space for a sidewalk on one side. Note: A portion of this recommendation is on private property, which will require agreement by the property owner. On Map X the portion of the recommended change that appears to be on private property is indicated with a dashed line. 							X	X

AVENT FERRY ROAD BETWEEN VARSITY DRIVE AND CENTENNIAL PARKWAY		ADA Compliant	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
C4	<ul style="list-style-type: none"> Remove a signal phase and replace it with an all pedestrian phase. 	Best Practices Overview, Countermeasure table, pg X.							
C5	Narrow right turn land and install pedestrian/bicyclist mixing zone.	Best Practices, Intersection Templates, pg X	X	X					
C6	Improve drainage and repair broken sidewalk.	Building Blocks for a Walkable Raleigh, Administrative, page X	X	X					

Glenwood Avenue between Pleasant Valley and Commercial Driveway at Pleasant Valley Promenade



Overall Need	
✓	Lack of pedestrian crossing facilities at intersections and building access points.
✓	Heavy motor vehicle traffic.
✓	Long pedestrian crossing distances.
✓	High pedestrian traffic area.
Improvements	
➤	Add sidewalks.
➤	Stripe high-visibility crosswalks.
➤	Add pedestrian signals.
➤	Shorten crossing distances and provide pedestrian refuges with raised center medians and right-turn channelization islands.
➤	Shorten crossing distances with curb extensions.
➤	Realign intersections to reduce pedestrian-vehicle conflicts.
➤	Relocate bus stop to far side of commercial driveway entrance.

Rationale.

This segment was selected as an Example Location because of overall concerns about the safety of pedestrians walking along and crossing the roadway. Adjacent land use to this location is retail and commercial, with ample parking lots and driveways for reaching these establishments. Each of the several driveways that interrupt the sidewalk creates an intersection-type situation that increases the risk of pedestrian-vehicle

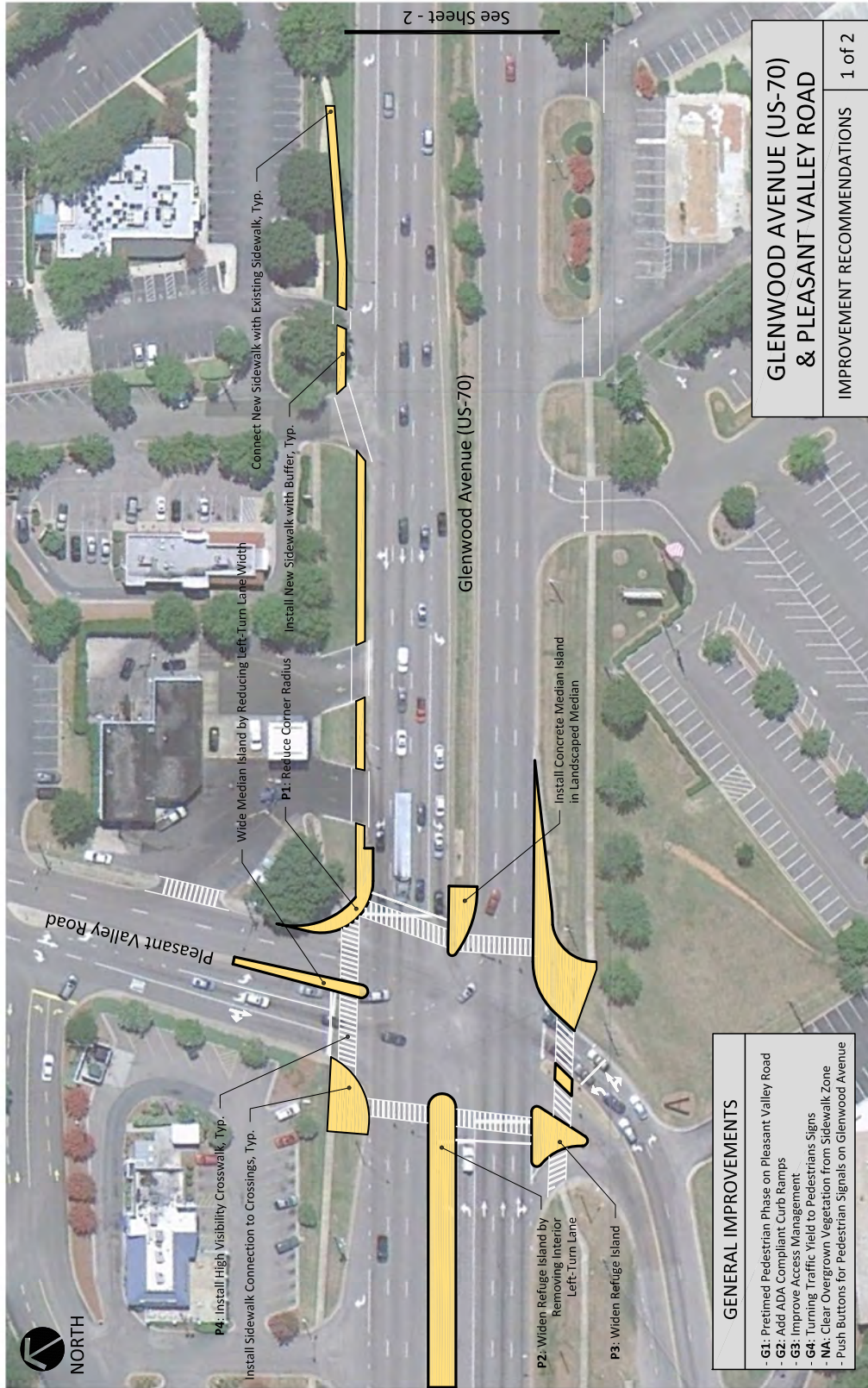
conflicts. Facilities that improve pedestrian visibility are needed at these locations. Two bus routes travel along Glenwood Avenue, with stops spaced approximately 1,000 to 2,000 feet apart. Sidewalks are present along both sides of the street with varying buffer widths. Six travel lanes that expand to eight or more at intersections create long pedestrian crossings. There are no pedestrian signals at the signalized intersection of Glenwood Avenue and Pleasant Valley Road. Striped crosswalks are missing at all intersections and driveway crossings. Pedestrian crossing facilities will help mitigate the effects of heavy motor vehicle traffic and long pedestrian crossing distances.

Recommended Design Concepts.

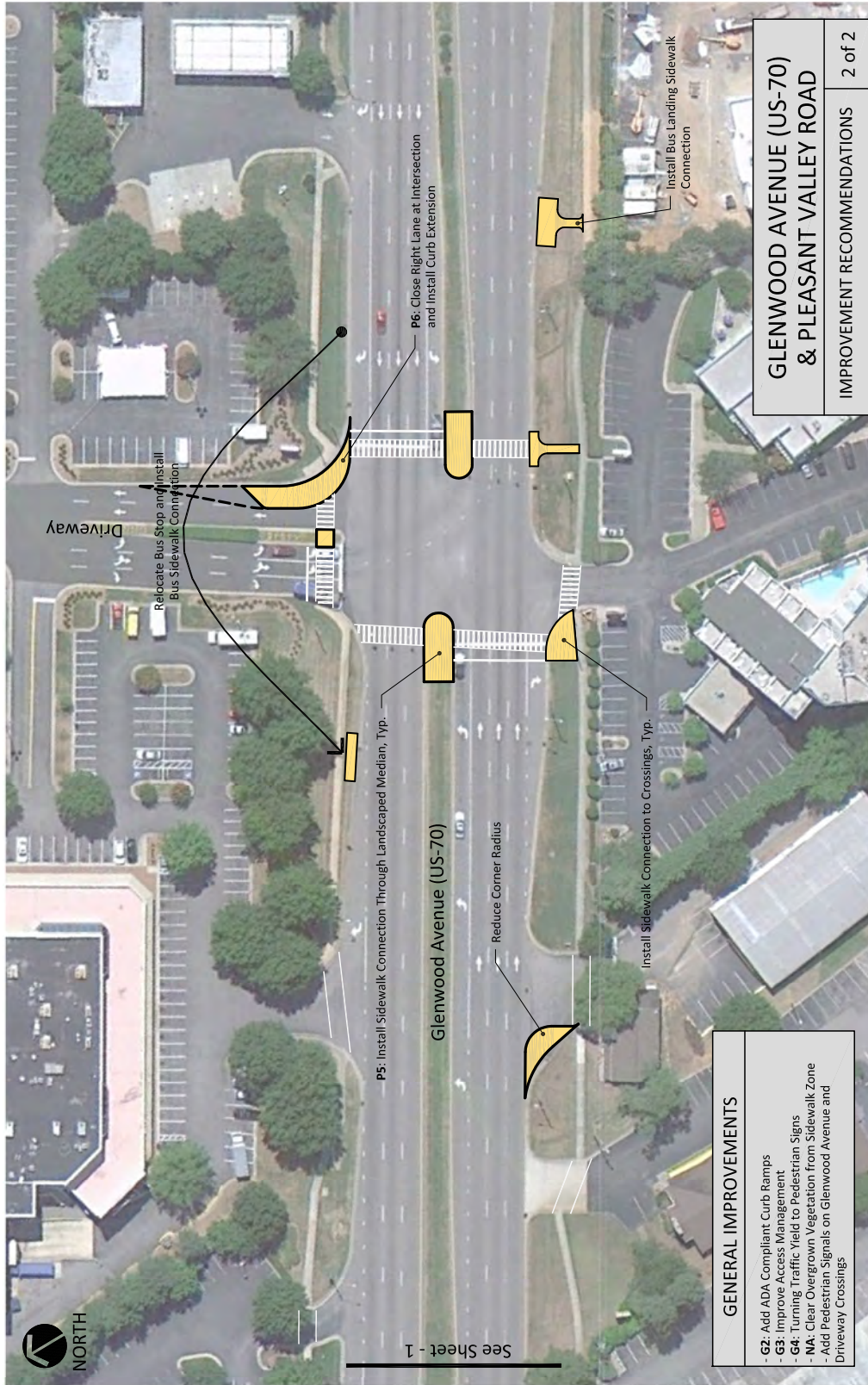
Recommended concepts are concentrated at the two intersections, including one bus stop. The recommendations include signal changes, geometric changes within the right-of-way, new signage, and maintenance. Specific recommendations within the segment are summarized in the table below and shown on two maps:

- » Map 12. Glenwood Avenue Example Location
- » Map 13. Glenwood Avenue Example Location

Map 17. Glenwood Avenue Example Location Map 1: Pleasant Valley Road.



Map 18. Glenwood Avenue Example Location Map 2: Commercial Driveway.



GLENWOOD AVENUE (US-70) & PLEASANT VALLEY ROAD	
IMPROVEMENT RECOMMENDATIONS	2 of 2

GENERAL IMPROVEMENTS
-G2: Add ADA Compliant Curb Ramps
-G3: Improve Access Management
-G4: Turning Traffic Yield to Pedestrian Signs
-NA: Clear Overgrown Vegetation from Sidewalk Zone
-Add Pedestrian Signals on Glenwood Avenue and Driveway Crossings

GLENWOOD AVENUE BETWEEN PLEASANT VALLEY ROAD AND COMMERCIAL ENTRANCE TO THE PLEASANT VALLEY PROMENADE		Chapter 3 Reference									
		MAP KEY	GENERAL	ADA Compliant	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
G1	Install pedestrian signals at Pleasant Valley and commercial driveway for Pleasant Valley Promenade.	Best Practices Overview, Countermeasure table, pg X	X								
G2	Install ADA-compliant curb ramps on where missing.		X								
G3	Develop access management program to consolidate driveways interrupting sidewalks.	Best Practices, Along the Roadway Basics, pg X									X
G4	Install "Turning Traffic Yield to Pedestrians" signs.	Best Practices Overview, Countermeasure table, pg X	X							X	
NA	Clear overgrown vegetation from the sidewalk; establish ongoing maintenance program.	May include a reference from Chapter 5, BBWR	X		X						
PLEASANT VALLEY ROAD											
P1	Curb extensions/radii reduction	Best Practices, Intersection Templates, pg X	X			X					
P2	Install a raised median island with pedestrian refuge.	Best Practices Overview, Countermeasure table, pg X				X					
P3	Install raised island that channelizes right turn lane to shorten crossing distance and provide refuge area.	Best Practices, Across the Roadway Basics, pg X Intersection Templates, pg X	X			X					X

GLENWOOD AVENUE BETWEEN PLEASANT VALLEY ROAD AND COMMERCIAL ENTRANCE TO THE PLEASANT VALLEY PROMENADE		ADA Compliant	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
P4	Stripe high visibility crosswalks for all approaches, re-aligning stop bars as needed.	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X	X						
P5	Install a raised median island with pedestrian refuge.	Best Practices, Intersection Templates, pg X			X				
P6	Close right lane and widen sidewalk to provide larger space for pedestrians, install a small median, stripe high visibility crosswalks.								

Brier Creek Parkway between Little Briar Creek Lane and Skyland Ridge Parkway



Overall Need

- ✓ Lack of pedestrian crossing facilities at intersections.
- ✓ Large size of intersections.
- ✓ Heavy motor vehicle traffic.
- ✓ Missing sidewalks along roadway.
- ✓ Shopping area with high vehicle traffic and potential pedestrian use.
- ✓ Wide pavement on side street approaches that is not used.

Improvements

- Add sidewalks.
- Shorten crossing distances and provide pedestrian refuges with raised center medians and right turn channelization islands.
- Stripe high visibility crosswalks.
- Stripe advance stop bars.
- Add traffic and pedestrian signals, when warranted.

Super Intersections – Option 1:

- Widen existing center media to serve as pedestrian refuge.
- Install diagonal crosswalks on Brier Creek Parkway through the median to reduce pedestrian-vehicle conflicts with left turns from Brier Creek Parkway.
- Replace existing parallel bar crosswalks with high visibility crosswalks.

Super Intersections – Option 2:

- Stripe crosswalks across Brier Creek Parkway, using existing curb ramps and median crossing locations.
- Stripe advance stop bars for motor vehicles.
- Replace existing parallel bar crosswalks with high visibility crosswalks.

Rationale.

This segment of Brier Creek Parkway is surrounded by a series of large retail and commercial venues that attract high numbers of visitors, primarily in motor vehicles. There is limited bus service on Brier Creek Parkway. Most bus routes serve the adjacent streets and serve the retail and commercial establishments in the area. The pedestrian network that is part of this circulation system is intermittent along Brier Creek Parkway and generally lacks adequate pedestrian crossing facilities.

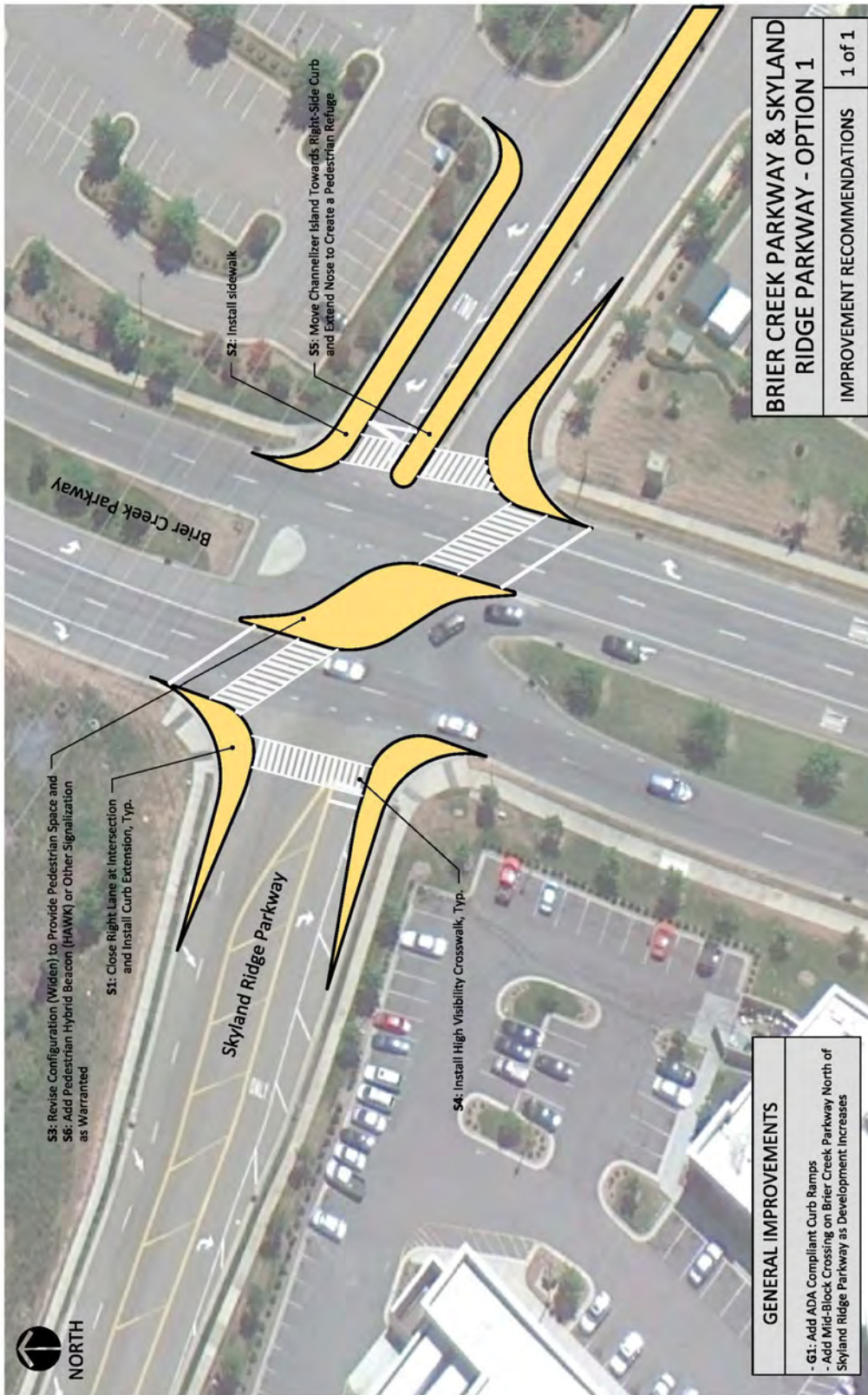
Recommended Design Concepts. Recommended concepts are concentrated at three intersections: Little Briar Creek Lane, Glenwood Avenue, and Skyland Ridge Parkway. Recommendations

for all three intersections will shorten crossing distances and stripe high visibility crosswalks. Design concepts typical of large four-way intersections are recommended at Glenwood Avenue. Two options are recommended for Little Briar Creek Lane and Skyland Ridge Parkway, since these intersections include a “super street” median to control turning movements through the intersection. The recommendations for these two intersections also include signaling the intersection when motor vehicle and pedestrian traffic warrant.

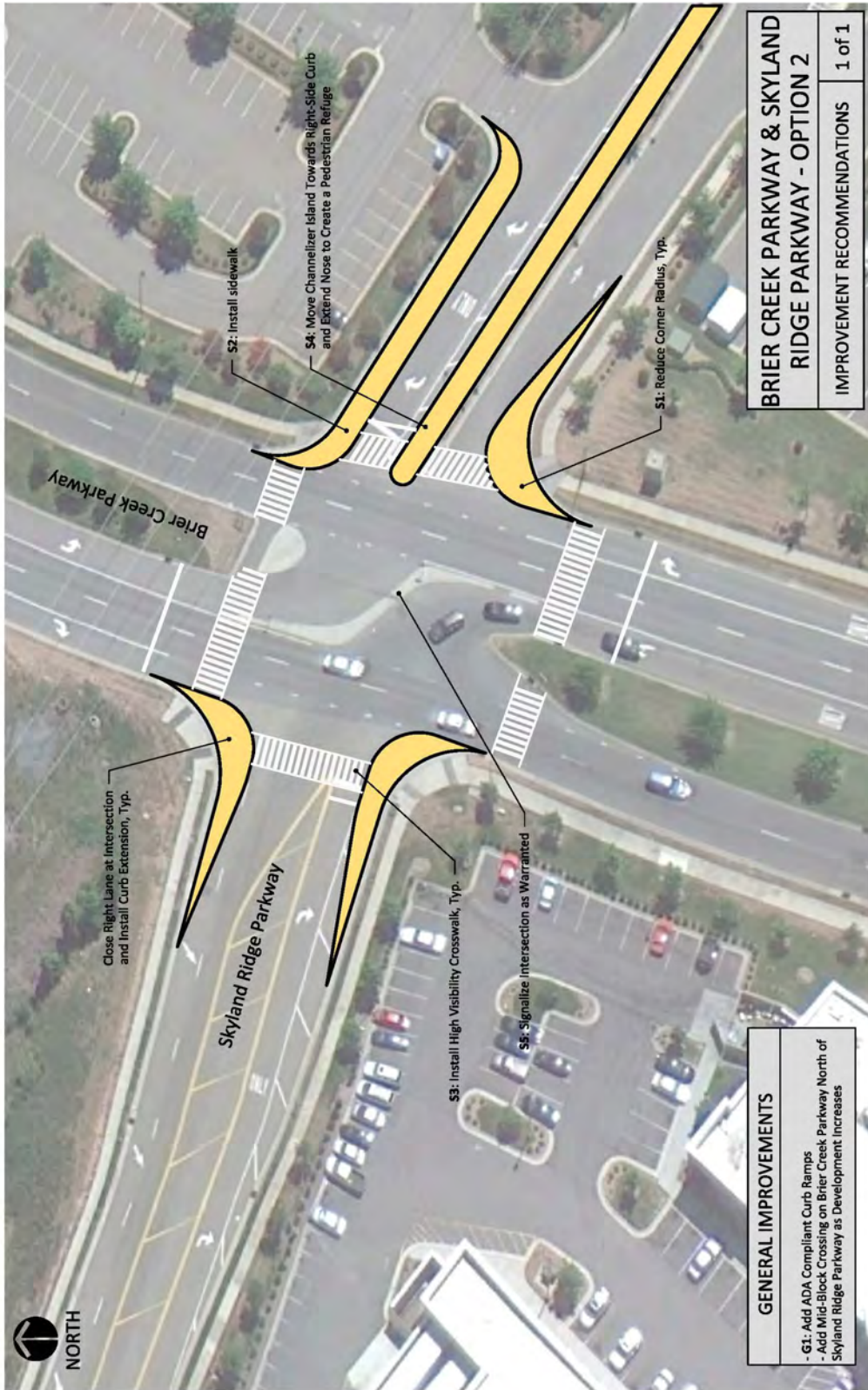
Specific recommendations within the segment are summarized in the table below and shown on a series of five maps:

- » Map 14. Brier Creek Parkway Example Location Map 1: Skyland Ridge Parkway Option 1.
- » Map 15. Brier Creek Parkway Example Location Map 2: Skyland Ridge Parkway Option 2.
- » Map 16. Brier Creek Parkway Example Location Map 3: Little Brier Creek Lane, Option 2
- » Map 17. Brier Creek Parkway Example Location Map 4: Little Brier Creek Lane, Option 1.
- » Map 18. Brier Creek Parkway Example Location Map 5: Glenwood Avenue.

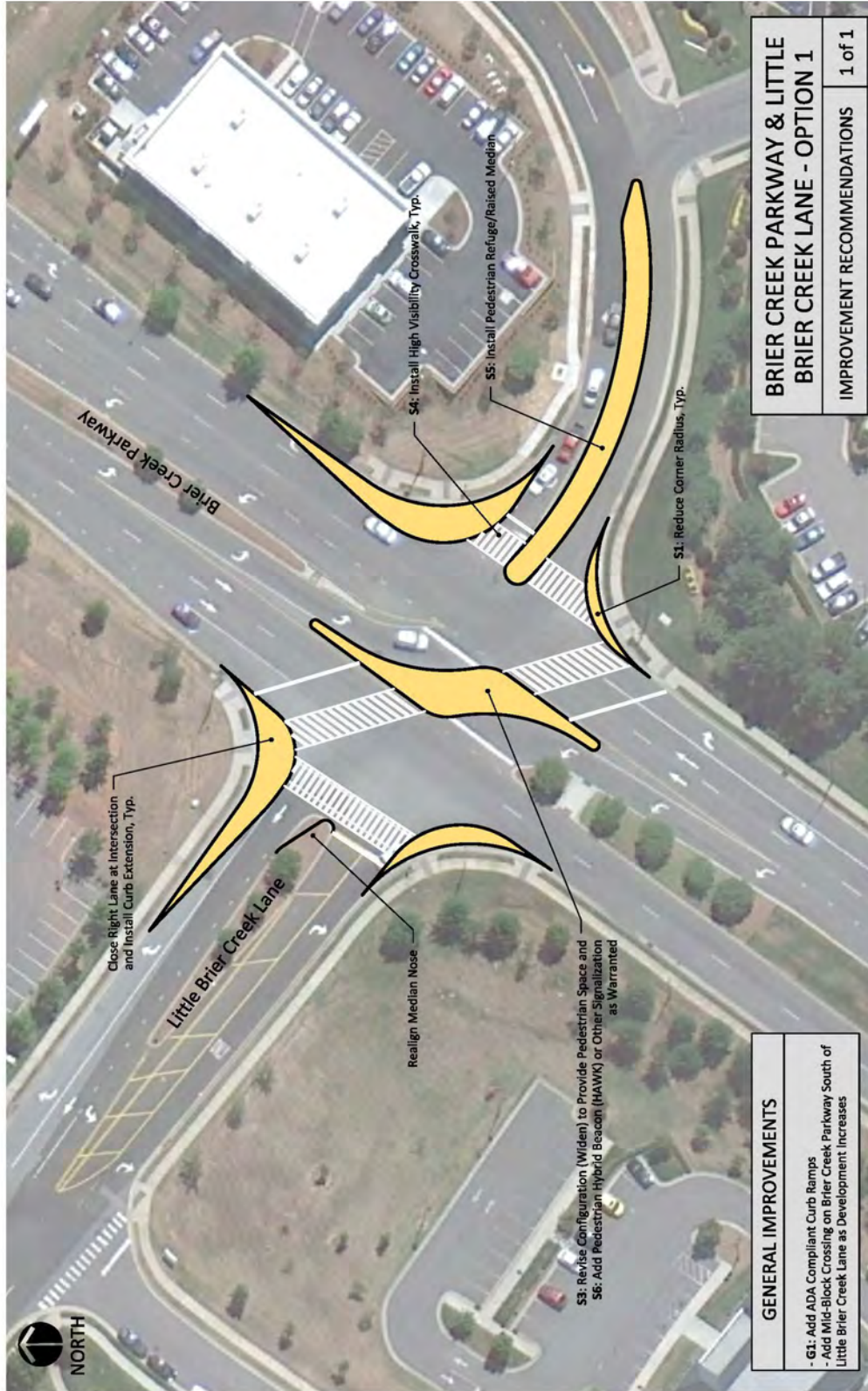
Map 19. Brier Creek Parkway Example Location Map 1: Skyland Ridge Parkway Option 1.



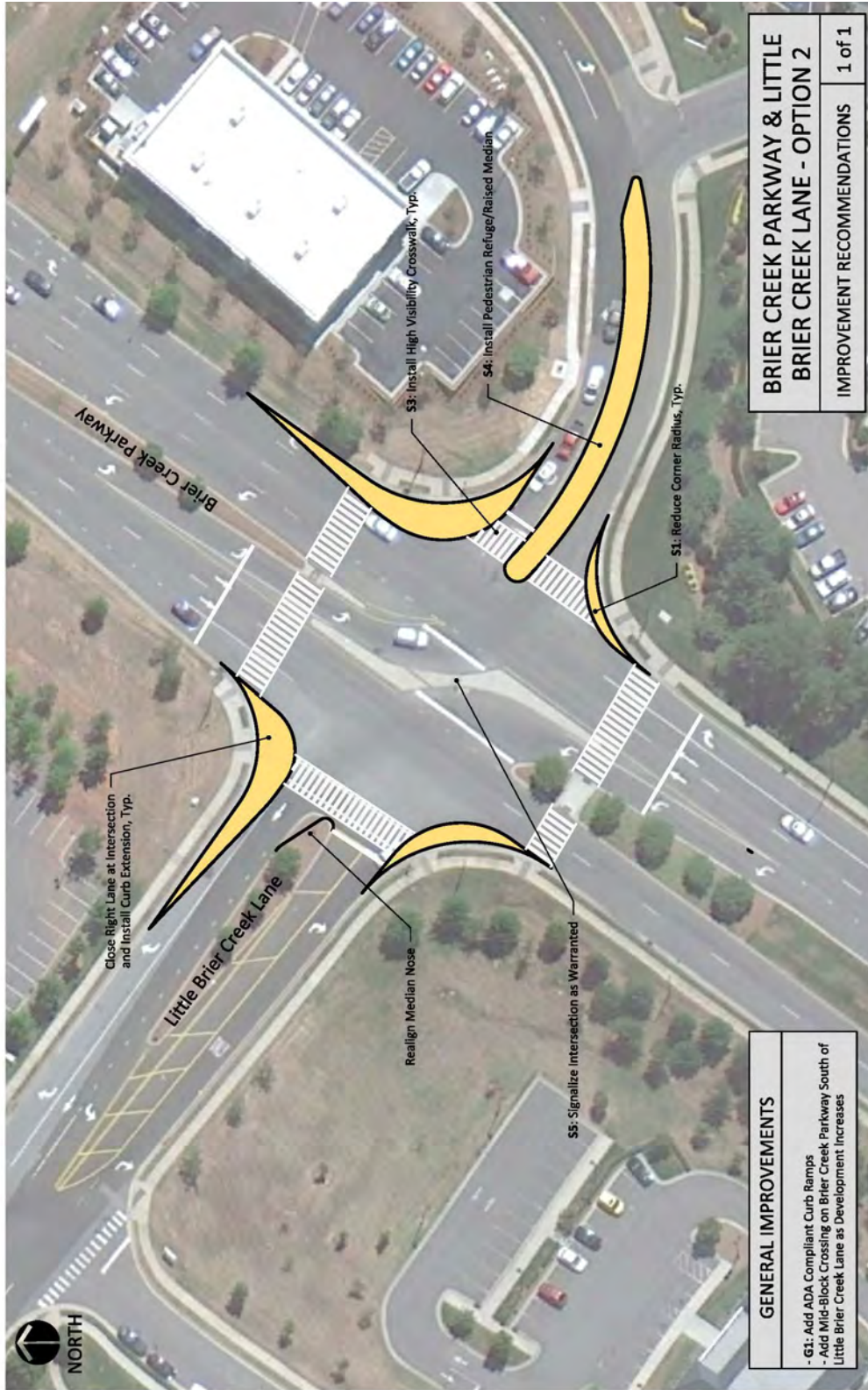
Map 20 Brier Creek Parkway Example Location Map 2: Skyland Ridge Parkway Option 2.



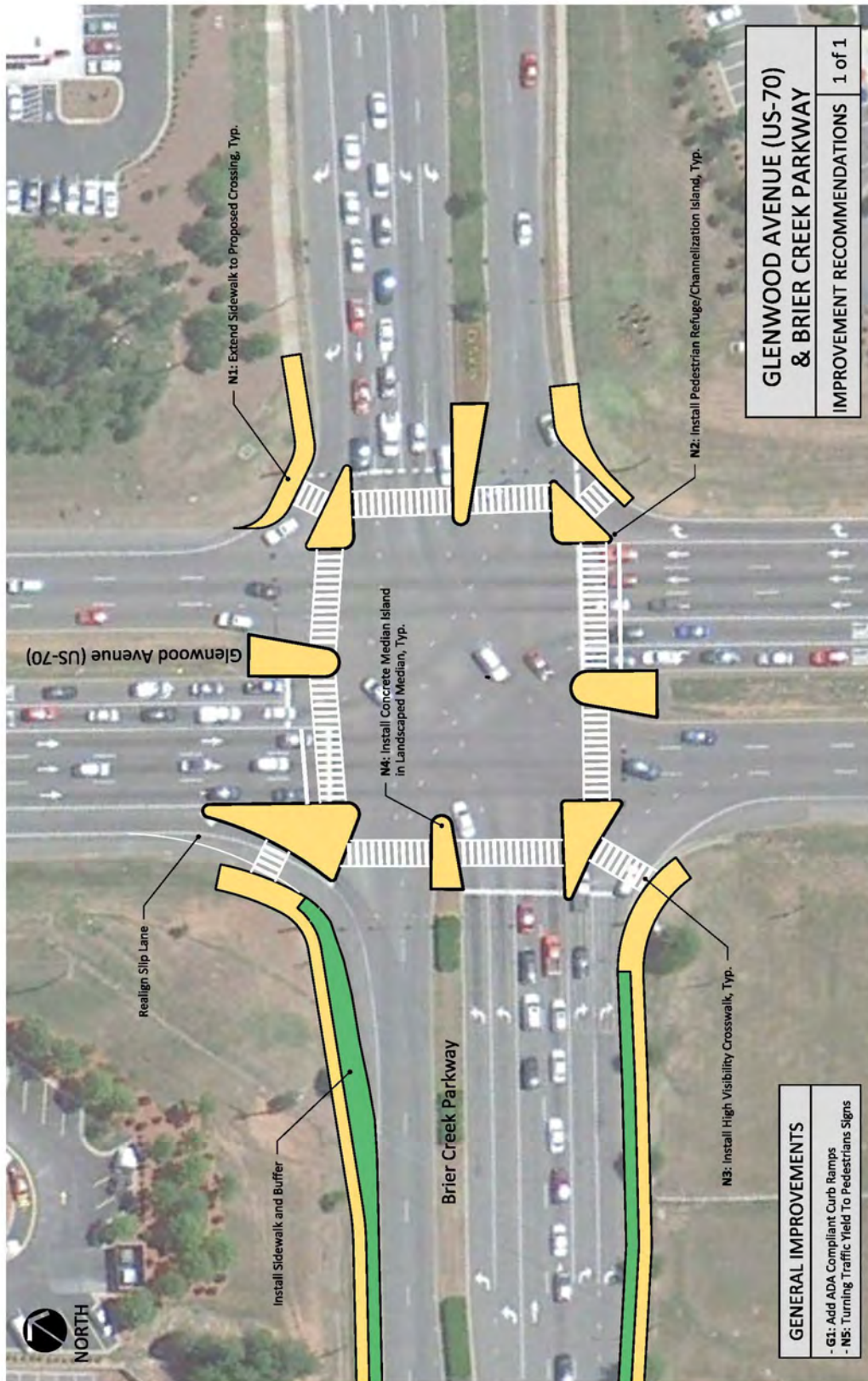
Map 21. Brier Creek Parkway Example Location Map 4: Little Brier Creek Lane, Option 1.



Map 22 Brier Creek Parkway Example Location Map 3: Little Brier Creek Lane, Option 2.



Map 23. Brier Creek Parkway Example Location Map 5: Glenwood Avenue.



BRIER CREEK PARKWAY BETWEEN LITTLE BRIAR CREEK LANE AND SKYLAND RIDGE PARKWAY									
Chapter 3 Reference									
MAP KEY	GENERAL	ADA Compliant	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
G1	Install ADA-compliant curb ramps where missing.	X							
GLENWOOD AVENUE									
N1	Extend sidewalk to and around corner.			X					
N2	Install raised island that channelizes right turn lane to shorten crossing distance and provide refuge area. Realign slip lane, as needed.		X		X			X	
N3	Stripe high visibility crosswalks for all approaches and across slip lanes, re-aligning stop bars as needed.			X					X
N4	Extend and adjust footprint of median nose on all approaches to accommodate crosswalk and provide pedestrian refuge.		X		X				
N5	Install "Turning Traffic Yield to Pedestrians" signs.		X					X	
BRIER CREEK PARKWAY AND SKYLAND RIDGE PARKWAY, OPTION 1									
S1	Close right lane and install curb extensions/radii reduction		X		X				

BRIAR CREEK PARKWAY BETWEEN LITTLE BRIAR CREEK LANE AND SKYLAND RIDGE PARKWAY		ADA Compliant	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.	
S2	Install sidewalk, converting unused pavements.	Best Practices, Along the Roadway Basics, pg X		X						
S3	Enlarge the super street center median to encompass a pedestrian refuge.	Best Practices, Intersection Templates, pg X	X		X				X	
S4	Stripe high visibility crosswalks for all approaches and diagonally across intersection, re-aligning stop bars as needed.	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X		X					X	
S5	Install or shift raised median with pedestrian refuge aligned with crosswalk.	Best Practices, Intersection Templates, pg X	X		X					
S6	Install Pedestrian Hybrid Beacon (HAWK) or other signalization, as warranted.	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X	X						X	
BRIAR CREEK PARKWAY AND SKYLAND RIDGE PARKWAY, OPTION 2										
S1	Curb extensions/radii reduction.	Best Practices, Intersection Templates, pg X	X		X					
S2	Install sidewalk, converting unused pavements.	Best Practices, Along the Roadway Basics, pg X		X						
S3	Stripe high visibility crosswalks for all approaches and diagonally across intersection, re-aligning stop bars as needed.	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X		X					X	
S4	Install or shift raised median with pedestrian refuge aligned with crosswalk.	Best Practices, Intersection Templates, pg X	X		X					
S5	Install signal (including pedestrian signal), as warranted.	Best Practices Overview, Countermeasure table, pg X	X		X					

BRIER CREEK PARKWAY BETWEEN LITTLE BRIAR CREEK LANE AND SKLYAND RIDGE PARKWAY		ADA Compliant	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
GLENWOOD AVENUE									
N1	Extend sidewalk to and around corner.	Best Practices, Along the Roadway Basics, pg X		X					
N2	Install raised island that channelizes right turn lane to shorten crossing distance and provide refuge area. Realign slip lane, as needed.	Best Practices, Across the Roadway Basics, pg X Intersection Templates, pg X	X		X			X	
N3	Stripe high visibility crosswalks for all approaches and across slip lanes, re-aligning stop bars as needed.	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X		X					X
N4	Extend and adjust footprint of median nose on all approaches to accommodate crosswalk and provide pedestrian refuge.	Best Practices Overview, Countermeasure table, pg X	X		X				
N5	Install "Turning Traffic Yield to Pedestrians" signs.	Best Practices Overview, Countermeasure table, pg X	X					X	

Martin Luther King Jr Boulevard between Blount Street and Garner Road



Overall Need

- ✓ Overall difficulty in crossing MLK Boulevard.
- ✓ Skewed crossing at East Street.
- ✓ Long crossing distances.
- ✓ Pedestrian signal phase conflicts with left turn phase at Garner Road
- ✓ Bike route along MLK Boulevard.
- ✓ High pedestrian traffic area.

Improvements

- Shorten crossing distances and provide pedestrian refuges with raised center medians and right turn channelization islands.
- Shorten crossing distances with curb extensions.
- Stripe high visibility crosswalks.
- Relocate bus stop to far side of intersection for improved safety.
- Install and widen sidewalks.
- Increase size of pedestrian mixing area on corners.
- Provide a Leading Pedestrian Interval signal phase at MLK Boulevard and Blount Street.
- Restrict Right-Turn-On-Red from MLK Boulevard onto Blount Street.
- Improve way finding signage for Shaw University campus.
- Install stairs on the north side of MLK Boulevard to connect to greenway trail.
- Encourage bicyclists to ride in the roadway by installing shared lane markings on eastbound MLK Boulevard between East Street and Garner Road.

Rationale.

This segment of Martin Luther King Jr Boulevard serves Shaw University, generating a substantial amount of pedestrian traffic. Other adjacent land uses are primarily residential, with several points of access to Chavis Park and the Capital Area Greenway trail system near the Garner Road intersection. Sidewalks buffered by a planting strip serve “along the roadway” pedestrian needs. Four of the six intersections include striped crosswalks and pedestrian signals. Bus stops at Person Street and East Street create additional needs to accommodate riders on the sidewalk and safe roadway crossings. The roadway is comprised of two travel lanes in each direction and a center lane that serves as a center turn lane or unimproved center median. A bikeway running along East Street turns onto Martin Luther King Jr Boulevard and continues east. Major pedestrian safety concerns include limited facilities for pedestrians to cross the roadway and long crossing distances, especially at the East Street intersection. A specific concern is the conflict between the pedestrian signal phase and left-turn phase at Garner Road.

Recommended Design Concepts.

Recommended design concepts are concentrated at intersections, with improvements to bus stops. Recommendations include new sidewalks, shorter crossing distances at intersections with geometric changes, new crosswalk striping at intersections, a way-finding system for Shaw University, a pedestrian-bicyclist mixing area, streetscape enhancements, and more attention to sidewalk maintenance.

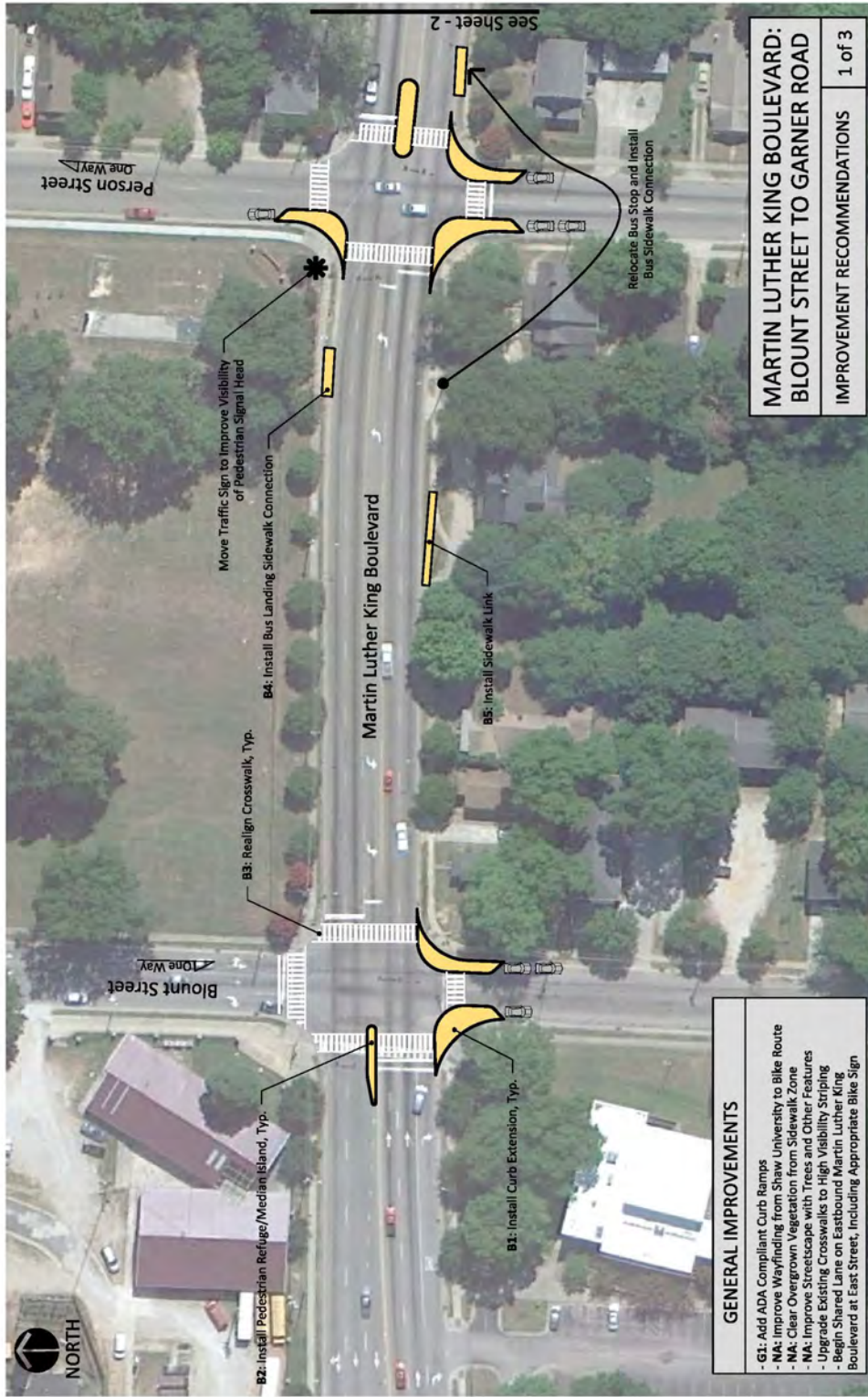
Specific recommendations within the segment are summarized in the table below and shown in a series of three maps:

- » Map 19. Martin Luther King Boulevard Example Location Map 1: Blount Street.

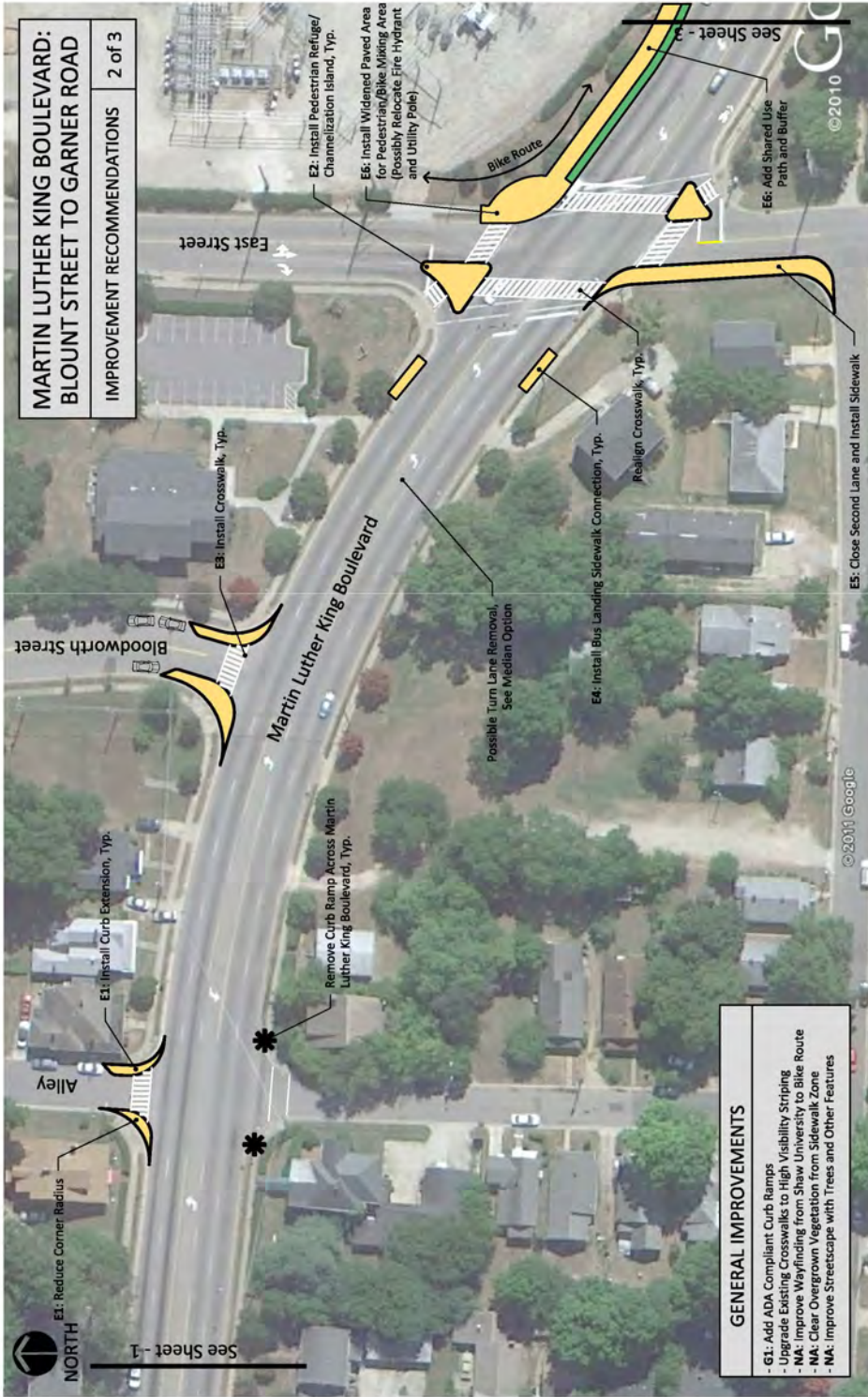
- » Map 20. Martin Luther King Boulevard
Example Location Map 2: East Street.

- » Map 21. Martin Luther King Boulevard
Example Location Map 3: Garner Road.

Map 24. Martin Luther King Boulevard Example Location Map 1: Blount Street



Map 25. Martin Luther King Boulevard Example Location Map 2: East Street.



Map 26. Martin Luther King Boulevard Example Location Map 3: Garner Road.

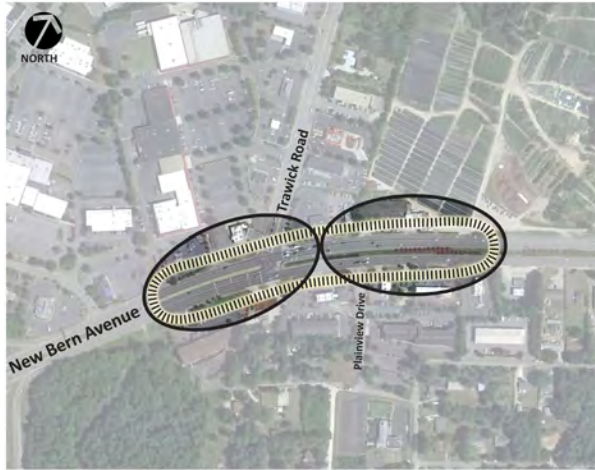


MAP KEY		Chapter 3 Reference												
		GENERAL	ADA Compliance	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.				
MARTIN LUTHER KING JR BOULEVARD BETWEEN BLOUNT STREET AND GARDNER ROAD														
G1	Install ADA-compliant curb ramps where missing.		X											
NA	Clear overgrown vegetation from the sidewalk; establish ongoing maintenance program.		X		X									
NA	Improve streetscape with trees and other features.			X				X						
BETWEEN BLOUNT AND PERSON STREETS														
B1	Install curb extensions/radii reduction.			X		X								
B2	Install a raised median island with pedestrian refuge.							X						
B3	Stripe high visibility crosswalks for all approaches, re-aligning stop bars as needed.						X						X	
B4	Install sidewalk connection and bus landing/waiting pad at bus stops; relocate stop on southwest corner of Person Street to southeast corner.											X		
B5	Re-align sidewalk to provide direct path of travel and eliminate incline/decline.													

MARTIN LUTHER KING JR BOULEVARD BETWEEN BLOUNT STREET AND GARNER ROAD		ADA Compliance	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
NA	Provide way-finding between bikeway east of East Street and Shaw University.								X
BETWEEN EAST OF PERSON STREET AND EAST STREET									
E1	Install curb extensions/radii reduction.	Best Practices, Intersection Templates, pg X	X		X				
E2	Install raised island that channelizes right turn lane to shorten crossing distance and provide refuge area.	Best Practices, Across the Roadway Basics, pg X Intersection Templates, pg X	X		X			X	
E3	Stripe high visibility crosswalks across the alley, Bloodworth Street and all approaches at East Street, re-aligning stop bars as needed.	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X		X					X
E4	Install sidewalk connection and bus landing/waiting pad at bus stop on southwest corner of East Street intersection.	Best Practices, Transit Stops, pg X					X		
E5	Install sidewalk, recapturing second southbound lane on East Street.	Best Practices, Along the Roadway Basics, pg X		X					
E6	Install shared use path and mixing zone for bike route on northeast corner of East Street.	Best Practices, Intersection Templates, pg X		X					X
BETWEEN EAST OF EAST STREET AND GARNER ROAD									
R1	Continue shared use path along MLK to existing sidewalk west of Garner Road, including appropriate signs for bicyclists.	Best Practices, Intersection Templates, pg X		X					X
R2	Install a stair connection to Chavis Park.								

MARTIN LUTHER KING JR BOULEVARD BETWEEN BLOUNT STREET AND GARNER ROAD		ADA Compliance	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
R3	Install new sidewalk and buffer along west side of Garner Road south of MLK.	Best Practices, Along the Roadway Basics, pg X		X					
R4	Install a raised median island with pedestrian refuge.	Best Practices Overview, Countermeasure table, pg X			X				
R5	Stripe high visibility crosswalks, realigning stop bar.	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X	X						
R6	Install Leading Pedestrian Interval (LPI) for crosswalk across west leg of intersection.	Best Practices Overview, Countermeasure table, pg X	X			X			X

New Bern Avenue between 3600 and 3800 New Bern Avenue



Overall Need	
✓	Lack of pedestrian crossing facilities.
✓	Large intersection with long pedestrian crossings.
✓	Missing sidewalk needed for connectivity.
✓	Heavy vehicle traffic on New Bern Avenue.
Improvements	
➤	Install sidewalks.
➤	Stripe high visibility crosswalks.
➤	Shorten crossing distances and provide pedestrian refuges with raised center medians and right turn channelization islands.
➤	Realign intersections to reduce pedestrian-vehicle conflicts.
➤	Improve signal timing and sequence.
➤	Relocate and improve bus stop.

Rationale.

This segment of New Bern Avenue is just east of an I-440 Beltline interchange. Adjacent land use is commercial/retail. The wide right-of-way with multiple lanes in each direction at the interchange continues through the segment. At its widest point, the roadway includes eight travel lanes and a raised center median. Sidewalks with a planted buffer serve pedestrians along most of the segment, but some

gaps (due, in part, to dedicated right turn lanes and multiple commercial driveway entrances) interrupt the sidewalk continuity. Features at the three bus stops range from a pole and flag to a sidewalk could be improved and better located. There are no designated pedestrian crossings in the segment of New Bern Avenue, in spite

- » My neighborhood (Trawick Downs) is 4 blocks from a shopping center (Tower). However, teens cannot walk there for employment. Others cannot walk there to shop. There are sidewalks in the sub-division but no sidewalk connecting the subdivision to the shopping center. A walkable sidewalk would be a great asset to the neighborhood and to the merchants at the shopping center. (Survey respondent)
- » I see many pedestrians and cyclists in unsafe conditions in this area, including walking & biking along 64 over the I-440 interchange (there are paths worn in the grass) and crossing 64 mid-block near the hotels, plasma donation center, shops. I have witnessed multiple near-misses, esp. as cars take the exit/entrance ramps from I-440. (Community Walk respondent)

of the high volume of pedestrians. See the text box for comments from the on-line survey and CommunityWalk mapping tool. The nearest marked pedestrian crossing is at N. Rogers Lane, approximately 1 ¼ mile from Trawick Road.

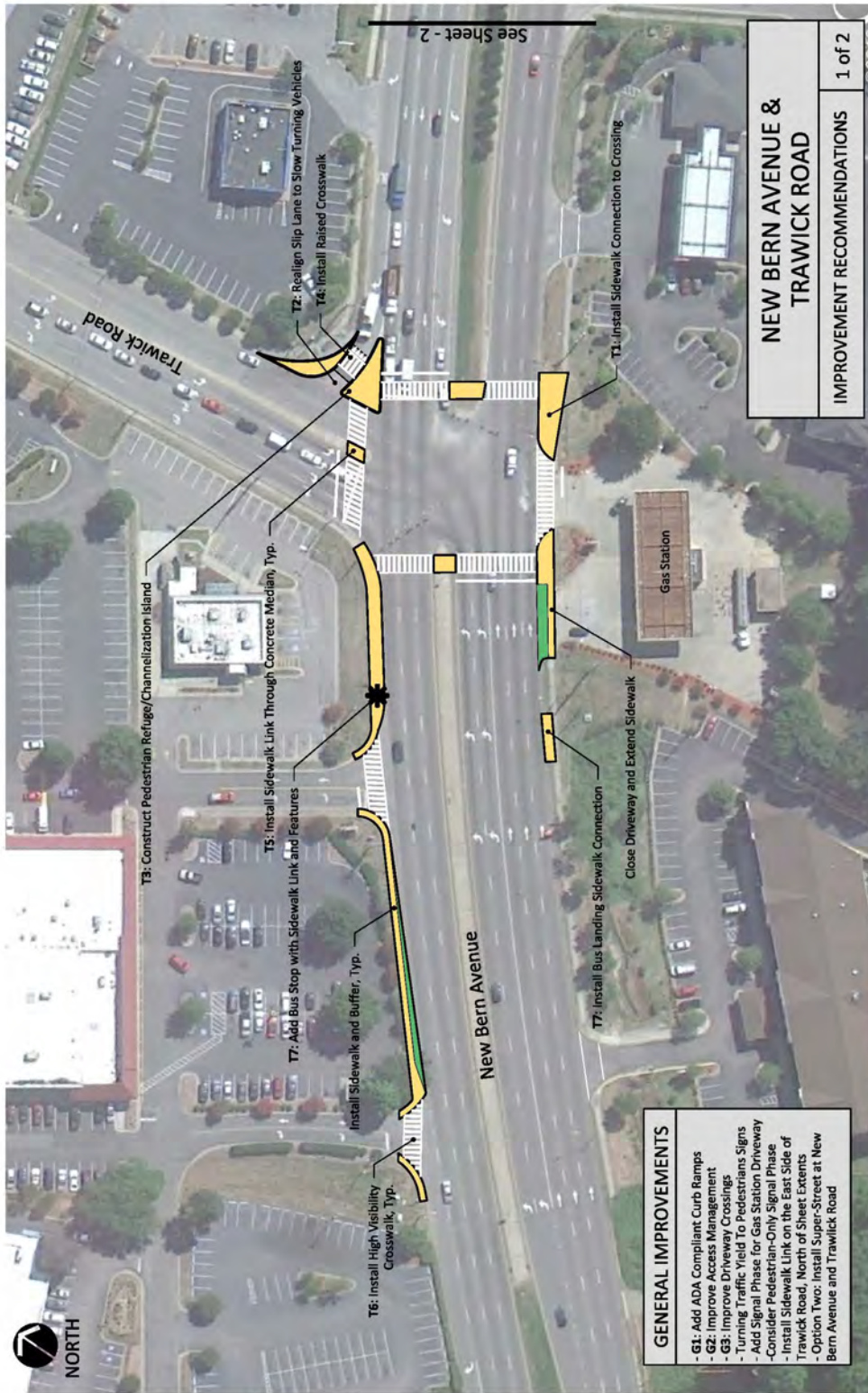
Recommended Design Concepts. Recommended

design concepts provide access management, improve driveway crossings and address ADA-compliance needs. Other recommendations improve bus stop siting and features, and add roadway crossings for companion bus stops. The largest set of improvements is at the Trawick Road intersection, establishing pedestrian crossings on all approaches and adding a pedestrian-only signal phase. Specific recommendations within the segment are summarized in the table below and shown on two maps:

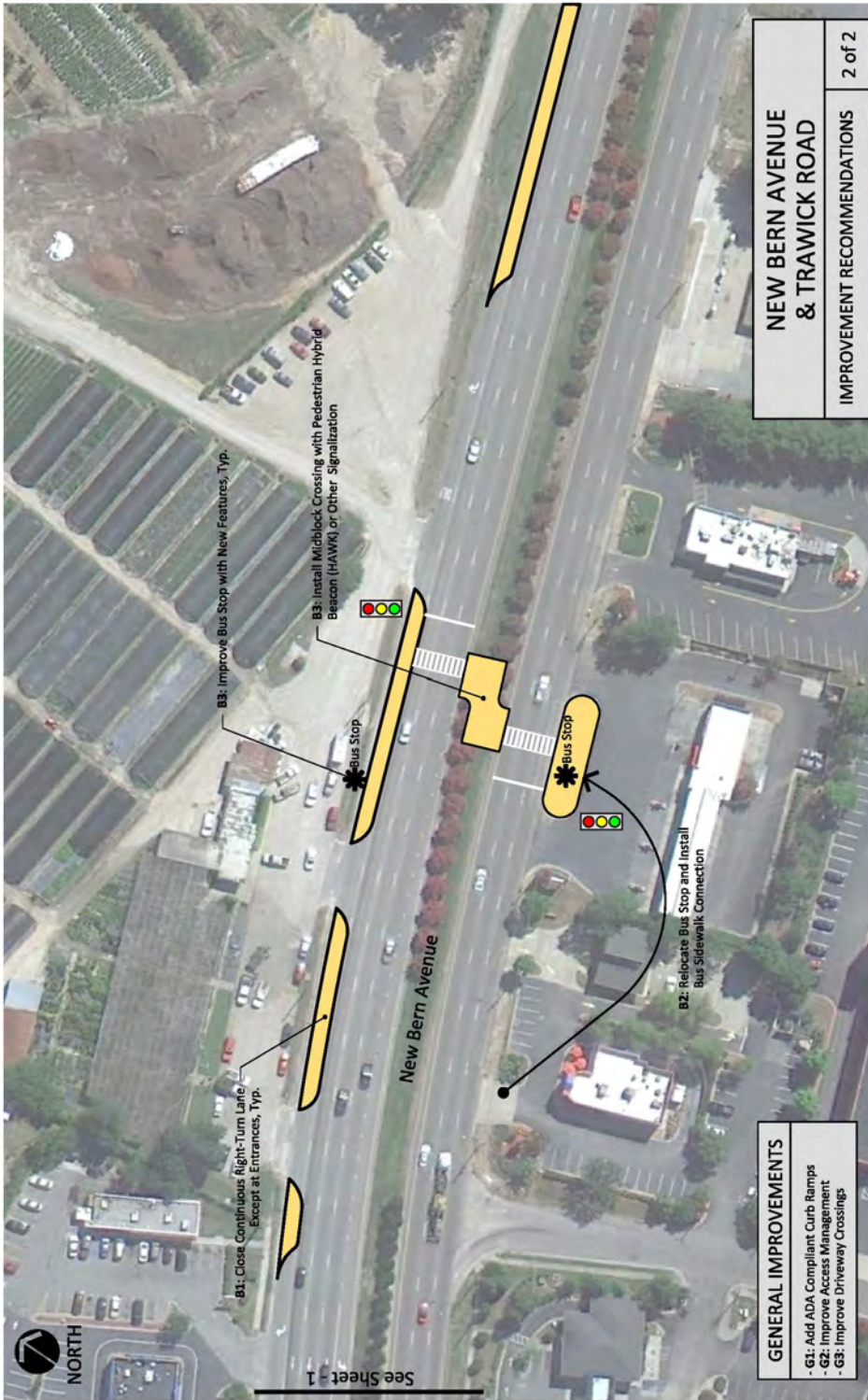
- » Map 22. New Bern Avenue Example Location
Map 1: Trawick Road.

- » Map 23. New Bern Avenue Example Location
Map 2: 3800 New Bern Road.

Map 27 New Bern Avenue Example Location Map 1: Trawick Road.

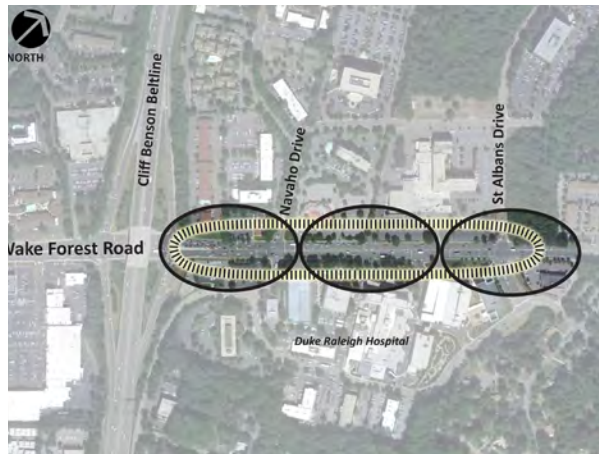


Map 28. New Bern Avenue Example Location Map 2: 3800 New Bern Road.



NEW BERN AVENUE BETWEEN 3600 AND 3800 NEW BERN AVENUE		ADA Compliance	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
T6	Stripe high visibility crosswalks for all approaches, re-aligning stop bars as needed.	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X		X					X
T7	Install sidewalk connection and bus landing/waiting pad at bus stops.	Best Practices, Transit Stops, pg X					X		
BETWEEN JUST EAST OF TRAWICK ROAD AND 3800 NEW BERN AVENUE									
B1	Convert the continuous right turn lane to a sidewalk planted buffer.	Best Practices, Along the Roadway Basics, pg X						X	
B2	Relocate the bus stop on the south side of New Bern Avenue east to a location just opposite the stop on the north side of the street.	Best Practices, Public Transit Bus Stops, pg X	X				X		
B3	Establish mid-block crossing to serve companion bus stops with:	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X		X					X
	<ul style="list-style-type: none"> ● Raised median island with pedestrian refuge. 	Best Practices Overview, Countermeasure table, pg X			X				

Wake Forest Road between the Beltline off-ramp and St. Albans Drive



Overall Need

- ✓ Lack of pedestrian crossing facilities (crosswalks, pedestrian signals).
- ✓ Access to transit needs.
- ✓ Heavy vehicle traffic on each leg of intersection.
- ✓ Overall mix of modes.
 - High pedestrian traffic area.
 - Bike crossing at St. Albans Road.
 - Interchange is a barrier to pedestrian travel and access.

Improvements

- Shorten crossing distances and provide pedestrian refuges with raised center medians and right turn channelization islands.
- Shorten crossing distances using tighter curb radii and curb extensions.
- Stripe high-visibility crosswalks, realigning as needed.
- Change signal phasing to reduce likelihood of pedestrian/vehicle conflicts.
- Install a signalized mid-block crossing of Wake Forest Road near the hospital right-in/right-out driveway.

Rationale.

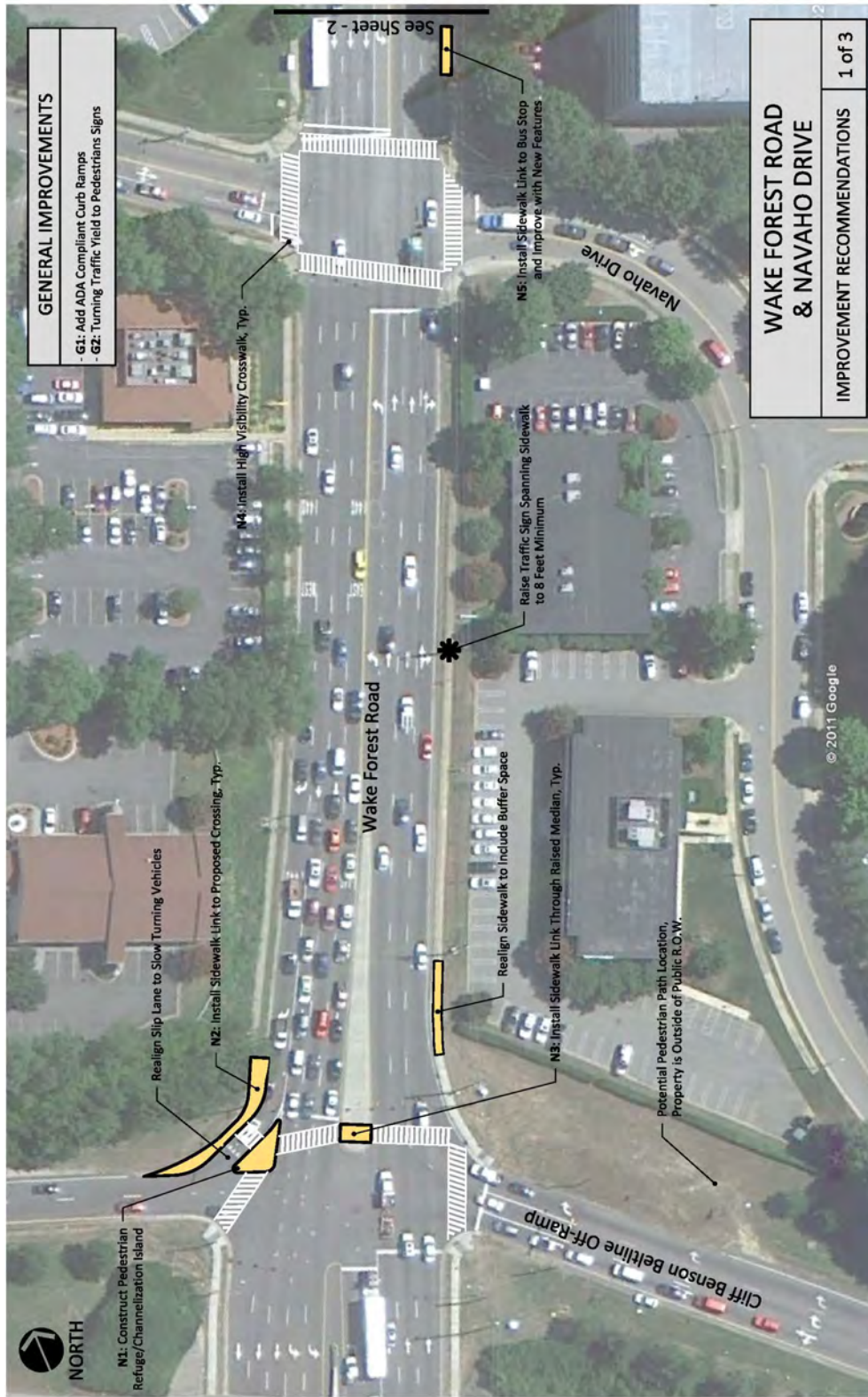
This segment of Wake Forest Road is just east of an I-440 Beltline interchange. Adjacent land use is institutional (hospital), hospitality (hotels and restaurants), commercial, and some retail. The wide right-of-way with multiple lanes in each direction are present at the interchange

and through the segment. At its widest point, the roadway includes eight travel lanes and an intermittent painted center median. Sidewalks with a planted buffer serve pedestrians along most of the segment, but some gaps (due, in part, to a bus stop pull-out just east of St. Albans Drive and multiple commercial driveway entrances) interrupt the sidewalk continuity. Features at the two bus stops include a pole and flag and a sidewalk connection. The only pedestrian crossing at St. Albans Drive is poorly designed with long crossing distances across two approaches. Pedestrian presence along and across this segment of Wake Forest Road indicates that improvements are needed. See the text box insert for a comment from the on-line survey.

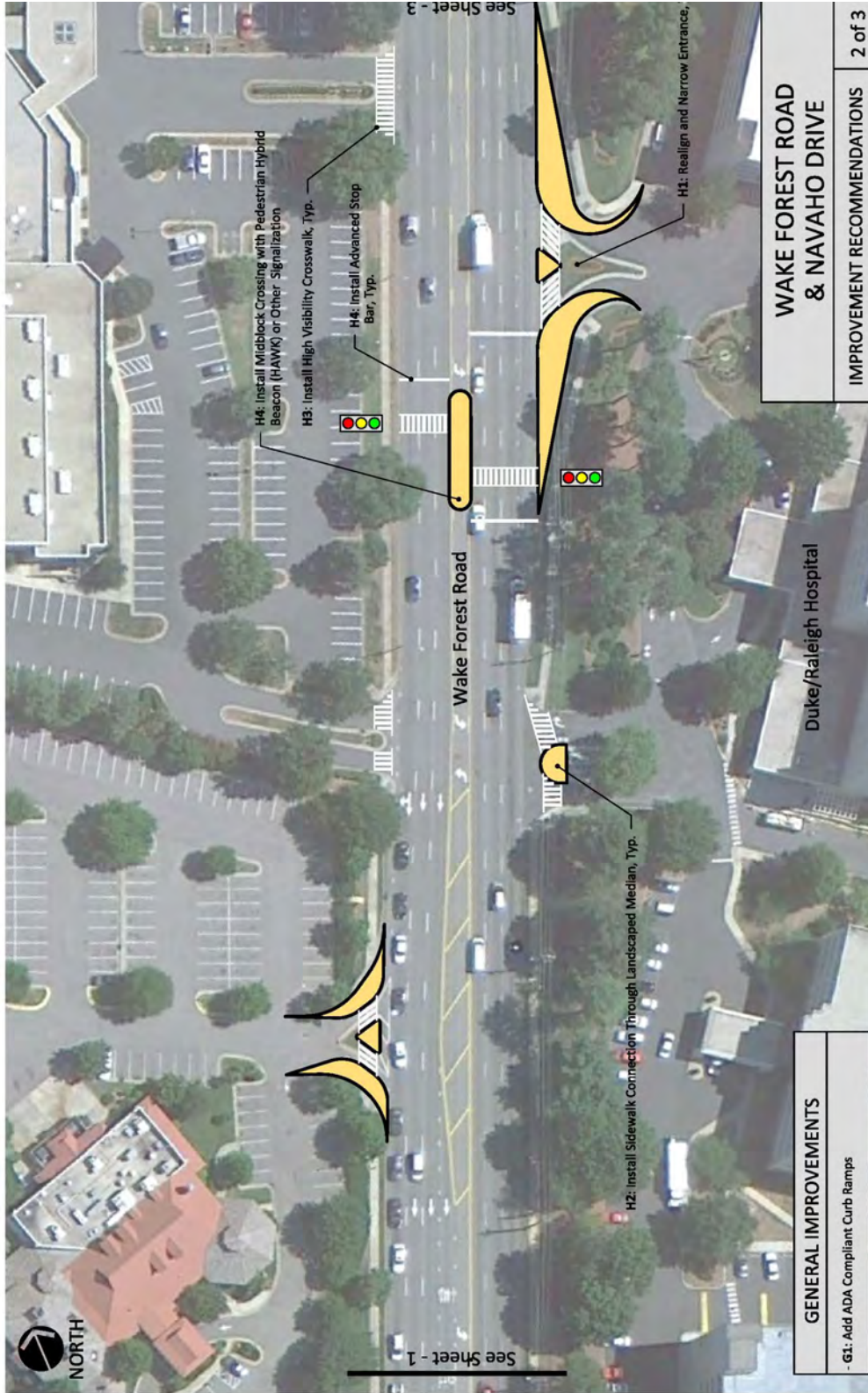
Recommended Design Concepts. Recommended design concepts improve driveway crossings and address ADA-compliance needs. Other recommendations establish a mid-block crosswalk for access to the Duke/Raleigh Hospital, new pedestrian crossing facilities at the Beltline off-ramp, improved pedestrian crossing facilities at St. Albans's Drive, and pedestrian warning signs for motorists. Specific recommendations for the segment are summarized in the table below and shown in a series of three maps:

- » Map 24. Wake Forest Road Example Location Map 1: Navaho Drive.
- » Map 25. Wake Forest Road Example Location Map 2: Hospital Entrance.
- » Map 26. Wake Forest Drive Example Location Map 3: St. Albans Drive.

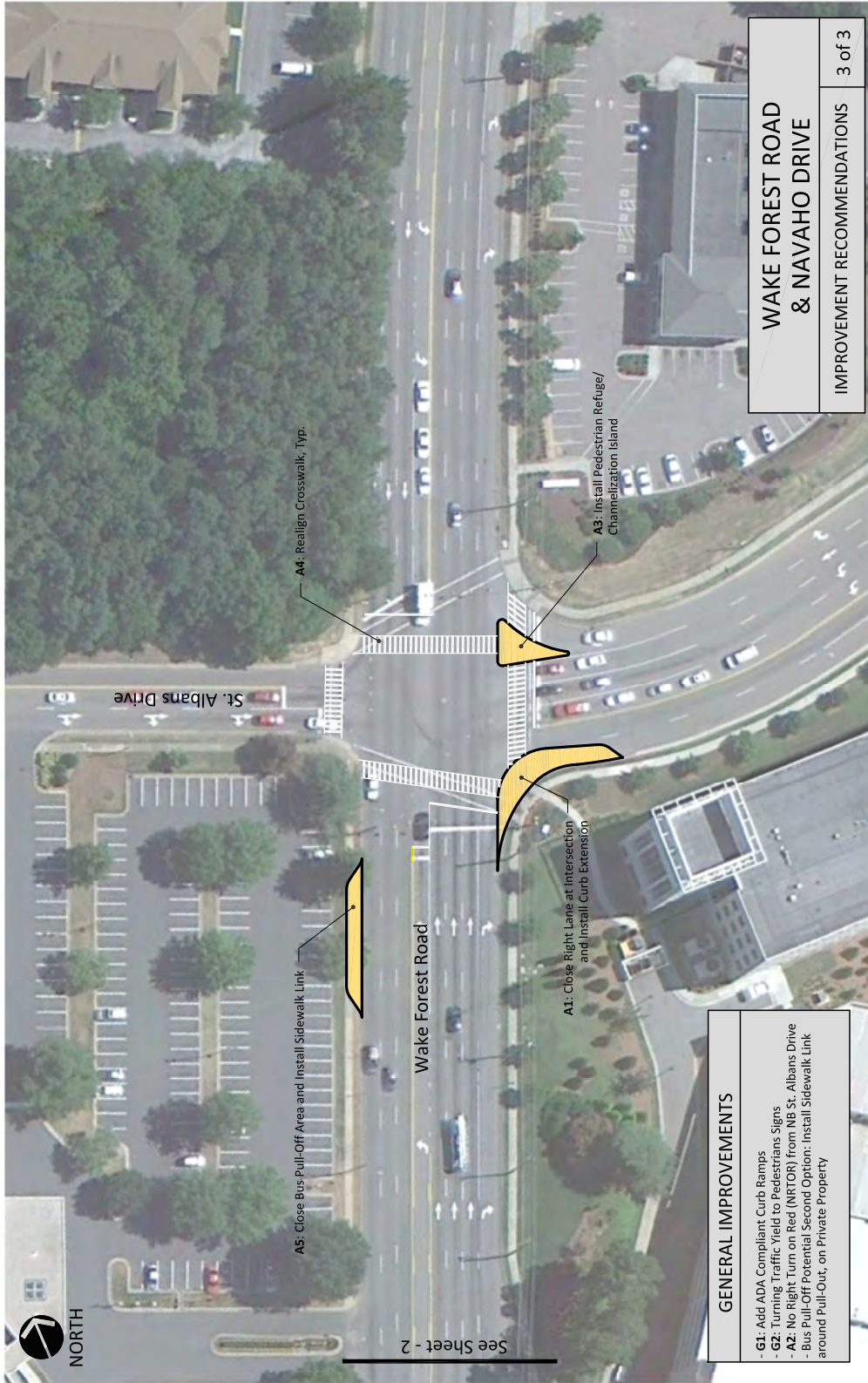
Map 29. Wake Forest Road Example Location Map 1: Navaho Drive.



Map 30. Wake Forest Road Example Location Map 2: Hospital Entrance.



Map 31. Wake Forest Drive Example Location Map 3: St. Albans Drive.



WAKE FOREST ROAD BETWEEN THE BELTLINE INTERCHANGE AND ST. ALBANS ROAD									
Chapter 3 Reference									
MAP KEY	GENERAL	ADA Compliance	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
G1	Install ADA-compliant curb ramps where missing.	X							
G2	Install "Turning Traffic Yield to Pedestrians" signs.		X					X	X
BETWEEN BELTLINE INTERCHANGE AND NAVAHO DRIVE									
N1	Install raised island that channelizes right turn lane to shorten crossing distance and provide refuge area.		X		X			X	
N2	Install sidewalks to align with new crosswalks.			X					
N3	Install or modify existing raised median island with pedestrian refuge; align with new crosswalk.				X				
N4	Stripe high visibility crosswalks for all approaches, re-aligning stop bars as needed.			X					X
N5	Install sidewalk connection and bus landing/waiting pad at bus stops.						X		
N6	Install signs alerting motorist of pedestrians crossing the roadway.								

WAKE FOREST ROAD BETWEEN THE BELTLINE INTERCHANGE AND ST. ALBANS ROAD		BETWEEN JUST EAST OF NAVAHO DRIVE AND ENTRANCE TO DUKE/RALEIGH HOSPITAL							
		ADA Compliance	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.
H1	Realign and narrow entrances to restaurant parking lot and hospital campus, continuing pedestrian path of travel along sidewalk								
	<ul style="list-style-type: none"> • Raised median island with pedestrian refuge. • High visibility crosswalks. • Curb extensions/radii reduction. 								
		Best Practices Overview, Counter-measure table, pg X							
		Best Practices Overview, Counter-measure table, pg X; Across the Roadway Basics, pg X	X						
		Best Practices, Intersection Templates, pg X	X						
H2	Establish sidewalk connection through existing landscaped median.	Best Practices Overview, Counter-measure table, pg X							
H3	Stripe high visibility crosswalks.	Best Practices Overview, Counter-measure table, pg X; Across the Roadway Basics, pg X	X						
H4	Establish mid-block crossing west of hospital entrance with								
	<ul style="list-style-type: none"> • Raised median island with pedestrian refuge. • High visibility crosswalks. • Pedestrian Hybrid Beacon (HAWK) or other signalization, as warranted. 								
		Best Practices Overview, Counter-measure table, pg X							
		Best Practices Overview, Counter-measure table, pg X; Across the Roadway Basics, pg X	X						
		Best Practices Overview, Counter-measure table, pg X; Across the Roadway Basics, pg X	X						X

WAKE FOREST ROAD BETWEEN THE BELTLINE INTERCHANGE AND ST. ALBANS ROAD		ADA Compliance	Make pedestrians more visible to motorists.	Install or improve sidewalk conditions where needed.	Shorten crossing distances.	Ensure sufficient crossing time.	Improve transit access.	Slow motor vehicle speeds at potential points of conflicts with pedestrians.	Reduce or eliminate potential points of conflicts with pedestrians.	
	<ul style="list-style-type: none"> Advanced stop bar. 	Similar to advance yield markings: Best Practices Overview, Countermeasure table, pg X	X					X	X	
BETWEEN ENTRANCE TO DUKE/RALEIGH HOSPITAL AND ST. ALBANS DRIVE										
A1	Narrow outside lane and install curb extension, increasing sidewalk capacity at corner.	Best Practices, Intersection Templates, pg X	X	X	X					
A2	Prohibit Right Turn on Red.	Best Practices Overview, Countermeasure table, pg X	X						X	
A3	Install raised island that channelizes right turn lane to shorten crossing distance and provide refuge area. Realign slip lane, as needed.	Best Practices, Across the Roadway Basics, pg X Intersection Templates, pg X	X		X			X		
A4	Stripe high visibility crosswalks, aligning with curb ramps, channelization island and curb extension.	Best Practices Overview, Countermeasure table, pg X; Across the Roadway Basics, pg X	X						X	
A5	Convert pull out on west side of Wake Forest Road to a sidewalk and bus stop.	Best Practices, Overview, Countermeasure table, pg X; Along the Roadway Basics, pg X; Transit Stop, pg X.	X	X			X			