



Transportation Advisory Committee Meeting Notice & Agenda

**Wednesday, March 19, 2014
4:00 p.m. to 5:30 p.m.**

King Street Meeting Room
100 North King Street
Hendersonville, NC 28792

Call to Order/Welcome

Public Comment

Discussion/Adjustment of Agenda

Discussion

1. Henderson County CTP Project Complete Streets Cross Section Selection Matthew Cable (30 min)

Routine Updates

2. NCDOT Projects Steve Cannon, NCDOT (5 min)
3. Municipal Representatives Representatives (5 min)
4. FBRMPO TCC Meeting Review/Board Meeting Preview Matthew Cable (5 min)

Adjournment

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Henderson County believes it is the right of all citizens to participate. All persons with disabilities that need auxiliary aid should contact the Secretary to the Planning Board at (828) 697-4819, at least 48 hours prior to the meeting.

Henderson County Transportation Advisory Committee Meeting



Wednesday, March 19, 2014

Prepared by: Matthew Cable, AICP, Transportation Planner

Henderson County Planning Department

Complete Streets Consideration

- The FBRMPO asked the Henderson County TAC to review existing projects identified by the region's Comprehensive Transportation Plan and assign these projects NCDOT defined complete streets cross-sections.
- The Henderson County TAC requested each jurisdiction review its projects and bring recommendations back to the TAC at a special called March 2014 meeting.

Henderson County Planning Department

For Reference: Complete Street Cross Section Quick Comparison Table 1

Table 1: Two-Lane Street Segments							
Type of 2 Lane Street	Speeds	Bike Lanes	Sidewalks	Parking/Transit Zone	Sharrows	Multi-Use Path	Notes
Rural Road	Varied	Y	Y	N	Y	Y	
Urban/Suburban Main Street	Low (Generally < 35 mph)	Y	Y	Y	Y	N	Noted difference from Rural Village Main Street: Bike Lane Width Prescribed
Rural Village Main Street	Low (Generally < 35 mph)	N	Y	Y	Y	N	Noted difference from Urban/Suburban Main Street: Bike Lane Width Prescribed
Rural Avenue	Low (Generally < 35 mph)	Y	Y	N	N	N	Noted difference from Urban/Suburban Avenue: Access Zone (not included), Green Zone Widths, and Speeds
Local/Subdivision Street: Residential	Low (Generally < 35 mph)	Y	Y	Y	Y	N	
Local/Subdivision Street: Office, Commercial and Industrial	Low (Generally < 35 mph)	N	Y	Y	N	N	

Henderson County Planning Department

For Reference: Complete Street Cross Section Quick Comparison Table 2

Table 2: Four-Lane Street Segments							
Type of 4 Lane Street	Speeds	Bike Lanes	Sidewalks	Parking/Transit Zone	Sharrows	Multi-Use Path	Notes
Urban/Suburban Parkway	Moderate (35 mph +) to High	N	N	N	N	Y	Noted difference from Rural Parkway: Median Zone (smaller)
Rural Parkway	Moderate (35 mph +) to High	N	N	N	N	Y	Noted difference from Rural Parkway: Median Zone (larger)
Urban/Suburban Boulevard	Moderate (35 mph to 55 mph)	Y	Y	N	N	N	Noted difference from Rural Boulevard: Median Zone (smaller) and Green Zone (smaller)
Rural Boulevard	Moderate (35 mph to 55 mph)	Y	Y	N	N	N	Noted difference from Urban/Suburban Boulevard: Median Zone (larger) and Green Zone (larger)
Urban/Suburban Avenue	Low (Generally > 35 mph)	Y	Y	Y	Y	N	Noted difference from Rural Avenue: Access Zone (included), Green Zone Widths, and Speeds

Henderson County Planning Department

US Hwy 64 (Fruitland Rd to Gilliam Rd)

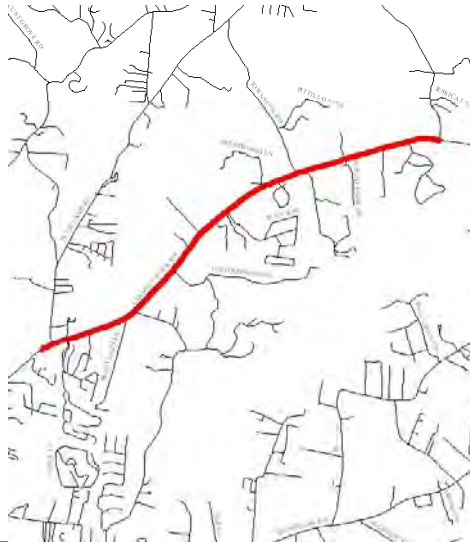
Description C15

CTP: Add TWLTL (two-way left turn lane); possible multilanes

LRTP/SPOT: N/A

Lanes: 3 Lanes (2 Lane with TWLTL)

Recommendation:
Rural Road with bike lane and no sidewalk



US 64 (S Rugby Rd to Banner Farm Rd)

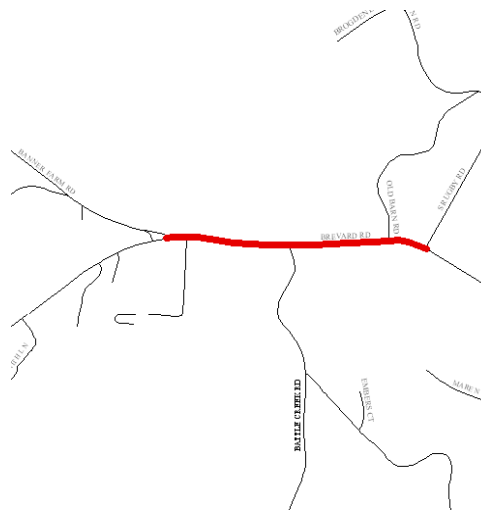
Description C11

CTP: Widen to 4 lanes with median

LRTP/SPOT: N/A

Lanes: 4 lanes with median

Recommendation:
Urban/Suburban Parkway with multiuse path



NC 280 (NC 191 to Transylvania County)

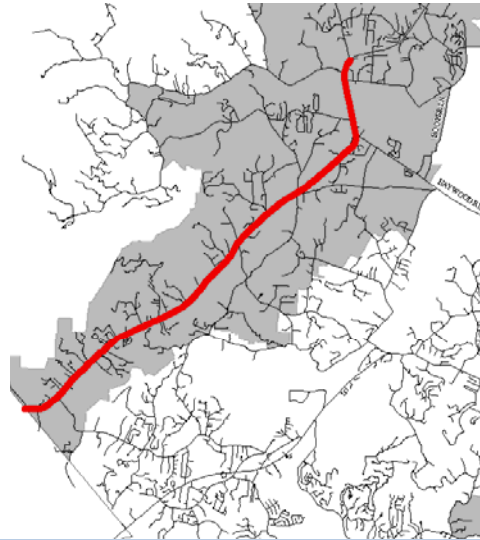
Description C07

CTP: Convert TWLTL (two-way left turn lane) to median and general access control

LRTP/SPOT: N/A

Lanes: 4 Lanes with median and partial access control

Recommendation: TBD



US Hwy 64 (Buncombe St to Brickyard Rd)

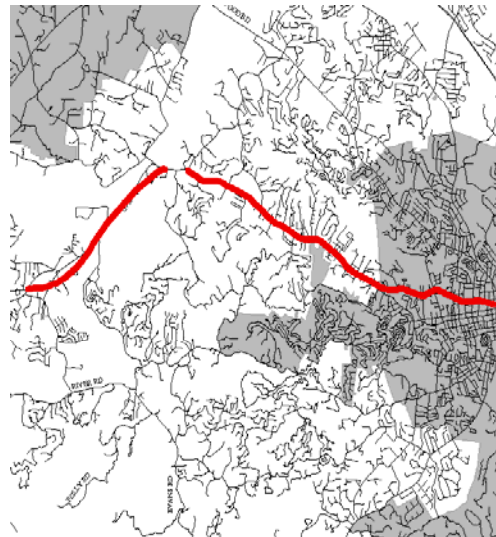
Description C13

CTP: Add TWLTL (two-way left turn lane); possible multilanes

LRTP/SPOT: N/A

Lanes: 3 Lanes (2 Lane with TWLTL)

Recommendation: TBD



Erkwood Dr (Kanuga Rd to NC 225)

Description C29

CTP: Add turn lanes, widen shoulder and improve geometrics

LRTP/PSOT: N/A

Lanes: 2 Lanes with Shoulder/Turn Lanes

Recommendation: TBD



Old Cane Creek Rd (Fanning Bridge Rd Ext. to Cane Creek Rd)

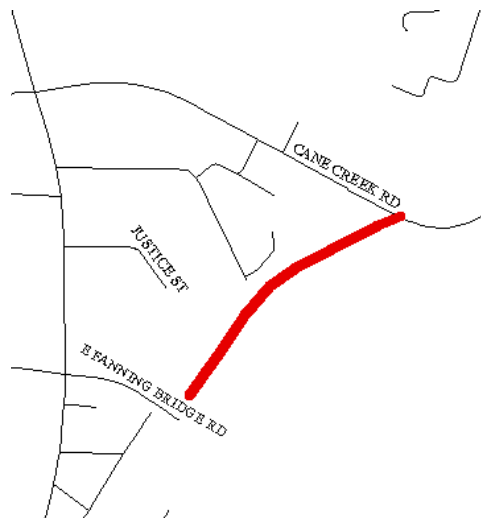
Description C31

CTP: Pave road and shoulder; Upgrade road including widened lanes

LRTP/SPOT: N/A

Lanes: 2 Lanes with Shoulder

Recommendation: N/A



Hoopers Creek Rd (Mills Gap Rd to Terry's Gap Rd)

Description C33

CTP: Add turn lanes, widen shoulder and improve geometrics

LRTP/SPOT: N/A

Lanes: 2 Lanes with Shoulder

Recommendation: Rural Avenue with sidewalks and bike lanes



Fanning Bridge Rd (US 25 to NC 280)

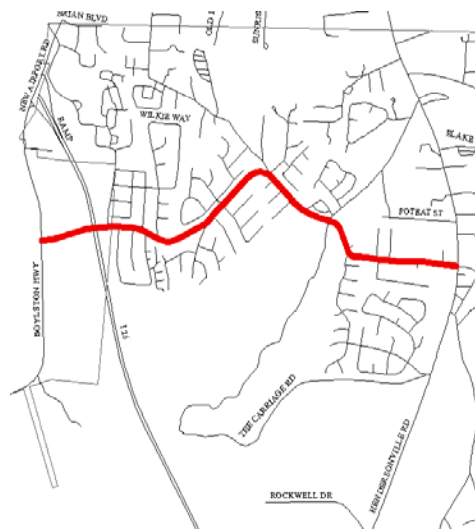
Description C36

CTP: Add turn lanes, widen shoulder and improve geometrics

LRTP/SPOT: N/A

Lanes: 2 Lanes with Shoulder

Recommendation: Rural Avenue with sidewalks and bike lanes



Berkeley Rd (N Main St to US 25 Business)

Description C23

CTP: Add turn lanes, possibly TWLTL (two-way left turn lane), widen shoulder and improve geometrics

LRTP/SPOT: N/A

Lanes: 2 Lanes with shoulder, turn lanes

Recommendation: Rural Road with multiuse path



Lake Ave (Blythe St to Hebron Rd)

Description C25

CTP: Add turn lanes, widen shoulder and improve geometrics

LRTP/SPOT: N/A

Lanes: 2 Lanes with shoulder, turn lanes

Recommendation: Local Subdivision Street: Residential



Hebron Rd (Lake Ave to State St)

Description C26

CTP: Add turn lanes,
widen shoulder and
improve geometrics

LRTP/SPOT: N/A

Lanes: 2 Lanes with
shoulder, turn lanes

Recommendation: Local
Subdivision Street: Residential



NC 225 (US 176/US 25 Bus. to Erkwood Dr)

Description C17

CTP: Add turn lanes,
widen shoulder and
improve geometrics;
possible multilanes

LRTP/SPOT: N/A

Lanes: 2-3 lane with
shoulder, turn lanes

Recommendation: Rural
Avenue with curb &
gutter



US 64 (Howard Gap Rd to Fruitland Rd)

Description C08

CTP: Convert TWLTL (two-way left turn lane) to median and general access control

LRTP/SPOT: N/A

Lanes: 4 Lanes with median and partial access control

Recommendation:
Urban/Suburban Parkway (C&G)



US 176/ US 25 Business (NC 225 to Shepherd St)

Description C16

CTP: Access management and spot intersection improvements

LRTP/SPOT: N/A

Lanes: 5 Lanes with access control

Recommendation: TBD



Shepherd St/Airport Rd (NC 225 to Tracy Grove Rd)

Description C20

CTP: Realign at New Hope Rd; Add turn lanes, widen shoulder and improve geometrics

LRTP/SPOT: N/A

Lanes: 2 Lanes with shoulder, turn lanes

Recommendation: Rural Road (with comments)



Tracy Grove Rd (Airport Rd to Dana Rd)

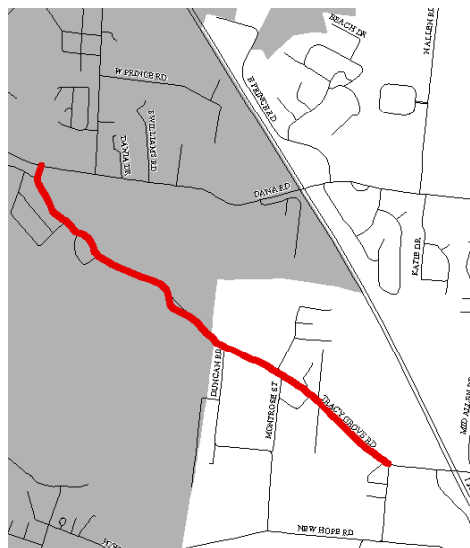
Description C21

CTP: Add turn lanes, widen shoulder and improve geometrics

LRTP/SPOT: N/A

Lanes: 2 Lanes with shoulder, turn lanes

Recommendation: Rural Road (with comments)



Sugarloaf Rd (US 64 to Pace Rd)

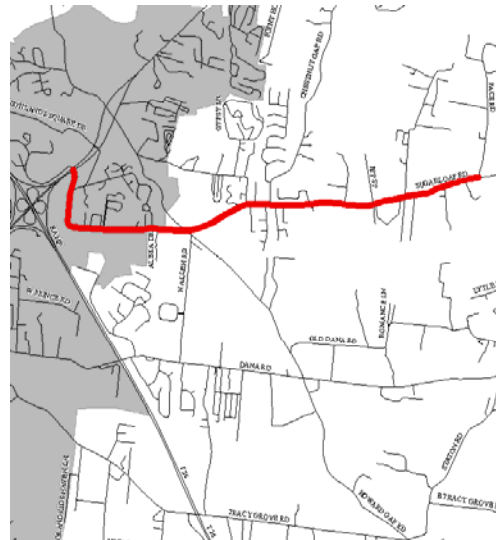
Description C30

CTP: Add turn lanes, widen shoulder and improve geometrics

LRTP/SPOT: N/A

Lanes: 2 Lanes with shoulder, turn lanes

Recommendation: Rural Road (with comments)



RURAL ROAD

PLAN VIEW



KEY ELEMENTS

- May function as an arterial, collector or local route, but with a range of speeds.
- A road outside of cities and towns serving a range of traffic levels in a country setting.
- Paved shoulders can be used to provide bicycles and pedestrians accommodation.
- Multi-use paths separated from the roadway may be appropriate treatment for bicycle and pedestrian accommodations.
- Accommodates bus facilities including turnouts as appropriate. Public transit stops and shelters should be clearly marked and placed within the right of way.

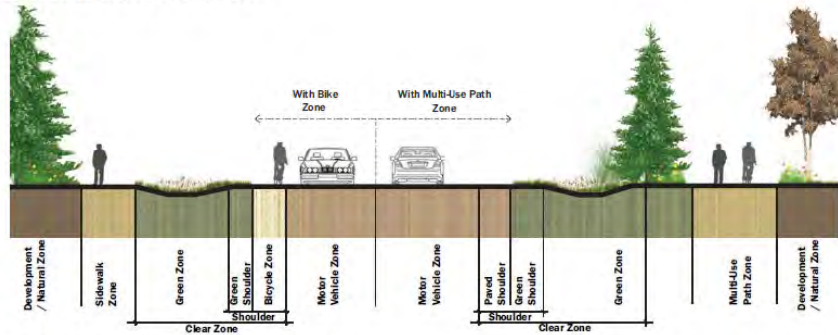


STREET CROSS-SECTION ZONES

- Sidewalk Zone:** Sidewalks on rural roads are rare. If sidewalk is provided it should be placed outside of the clear zone.
- Green Zone:** The landscaped area along the edge of a roadway and could include grass, landscaping or trees (as permitted). Serves as drainage conveyance.
- Bicycle Zone:** A zone for bicyclists separate from vehicular traffic.
- Motor Vehicle Zone:** The primary travel way for vehicles.
- Multi-Use Path Zone:** A zone for pedestrians and bicyclists in a multi-use path separate from the motor vehicle zone. Please see Multi-Use Path Zone Typology for more details.
- Development Zone / Natural Zone:** Land uses are typically set back from the street. This zone may also consist of natural vegetation.

RURAL ROAD

ILLUSTRATIVE STREET CROSS-SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Sidewalk Zone (feet)	Green Zone (feet)	Bicycle Zone (feet)	Motor Vehicle Zone (lane width-feet)	Shoulder Zone (feet)	Multi-Use Path Zone (feet)
Countryside	5' minimum	See note 2	4' - 6' bicycle lanes (see note 3)	10' - 12'	6' - 8'	10' - 12'

NOTES

- Green zone is the grassed roadway shoulder and the ditch or fill slope. At intersections and intermediate locations it may include landscaping to provide connectivity to pedestrian/bicycle/transit amenities.
- The green zone and the shoulder for resurfacing, restoration, and rehabilitation (R-R-R) work on high-speed rural roads should be a minimum of 15' in width. The green zone and the shoulder for new construction work on high-speed rural roads should be 30' in width.
- A 4' paved shoulder without standard bicycle markings is commonly used in the place of bicycle lanes. A steep grade may require a slightly wider paved shoulder. On rural roads with lower access densities, higher speeds, and higher volumes, a separate 10-12' multi-use path could be considered to provide pedestrians and bicycles accommodation.
- In typical rural settings the roadway shoulder provides the pedestrian walking area.
- If sidewalk is deemed appropriate, it should be located behind the ditch and outside of the clear zone.

URBAN/SUBURBAN MAIN STREET

PLAN VIEW



KEY ELEMENTS

- May function as an arterial, collector or local street. May function as a collector serving as a primary thoroughfare for traffic circulation in a limited area. May function as a local street for an outlying business district.
- Designed to carry vehicles at low speeds.
- A destination street for a city or town, serving as a center of civic, social and commercial activity.
- Serves substantial pedestrian traffic as well as transit and bicycles.
- Characterized by wide sidewalks, crosswalks and pedestrian amenities, due to emphasis on pedestrian travel.
- Bicycle lanes are allowed but typically not necessary on these streets due to lower speeds and volumes and the desire to keep pedestrian crossing distances to a minimum.

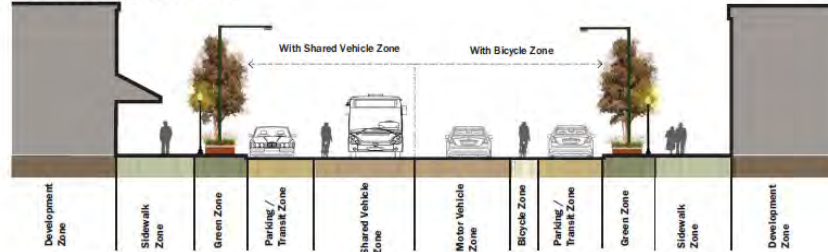


STREET CROSS-SECTION ZONES

- Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably. Pedestrians are the priority on a main street.
- Green Zone:** Consists of the area between the sidewalk zone and curb. Includes street trees and other landscaping, as well as interspersed street furnishings and pedestrian-scale lighting in a landscaped amenity zone.
- Parking/Transit Zone:** Accommodates on-street parking and transit stops. Width and layout may vary.
- Bicycle Zone:** A zone for bicyclists separate from vehicular traffic.
- Motor Vehicle / Shared Vehicle Zone:** The primary travel way for vehicles. A shared vehicle zone has mixed traffic (cars, trucks, buses and bicycles).
- Development Zone:** Development should be pedestrian-oriented with narrow setbacks and an active street environment.

URBAN/SUBURBAN MAIN STREET

ILLUSTRATIVE STREET CROSS-SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Sidewalk Zone (feet)	Green Zone (feet)	Parking/Transit Zone (feet)	Motor Vehicle / Shared Vehicle Zone (lane width-feet)	Bicycle Zone (feet)
Central Business District	10' - 12' 12' - 20' in high volume pedestrian areas	6' - 8'	8' - 10'	10' - 13' (see note 4)	6' lanes (see note 4)
Urban Center / Suburban Center	8' - 12' 12' - 20' in high volume pedestrian areas	6' - 8'	8' - 10'	10' - 13' (see note 4)	6' lanes (see note 4)
Suburban Corridor / Urban Residential / Suburban Residential	8' - 10' 12' - 20' in high volume pedestrian areas	6' - 8'	8' - 10'	10' - 13' (see note 4)	6' lanes (see note 4)

NOTES

1. Sidewalk zone should typically extend to the front of buildings. Sidewalks are the most important element on a main street, because pedestrians are the priority. Therefore, the sidewalk width should typically be at least 10', unobstructed.
2. Green zone may include hardscaping, landscaping, street trees, lighting, and related pedestrian/bicycle/transit amenities. Hardscaping (with street trees in appropriately-designed planters) is typical for access to on-street parking and transit.
3. Parking is expected on main streets. Parking zone dimension may vary depending upon type of parking provided. Angle parking is allowed, preferably reverse angle parking. Angle parking will require a wider dimension than shown.
4. Shared lanes are the preferred treatment, due to the low speeds. In this case, travel lanes should be 13' to allow for maneuvering and opening car doors. Shared lane markings can be used on streets < 35 mph. If bicycle lane is provided, it should be 6' wide, and motor vehicle lane should be narrowed to 10'.

RURAL VILLAGE MAIN STREET

PLAN VIEW



KEY ELEMENTS

- May function as an arterial, collector or local street. Could function as an arterial in rural communities. May function as a collector serving as a primary thoroughfare for traffic circulation in a limited area. May function as a local street for an outlying business district.
- Designed to carry vehicles at low speeds.
- Bicycle lanes are allowed but typically not necessary on these streets, due to lower speeds and volumes and the desire to keep pedestrian crossing distances to a minimum.
- A destination for a rural village serving as a center of civic, social and commercial activity.
- Serves substantial pedestrian traffic as well as transit and bicycles.
- Includes wide sidewalks, crosswalks and pedestrian facilities due to the emphasis on pedestrian travel.

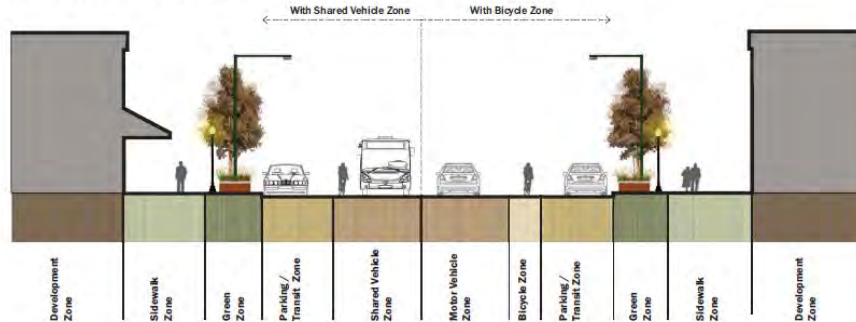


STREET CROSS-SECTION ZONES

- **Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably. Pedestrians are priority on a main street.
- **Green Zone:** This zone consists of the area between the sidewalk zone and curb. It includes street trees and other landscaping, as well as interspersed street furnishings and pedestrian-scale lighting in a hardscaped amenity zone.
- **Parking/Transit Zone:** Accommodates on-street parking and transit stops. Parking zone widths and layout may vary.
- **Bicycle Zone:** A zone for bicyclists separate from vehicular traffic.
- **Motor Vehicle/Shared Vehicle Zone:** The primary travel way for vehicles. A shared vehicle zone has mixed traffic (cars, trucks, buses, and bicycles).
- **Development Zone:** Development should be pedestrian-oriented with narrow setbacks and an active street environment.

RURAL VILLAGE MAIN STREET

ILLUSTRATIVE STREET CROSS-SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Sidewalk Zone (feet)	Green Zone (feet)	Parking / Transit Zone (feet)	Motor Vehicle/ Shared Vehicle Zone (lane width- feet)	Bicycle Zone (feet)
Rural Village	10' - 12'	6' - 8'	8' - 10'	10' - 13'	4' - 6' lanes (see note 4)
Rural Developed	8' - 10'	6' - 8'	8' - 10'	10' - 13'	4' - 6' lanes (see note 4)

NOTES

1. Sidewalk zone should typically extend to the front of the building. Sidewalks are the most important element on a main street, because pedestrians are the priority. Therefore, the sidewalk width should typically be at least 10' unobstructed.
2. Green zone may include hardscaping, landscaping, street trees, lighting, and related pedestrian /bike/transit amenities. Hardscaping (with street trees in appropriately-designed planters) is typical, for access to on-street parking and transit.
3. Parking is expected on main streets. Parking zone dimensions vary depending upon the type of parking provided. Angle parking is allowed, preferably reverse angle parking. Angle parking will require a wider dimension than shown.
4. Shared lanes are the preferred treatment, due to the low speeds. In this case, travel lanes should be 13' wide to allow for maneuvering and opening car doors. Shared lane markings can be used on streets < 35 mph. If a bicycle lane is provided, it should be 6' wide, and the motor vehicle lane should be narrowed to 10'.

RURAL AVENUE

PLAN VIEW



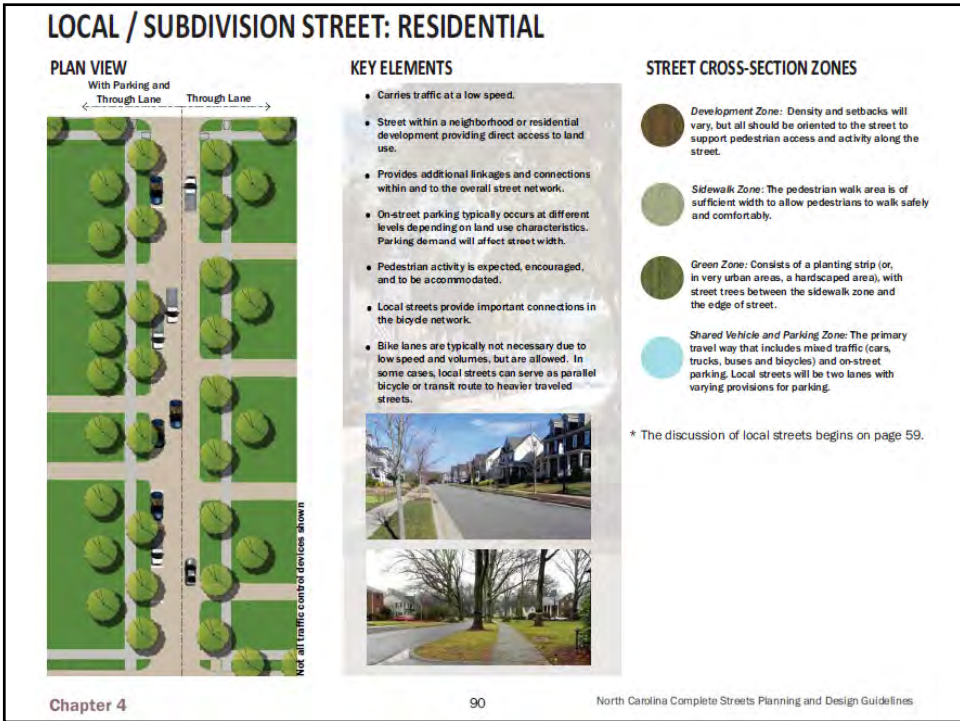
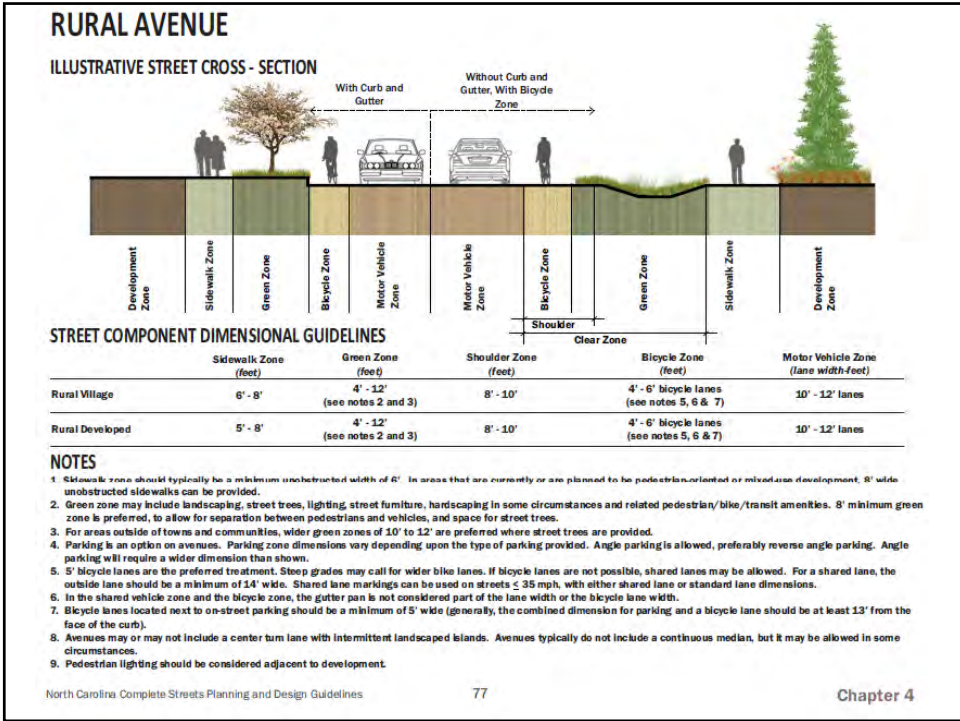
KEY ELEMENTS

- May function as an arterial, collector or local, route, but generally at low to moderate speeds and volumes.
- A rural street serving a range of traffic levels within and between various area types.
- Characterized by wide sidewalks (scaled to the surrounding land uses) and on-street bicycle facilities.
- May have on-street parking.
- Transit stops, shelters and other amenities are located along the roadway, preferably within the right of way.



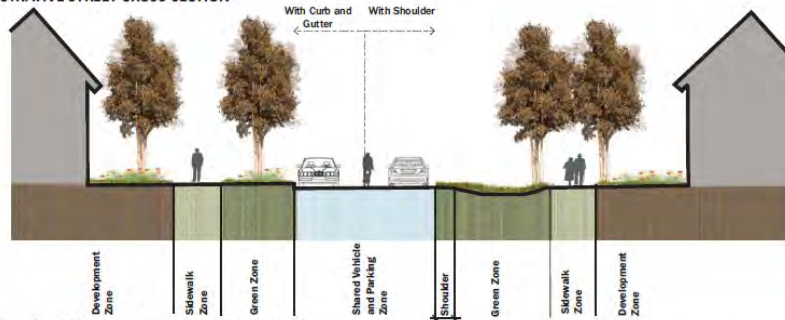
STREET CROSS - SECTION ZONES

- **Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably.
- **Green Zone:** The landscaped or hardscaped area along the edge of a street. On avenues this zone should include grass, landscaping, trees in planting strips or, in some cases, hardscaped amenity zones. Pedestrian or decorative lighting may be provided when appropriate for adjacent land uses.
- **Bicycle Zone:** Accommodation for bicyclists in a zone separate from the motor vehicle zone.
- **Motor Vehicle Zone:** The primary travel way for motor vehicles. In a rural avenue without curb and gutter, the green zone would be relied on for drainage conveyance.
- **Development Zone:** Development should be oriented towards the street with good functional and visual connection to the street.



LOCAL / SUBDIVISION STREET: RESIDENTIAL

ILLUSTRATIVE STREET CROSS-SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Minimum Travelway F.O.C. to F.O.C. (feet)	Sidewalk Zone (feet)	Green Zone (feet)	Parking Zone (feet)	Lane Width (feet)	Shoulder (feet)
Local / Subdivision (Traditional Neighborhood Guidelines - Lane)	18'	5' - 6'	4' - 8'	very low demand	9' with no parking	4' - 6'
Local / Subdivision (Low Parking Demand)	24'	5' - 6'	4' - 8'	low demand	10' with low demand parking	4' - 6'
Local / Subdivision (Parking On 1 Side)	26'	5' - 6'	4' - 8'	7' on one side	9' with parking / 13' with no parking	4' - 6'
Local / Subdivision (Parking On 2 Sides)	34'	5' - 8'	4' - 8'	7' on both sides	10' with one parked vehicle / 9' with two parked vehicles	4' - 6'

NOTES

1. Minimum travelway measured from Face of Curb (FOC) to FOC.
2. Median typically not provided on local streets unless for aesthetic reasons. If provided, lane widths will be increased by 2' - 5'.
3. Shoulder zone on local street typically has grass.

LOCAL / SUBDIVISION: OFFICE, COMMERCIAL AND INDUSTRIAL

PLAN VIEW



KEY ELEMENTS

- Carries traffic at a low speed.
- Street providing local access to adjacent office, commercial, or industrial development.
- Provides additional linkages and connections within and to the overall street network.
- On street parking typically occurs although at different levels depending on land use characteristics. Parking demand will affect street width. In industrial areas, this can include parking for larger vehicles.
- Pedestrian activity is expected, encouraged, and to be accommodated on these streets.
- Bike lanes typically not required due to low parking volumes.



STREET CROSS-SECTION ZONES

- **Development Zone:** Development types and setbacks will vary, but all should be oriented to the street to support pedestrian access and activity. The most pedestrian oriented development types will have small setbacks, entrances directly onto the sidewalk zone, and will front streets that include on-street parking.
- **Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably.
- **Green Zone:** Consists of a planting strip (or, in very urban areas, a hardscaped area), with street trees between the sidewalk zone and the edge of street.
- **Shared Vehicle and Parking Zone:** The primary travel way that includes mixed traffic (cars, trucks, buses and bicycles) and on-street parking. Local streets will be two lanes with varying provisions for parking.

LOCAL / SUBDIVISION: OFFICE, COMMERCIAL AND INDUSTRIAL

ILLUSTRATIVE STREET CROSS-SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Minimum Travelway (FOC to FOC) (feet)	Sidewalk Zone (feet)	Green Zone (feet)	Parking Zone (feet)	Lane Width (feet)
Local Office / Commercial (Parking on 1 Side)	26'	5' - 6'	4' - 8'	7' on one side	9' with parking/ 12' with no parking
Local Office / Commercial (Parking on 2 Sides)	40'	6' - 8'	4' - 8'	7' on both sides	12' with parking on both sides
Local Industrial Streets (Parking on One Side)	34'	5' - 6'	4' - 8'	8' on one side	12' marked

NOTES

1. Minimum travelway measured from Face of Curb (FOC) to FOC.
2. The gutter pan can be used for parking, but not for vehicular or bicycle traffic.
3. Median typically not provided on local streets unless for aesthetic reasons. If provided, lane widths will be increased by 2' to 5'.

URBAN/SUBURBAN PARKWAY

PLAN VIEW



KEY ELEMENTS

- Most often functions as an arterial designed with control of access to carry vehicles at moderate to high speeds.
- Urban or suburban thoroughfare often characterized by landscaping or natural vegetation along roadsides and medians.
- Land uses are set back from the street and are typically not oriented toward the parkway.
- Pedestrian and bicycle traffic usually provided for on separate multi-use paths ideally located adjacent to the facility.
- Convenient access to off-street transit stations, stops and park-and-ride lots.
- Trailer and semitrailer truck traffic is frequently present.

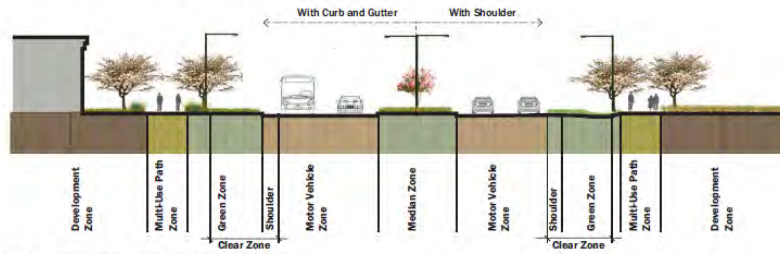


STREET CROSS - SECTION ZONES

- **Multi-Use Path Zone:** A zone for pedestrians and bicyclists in a multi-use path separate from the motor vehicle zone. Please see *Multi-Use Path Zone* typology for more details.
- **Green Zone:** Consists of a planting strip with trees to separate the multi-use path zone from the motor vehicle zone. On parkways, typically includes a clear zone.
- **Motor Vehicle Zone:** The primary travel way for motor vehicles.
- **Median Zone:** A landscaped zone located between the travel lanes as a center median.
- **Development Zone:** Deep setbacks due to the typically auto-oriented nature of the street. Access to this zone is limited and controlled.

URBAN/SUBURBAN PARKWAY

ILLUSTRATIVE STREET CROSS - SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Multi - Use Path Zone (feet)	Green Zone (feet)	Motor Vehicle Zone (lane width- feet)	Median Zone (feet)
Central Business District	10' - 12' 12' - 20' in high volume pedestrian areas	See notes 1 and 2	11' - 12'	17' 6" - 32'
Urban Center / Suburban Center	10' - 12' 12' - 20' in high volume pedestrian areas	See notes 1 and 2	11' - 12'	17' 6" - 32'
Suburban Corridor / Urban Residential / Suburban Residential	10' - 12' 12' - 20' in high volume pedestrian areas	See notes 1 and 2	11' - 12'	17' 6" - 32'

NOTES

- Green zone may include landscaping and, in areas beyond the clear zone, large-maturing trees.
- Green zone should provide a minimum width equal to the clear zone requirement, typically 20' - 30'.
- In the motor vehicle zone, the gutter pan is not considered part of the lane width.
- Median zone requirements vary depending upon median treatment (landscaping, curb and gutter, or trees).
- Continuous two-way left turn lanes are not permitted on a parkway.
- Multi-use path is the preferred treatment for bicycles and pedestrians on a parkway. See multi-use path section.
- Shoulders are allowable on an urban parkway, if deemed appropriate.
- On shoulder sections the shoulder may be a combination of pavement and grass.

RURAL PARKWAY

PLAN VIEW



KEY ELEMENTS

- Most often functions as an arterial designed with control of access to carry vehicles at moderate to high speeds.
- Rural thoroughfare often characterized by landscaping or natural vegetation along roadsides and medians.
- Land uses are set back from the street and are typically not oriented toward the parkway.
- Pedestrian and bicycle traffic usually provided on separate multi-use paths ideally located adjacent to the facility.
- Convenient access to on-street transit facilities and off-street stations and park and ride lots.
- Large truck traffic may be present.

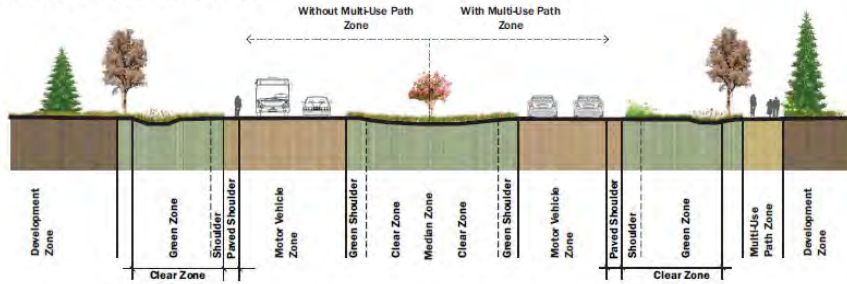


STREET CROSS - SECTION ZONES

- Green Zone:** Consists of a planting strip with trees to separate the multi-use path zone from the motor vehicle zone. A portion of the green zone is the roadway shoulder. Parkway typically include a clear zone.
- Motor Vehicle Zone:** The primary travel way for through vehicles. A rural parkway would typically not have curb and gutter, and therefore the green zone would be relied on for drainage conveyance.
- Median Zone:** A landscaped zone located between the travel lanes in the center of the street. A wide median would be needed for drainage conveyance.
- Multi-Use Path Zone:** A zone for pedestrians and bicyclists in a multi-use path separate from the motor vehicle zone. Please see *Multi-Use Path Zone Typology* for more details.
- Development Zone:** Deep setbacks due to the typically auto-oriented nature of the street. Access to this zone is limited and controlled.

RURAL PARKWAY

ILLUSTRATIVE STREET CROSS - SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Multi-Use Path Zone (feet)	Green Zone (feet)	Shoulder (feet)	Motor Vehicle Zone (lane width-feet)	Median Zone (feet)
Village / Developed	10' - 12'	see notes 3 and 4	8' - 10'	11' - 12'	32' - 46'
Countryside	10' - 12'	see notes 3 and 4	8' - 10'	12'	32' - 46'

NOTES

- Multi-use path is the preferred treatment for bicycles and pedestrians on a parkway. Multi-use path should be provided on each side behind the green zone, as appropriate. See multi-use path section.
- Multi-use path may be in the right-of-way or in an easement.
- Green zone may include landscaping and, in areas beyond the clear zone, large-maturing trees.
- Median zone requirements vary depending upon median treatment (landscaping, curb and gutter, or trees).
- Green zone should provide a minimum width equal to the clear zone requirement, typically 30'.
- The shoulder may be a combination of pavement and grass. If a paved shoulder is provided, it may serve as a bicycle zone, though a multi-use path is preferred.

URBAN / SUBURBAN BOULEVARD

PLAN VIEW

Without Side Median Zone and With Parking/Transit Zone



KEY ELEMENTS

- Most often functions as an arterial designed to carry vehicles at moderate speeds.
- Thoroughfare characterized by multiple lanes and including a street median.
- Wide sidewalks and on-street bicycle lanes are necessary to accommodate pedestrians and bicyclists due to higher speeds and higher traffic volumes for motor vehicles.
- Transit stops and shelters may be located within the right of way, requiring connections to sidewalks.
- On-street parking is not required. It is allowed where appropriate, but rare due to the nature of the street. If provided, parking should typically be placed on a separate, parallel frontage street separated with a side median.

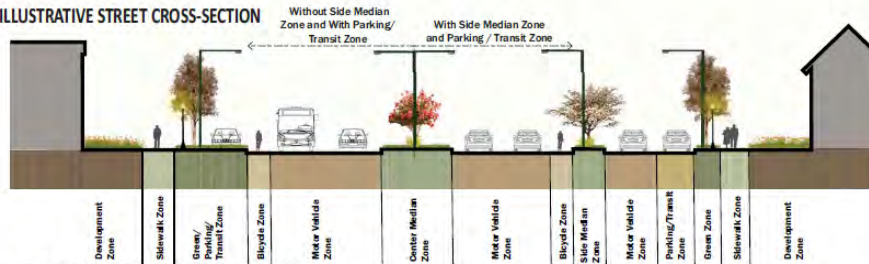


STREET CROSS-SECTION ZONES

- Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably.
- Green Zone:** This zone serves to separate the sidewalk from the vehicles. This zone contains landscaping and trees or, in some circumstances, hardscape treatments.
- Parking/Transit Zone:** Accommodates on-street parking and transit pull-outs. Parking on the street is rare, but may be separated from the motor vehicle zone by side medians. Width and layout may vary depending on the type of parking provided.
- Bicycle Zone:** A zone for bicyclists separate from vehicular traffic.
- Motor Vehicle Zone:** The primary travel way for motor vehicles.
- Median Zone:** A landscaped zone located between the travel lanes as a center median or as side medians that separate one-way parallel lanes. Median zones should consider provision for turn bays at intersections. May include hardscaping at pedestrian crossings.
- Development Zone:** Building setbacks vary but are typically deeper than on avenues. Building frontage may not always be directed to the street but physical connections to the street from building entrances are important.

URBAN / SUBURBAN BOULEVARD

ILLUSTRATIVE STREET CROSS-SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Sidewalk Zone (feet)	Green Zone (feet)	Parking / Transit Zone (feet)	Bicycle Zone (feet)	Motor Vehicle Zone (lane width- feet)	Center Median Zone (feet)	Side Median Zone (feet)
Central Business District	12' - 20' in high volume pedestrian areas 6' - 10'	6' - 8'	8' - 10'	4' - 6' lanes (see notes 3 and 4)	10' - 11'	8' - 30'	8' +
Urban Center / Suburban Center	12' - 20' in high volume pedestrian areas 6' - 8'	6' - 8'	8' - 10'	4' - 6' lanes (see notes 3 and 4)	10' - 11'	8' - 30'	8' +
Suburban Corridor / Urban Residential / Suburban Residential	12' - 20' in high volume pedestrian areas 6' - 8'	6' - 8'	8' - 10'	4' - 6' lanes (see notes 3 and 4)	10' - 11'	8' - 30'	8' +

NOTES

- Sidewalk zone should typically be a minimum unobstructed width of 6'. In areas that are currently or are planned to be pedestrian-oriented or mixed-use development, minimum 8' wide unobstructed sidewalks should be provided.
- Green zone may include landscaping, street trees, lighting, street furniture, and related pedestrian/bike/transit amenities. 8' minimum green zone is preferred, to allow for separation between pedestrians and vehicles, and space for street trees.
- 5' bicycle lanes are the preferred treatment. Street grades may call for wider bike lanes. If bicycle lanes are not possible, shared lanes may be allowed. For a shared lane, the outside lane should be a minimum of 14' wide. Shared lane markings can be used on streets \leq 35 mph, with either shared lane or standard lane dimensions.
- The gutter pan is not considered part of the bicycle lane width. Bicycle lanes located next to parking should be a minimum of 5' or 6' wide.
- The gutter pan is not considered part of the motor vehicle lane width in most circumstances.
- Median zone requirements vary depending upon appropriate treatment (landscaping, drainage, curb and gutter, or street trees). Though the median width may vary, the median width typically be 17' 6", to allow for a turn lane and pedestrian refuge at intersections. The minimal 6' width will allow for landscaping and pedestrian refuge at appropriate locations. A 30' wide median should be provided to accommodate double left turn lanes when multi-modal analysis confirms the need.
- Continuous two-way left turn lanes are not permitted on a boulevard.
- Parking/transit stop zone is rare, but is allowed where appropriate.

RURAL BOULEVARD

PLAN VIEW



KEY ELEMENTS

- Most often functions as an arterial designed to carry vehicles at moderate speeds.
- Thoroughfare characterized by multiple lanes and including a street median.
- Wide sidewalks and on-street bicycle lanes are necessary to accommodate pedestrians and bicyclists due to higher speeds and higher traffic volumes for motor vehicles.
- Building setbacks will typically be deeper than on avenues.
- Transit stops and shelters may be located within the right of way, requiring connections to sidewalks.
- On-street parking is not required. It is allowed where appropriate, but rare due to the nature of the street and adjacent land uses.

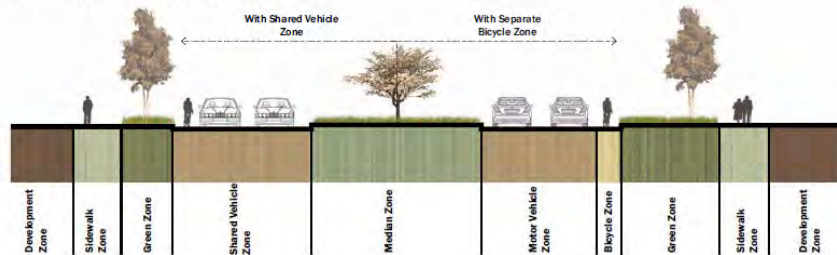


STREET CROSS - SECTION ZONES

- Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably.
- Green Zone:** This zone serves to separate the sidewalk from the vehicles. This zone contains landscaping and trees or, in some circumstances, hardscape treatments. The green zone may be wider if providing an intermittent parking/transit zone.
- Bicycle Zone:** Accommodation for bicyclists either in a separate zone or within the shared vehicle zone.
- Motor Vehicle/Shared Vehicle Zone:** The primary travel way for vehicles. A shared vehicle zone has mixed traffic (cars, trucks, buses and bicycles).
- Median Zone:** A landscaped zone located between the travel lanes as a center median. Median zones should consider provision of turn bays at intersections. The median zone may include hardscaping at pedestrian crossings.
- Development Zone:** Building setbacks vary, but are typically deeper than avenues. Building frontage may not always be directed to the street, but physical connections to the street from building entrances are important.

RURAL BOULEVARD

ILLUSTRATIVE STREET CROSS-SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Sidewalk Zone (feet)	Green Zone (feet)	Motor Vehicle/ Shared Vehicle Zone (lane width- feet)	Median Zone (feet)	Bicycle Zone (feet)
Rural Village / Rural Developed	6' - 8'	6' - 10' (see note 2)	10' - 12'	17' 6" - 30'	4' - 6' bicycle lanes (see notes 3 & 4)

NOTES

- Sidewalk zone should typically be a minimum unobstructed width of 6'. In areas that are currently or are planned to be pedestrian-oriented or mixed use development, 8' wide unobstructed sidewalks can be provided.
- Green zone may include landscaping, street trees, lighting, street furniture, and related pedestrian/bike/transit amenities. 8' minimum green zone is preferred, to allow for separation between pedestrians and vehicles, and space for street trees. Green zone may be wider if providing intermittent parking / transit stop zone. Parking/transit stop zone is rare, but allowed where appropriate.
- 5' bicycle lanes are the preferred treatment. Steep grades may call for wider bike lanes. If bicycle lanes are not possible, shared lanes may be allowed. For a shared lane, the outside lane should be a minimum of 14' wide. Shared lane markings can be used on streets \leq 35 mph, with either shared lane or standard lane dimensions.
- The gutter pan is not considered part of the bicycle lane width. Bicycle lanes located next to parking should be a minimum of 5' wide.
- The gutter pan is not considered part of the motor vehicle lane width, in most circumstances.
- Median zone requirements vary depending upon appropriate treatment (hardscape, landscape, drainage, curb and gutter, or street trees). Though the width may vary, the median will typically be between 17'-6" - 30', to allow for a turn lane and pedestrian refuge at intersections.
- Continuous two-way left turn lanes are not permitted on a boulevard.

URBAN / SUBURBAN AVENUE

PLAN VIEW



KEY ELEMENTS

- May function as an arterial or collector, but generally at low to moderate speeds.
- An urban street serving a range of traffic levels within and between various area types.
- Characterized by wide sidewalks (scaled to the surrounding land uses) and on-street bicycle facilities.
- May have on-street parking.
- Transit stops, shelters and other amenities are located along the street, preferably within the right of way.

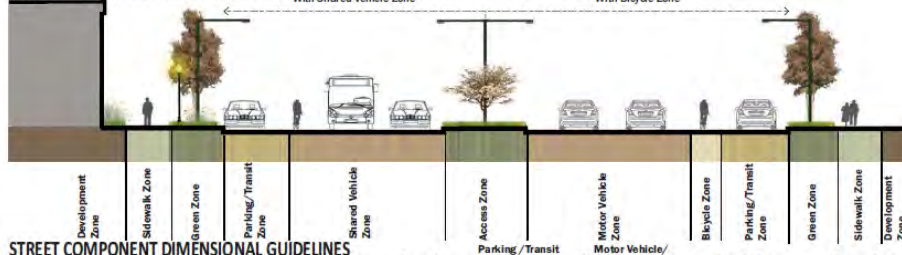


STREET CROSS-SECTION ZONES

- Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably.
- Green Zone:** The landscaped or hardscaped area along the edge of a street. On avenues, this zone should include grass, landscaping, and shade trees in planting strips or, in some cases, hardscaped amenity zones. Pedestrian or decorative lighting may be provided when appropriate for adjacent land uses.
- Parking/Transit Zone:** On-street parking is optional and should be considered in relation to providing convenient access to adjacent land uses. Parking zone width and layout may vary.
- Bicycle Zone:** Accommodation for bicyclists in a zone separate from the motor vehicle zone.
- Motor Vehicle/Shared Vehicle Zone:** The primary travel way for vehicles. A shared vehicle zone has mixed traffic (cars, trucks, buses and bicycles).
- Access Zone:** A landscaped zone or turning zone located between the travel lanes as a center median or turn lane. Avenues typically do not include a continuous median.
- Development Zone:** Development should be oriented toward the street with good functional and visual connection to the street.

URBAN / SUBURBAN AVENUE

ILLUSTRATIVE STREET CROSS-SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Sidewalk Zone (feet)	Green Zone (feet)	Parking / Transit Zone (feet)	Motor Vehicle/ Shared Vehicle Lane (lane width-feet)	Bicycle Zone (feet)	Access Zone (feet)
Central Business District	8' - 12' 12' - 20' in high volume pedestrian areas	6' - 8'	8' - 10'	10' - 11' (see notes 4 & 5)	4' - 6' lanes (see notes 4, 5 and 6)	0' - 17'6" (see note 7)
Urban Center / Suburban Center	6' - 10' 12' - 20' in high volume pedestrian areas	6' - 8'	8' - 10'	10' - 11' (see notes 4 & 5)	4' - 6' lanes (see notes 4, 5 and 6)	0' - 17'6" (see note 7)
Suburban Corridor Urban Residential / Suburban Residential	6' - 8' 12' - 20' in high volume pedestrian areas	6' - 8'	8' - 10'	10' - 11' (see notes 4 & 5)	4' - 6' lanes (see notes 4, 5 and 6)	0' - 17'6" (see note 7)

NOTES

- Sidewalk zone should typically be a minimum unobstructed width of 6'. In areas that are currently or are planned to be pedestrian-oriented or mixed-use development, minimum 8' - 10' wide unobstructed sidewalks should be provided to allow for higher pedestrian priority and potential extension to the development zone.
- Green zone may include landscaping, street trees, lighting, street furniture, hardscaping in some circumstances, and related pedestrian / bike / transit amenities. 8' minimum green zone is preferred, to allow for separation between pedestrians and vehicles, and space for street trees.
- Parking is an option on avenues. Parking zone dimension may vary depending upon type of parking provided. Angle parking is allowed, preferably reverse angle parking. Angle parking will require a wider dimension than shown.
- 5' bicycle lanes are the preferred treatment. Steep grades may call for wider bicycle lanes. If bicycle lanes are not possible, shared lanes may be allowed. For a shared lane, the outside lane should be a minimum of 14' wide. Shared lane markings can be used on streets ≤ 35 mph, with either shared lane or standard lane dimensions.
- In the shared vehicle zone and the bicycle zone, the gutter pan is not considered part of the lane width or the bicycle lane width.
- Bicycle lanes located next to on-street parking should be a minimum of 5' or 6' wide (generally, the combined dimension for parking and bicycle lane should be at least 13' from the face of curb).
- Avenues may or may not include a center turn lane with intermittent landscaped islands. Avenues typically do not include a continuous median, but it may be allowed in some circumstances.
- Pedestrian lighting should be considered at mid-block crossings, near transit stops, commercial areas, mixed-use areas or other locations where nighttime pedestrian activity is likely.

CTP ID	Street	Jurisdiction(s)	Description	Lanes	Recommended Cross Section	Additional Comments
C15	US Hwy 64 (Fruitland Rd to Gilliam Rd)	County	Add TWLTL (two-way left turn lane); possible multilanes	3 Lanes (2 Lane with TWLTL)	Rural Road	Bike Lane; No Sidewalk
C11	US 64 (S Rugby Rd to Banner Farm Rd)	County	Widen to 4 lanes with median	4 lanes with median	Urban/Suburban Parkway	Multiuse Path (no bike lane or sidewalk)
C07	NC 280 (NC 191 to Transylvania County)	Mills River	Convert TWLTL (two-way left turn lane) to median and general access control	4 Lanes with median and partial access control	None Provided	Intend to make a recommendation following the completion of the existing NC 280 Study
C13	US Hwy 64 (Buncombe St to Brickyard Rd)	Laurel Park/ Hendersonville/ County	Add TWLTL (two-way left turn lane); possible multilane	3 Lanes (2 Lane with TWLTL)	Laurel Park— Hendersonville—Rural Road County—	Laurel Park— Hendersonville—Sidewalks & Bike Lane (Urban) County—Suggests wait for information from Laurel Park
C18	NC 225 (W Blue Ridge Rd to Little River Rd)	Flat Rock	Add turn lanes, widen shoulder and improve geometrics	2 Lanes with Shoulder/Turn Lanes	Flat Rock—	Flat Rock—
C35	W Blue Ridge Rd (NC 225 to Roper Rd)	Flat Rock/ County	Add turn lanes, widen shoulder and improve geometrics	2 Lanes with Shoulder/Turn Lanes	Flat Rock— County—Rural Road	Flat Rock— County—Bike Lane; No Sidewalk
C29	Erkwood Dr (Kanuga Rd to NC 225)	Flat Rock/ Hendersonville/ County	Add turn lanes, widen shoulder and improve geometrics	2 Lanes with Shoulder/Turn Lanes	Flat Rock— Hendersonville—Rural Road County—	Flat Rock— Hendersonville—Sidewalks (Urban) County—Suggests a recommendation on the cross section be made only after the bicycle and pedestrian elements are addressed in the Erkwood/Shepherd realignment project
C31	Old Cane Creek Rd (Fanning Bridge Rd Ext. to Cane Creek Rd)	Fletcher	Pave road and shoulder; Upgrade road including widened lanes	2 Lanes with Shoulder	None	Now under Town Maintenance
C33	Hoopers Creek Rd (Mills Gap Rd to Terry's Gap Rd)	Fletcher	Add turn lanes, widen shoulder and improve geometrics	2 Lanes with Shoulder	Rural Avenue	Priority 1: Sidewalks, Priority 2: Bike Lanes Staff recommends a traffic light study at the Hooper's Creek Rd/ Burney Mountain Rd /Souther Rd Intersection
C36	Fanning Bridge Rd (US 25 to NC 280)	Fletcher	Add turn lanes, widen shoulder and improve geometrics	2 Lanes with Shoulder	Rural Avenue	Priority 1: Sidewalks Priority 2: Bike lanes
C32b	Old Airport Rd/Mills Gap Rd (US 25 to Hoopers Creek Rd)	Fletcher/ County	Widen to 3 lanes, widen shoulder and improve geometrics	3 Lanes with Shoulder	Fletcher & County— Local/Subdivision Street: Office, Commercial, Industrial	Fletcher & County—Priority 1: Bike Lanes; Priority 2: Sidewalks
C22	Duncan Hill Rd (US 64 to N Main St)	Hendersonville	Add turn lanes, possibly TWLTL (two-way left turn lane), widen shoulder and improve geometrics	2 Lanes with shoulder, turn lanes	Rural Avenue	Curb and Gutter
C23	Berkeley Rd (N Main St to US 25 Business)	Hendersonville	Add turn lanes, possibly TWLTL (two-way left turn lane), widen shoulder and improve geometrics	2 Lanes with shoulder, turn lanes	Rural Road	Multi-use Path
C25	Lake Ave (Blythe St to Hebron Rd)	Hendersonville	Add turn lanes, widen shoulder and improve geometrics	2 Lanes with shoulder, turn lanes	Local Subdivision Street: Residential	
C26	Hebron Rd (Lake Ave to State St)	Hendersonville	Add turn lanes, widen shoulder and improve geometrics	2 Lanes with shoulder, turn lanes	Local Subdivision Street: Residential	
C17	NC 225 (US 176/US 25 Bus. to Erkwood Dr)	Hendersonville	Add turn lanes, widen shoulder and improve geometrics; possible multilanes	2-3 lane with shoulder, turn lanes	Rural Avenue	Curb and Gutter
C08	US 64 (Howard Gap Rd to Fruitland Rd)	Hendersonville	Convert TWLTL (two-way left turn lane) to median and general access control	4 Lanes with median and partial access control	Urban/Suburban Parkway	Curb and Gutter
C16	US 176/ US 25 Business (NC 225 to	Hendersonville	Access management and spot intersection improvements	5 Lanes with access control	No Recommendation Agreed Upon	

CTP ID	Street	Jurisdiction(s)	Description	Lanes	Recommended Cross Section	Additional Comments
C20	Shepherd St/Airport Rd (NC 225 to Tracy Grove Rd)	Hendersonville/County	Realign at New Hope Rd; Add turn lanes, widen shoulder and improve geometrics	2 Lanes with Shoulder, turn lanes	Hendersonville/County—Rural Road	Hendersonville—Sidewalks (Urban area) County—Sidewalks from NC225 to E Gilbert St; No bike lanes, sidewalks, sharrows or multiuse path for the remainder of the project length
C21	Tracy Grove Rd (Airport Rd to Dana Rd)	Hendersonville/County	Add turn lanes, widen shoulder and improve geometrics	2 Lanes with Shoulder, turn lanes	Hendersonville/County—Rural Road	Hendersonville—Multi-use Path (Urban area) County—No bike lanes, sidewalks, sharrows or multiuse path for the remainder of the project
C30	Sugarloaf Rd (US 64 to Pace Rd)	Hendersonville/County	Add turn lanes, widen shoulder and improve geometrics	2 Lanes with shoulder, turn lanes	Hendersonville/County—Rural Road	Hendersonville—Sidewalks (Urban area) County—Sidewalks to end at intersection with Howard Gap Road; No bike lanes, sidewalks, sharrows or multiuse path for the remainder of the project

Complete Street Cross Section Quick Comparison Tables

Table 1: Two-Lane Street Segments

Type of 2 Lane Street	Speeds	Bike Lanes	Sidewalks	Parking/ Transit Zone	Sharrows	Multi-Use Path	Notes
Rural Road	Varied	Y	Y	N	Y	Y	
Urban/Suburban Main Street	Low (Generally < 35 mph)	Y	Y	Y	Y	N	Noted difference from Rural Village Main Street: Bike Lane Width Prescribed
Rural Village Main Street	Low (Generally < 35 mph)	N	Y	Y	Y	N	Noted difference from Urban/Suburban Main Street: Bike Lane Width Prescribed
Rural Avenue	Low (Generally < 35 mph)	Y	Y	N	N	N	Noted difference from Urban/Suburban Avenue: Access Zone (not included), Green Zone Widths, and Speeds
Local/Subdivision Street: Residential	Low (Generally < 35 mph)	Y	Y	Y	Y	N	
Local/Subdivision Street: Office, Commercial and Industrial	Low (Generally < 35 mph)	N	Y	Y	N	N	

Table 2: Four-Lane Street Segments

Type of 4 Lane Street	Speeds	Bike Lanes	Sidewalks	Parking/ Transit Zone	Sharrows	Multi-Use Path	Notes
Urban/Suburban Parkway	Moderate (35 mph +) to High	N	N	N	N	Y	Noted difference from Rural Parkway: Median Zone (smaller)
Rural Parkway	Moderate (35 mph +) to High	N	N	N	N	Y	Noted difference from Rural Parkway: Median Zone (larger)
Urban/Suburban Boulevard	Moderate (35 mph to 55 mph)	Y	Y	N	N	N	Noted difference from Rural Boulevard: Median Zone (smaller) and Green Zone (smaller)
Rural Boulevard	Moderate (35 mph to 55 mph)	Y	Y	N	N	N	Noted difference from Urban/Suburban Boulevard: Median Zone (larger) and Green Zone (larger)
Urban/Suburban Avenue	Low (Generally > 35 mph)	Y	Y	Y	Y	N	Noted difference from Rural Avenue: Access Zone (included), Green Zone Widths, and Speeds