
I-85 Spartanburg/Cherokee
Counties MM 98-106
South Carolina
Median Access Design Criteria

MEDIAN ACCESS DESIGN CRITERIA

December 18, 2017

I-85 Spartanburg/Cherokee
Counties MM 98-106
South Carolina
Median Access Design Criteria

TABLE OF CONTENTS

<u>SECTION</u>		<u>PAGE</u>
1.0	Intent of Median Access Design Criteria	1
2.0	Work Zone Speed	2
3.0	Pavement and Shoulder Width	2
4.0	Horizontal Curves	2
5.0	Grades	3
6.0	Lane Length	3
7.0	Traffic Control Devices	4
8.0	Pavement Marking	4
9.0	Signing	5
10.0	Restrictions	5

**I-85 Spartanburg/Cherokee
Counties MM 98-106
South Carolina**
Median Access Design Criteria

1.0 INTENT OF MEDIAN ACCESS DESIGN CRITERIA

This project entails the widening of I-85 in Cherokee county from MM 98 on the southern terminus to MM 106 on the northern terminus with an approximate length of eight (8) miles. The project includes adding a travel lane in each direction. Construction vehicle access will be allowed during day time operations without I-85 lane closure(s). The Resident Construction Engineer (RCE) has the right to remove the median access from operation at any time the RCE deems necessary. Design criteria were derived primarily from:

- 2003 SCDOT Highway Design Manual with updates effective as of the Final RFP release date and supplemented with AASHTO A Policy on Geometric Design of Highways and Streets, 2001
- AASHTO “A Policy on Design Standards Interstate Systems”, 2005
- Procedure and Guidelines for Work Zone Traffic Control Design
- NCHRP Report 505 “Review of Truck Characteristics as Factors in Roadway Design”
- NDOR Research Project Number SPR-P1(06) P582 Transportation Research Studies “Acceleration Ramps along High Operating Speed Roadways”

2.0 WORK ZONE SPEED

2.1 INTERSTATE

I-85 (Design)	65 mph
I-85 (Posted)	65 mph

3.0 WORK ZONE PAVEMENT AND SHOULDER WIDTH

3.1 INTERSTATE

Auxiliary Lanes	12 ft
-----------------	-------

4.0 WORK ZONE HORIZONTAL CURVES

4.1 INTERSTATE

I-85	Match existing
Superelevation (I-85)	Match existing

I-85 Spartanburg/Cherokee
 Counties MM 98-106
 South Carolina
Median Access Design Criteria

5.0 WORK ZONE GRADES

5.1 INTERSTATE

Allowable Maximum +/- 4% (with appropriate factor adjustment from Figure 16.4J SCDOT HDM for lane length)

6.0 WORK ZONE LANE LENGTH

6.1 AUXILIARY LANE

Assume “STOP” as design speed of first governing control (deceleration) and entrance curve design speed (acceleration) of and 65 MPH as “Hwy Design Speed”.

6.1.1 Acceleration Lane - Use NCHRP Report 505 for a 180 lb/hp truck for base length of 2490 ft.

Hwy Design Speed, mph	Speed Reached, mph	Acceleration Length, ft, for Entrance Curve Design Speed, mph								
		Stop	15	20	25	30	35	40	45	50
		Entrance Curve Initial Speed, mph								
		0	14	18	22	26	30	36	40	44
30	23	275	160							
35	27	400	300	230						
40	31	590	475	400	310	170				
45	35	800	700	630	540	400	240			
50	39	1100	1020	950	850	720	560	200		
55	43	1510	1400	1330	1230	1100	920	580	240	
60	47	2000	1900	1830	1740	1600	1430	1070	760	330
65	50	2490	2380	2280	2230	2090	1920	1560	1220	800
70	53	3060	2960	2900	2800	2670	2510	2140	1810	1260
75	55	3520	3430	3360	3260	3130	2960	2590	2290	1850

6.1.2 Deceleration Lane – Use Figure 16.4C SCDOT HDM. Assume 65 MPH design speed to a “STOP” condition.

6.2 TAPER LENGTH

Interstate

300'

**I-85 Spartanburg/Cherokee
Counties MM 98-106
South Carolina**
Median Access Design Criteria

7.0 WORK ZONE TRAFFIC CONTROL DEVICES

7.1 PERMANENT

Portable concrete barriers (PCB) shall be placed parallel the entire distance of the auxiliary lane and taper at the edge of the paved shoulder. PCB shall overlap a minimum of 20' at openings.

7.2 TEMPORARY

When auxiliary lanes and tapers are not in use, drums shall be placed per standard drawing 601-010-00 in the unused lanes.

7.3 END TREATMENT

A Portable Terminal Impact Attenuator for the appropriate design speed shall be used at all exposed end of PCB per Std Dwg 605-425-00.

8.0 WORK ZONE PAVEMENT MARKING

8.1 LANE LINE

Between Travel Lanes	10' x 30' skip
Between Travel Lane & Shoulder	6 in Solid Yellow
	Lane Lines
In Auxiliary Lane	24 in Yellow Diagonals at 20' Spacing

8.2 RAISED PAVEMENT MARKERS

(Between Travel Lane and Auxiliary Lane) two yellow 4" x 4" Mono-Directional side by side at 20' intervals along ingress/egress areas

9.0 WORK ZONE SIGNING

Signing shall follow MUTCD requirements and be placed on both the outside and inside lanes. Signing shall differentiate between Exiting and Entering vehicles from the left lane at the 0', 500', 1000' and 2000' intervals from the beginning of the travel lane exit taper or travel lane entrance merge point (end of temporary barrier wall). When auxiliary lane is

**I-85 Spartanburg/Cherokee
Counties MM 98-106
South Carolina**
Median Access Design Criteria

closed the signs shall be bagged. Final signing plans shall be submitted to the SCDOT for approval prior to implementation. See attached ingress and egress drawings for details of the intended median access design.

10.0 WORK ZONE RESTRICTIONS

10.1 TIME

10.1.1 NORTHBOUND LANE

7AM – 10AM & 4PM-8PM Mon-Fri
No restriction Sat & Sun

10.1.2 SOUTHBOUND LANE

7AM-10AM & 4PM-8PM Mon-Fri
No restriction Sat & Sun

10.2 SPACING OF AUXILIARY LANES 2 MI

10.3 WEAVE LANE

A weave lane is not permitted. This is when an acceleration and deceleration lane is directly upstream or downstream of one another and uses the same auxiliary lane.

10.4 SPACING TO INTERCHANGES

10.4.1 Ingress Median Access Point

Any part of the ingress median access auxiliary lane and taper is prohibited 1000' prior to any interchange exit ramp taper to 2500' downstream of any interchange entrance ramp taper.

10.4.2 Egress Median Access Point

Any part of the egress median access auxiliary lane and taper is prohibited 2500' prior to any interchange exit ramp taper to 2000' downstream of any interchange entrance ramp taper.