



NORTH CAROLINA
Department of Transportation

P8 Highway Modernization Subcommittee Meeting #3

NCDOT SPOT Office

January 16, 2025

Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina

Agenda

- Requested Information
 - Collection Process for Lane and Shoulder Widths
 - Modernization High Scoring Projects
 - Score Analysis without Pavement Condition Weight
- Road Diet
 - Background Information
- Next Steps
- Adjourn

Housekeeping

- Virtual etiquette:
 - When you are not speaking, please mute yourself. This limits disruption from background noise.
 - Feel free to use the “Raise Hand” feature if you have a question. You can also type “Q” in the chat.

Requested Information



Collection Process for Lane and Shoulder Widths

- Data comes from NCDOT Pavement Management Unit
 - Stored in the Pavement Management System
 - Collected through pavement surveys: 2017 (Secondary Routes) and 2018 (Primary Routes)
 - Updated on an ongoing basis
- The GIS Team manipulates the data for use in Prioritization
 - Lane Width is derived by taking Section Width / Number Of Lanes
 - If there are paved shoulders, Shoulder Widths are subtracted from Section Width and then Lane Width is calculated by dividing Number of Lanes by adjusted Section Width
 - Any lane width over 12ft is set to 12 ft
 - Shoulder Width of unpaved roads is set to zero
 - Last updated SPOT Online lookup tables for P7 in July 2023
 - Will update for P8 in the coming months

Reference Slide: Highway - Modernization

Criteria	Measure Description	Statewide Mobility (100%)	Regional Impact (70%)	Division Needs (50%)
Congestion	[Volume] and [Volume/Capacity]	10%	5%	-
Safety	SEG: Crash Density, Crash Severity, Crash Rate, Safety Benefits INT: Crash Frequency, Crash Severity, Safety Benefits	25%	25%	20%
Freight	[Truck Volumes] and [Truck Percentage]	25%	10%	5%
Lane Width	Existing lane width vs. DOT design standard	10%	10%	5%
[Paved] Shoulder Width	Existing paved shoulder width vs. DOT design standard	20%	10%	10%
Pavement Condition	Existing Pavement Condition Rating (PCR) along the project	10%	10%	10%

Project Types: Modernize Roadway (SIT-16) and Upgrade Freeway to Interstate Standards (SIT-17)

P7 High Scoring Modernization Projects - Statewide

SPOT ID	Route	Cost to NCDOT	Statewide Mobility Quantitative Score (Out of 100)	Congestion (SW)	Safety	Freight	Lane Width	[Paved] Shoulder Width	Pavement Condition
H141265	I-87, US 64	\$ 254,400,000	73.38	43.77	68.92	100.00	98.68	78.94	11.20
H170851	US 64	\$ 204,100,000	70.88	52.55	61.95	100.00	0.00	78.94	93.54
H191794	I-587, US 264	\$ 119,200,000	68.90	49.28	70.33	100.00	0.00	78.94	55.99
H191792	US 421	\$ 289,218,000	67.03	34.06	64.61	100.00	98.68	15.47	95.13
H141905	US 74	\$ 236,900,000	66.64	36.77	65.07	92.50	0.00	78.94	77.87
H172311-B	US 74 (Great Smokey Mountains Expressway), US 23	\$ 4,000,000	63.16	47.54	82.38	79.08	0.00	78.94	22.53
H184836	US 52 (Future I-74)	\$ 62,500,000	60.15	55.05	49.31	100.00	0.00	78.94	15.28
H149001-E	US 15, US 501	\$ 54,700,000	58.83	88.25	74.79	36.42	0.00	78.94	64.16
H090013-B	US 74	\$ 322,100,000	58.71	42.75	40.20	100.00	0.00	78.94	35.97
H230876	I-40	\$ 112,500,000	54.96	43.57	48.71	74.43	0.00	81.09	35.97
H193290	US 264	\$ 78,300,000	54.17	33.09	25.65	87.60	0.00	78.94	67.59
H090002-AB	I-26, US 19, US 23	\$ 204,000,000	52.28	55.55	32.07	55.39	0.00	100.00	48.62
H141863	I-87, US 17 (Windsor Bypass)	\$ 75,100,000	52.11	15.84	15.60	90.21	0.00	78.94	82.87
H231780	US 52	\$ 154,000,000	51.13	50.81	62.36	100.00	0.00	12.61	29.38
H230635	US 74	\$ 276,300,000	51.01	44.24	24.30	89.86	0.00	78.94	22.53

P7 High Scoring Modernization Projects – Regional Impact

SPOT ID	Route	Cost to NCDOT	Regional Impact Quantitative Score (Out of 70)	Congestion (REG)	Safety	Freight	Lane Width	[Paved] Shoulder Width	Pavement Condition
H090514-B	NC 210 (Murchison Road)	\$ 36,700,000	43.37	46.05	76.92	81.10	0.00	78.94	58.37
H230818	NC 163	\$ 179,300,000	40.20	21.89	87.34	38.01	92.43	0.00	42.29
H171105	NC 54 (East Harden Street)	\$ 2,800,000	38.83	57.00	62.07	64.60	0.00	78.94	61.13
H192987	US 64 (Highlands Road)	\$ 22,000,000	37.88	50.59	66.23	33.60	83.55	0.00	70.75
H230331	NC 49 (Maple Avenue)	\$ 11,200,000	37.83	66.38	84.02	73.94	0.00	0.00	61.13
H170622	US 15	\$ 23,500,000	36.44	27.15	59.04	71.02	83.55	0.00	48.62
H090514-A	NC 210 (Murchison Road)	\$ 62,400,000	36.25	35.66	52.00	77.35	0.00	78.94	58.37
H090147-A	US 158	\$ 168,700,000	34.43	25.80	62.30	61.64	98.68	0.00	15.28
H230766	NC 10 (Old NC 10)	\$ 108,400,000	34.39	27.68	67.75	13.00	83.55	0.00	64.16
H090805	NC 53	\$ 22,000,000	34.15	58.19	64.63	63.34	0.00	0.00	87.48
H191677	NC 38	\$ 51,500,000	33.84	19.78	65.03	78.49	0.00	0.00	87.48
H140865-A	NC 28	\$ 577,300,000	32.64	2.78	57.20	4.90	92.43	0.00	84.72
H111090-A	NC 107	\$ 29,900,000	32.50	18.87	42.70	43.54	83.55	0.00	81.69
H172202	US 19, US 74, US 129	\$ 22,400,000	31.47	38.04	49.00	35.90	0.00	78.94	58.37

P7 High Scoring Modernization Projects – Division Needs

SPOT ID	Route	Cost to NCDOT	Division Needs Quantitative Score (Out of 50)	Safety	Freight	Lane Width	[Paved] Shoulder Width	Pavement Condition
H231566	SR 4121 (Gate City Boulevard)	\$ 97,800,000	35.28	85.10	45.62	0.00	78.94	61.13
H231584	SR 4121 (Gate City Boulevard)	\$ 91,500,000	34.09	80.33	29.54	0.00	78.94	61.13
H231599	SR 2526 (Summit Avenue)	\$ 21,600,000	33.35	77.39	44.17	0.00	78.94	61.13
H231515	SR 2526 (Summit Avenue)	\$ 127,700,000	30.06	80.60	25.72	0.00	0.00	99.08
H230527	SR 1005 (Coxe Road)	\$ 77,600,000	28.58	68.30	47.78	83.55	0.00	82.87
H190034	SR 1549 (Flint Hill Road)	\$ 56,800,000	28.04	61.16	38.95	92.43	0.00	79.05
H231404	SR 1218 (Rocky Hock Road)	\$ 40,300,000	26.43	58.69	47.50	83.55	0.00	81.42
H230638	SR 1520 (Rock Road)	\$ 18,400,000	25.22	47.79	35.93	92.43	0.00	40.58
H090782	SR 1001 (Doctor Martin Luther King Boulevard)	\$ 105,000,000	25.20	74.22	46.63	0.00	0.00	66.40

P7 High Scoring Modernization Projects – Discussion

- Score distribution for high scoring modernization projects
 - Mostly high criteria scores for Safety and Freight
 - Some Congestion but not necessarily high scores at Statewide & Regional Impact
 - No big impact from Lane Width but some score from Shoulder Width and Pavement Condition
 - Mostly SIT-17 (Upgrade Freeway to Interstate Standards) projects

Modernization Results

Mobility Results

	Statewide Mobility	Regional Impact	Division Needs
Average Score	53.89	25.52	15.82
Median Score	52.28	26.03	14.18
Top Quartile	61.65	29.77	20.37
Bottom Quartile	50.25	21.46	11.28
Number Projects	23	88	86

VS

	Statewide Mobility	Regional Impact	Division Needs
Average Score	58.96	35.17	22.45
Median Score	60.22	35.36	22.48
Top Quartile	70.55	41.70	30.48
Bottom Quartile	49.72	29.06	14.28
Number Projects	390	528	326

P7 Score Analysis without Pavement Condition Criterion

- Scenario A: Distribute Pavement Condition weight (10%) to Lane and Shoulder Widths

	Criteria	Measure Description	Statewide Mobility (100%)	Regional Impact (70%)	Division Needs (50%)
Existing Weights	Lane Width	Existing lane width vs. DOT design standard	10%	10%	5%
	[Paved] Shoulder Width	Existing paved shoulder width vs. DOT design standard	20%	10%	10%
Scenario A Weights	Lane Width	Existing lane width vs. DOT design standard	15%	15%	10%
	[Paved] Shoulder Width	Existing paved shoulder width vs. DOT design standard	25%	15%	15%

P7 High Scoring Modernization Projects – Scenario A

SPOT ID	Statewide Mobility Quantitative Score (Out of 100)
H141265	81.14
H191794	67.25
H170851	65.48
H172311-B	64.85
H191792	63.23
H141905	62.80
H184836	62.57
H090013-B	59.06
H149001-E	56.36
H230876	55.41
H231288	52.84
H230635	52.70
H090002-AB	52.42

SPOT ID	Regional Impact Quantitative Score (Out of 70)
H090514-B	41.48
H230818	40.60
H090147-A	37.83
H171105	36.67
H170622	35.75
H192987	34.98
H090514-A	34.36
H171192	34.10
H111251	32.70
H230766	32.15
H230331	31.72
H150297	31.42
H090251-AC	31.40

SPOT ID	Division Needs Quantitative Score (Out of 50)
H231566	33.12
H231584	31.92
H231599	31.19
H230527	28.58
H190034	28.04
H230638	25.22
H230326	23.69
H231404	22.47
H193215	20.98
H190107	20.94
H231515	20.15
H230634	19.04
H191110	18.64
H090782	18.56

P7 High Scoring Modernization Projects – Scenario A

Existing Results

	Statewide Mobility	Regional Impact	Division Needs
Average Score	53.89	25.52	15.82
Median Score	52.28	26.03	14.18
Top Quartile	61.65	29.77	20.37
Bottom Quartile	50.25	21.46	11.28

VS

Scenario A Results

	Statewide Mobility	Regional Impact	Division Needs
Average Score	52.85	22.31	12.23
Median Score	52.70	21.12	11.77
Top Quartile	62.69	27.24	15.60
Bottom Quartile	47.52	18.03	6.74

P7 Score Analysis without Pavement Condition Criterion

- Scenario B: Add Pavement Condition weight (10%) to Safety

	Criteria	Measure Description	Statewide Mobility (100%)	Regional Impact (70%)	Division Needs (50%)
Existing Weights	Safety	SEG: Crash Density, Crash Severity, Crash Rate, Safety Benefits INT: Crash Frequency, Crash Severity, Safety Benefits	25%	25%	20%
Scenario B Weights	Safety	SEG: Crash Density, Crash Severity, Crash Rate, Safety Benefits INT: Crash Frequency, Crash Severity, Safety Benefits	35%	35%	30%

P7 High Scoring Modernization Projects – Scenario B

SPOT ID	Statewide Mobility Quantitative Score (Out of 100)
H141265	79.16
H191794	70.33
H170851	67.73
H172311-B	69.15
H191792	63.98
H141905	65.36
H184836	63.55
H090013-B	59.13
H149001-E	59.89
H230876	56.23
H231288	51.19
H230635	51.18
H090002-AB	50.63

SPOT ID	Regional Impact Quantitative Score (Out of 70)
H090514-B	45.23
H230818	44.71
H230331	40.12
H090147-A	39.13
H171105	38.93
H170622	37.48
H192987	37.43
H171192	35.91
H090514-A	35.61
H090090	35.21
H230766	34.75
H090846	34.04
H231448	33.13

SPOT ID	Division Needs Quantitative Score (Out of 50)
H231566	37.68
H231584	36.01
H231599	34.98
H230527	28.58
H231515	28.21
H190034	28.04
H191110	26.70
H090782	25.98
H230638	25.22
H111308	24.61
H191119	24.40
H230123	24.36
H231404	24.16

P7 High Scoring Modernization Projects – Scenario B

Existing Results

	Statewide Mobility	Regional Impact	Division Needs
Average Score	53.89	25.52	15.82
Median Score	52.28	26.03	14.18
Top Quartile	61.65	29.77	20.37
Bottom Quartile	50.25	21.46	11.28

VS

Scenario B Results

	Statewide Mobility	Regional Impact	Division Needs
Average Score	54.16	26.11	14.83
Median Score	51.44	26.27	13.31
Top Quartile	63.77	31.33	20.60
Bottom Quartile	49.88	22.82	8.42

Road Diet



P5 Highway Road Diet Quantitative Scores

SPOT ID	Project Category	Route / Facility Name	From / Cross Street	To / Cross Street	Description	Specific Improvement Type	Cost to NCDOT	Statewide Mobility Quantitative Score (Out of 100)	Regional Impact Total Score (Out of 100)	Division Needs Total Score (Out of 100)	REGIONAL IMPACT Quantitative Score (Out of 70)	DIVISION NEEDS Quantitative Score (Out of 50)
H150970	Regional Impact	NC 96 Business (Broad Street, Linden Ave)	Industry Drive	North of 3rd Street	Road Diet on NC 96 from Industry Drive to North of 3rd Street	24 - Implement Road Diet to Improve Safety	\$ 2,100,000	N/A	35.86	57.55	35.86	32.55
H170787	Regional Impact	US 70 Business (Morgan Street, Ramseur Street), NC 98 (Morgan Street)	US 15-501 Business (Roxboro Street)	US 15/501 Business (Roxboro Street)	Convert the Downtown Loop from one-way to two-way traffic	24 - Implement Road Diet to Improve Safety	\$ 15,100,000	N/A	19.51	22.92	19.51	22.92
H170999	Division Needs	SR 1006/2113 (Second Avenue/Fayetteville Avenue)	S. Chatham Avenue	N. Cottage Grove Avenue	Implement Road Diet, add 3 roundabouts, bicycle and sidewalk	24 - Implement Road Diet to Improve Safety	\$ 10,700,000	N/A	N/A	20.39	N/A	20.39

P6 Highway Road Diet Quantitative Scores

SPOT ID	Project Category	Route / Facility Name	From / Cross Street	To	Description	Specific Improvement Type	Cost to NCDOT	Statewide Mobility Quantitative Score (Out of 100)	Regional Impact Quantitative Score (Out of 70)	Division Needs Quantitative Score (Out of 50)
H191999	Regional Impact	US 17 Business (Market Street)	SR 1217 (South 17th Street)	Covil Avenue	Implement Road Diet to improve safety.	24 - Implement Road Diet to Improve Safety	\$ 18,000,000	N/A	46.49	36.79
H191386	Division Needs	SR 1001 (West Henderson Street / Sugar Hill Road)	Burgin Street	SR 1323 (Rankin Drive)	Reduce lanes from 4 to 2. Construct sidewalk.	24 - Implement Road Diet to Improve Safety	\$ 8,400,000	N/A	N/A	33.85
H191814	Regional Impact	US 25 (Merrimon Avenue)	Wembley Drive	I-240	Implement a Road Diet on US 25 (Merrimon Avenue) from Wembley Drive to I-240.	24 - Implement Road Diet to Improve Safety	\$ 56,400,000	N/A	41.97	33.82
H193247	Regional Impact	US 70 Business (Ash Street)	George Street	Herman Street	Road Diet of existing 4-lane roadway to 2-lane with two way left turn lane with curb & gutter, bike lanes and sidewalks.	24 - Implement Road Diet to Improve Safety	\$ 12,100,000	N/A	43.82	32.70
H150970	Regional Impact	NC 96 (Broad Street)	Industry Drive	North of 3rd Street	Road Diet on NC 96 from Industry Drive to North of 3rd Street	24 - Implement Road Diet to Improve Safety	\$ 3,700,000	N/A	37.57	32.33
H191390	Regional Impact	US 70 (US 70 / US 221 Business)	Viewpoint Drive	US 70, US 221 Business	Reduce lanes from 5 to 4 lanes with a sidewalk on the east side and a side shared-use path on the west side.	24 - Implement Road Diet to Improve Safety	\$ 22,700,000	N/A	38.54	28.65
H191529	Regional Impact	NC 49 (Maple Avenue)	NC 54	Anthony Street	Road diet with MUPs, replace existing center lane with planted medians, access management controls. E Moorehead improvements to prohibit left turns onto NC 49.	24 - Implement Road Diet to Improve Safety	\$ 23,200,000	N/A	33.80	23.61
H190571	Regional Impact	NC 43	NC 97 (West Raleigh Boulevard)	US 64 Business (East Raleigh Boulevard)	Implement road diet to add buffered bike lanes and median with turn pockets. Make pedestrian and transit user improvements.	24 - Implement Road Diet to Improve Safety	\$ 10,800,000	N/A	28.69	22.45
H193083	Regional Impact	US 70 (West State Street)	SR 2500 (Blue Ridge Road)	NC 9	Implement a road diet to reduce US 70 to two lanes with a center turn-lane and bicycle facilities from Blue Ridge Road to NC 9.	24 - Implement Road Diet to Improve Safety	\$ 22,800,000	N/A	23.35	17.67
H184000	Division Needs	D Street	US 17	Purifoy Street	Improve what is called 'highway to nowhere' where the old US 17 bridge intersected with the town of Bridgeton.	24 - Implement Road Diet to Improve Safety	\$ 8,300,000	N/A	N/A	3.58

P7 Highway Road Diet Quantitative Scores

SPOT ID	Project Category	Route / Facility / Project Name	Description	Cost to NCDOT	Statewide Mobility Quantitative Score (Out of 100)	REGIONAL IMPACT Quantitative Score (Out of 70)	DIVISION NEEDS Quantitative Score (Out of 50)
H191386	Division Needs	SR 1001 (West Henderson Street / Sugar Hill Road)	Reduce lanes from 4 to 2. Construct sidewalk.	\$ 13,500,000	N/A	N/A	32.79
H230599	Division Needs	SR 2201 (Thunder Road), SR 2201 (South Oak Street)	Modernize corridor, road diet on Oak St (Spindale) - reduce lanes from 4 to 3; intersection improvements at US 74-A & W Main St [Spindale]. Include complete streets elements along corridor.	\$ 146,100,000	N/A	N/A	10.76
H230617	Division Needs	SR 1001 (West Henderson Street)	Implement road diet on West Henderson Street reducing the 4 lane undivided typical section to a 3 lane TWLTL with complete street elements.	\$ 29,900,000	N/A	N/A	27.62
H230883	Division Needs	SR 1215 (Simmons St)	Reduce the number of lanes by performing a road diet to have two lanes, a two-way turn lane, bicycle lanes, and pedestrian facilities.	\$ 18,900,000	N/A	N/A	23.36
H231150	Division Needs	SR 1006 (North Second Avenue)	Implement a Road Diet including median and bike/pedestrian improvements to improve traffic flow and improve transportation access for non-highway users	\$ 15,106,000	N/A	N/A	17.52
H231241	Division Needs	SR 1770 (Sunset Avenue)	Road Diet on Sunset Avenue, to include replacing the center turn lane with a planted median, limiting left turn access across the corridor.	\$ 17,500,000	N/A	N/A	32.08
H190571	Regional Impact	NC 43	Implement road diet to add buffered bike lanes and median with turn pockets. Make pedestrian and transit user improvements.	\$ 5,500,000	N/A	39.24	30.68
H111227	Statewide Mobility	NC 168	Upgrade the Existing 5-Lane Major Thoroughfare to a 4-Lane Divided Boulevard from the Virginia Line to US 158	\$ 108,100,000	59.60	39.02	29.53
H231653	Regional Impact	NC 33 (East 10th Street)	Upgrade the access management along the corridor.	\$ 24,100,000	N/A	38.33	29.03
H193247	Regional Impact	US 70 Business (Ash Street)	Road Diet of existing 4-lane roadway to 2-lane with two way left turn lane with curb & gutter, bike lanes and sidewalks.	\$ 20,400,000	N/A	35.06	27.35
H230280	Regional Impact	US 70 Business (Market Street)	Construct road diet to improve safety while maintaining current capacity with access management and pedestrian friendly roadway treatments.	\$ 53,700,000	N/A	39.09	30.36
H150970	Regional Impact	NC 96 (Broad Street)	Road Diet on NC 96 from Industry Drive to North of 3rd Street	\$ 4,500,000	N/A	38.66	34.60
H230450	Regional Impact	US 70 Business (Ash St)	Road Diet of existing 4-lane roadway to 2-lane with median, curb & gutter, bike lanes, and sidewalks. Convert Ash Street/Jefferson Avenue to roundabout. Add/improve crosswalks at all intersections."	\$ 6,300,000	N/A	37.35	28.35
H230453	Regional Impact	US 70 Business (Ash Street)	Road Diet of existing 4-lane roadway to 2-lane with median, curb & gutter, bike lanes, and sidewalks. Convert Ash Street/Jefferson Avenue to roundabout. Add/improve crosswalks at all intersections.	\$ 8,100,000	N/A	34.16	25.59
H191999	Regional Impact	US 17 Business (Market Street)	Implement Road Diet on US 17 Business (Market Street) between SR 1217 (S. 17th Street) and Covil Avenue to improve safety.	\$ 39,600,000	N/A	40.90	33.00
H111225	Statewide Mobility	US 158	Upgrade the Existing 5-Lane Boulevard to a 4-Lane Divided Boulevard from the proposed Mid-Currituck Bridge to the Dare County Line	\$ 122,100,000	54.49	34.75	25.29
H230380	Regional Impact	NC 49 (Maple Ave)	Road Diet	\$ 49,300,000	N/A	33.19	23.87
H230105	Regional Impact	US 70 (Tunnel Road)	Implement a road diet with intersection improvements on US 70 (Tunnel Road) from Beaucatcher Tunnel to US 74A (South Tunnel Road)	\$ 58,300,000	N/A	30.37	25.74
H230244	Regional Impact	US 70 (W State Street)	Reduce the number of travel lanes and add complete streets elements.	\$ 38,400,000	N/A	23.50	18.38
H191390	Regional Impact	US 70, US 221 Business (North Main Street)	Reduce lanes from 5 to 4 lanes with a sidewalk on the east side and a side shared-use path on the west side.	\$ 141,700,000	N/A	22.07	16.80

Next Steps & Adjourn

- Next Steps
 - Is there any additional data/analysis?
 - Follow up discussion on Road Diet & Modernization projects

- Adjourn
 - Next Meeting: ***January 28th, 2025 @ 2:30 PM to 4:00 PM***

Thank you!

