

PROPOSED DESIGN CRITERIA

STATE PROJECT: WBS 50199.1.1
 F. A. PROJECT:
 COUNTY: Wake
 PROJECT DESCRIPTION: I-40 Widening
 From I-440/US 1/US 64 to SR 1370 (Lake Wheeler Rd)

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 DIVISION: 5
 DATE: 3/20/19
 REVISION: 6/6/19

PREPARED BY: Atkins
 CHECKED BY:

ROUTE	I-40			REFERENCE
LINE	-L1-			OR REMARKS
TRAFFIC DATA				
ADT LET YR = 2022	146,900			Base Year No Build
ADT DESIGN YR = 2045	239,300			Future Year Build
TTST	4%			Traffic Forecast
DUALS	6%			Approved September 2018
D	55%			
K	8%			
CLASSIFICATION	Interstate			NCDOT Func. Classification Map
TERRAIN TYPE	Rolling			RDM 1-1D
DESIGN SPEED km/hr or mph	70 mph			GB 8.2.1
POSTED SPEED km/hr or mph	65 mph			RDM 1-1B
PROP. R/W WIDTH m or ft	Varies			
CONTROL OF ACCESS	Full			RDM Part II 9-1
RUMBLE STRIPS (Y/N)	Yes			
TYPICAL SECTION TYPE	8-Lane Divided, Shoulder			GB 8.4
LANE WIDTH m or ft	12 ft			GB 4.3
SIDEWALKS (Y/N)	No			
BICYCLE LANES (Y/N)	No			
MEDIAN WIDTH m or ft	22'			RDM 1-6
MED. PROTECT. (GR/BARRIER)	Barrier			
SHOULDER WIDTH (total)				
MEDIAN m or ft	10 ft			RDM 1-4B
OUTSIDE w/o GR m or ft	14 ft			GB 8.2.4
OUTSIDE w/ GR m or ft	17 ft			GB 8.2.4
PAVED SHOULDER				
OUTSIDE TOTAL/FDPS m or ft	12 ft			RDM 1-40, F-1
MEDIAN TOTAL/FDPS m or ft	10 ft			RDM 1-40, F-1
GRADE				
MAX.	4%			GB Table 8.1
MIN.	0.3%			GB PG 3-119
K VALUE				
SAG	181			GB PG 3-161
CREST	247			GB PG 3-155
HORIZ. ALIGN.				
MAX. SUPER.	8%			RDM 1-15
MIN. RADIUS m or ft	1810 ft			GB PG 3-47
SPIRAL (Y/N)	Yes			RDM PG 1-11
CROSS SLOPES				
PAVEMENT	2%			RDM 1-3B
PAVED SHOULDER	4%			STD. 560.02
TURF SHOULDER	4%			STD. 560.02
MEDIAN DITCH	N/A			RDM 1-40, Fig. 1A
DITCH TYPICAL (A,B)	A			RDM 1-2A, F-1
CLEAR ZONE m or ft	30 ft			RDM 1-7D, F-4; RSDG 3-7
TYPICAL SECTION NO.	1, 2			

NOTES:

Design values were obtained from "The 2011 AASHTO A Policy on Geometric Design of Highways and Streets" (GB), the 2012 NCDOT Roadway Design Manual (RDM), and 2018 NCDOT Standard Drawings (STD).

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ROUTE				REFERENCE
LINE	Interstate Ramps			OR REMARKS
TRAFFIC DATA				
ADT LET YR = 2022	5,500 - 10,500			Base Year No Build
ADT DESIGN YR = 2045	6,700 - 17,700			Future Year Build
TTST	4%			Traffic Forecast
DUALS	6%			Approved September 2018
D	55%			
K	8%			
CLASSIFICATION				
TERRAIN TYPE	Interstate			NCDOT Func. Classification Map
DESIGN SPEED km/hr or mph	Rolling			RDM 1-1D
POSTED SPEED km/hr or mph	60 mph			GB PG 10-89
PROP. R/W WIDTH m or ft	N/A			
CONTROL OF ACCESS	Varies			
RUMBLE STRIPS (Y/N)	Full			RDM Part II 9-1
TYPICAL SECTION TYPE	No			
LANE WIDTH m or ft	1-Lane, Shoulder			
SIDEWALKS (Y/N)	16 ft			RDM 8-1, F-1
BICYCLE LANES (Y/N)	No			
MEDIAN WIDTH m or ft	No			
MED. PROTECT. (GR/BARRIER)	N/A			
SHOULDER WIDTH (total)				
MEDIAN m or ft	12 ft			RDM Y1-4D, Y1-4E
OUTSIDE w/o GR m or ft	14 ft			GB 10.9.6
OUTSIDE w/ GR m or ft	17 ft			GB 10.9.6
PAVED SHOULDER				
OUTSIDE TOTAL/FDPS m or ft	4 ft			DM Y1-40
MEDIAN TOTAL/FDPS m or ft	4 ft			DM Y1-40
GRADE				
MAX.	5 %			GB 10.9.6
MIN.	0.3 %			GB PG 3-119
K VALUE				
SAG	136			GB PG 3-161
CREST	151			GB PG 3-155
HORIZ. ALIGN.				
MAX. SUPER.	8 %			DM Y1-15
MIN. RADIUS m or ft	1200 ft			GB PG 3-32, DM Y8-1
SPIRAL (Y/N)	Yes			DM Y1-11
CROSS SLOPES				
PAVEMENT	2 %			RDM 1-3B
PAVED SHOULDER	2 %			DM Y1-40
TURF SHOULDER	8 %			DM Y1-40
MEDIAN DITCH	N/A			
DITCH TYPICAL (A,B)	A			See Note 2
CLEAR ZONE m or ft	30 ft			RDM 1-7D, F-4; RSDG 3-7
TYPICAL SECTION NO.	3			

NOTES:

- 1) Design values were obtained from "The 2011 AASHTO A Policy on Geometric Design of Highways and Streets" (GB), the 2012 NCDOT Roadway Design Manual (RDM), and 2018 NCDOT Standard Drawings (STD).
- 2) A 15' minimum ditch width was used on Ramps due to R/W constraints.

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SCALE:				
PLANS	1"=100'			
PROFILES	1"=100'	horiz.	1"=10'	vert.
INTERCH DETAIL	N/A			
CROSS-SECTIONS	N/A			
SHEET SIZE:				
PLANS				
INTERCH DETAIL	N/A			
CROSS-SECTIONS	N/A			
BRIDGES and/or CULVERTS:				
TYPE (SINGLE/DUAL/RCBC)				
SIZE (LENGTH x WIDTH x HT)				
LOCATION				
SKETCH #				
HORIZONTAL CLEARANCE	12'			
VERT. CLEARANCE	17.5'			

NOTES:

1- Within interchange slopes should not exceed 4:1

