

# US 70 ACCESS MANAGEMENT STUDY CLAYTON TO MOREHEAD CITY, NC

Prepared for:



North Carolina  
Department of Transportation

Prepared by:



Kimley-Horn  
and Associates, Inc.

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# US 70 Access Management Study Clayton to Morehead City, NC

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Division of Highways

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*The US 70 Access Management Study represents a preliminary conceptual analysis for providing access management applications for the 134-mile corridor. Additional analysis and coordination will be required in subsequent phases prior to implementation.*

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# US 70 Access Management

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The development of the *US 70 Access Management Study* was a collaborative process that involved numerous stakeholders, including NCDOT Divisions 2 and 4, select county planning and elected officials, consultant team and the general public.

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# US 70 Access Management

## Introduction

Kimley-Horn and Associates, Inc. has completed an access management study for a portion of US 70 from North Carolina 42 East in Johnston County to the Atlantic Beach Causeway in Morehead City in Carteret County. The purpose of this study is to evaluate existing operational characteristics and safety concerns along the corridor and develop a conceptual access management plan that reinforces the primary function of this strategic corridor for providing mobility between regional destinations. Together, the short-term and long-term recommendations outlined in the conceptual access management plan could demonstrate a substantial travel time reduction for US 70, while reducing the number and severity of potential crashes.

*This plan could demonstrate a substantial travel time reduction for US 70, while reducing the number and severity of potential crashes*

This document summarizes the context and baseline information used to identify specific solutions for the corridor, building upon the Phase I study for Johnston and Wayne Counties. The



location and design treatments for specific locations along US 70 are presented in the conceptual access management plan that accompanies this technical memorandum. Twelve specific segments and five intersections are highlighted in this report as those of highest priority and as examples of the measures used through the corridor plan. It should be noted that the conclusions and recommendations contained in the conceptual plan do not represent an exhaustive study, and that additional analyses will be required to address land use interaction and/or refine roadway design details prior to implementation.

*There is an excessive amount of single-use driveways*

## Study Purpose

US 70 between Raleigh and Morehead City is identified by the North Carolina Department of Transportation (NCDOT) as Corridor 46 in the Strategic Highway Corridor System. As such, this roadway is a component of the “core” highway system within the state and is targeted for furthering a long-term vision of ensuring continuity and consistency among the transportation system for intra-state travel. One of the most useful tools employed by transportation professionals for protecting mobility within these types of corridors is access management, whereby the location, spacing, design, and



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*The combination of mixed-traffic, excessive travel speeds, speed differential, and unexpected traffic control/driveway locations within the developed areas contribute to safety and mobility concerns*

operation of driveways, median openings, and street connections are controlled in a systematic, predictable manner. Such methods preserve safety and efficiency of the transportation system. In many instances, guidelines under access management will extend to spacing criteria for traffic signals and regulations for allowing vehicular access to adjoining land uses.

The focus of this access management study is the 134-mile segment of US 70 from NC 42 East in the Town of Clayton to the SR 1182 Atlantic Beach Causeway in Morehead City. Figures 1 and 2 illustrate the extents of this corridor. This section of US 70 traverses through relatively flat, rural portions of Johnston, Wayne, Lenoir, Jones, Craven and Carteret Counties and terminates on the east end in the coastal community of Morehead City. Small pockets of development exist throughout the corridor, characterized by an excessive amount of single-use driveways. Continued development pressures in the area reinforce the need for implementing an access management plan that limits and/or consolidates driveway locations as well as median openings.

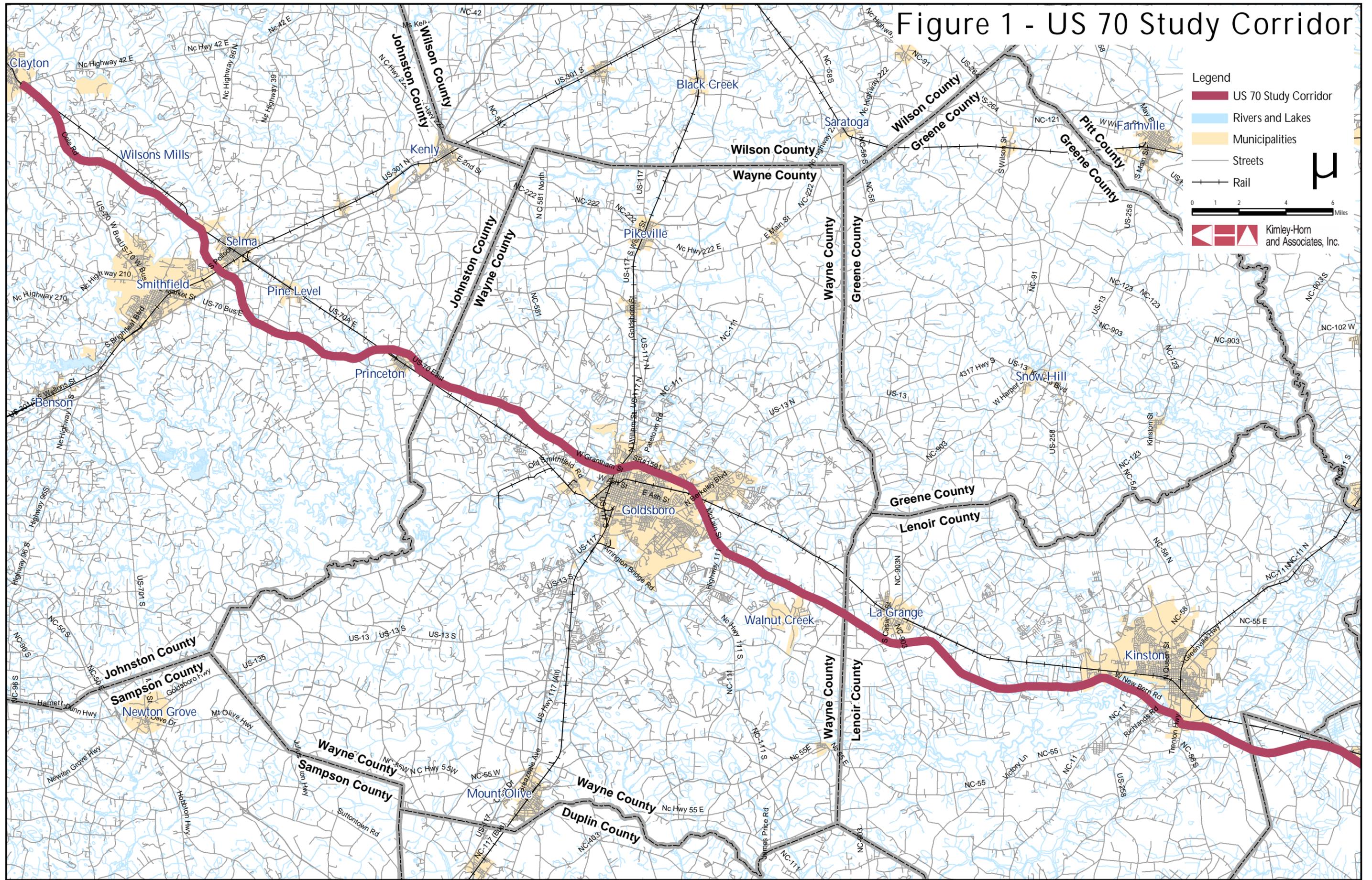


The corridor predominately serves ‘through’ traffic desiring a quick connection between Raleigh, larger communities, and the beaches, including truck traffic generated by the deep water port in Morehead City and petroleum and natural gas facilities along the corridor. The combination of mixed-traffic (including agriculture equipment), excessive travel speeds, speed differential, and unexpected traffic control/driveway locations within the developed areas contribute to safety and mobility concerns related to the ‘unpredictable nature’ of the corridor.

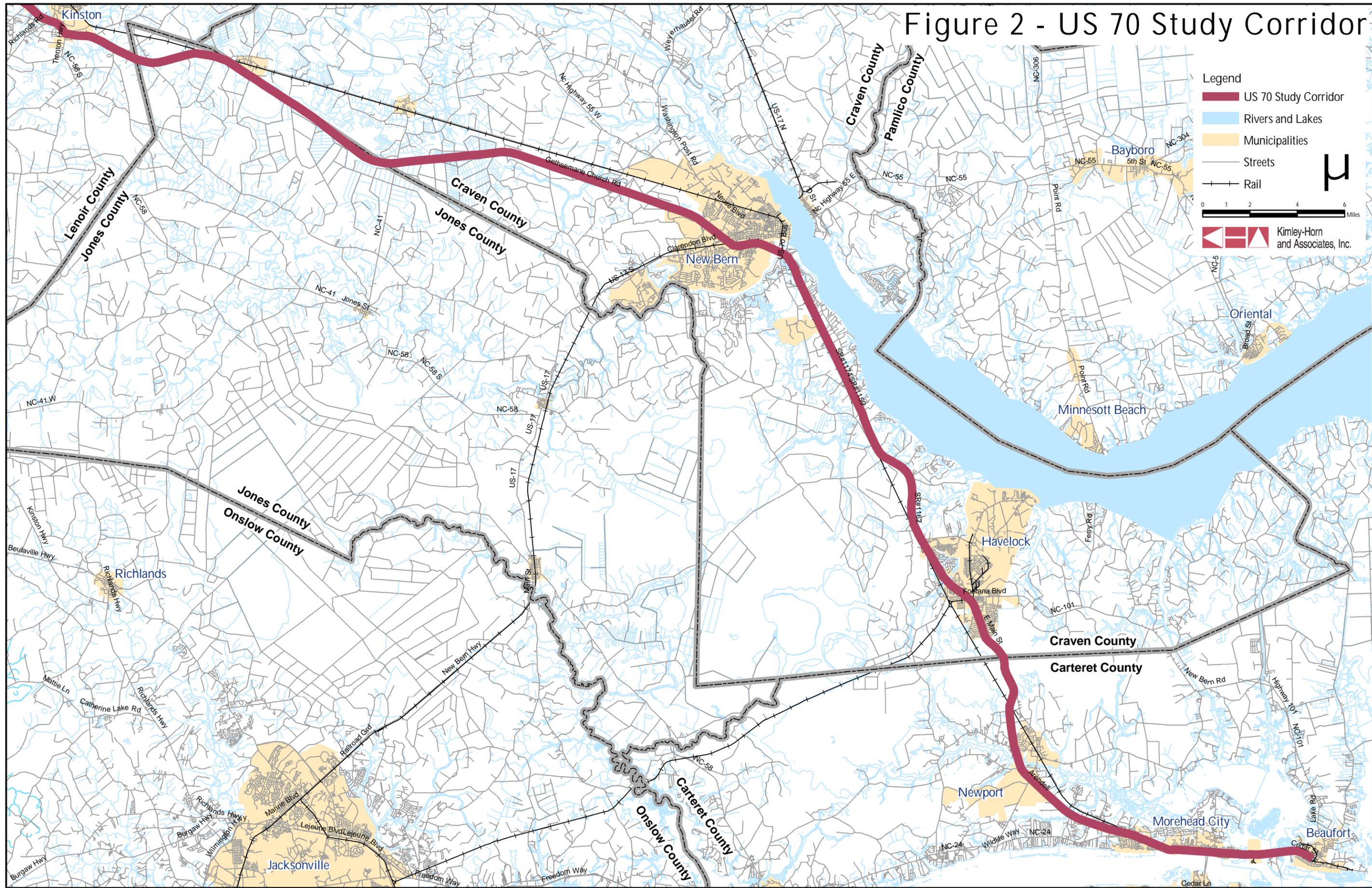
## Existing Conditions

The foundation for recommendations made in the access management plan rests upon baseline information collected from aerial photographs, field visits, historical traffic count data, crash reports, planning staff work sessions and land use data available for the corridor. Information summarizing traffic volumes, crash data, access to adjacent land uses, and environmental considerations are provided below.

# Figure 1 - US 70 Study Corridor



# Figure 2 - US 70 Study Corridor



**Legend**

- US 70 Study Corridor
- Rivers and Lakes
- Municipalities
- Streets
- Rail

0 1 2 4 6 Miles

Kimley-Horn and Associates, Inc.



## US 70 Access Management

*Traffic volumes along the corridor range between 14,000 and 54,000 vehicles per day*

### Existing Traffic Volumes

Average Annual Daily Traffic (AADT) count information for US 70 was collected from 2004 Traffic Count Maps maintained by the North Carolina Department of Transportation (NCDOT) for the state highway system. Existing traffic volumes along the corridor range between 14,000 and 54,000 vehicles per day, demonstrating the drastic differences between urban and rural environments encountered along the 134-mile corridor.

For comparison, transportation professionals commonly agree that the level of service D generalized link capacity for a four-lane, divided arterial with fewer than two signalized intersections per mile is approximately 35,000 vehicles per day within an urban environment. In rural conditions, the generalized link capacity for this same facility could rise to approximately 56,000 vehicles per day and maintain level of service D based on higher operating speeds and fewer traffic signals, median breaks, and driveways along the corridor. Table 1 provides a summary of the traffic volume data collected for this stretch of US 70.

Table 1  
US 70 Corridor Traffic Volumes  
(2003-2004 AADT)

Location	AADT	Location	AADT
East of NC 42	48,000	Kinston Bypass	21,000
East of Clayton Town Limits	36,000	West of NC 58	28,000
East of Wilson Mills	22,000	Lenoir/Jones Co. Line	14,000
East of Pine Level	22,000	West of NC 43	15,000
Inside Princeton Town Limits	21,000	West of Trent River	44,000
Johnston/Wayne Co. Line	23,000	Trent River Bridge (New Bern)	35,000
West of NC 581	22,000*	East of NC 17	44,000
West of Goldsboro Bypass	35,000*	West of NC 101 (Havelock)	30,000
Goldsboro Bypass	54,000*	East of Havelock	37,000
West of NC 111	26,000*	West of Newport	22,000
West of Walnut Creek	19,000	East of NC 24 (Morehead City)	33,000
Wayne/Lenoir Co. Line	16,000	West of Atl. Beach Causeway	29,000
East of Little Baltimore	19,000	East of Atl. Beach Causeway	25,000
West of US 258	41,000	Newport River Bridge	20,000

\* 2002 traffic volumes reported by NCDOT

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In addition, existing turning movement count data for key intersections along the corridor were obtained from NCDOT Divisions 2 and 4 to refine the recommended concepts being considered for addressing safety concerns and improving traffic flow at signalized intersections.

### *Crash Data*

Crash data was collected from the North Carolina Department of Transportation for a 3-year period (October 1, 2001 – September 31, 2004). At the request of the NCDOT staff, data was used to determine the incident rate and crash patterns at intersections and segments along the US 70 Corridor. Collectively, the numbers of crashes reported at the intersections are predominately composed of rear end (34%), angle (17%), and left turn (9%) collisions. Table 2 outlines a summary of crash statistics for the corridor.

*Select segments of US 70 in Johnston, Lenoir, and Craven exceed the statewide average crash rate for similar roadways*

The crash reports indicate a fairly even distribution of crashes throughout the day, month, and year. Forty-five fatalities were reported in forty-two crashes during the analysis period, translating to 1 fatality per 100 crashes in the corridor. Fatality crash rates were higher than the corridor average in Johnston and Wayne Counties, but notably, so were crash rates involving DUIs (driving under the influence). Injury crashes were more prevalent in Jones and Carteret Counties during the study period. Compared to the corridor, Johnston had considerably higher percentages of fixed object and head-on collisions; Wayne, sideswipe same direction crashes; and Carteret, rear-end and angle crashes. Carteret County also reported 14 of the 34 crashes involving pedestrians or cyclists, which may be attributed to the coastal setting and a higher percentage of tourist and recreational traffic. Statistics from Jones County proved to be the most dissimilar from the corridor, with considerably higher percentages of crashes at night or in wet conditions and of crashes involving fixed objects, animals, and motorists running off the road. Reader should note that 72% of the US 70 Corridor in Jones County is access controlled.



Table 3 provides a comparison of the countywide crash rates for the study period versus the latest statewide crash rates for those road types. Based on review of crash data for the corridor, it appears that select segments of US 70 in Johnston, Lenoir, and Craven exceed the statewide average crash rate for similar roadways. Of particular note, the segments in these three counties with full access control all exceeded the state average.



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Table 2  
US 70 Corridor Crash Statistics, by Severity, Special Conditions, and Type

	Total Crashes	Crashes by Severity			Conditions		
		Fatal	Injury	PDO *	Night	Wet	DUI
Johnston	885	12 (1.4%)	341 (38.5%)	532 (60.1%)	212 (24.0%)	167 (18.9%)	45 (5.1%)
Wayne	663	10 (1.5%)	261 (39.4%)	392 (59.1%)	179 (27.0%)	105 (15.8%)	34 (5.1%)
Lenoir	605	6 (1.0%)	238 (39.3%)	361 (59.7%)	167 (27.6%)	111 (18.3%)	20 (3.3%)
Jones	105	0 (0.0%)	42 (40.0%)	63 (60.0%)	55 (52.4%)	32 (30.5%)	3 (2.9%)
Craven	1073	6 (0.6%)	369 (34.4%)	698 (65.1%)	276 (25.7%)	268 (25.0%)	31 (2.9%)
Carteret	1193	8 (0.7%)	493 (41.3%)	692 (58.0%)	184 (15.4%)	148 (12.4%)	46 (3.9%)
<b>Total</b>	<b>4524</b>	<b>42 (0.9%)</b>	<b>1744 (38.5%)</b>	<b>2738 (60.5%)</b>	<b>1073 (23.7%)</b>	<b>831 (18.4%)</b>	<b>179 (4.0%)</b>

	Total Crashes	Types					
		Rear-end	Angle	Sideswipe, same direction	Fixed object	Ran off road	Left turn, same roadway
Johnston	885	263 (29.7%)	159 (18.0%)	88 (9.9%)	102 (11.5%)	22 (2.5%)	61 (6.9%)
Wayne	663	221 (33.3%)	87 (13.1%)	77 (11.6%)	28 (4.2%)	93 (14.0%)	33 (5.0%)
Lenoir	605	167 (27.6%)	108 (17.9%)	40 (6.6%)	56 (9.3%)	54 (8.9%)	37 (6.1%)
Jones	105	6 (5.7%)	8 (7.6%)	5 (4.8%)	15 (14.3%)	34 (32.4%)	2 (1.9%)
Craven	1073	385 (35.9%)	131 (12.2%)	53 (4.9%)	89 (8.3%)	111 (10.3%)	47 (4.4%)
Carteret	1193	482 (40.4%)	285 (23.9%)	73 (6.1%)	50 (4.2%)	21 (1.8%)	77 (6.5%)
<b>Total</b>	<b>4524</b>	<b>1524 (33.7%)</b>	<b>778 (17.2%)</b>	<b>336 (7.4%)</b>	<b>340 (7.5%)</b>	<b>335 (7.4%)</b>	<b>257 (5.7%)</b>
	Total Crashes	Animal	Left turn, diff. roadways	Pedestrian/ pedcyclists	Sideswipe, opp. directions	Head-on	Other
Johnston	885	47 (5.3%)	28 (3.2%)	3 (0.3%)	3 (0.3%)	12 (1.4%)	97 (11.0%)
Wayne	663	26 (3.9%)	17 (2.6%)	5 (0.8%)	7 (1.1%)	4 (0.6%)	65 (9.8%)
Lenoir	605	57 (9.4%)	13 (2.1%)	2 (0.3%)	4 (0.7%)	1 (0.2%)	66 (10.9%)
Jones	105	29 (27.6%)	0 (0.0%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	5 (4.8%)
Craven	1073	82 (7.6%)	46 (4.3%)	9 (0.8%)	8 (0.7%)	4 (0.4%)	108 (10.1%)
Carteret	1193	8 (0.7%)	38 (3.2%)	14 (1.2%)	9 (0.8%)	8 (0.7%)	128 (10.7%)
<b>Total</b>	<b>4524</b>	<b>249 (5.5%)</b>	<b>142 (3.1%)</b>	<b>34 (0.8%)</b>	<b>31 (0.7%)</b>	<b>29 (0.6%)</b>	<b>469 (10.4%)</b>

\*PDO- Property Damage Only

Table 3  
US 70 Countywide and Segmental Crash Rate Comparisons  
to 2000-2002 Statewide Crash Rates

County	Setting	Access	Length	AADT	Crashes	Vehicle Exposure (MVMT)	Crash Rate <sup>A</sup>	Statewide Crash Rate Comparison
Johnston	NC 42 to Wayne County Line						127.89	
	Rural	No/partial	20.8	26,000	688	592.7	116.08	83.22 – 131.76
		Full	3.9	20,000	197	85.5	230.44	64.29
Wayne	Countywide						103.71	
	Rural	No/partial	8.9	20,000	176	195.1	90.22	83.22 – 131.76
		Urban	No/partial	8.0	28,000	370	245.5	150.71
		Full	4.3	54,000	117	254.5	45.97	155.81
Lenoir	Countywide						142.56	
	Rural	No/partial	14.5	21,000	455	333.7	136.34	83.22 – 131.76
		Full	4.1	16,000	53	71.9	73.72	64.29
	Urban	TWLT	0.8	28,000	97	24.6	395.11	374.08
Jones	Countywide						71.86	
	Rural	No/partial	3.9	12,000	54	51.3	105.28	83.22 – 131.76
		Full	8.1	11,000	51	97.7	52.23	64.29
Craven	Countywide						107.87	
	Rural	No/partial	7.9	26000	116	225.1	51.53	83.22 – 131.76
		Full	18.5	18000	249	365.0	68.23	64.29
	Urban	No/partial	10.0	33,000	559	361.7	154.56	245.66 – 432.42
TWLT		1.3	31,000	149	44.2	337.35	374.08	
Carteret	Countywide						259.46	
	Rural	No/partial	7.4	22,000	228	178.4	127.78	83.22 – 131.76
	Urban	No/partial	10.9	31,000	965	370.3	260.57	245.66 – 432.42
Roadway Type					State Average Crash Rates <sup>B</sup>			
					Rural US Route		Urban US Route	
4+ lanes undivided					156.36		631.41	
4+ lanes with continuous left-turn lane					119.77		374.08	
4+ lanes with no control access					131.76		432.42	
4+ lanes with partial control access					83.22		245.66	
4+ lanes with full control access					64.29		155.81	

Notes: A—County crash rates developed by NCDOT using AADT for study period 2001-2004, 2003 AADT used for segmental analysis

B—Crash rate is reported as number of crashes per 100 million vehicle miles traveled



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*The potential for rear end collisions greatly increases on roadways with inadequate sight distance and/or excessive speed differentials caused by traffic control devices, frequent driveways, unprotected turning movements, and a mix of motor vehicles*

Angle and left turn collisions are often the result of drivers misjudging speed and/or distance of oncoming traffic and mistakenly turning in front of or into the path of an oncoming vehicle. This is usually a function of either a driver's disregard for or failure to see a traffic control device, or an inadequate amount of sight distance caused by a physical obstruction or geometric conditions. Rear-end collisions commonly occur as the result of sudden stops coupled with inadequate following distance. The potential for rear-end collisions greatly increases on roadways with inadequate sight distance and/or excessive speed differentials caused by traffic control devices, frequent driveways, unprotected turning movements, and a mix of motor vehicles.

Based on intersection crash data provided by NCDOT, the following critical intersections were identified for safety improvements based on consideration of the combination of crash frequency and severity of incidents:

- US 70 & SR 1901 Powhatan Road (Johnston)
- US 70 & SR 2307 Peedin Road Extended (Johnston)
- US 70 Bypass Ramps (W. Graham Street) between Paul Street and SR 1302 Florida Street (Wayne)
- US 70 & NC 581 (Wayne)
- US 70 & SR 1234 Ebenezer Church Road/Capps Bridge Roads (Wayne)
- US 70/NC 111 & SR 1711 Oak Forest Road (Wayne)
- US 70 & SR 1719 Beston Road (Wayne)
- US 70 & SR 1525 W. Measley Road/SR 1327 J. Sutton Drive (Lenoir)
- US 70 & US 258 (Lenoir)
- US 70 & NC 11/55 (Lenoir)
- US 70 & US 258 Business (Lenoir)
- US 70 & NC 58 (Lenoir)
- US 70 & SR 1116 Thurman Road (Craven)
- US 70 & Stonebridge Trail (Craven)
- US 70 & SR 1824 McCotter Boulevard (Craven)
- US 70 & SR 1124 Nine Foot Road/SR 1245 Howard Boulevard (Carteret)
- US 70 & SR 1141 Hibbs Road (Carteret)
- US 70 & Mansfield Parkway (Carteret)
- US 70 & SR 1182 Atlantic Beach Causeway/23<sup>rd</sup> & 24<sup>th</sup> Streets (Carteret)

Table 4 summarizes the number of recorded crashes, crash rates, and severity index scores for select intersections included in the study. The following intersection crash data was provided by NCDOT and reflects information recorded between 2001 – 2004.

Table 4  
Crash Summary for Select US 70 Intersections  
(2001 - 2004)

Intersection <sup>C</sup>	Crash Summary		
	No. of Crashes	Crash Rate <sup>A</sup>	Severity Index <sup>B</sup>
<i>Johnston County</i>			
US 70 & SR 2522 (Martin Livestock Rd.)	1	4.13	8.40
US 70 & SR 1929 (West Oak St.)	5	17.28	2.48
US 70 & SR 1901 (Powhatan Rd.)	8	21.66	12.33
US 70 & SR 2307 (Peedin Road Ext.)	22	79.03	10.25
<i>Wayne County</i>			
US 70 Bypass Ramps (W. Graham St.) between Paul St. & SR 1302 (Florida St.)	10	584.88	1.74
US 70 & NC 581	19	65.92	8.49
US 70 & SR 1234 (Ebenezer Church Rd.)	7	25.96	25.83
US 70/NC 111 & US 70 Bypass	4	9.46	2.85
US 70/NC 111 & SR 1711 (Oak Forest Rd.)	18	49.47	7.68
US 70 & SR 1719 (Beston Rd.)	17	74.22	9.38
<i>Lenoir County</i>			
US 70 & SR 1548 (Hill Farm Rd.)/Sussex St.	22	52.82	4.36
US 70 & SR 1525 (W. Measley Rd.)/SR 1327 (J. Sutton Dr.)	17	77.55	15.14
US 70 & US 258	46	153.74	3.57
US 70 & Mt. Vernon Park Rd.	21	46.73	4.88
US 70 & NC 11/55	41	191.84	6.28
US 70 & US 258 Business	61	271.5	3.43
US 70 & Meadowbrook Rd.	6	35.32	3.47
US 70 & US 58	29	145.38	5.66
<i>Craven County</i>			
US 70 & SR 1167 (Williams Rd.)	42	87.09	4.52
US 70 & SR 1131 (Airport Rd.)	18	44.39	4.29
US 70 & Taberna Way	11	37.17	5.71
US 70 & SR 1116 (Thurman Rd.)	14	47.31	6.29
US 70 & SR 1760 (Hickman Hill Loop Rd.)	6	19.55	4.70
US 70 & SR 1765 (Slocum Rd.)	18	71.41	3.47
US 70 & SR 1745 (Greenfield Blvd.)/ Catawba St.	21	72.58	1.70
US 70 & SR 1757 (Ketner Blvd.)	3	10.95	1.00
US 70 & Stonebridge Trl.	5	18.25	17.64
US 70 & Chadwick Dr.	15	47.19	2.48
US 70 & Holly Dr.	16	50.34	2.39

A –Crash rate is reported as number of crashes per 100 million vehicles entering the intersection

B – Severity Index = ((76.8\*(F+A))+(8.4\*(B+C))+PDO)/Total Crashes

C –All intersection crash data reflect information received over a 3-year period.

Table 4 (continued)  
Crash Summary for Select US 70 Intersections  
(2001 – 2004)

Intersection <sup>C</sup>	Crash Summary		
	No. of Crashes	Crash Rate <sup>A</sup>	Severity Index <sup>B</sup>
<i>Craven County (continued)</i>			
US 70 & Jackson Dr.	17	51.70	3.18
US 70 & NC 101/SR 1763 (Fontana Blvd./ Miller Blvd.)	34	72.14	2.52
US 70 & SR 1737 (Roosevelt Blvd.)	15	54.74	2.48
US 70 & SR 1735 (Cunningham Dr.)	15	36.99	3.47
US 70 & Hollywood Blvd.	6	14.80	2.23
US 70 & Nunn St.	11	27.13	3.02
US 70 & SR 1824 (McCotter Blvd.)	10	24.66	10.06
<i>Carteret County</i>			
US 70 & SR 1124 (Nine Foot Rd.)/SR 1245 (Howard Blvd.)	27	111.98	11.89
US 70 & SR 1140 (Roberts Rd.)	20	82.95	4.33
US 70 & SR 1141 (Hibbs Rd.)	22	91.24	8.15
US 70 & SR 1237 (Harris Rd.)	26	76.52	3.85
US 70 & Cypress Bay Shopping Center Ent.	8	23.55	1.92
US 70 & NC 24	31	54.39	3.39
US 70 & SR 1177 (Country Club Rd.)	25	69.12	5.81
US 70 & Mansfield Parkway	18	49.77	12.30
US 70 & SR 1605 (Friendly Rd.)	25	73.58	3.07
US 70 & SR 1602 (35 <sup>th</sup> St.)	24	75.51	3.77
US 70 & 30 <sup>th</sup> St.	10	31.46	3.22
US 70 & 29 <sup>th</sup> St.	3	9.44	3.47
US 70 & SR 1182 (Atlantic Beach Causeway)/23 <sup>rd</sup> St.	39	122.70	2.90

A – Crash rate is reported as number of crashes per 100 million vehicles entering the intersection

B – Severity Index =  $((76.8*(F+A))+(8.4*(B+C))+PDO)/\text{Total Crashes}$

C – All intersection crash data reflect information received over a 3-year period.

Additional review of data in the corridor-wide crash reports helped to identify the following intersections as points of concern. Their selection and recommended actions are included in the following review.

- US 70 and SR 1570 Pony Farm Road (Johnston): cluster of rear-end crashes (7 related injuries) – *Recommendation* - long term median closure and removal of signal



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- US 70 and SR 1643 Swift Creek Road (Johnston): cluster of angle and turning crashes (2 fatalities, 18 related injuries) – *Recommendation* - long term grade separation and removal of signal
- US 70 and SR 1913 Wilson Mill Road (Johnston): cluster of rear-end and turning movement crashes (9 related injuries) – *Recommendation* - long term grade separation and interchange
- US 70 and SR 2309 Peedin Road (Johnston): cluster of rear-end and turning movement crashes (27 related injuries) – *Recommendation* - short term mainline directional crossover and signal removal
- US 70 and SR 2372 Pearl Street (Johnston): cluster of turning movement crashes (11 related injuries) – *Recommendation* - short term mainline directional crossover and signal removal
- US 70 and SR 1323 Promise Land Road (Lenoir): cluster of angle crashes (7 related injuries) – NCDOT TIP R-2554C closes this intersection
- US 70 and SR 1603 Washington Street (Lenoir): Cluster of angle and turning crashes (5 related injuries) – *Recommendation* - long term median closure prohibits turning movements
- US 70 and SR 1324 Eason Road (Lenoir): cluster of angle crashes (6 related injuries) – *Recommendation* - long term median closure due to NCDOT TIP R-2719A
- US 70 and Mount Vernon Park Road (Lenoir): cluster of rear-end and angle crashes (14 related injuries) – *Recommendation* - installation of leftover prohibits crossing traffic and will channelize left turning movement
- US 70 and SR 1167 Williams Road (Craven): cluster of rear end crashes (31 related injuries) – *Recommendation* - long term signal removal and access closure to US 70
- US 70 and SR 1132 Pender Street (Craven): cluster of angle/turning movement crashes as well as rear-end crashes (1 pedestrian fatality, 15 related injuries) – *Recommendation* - short term median closure and long term access closure to US 70
- US 70 and SR 1131 Airport Road (Craven): cluster of angle/turning movement and rear-end crashes (15 related injuries) – *Recommendation* - long term signal removal and access closure to US 70



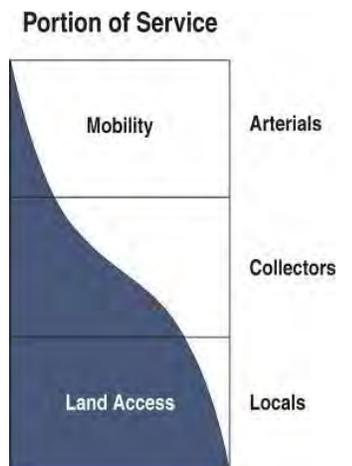
# US 70 Access Management

*A balance between mobility and accessibility requires a concerted effort between state and local governmental agencies to better link transportation and land use decisions*

- US 70 and SR 1124 Grantham Road (Craven): cluster of turning movement and angle crashes (19 related injuries) - *Recommendation* - short term mainline leftover to prohibit side street traffic from crossing, long term access closure to US 70
- US 70 and SR 1772 Pine Grove Road / Hickman Hill Loop (Craven): cluster of rear-end crashes (19 related injuries) – NCDOT TIP R-1015A removes through traffic - *Recommendation* - proposed signal removal and long term mainline leftover to prohibit side street crossing traffic
- US 70 and Shepard Street (Craven): cluster of turning movement crashes (11 related injuries) – *Recommendation* - short term mainline leftover to prohibit side street traffic from crossing
- US 70 and SR 1127 Mason Town Road (Carteret): cluster of turning movement crashes (1 fatality, 21 related injuries) – *Recommendation* - short term mainline leftover to prohibit side street traffic from crossing
- US 70 and SR 1152 Old Airport Road (Carteret): cluster of turning movement crashes (8 related injuries) – *Recommendation* - short term median closure to prohibit crossing traffic
- US 70 and Jones Road (Carteret): cluster of rear-end and turning movement crashes (11 related injuries) – *Recommendation* - Morehead City scenarios 1 and 3 propose installation of raised center median to prohibit turning movements
- US 70 and NC 24 (Carteret): cluster of rear-end and turning movement crashes (12 related injuries) – *Recommendation* - Morehead City scenario's 2-4 propose removal of signal and separation of opposing traffic by one-way pair systems (2 and 4) and grade separation (3)

### Adjacent Land Uses

One of the most important considerations for implementing a successful access management plan for US 70 is the interrelationship between transportation and land use. US 70 is designated as a US Highway by the Federal Highway Administration and identified as a Strategic Corridor by the NCDOT, charged with maintaining mobility between regional destinations. As such, the priority for US 70 is to move traffic safely and efficiently through the corridor.





## US 70 Access Management

Unfortunately, existing development and current zoning for still undeveloped lands adjacent to the corridor favor access to the transportation system via single use driveways onto US 70. The emphasis for 'accessibility' to these properties quickly erodes away at the 'mobility' function established for US 70 as a strategic corridor. Finding a balance between mobility and accessibility requires a concerted effort between state and local governmental agencies to better link transportation and land use decisions.



One opportunity for coordination will be the conceptual access management plan whereby short-term improvements are identified to address immediate safety concerns caused by excessive driveways and median breaks along the corridor, while long-term improvements emphasize alternative routes for local traffic comprising frontage roads and/or an expanded collector street system parallel to US 70. These could provide access to properties adjacent to the strategic corridor from the rear of the property.

*Consolidating access roads along US 70 would be less damaging to rural landscape or environmentally sensitive areas*

### *Environmental Considerations*

The US 70 Corridor through all the counties in the study area traverses several jurisdictional wetlands and properties acquired by the Federal Emergency Management Agency (FEMA) as flood-prone areas. The corridor also travels through the Croatan National Forest from east of New Bern to the town of Newport. These properties are identified in the base mapping for the conceptual access management plan and consideration was given to these sensitive areas during the evaluation of potential improvements. New construction beyond that of projects planned in the TIP have been avoided to the maximum extent possible in locating short-term and long-term solutions for implementing access management through the corridor.



From an environmental perspective, improved traffic flow afforded through a comprehensive access management plan could also translate into greater fuel efficiency and reduced vehicular emissions along the corridor.



# US 70 Access Management

Furthermore, consolidating access roads along US 70 would be less damaging to rural landscapes or environmentally sensitive areas than allowing numerous individual private driveways.

*“Flashing lights before stop lights ‘flashing to slow down’ are needed”*

## Public Involvement

The purpose of this conceptual access management plan is to provide a series of recommendations for protecting access and mobility along the 134-mile corridor. These recommendations were shared with citizens and local officials at a series of public meetings and open houses held at different points along the corridor in order to gain insight and reaction to the preliminary improvements outlined in the conceptual plan.

### *Phase I Study Citizens Workshop, Wayne County*

Public involvement is of key importance to projects like this

one and opportunities for citizens to provide input to the study via public workshops were included in the study. To share and discuss the findings of the Phase I (Johnston and Wayne counties) Access Management Study, NCDOT and Kimley-Horn held a citizen workshop April 18, 2005 at East Wayne High School. Large maps detailing the proposed improvements were displayed for review and the project staff made a short presentation on the project background, access management basics, and the preliminary findings and improvements. Approximately 60 participants attended the session and 26 completed a public survey handed

out to solicit feedback. Participants were allowed to speak one-on-one with the project team as well as write their comments directly on the plan mapping using markers and sticky-notes. Responses received during the workshop were compiled and a sampling of the submitted comments and improvement suggestions are summarized in the following list and the charts in Figure 3.

- Too many signals is the cause of problems associated with US 70
- Flashing lights before stop lights “flashing to slow down” are needed
- Bridge over/under Oak Forest ASAP
- Make Hwy 70 right lanes fast speed and left lanes local traffic





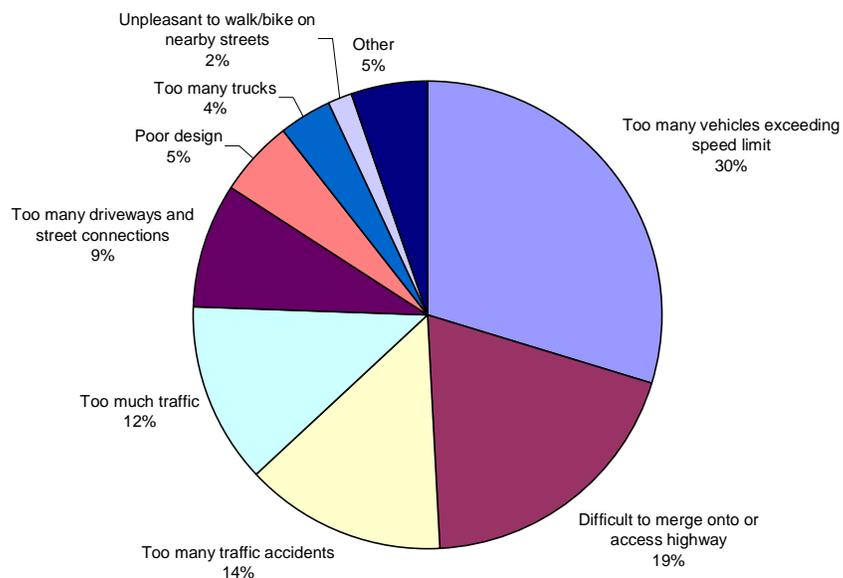
# US 70 Access Management

*30% of public survey participants identifies that "too many vehicles exceeding speed limit" was the number one problem on US 70*

- I understand that Hwy 70 is important for business traffic as well as tourist traffic, but do not inconvenience the local people who have to travel the road every day for the "beach goers" on the weekends.
- Not obeying the 45 mph speed limit; not enough or large enough reduce and limit signs
- Most accidents are rear end collision not cross over. This is because of back up from intersection of 111 and 70.
- Close a lot of lesser used medians that do not connect to roads. Those that connect to vacant land or 1-2 homes do not benefit many people but have the potential to cause rear end collisions.
- You can't see traffic in turn lane going to LaGrange when coming from Kinston.
- At median closures, do not remove median but put poles to close median so when future bypass is built the existing medians can be reopened and save money.
- Enforce speed laws.
- Once a highway becomes a "slow-way" deal with it as cheaply as possible. There is no going back to freeway speeds.
- Closing Camden Park median would be a mistake. The median services at least 5 businesses and a neighborhood. Lengthen the turn lane to Camden Park and pave the shoulder.

Figure 3a. Responses from Public Survey Questions

**In your opinion, what are the problems associated with the US 70 corridor?**





# US 70 Access Management

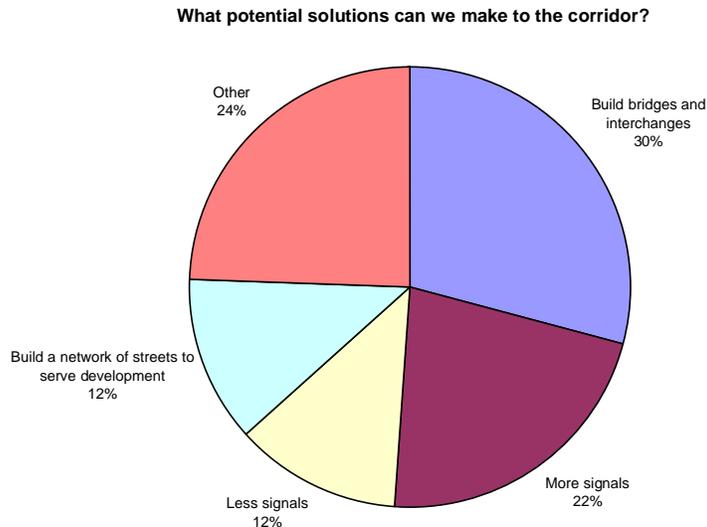
The open discussions with attendees at the workshop covered a variety of issues, primarily covering those topics listed above as well as:

- US 70 at Oak Forest Road
  - Flasher with sign –stop ahead when flashing
- US 70 at Beston
  - Too dark - need better street lighting
  - Citizens petitioned for traffic signal
  - Need to enforce speed limit
  - Not enough law enforcement so why not put in a signal
  - Angle (T-bone) crashes area real problem at Beston/70
- Goals: 1) Protect lives, 2) Reduce congestion
- What percentage of traffic is from Johnston or Wayne counties vs. Raleigh-Coast traffic?
- People need to slow down.
- Different trip purpose results in wide difference in traffic speeds
- Oak Forest Road at 70 has the most rear-end crashes.
- Keep Lake Wakena Road open.
- Make 70 Highway right lanes Autobahn high speed. Keep left lanes local traffic.
- Entrance to Walnut Creek must remain open
- Stop lights are cheaper than bridges... put some in.
- Contact Highway Patrol; ask why officers aren't writing tickets like in 1995.

*The number one suggested improvement (at 30%) to US 70 as identified by survey participants was to "build bridges and interchanges" along the corridor.*

*\*Reader should note, there were two petitions submitted by the public against the proposed improvements at the intersections of US 70/Beston Road and US 70/Uzzell Road. As a result, the proposed improvements (or timing of improvements) at these two locations may have been modified.*

Figure 3b. Responses from Public Survey Questions





# US 70 Access Management

*"People need to slow down"*

*170 elected officials, staff, and other stakeholders attended the meeting*

## US 70 Corridor Summit

The US 70 Corridor Summit was held on May 11, 2005 at the Global Transpark Education and Training Center from 10:00 a.m. to 3:00 p.m. The goals of the Summit were to discuss and explain the current and short term activities along the corridor, including all projects; discuss the long-term vision for the corridor; and present information on non-traditional and innovative funding mechanisms for financing construction projects. Approximately 170 elected officials, staff, and other stakeholders attended the meeting.

## Additional Public Workshops and Meetings

In addition to the workshop and summit, the project team along with NCDOT staff conducted several public outreach initiatives throughout the study including a public presentation/meeting in Johnston County, meetings with local Transportation Advisory Committees (TAC), and presentations to elected county officials and Board of Transportation members. Additional public comments were received by direct mail, email, and phone by the project staff.

The study has garnered coverage and editorial comments in regional and local newspapers in the communities along the corridor; many of these articles are provided in the appendix.

### Goldensboro News-Argus Covering Wayne County since 1885

#### Highway officials may restrict access to U.S. 70

State transportation officials are considering closing medians and intersections along U.S. 70 to try to speed up highway traffic and eliminate accidents.

Should the proposal proceed, several Wayne County intersections would be closed or redesigned over the next two to three years. Two of the changes would make it more difficult for Walnut Creek residents to get onto U.S. 70 West.

The N.C. Department of Transportation is also considering bridging Oak Forest Road, at Parkeast industrial park, over the highway to eliminate that stoplight.

New restrictions on driveways are possible. Some existing properties could be forced to share driveways with their neighbors.

In a sense, DOT would be retrofitting the existing U.S. 70 as much as possible to freeway conditions.

"This is just a concept. We are not ready to implement it yet," DOT Division Engineer Jim H. Trogdon told city and county officials Thursday.

But the state needs to take immediate steps to stop the proliferation of accidents and stoplights along the highway, Trogdon said. There are currently 102 unsigned intersections and median openings along U.S. 70 in Johnston and Wayne counties, all of which have the potential to need signals.

"Once stoplights are there, they are difficult to remove," he said.

WFTV contacted with Kimble-Horn and Associates Inc., a Raleigh consultant firm, regarding U.S. 70 access management. For more information, visit www.us70study.com.



## ROAD WORRIES

**SMITHFIELD** - The results of a recent study confirm what many Johnston County residents have known for years - U.S. 70 is a dangerous stretch of road.

The study, conducted by Kimley-Horn design firm, focused on the U.S. 70 corridor from N.C. 42 East to Blesston Road near Goldsboro, a 45-mile stretch of relatively flat rural portions of Johnston and Wayne counties. Engineers and designers from Kimley-Horn have been working with the N.C. Department of Transportation on the study and presented their preliminary findings to County Commissioners last week.

Michael Rutkowski, a senior transportation engineer with Kimley-Horn, said his firm is suggesting a set of short- and long-term recommendations to help decrease travel times and reduce the number and severity of wrecks.

"The improvements identify safety concerns caused by poor sightlines, excessive driveways and median breaks along U.S. 70," Rutkowski said before noting that these are the main culprits in wrecks along the corridor. "Most of the accidents we are seeing are rear-end collisions from people slowly pulling onto the highway."

Rutkowski said that adding signals and closing up median breaks are just two means being considered for short-term improvements.

The long-term improvements include access roads and interchanges complete with on and off ramps.

Rutkowski said the numbers in the study illustrate the need for such changes. "In pockets along that corridor (accident rates) are 50 percent higher than at other similar roads in North Carolina. That number speaks for itself," he said. "And not only is the accident rate higher but we are seeing a lot of fatalities."

County commissioner DeVan Bellour said that although funding for improvements "isn't on the map" he is glad to see the local discussion. "We've got one intersection down at Pavilion Road - it's a death trap. And all along the corridor you've got residential traffic pulling out into high speed situations," he said. "Safety has to come first but the trick is dealing with safety without reducing bugging down traffic anywhere that it already is."

Jim Trogdon, a DOT Division engineer, said his staff would be working with the firm to help.

## Clayton looks at U.S. 70 changes

*Residents cheer planned fixes*

By PEGGY LIM  
STAFF WRITER

**CLAYTON** - The windows of his family's store offer Jonathan Garcia a front-row view of the frequent traffic dramas unfolding along U.S. 70.

About twice a week, Garcia, 21, sees cars creeping out of nearby businesses being rear-ended by other cars or trucks barreling along the highway.

"It's because the driver is driving too slow," Garcia said from behind the counter of the store, La Nueva Frontera.

Transportation engineers say another part of the problem is troublesome road design, from too many curb cuts to confusing turn lanes. This month, they are completing plans to improve safety along Clayton's crowded U.S. 70 corridor.

U.S. 70 serves as a link to Eastern North Carolina as well as Clayton's main commercial drag. It's where local residents buy milk, stop for barbecue or shop at Wal-Mart, while weaving among beach-bound SUVs, 80,000-pound semis and trucks transporting double-wide mobile homes.

The section of U.S. 70 that runs through Clayton has experienced a decline in reported crashes in recent years. From 1998 to 2003, its crash rate was about 70 percent higher than that of comparable roads in the state. From 2001 to 2004, its percentage of property damage crashes was 20 percent higher than other roads in the region.

### THE HERALD Smithfield Clayton - Cleveland

Published: Apr 19, 2005  
Modified: Apr 19, 2005 1:23 PM

#### Study reveals dangers of U.S. 70

By BLACKWELL THOMAS, STAFF REPORTER

**SMITHFIELD** - The results of a recent study confirm what many Johnston County residents have known for years - U.S. 70 is a dangerous stretch of road.

The study, conducted by Kimley-Horn design firm, focused on the U.S. 70 corridor from N.C. 42 East to Blesston Road near Goldsboro, a 45-mile stretch of relatively flat rural portions of Johnston and Wayne counties. Engineers and designers from Kimley-Horn have been working with the N.C. Department of Transportation on the study and presented their preliminary findings to County Commissioners last week.

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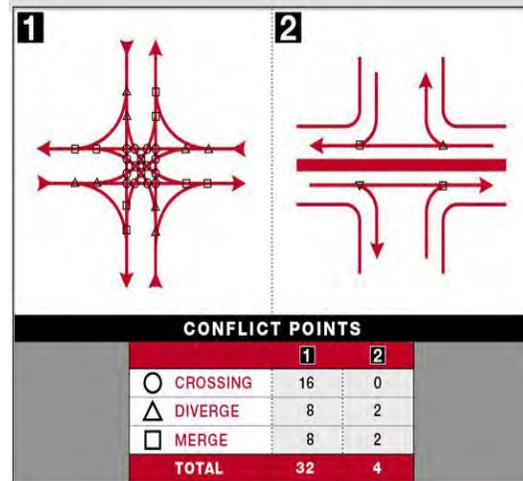
Jim Trogdon, a DOT Division engineer, said his staff would be working with the firm to help.

## Access Management Concepts

### Tool Box

With an understanding of baseline conditions, a “tool box” of suitable access management solutions was created to address the unique characteristics of US 70 through eastern North Carolina. Generally, these solutions provide greater ‘predictability’ to the corridor by consolidating median openings and/or removing left turns at major intersections in favor of u-turns facilitated upstream or downstream from the intersection.

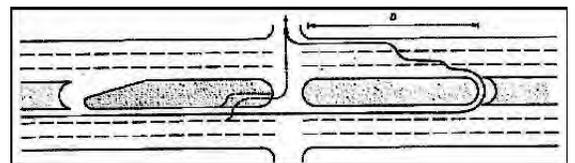
*These solutions provide greater ‘predictability’ to the corridor*



Median U-Turn Treatment: Median u-turn treatments (or directional crossovers) are often used to control turning movements along roadways with medians. Typically, crossovers allow for indirect left turns at major intersections and u-turns between full median openings. They reduce delay for the mainline and allow for two-phase traffic signal operations by removing directional (i.e., mainline or minor leg) left turns and u-turns from the intersection. However, they should be used only where sufficient space is available for u-turn maneuvers within the median and be designed sufficiently to accommodate the turning radius of the intended design vehicle. The design vehicle used to design the median u-turns along US 70 for this study was a WB-50 tractor trailer.

*This application also greatly reduces the number of conflict points for vehicles within the intersection*

This application also greatly reduces the number of conflict points for vehicles within the intersection and is attributed with significantly decreasing the frequency of crashes (especially angle collisions) when compared with intersections that



Example of u-turn

allow for left turns and u-turns. In fact, a study published by the Institute of Transportation Engineers (ITE) and the University of Florida, Gainesville, reported that "the results of the before and after study conclude that the implementation of the U-Turn concept for roadway access control and safety improvement can reduce the frequency of accidents by 22% which should produce a worthwhile project to enhance roadway safety" (ITE Compendium of Technical



## US 70 Access Management

*Coordination of traffic signals in the more urban areas of the corridor could demonstrate improved travel times and safety*

Papers, pg 49). Disadvantages for implementing median u-turn treatments include increased delay, travel distance, and stops for left-turning vehicles as well as driver confusion immediately after implementation. Installing median u-turns at multiple locations along a corridor could help alleviate driver confusion, as replacing numerous openings and intersections would normalize the corridor from its current “unpredictable nature.” Much consideration should be given to locations of median openings in order to provide adequate weaving space without creating excessive travel distances for left-turning vehicles.

**Traffic Signal Coordination:** The distance between most of the traffic signals in this 134-mile stretch of US 70 are spaced sufficiently enough that they operate independently; however, coordination of traffic signals in the more urban areas of the corridor could demonstrate improved travel times and safety along US 70. Coordination typically involves synchronizing traffic signals on a corridor to minimize through traffic delay. Signal coordination can be accomplished either using time-based signal plans or by interconnecting the signals in a system.



*Shared-use driveways, or joint access, improve both the safety and efficiency of the roadway*

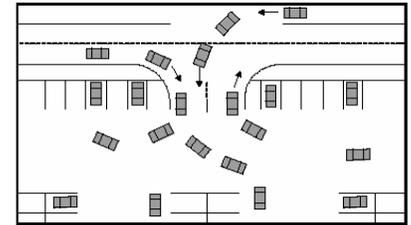
**On-Site Traffic Circulation:** One way to reduce the number of vehicle conflicts along US 70 is to promote the concept of on-site traffic circulation and/or shared-use driveways through local government ordinances for approving development applications. Pushing back the ‘throat’ of a driveway helps to avoid spillback onto the highway. Shared-use driveways, or joint access, improve both the safety and efficiency of the roadway by concentrating slowing vehicles in appropriate areas and providing for right-turn deceleration lanes to facilitate access to abutting properties. Shared-use driveways also limit the number of access points into development along the corridor by considering developments with multiple lots and land uses into one property for the purposes of access regulation. Only the minimum number of connections necessary to provide reasonable access should be permitted.

**Interchange Retrofitting:** In certain locations, intersection volumes limit the number of feasible solutions that can both increase safety and maintain current levels-of-service. At such locations, grade-separated interchanges may be one of the more feasible alternatives to achieving both of these goals. Although interchanges represent a major construction cost and may require additional right-of-way. In rural locations, the land may be available to construct the ramps

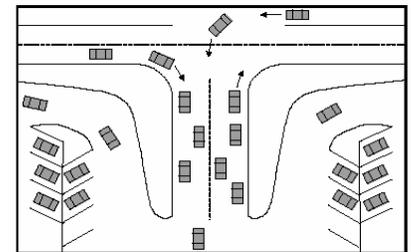
## US 70 Access Management

necessary to provide for traffic flow through the interchange and between facilities. Freeways in more urban locations frequently are fronted by adjacent business, especially at intersection corners where ramps would be located. Therefore, innovative practices are called for to balance public transportation needs and private interests.

For several specific segments of US 70 where there may be difficulties with environmental permitting and right-of-way acquisition for interchange or bypass construction, “ramp-over” interchanges (with slip ramps) may provide a solution. The concept entails a step-by-step process to create an interchange within a minimum 130-foot right-of-way and 1/4-mile length of the existing freeway. This application applies to the section of US 70 between James City and the Havelock Bypass (TIP #R1015), where additional right-of-way for service roads exist. The construction phases for retrofitting US 70 into a controlled-access freeway using the “ramp-over” interchange concept include:



Before



After

*NCDOT should approach local governments impacted by this portion of US 70 to partner in order to identify both short- and long-term solutions*

- 1) Construct access roads and associated intersections at the cross street adjacent to the existing freeway (if not already present). Traffic is not interrupted on the existing US 70 facility.
- 2) Construct at-grade slip ramps from the freeway to the access roads approximately 1/8 mile from the cross street convert access road to one way and temporarily divert traffic to the access road.
- 3) Using retaining walls and prefabricated systems, reconstruct the freeway section to include a grade separation at the cross-street. This includes ramping the approaches at a 3% slope, up to a bridge structure over the pre-existing intersection.
- 4) Upon completion of the freeway section, reopen the freeway to traffic and restripe the slip ramps to become the acceleration and deceleration lanes for access to the cross streets.
- 5) Ramp-over interchanges should be made at a minimum of one mile spacing intervals

Such an interchange provides benefits to both local and through traffic by eliminating intersection stops for through traffic and reducing intersection volumes on the cross streets. The reduction allows for short cycle lengths and less storage requirements as the through traffic is removed. The cross street will be served at a much higher frequency and accident exposure is reduced. Additional “slip ramps” can be implemented where adequate interchange spacing



# US 70 Access Management

*Spacing between remaining full median openings is maintained at 2,000 feet or greater*

*No single improvement will solve transportation issues along US 70, but together, the phased improvements recommended in the conceptual access management plan facilitate a safer, more systematic, predictable, and efficient transportation corridor*

exists to improve local access and circulation. In addition, communities and the NCDOT could coordinate to use landscaping and textured facades to lessen the visual effect of the new retaining walls and bridge structures.

### Planning Level Cost Estimates

For planning level purposes, probable construction unit cost estimates for implementing the recommended improvements in the conceptual access management plan were quantified using construction cost values maintained by the North Carolina Department of Transportation. The following preliminary unit construction cost estimates are assumed:

- Direction Crossover (with tractor-trailer bulb-out)      \$200,000 - \$300,000
- Strain Pole Signal      \$75,000 - \$100,000
- Two-Lane Rural Collector Street (per mile)      \$1.3 – \$1.6 million
- Diamond Interchange      \$3.5 – \$5.0 million
- “Ramp-over” interchanges      \$4.0 – \$6.5 million

A more detailed analysis of traffic conditions, available right-of-way and other design variables should be conducted as the next phase of this study. In addition, the NCDOT should approach local governments impacted by this portion of US 70 to partner in order to identify both short- and long-term solutions for implementing land use controls which support access management, overlay districts and connectivity requirements for collector streets.

### Conceptual Access Management Plan

The application and general design characteristics for the access management solutions incorporated into the conceptual access management plan for US 70 are based on the tool box created for the corridor and the location/design criteria set forth in the *NCDOT Policy on Street and Driveway Access to North Carolina Highways*, *NCDOT Roadway Design Manual Part I: Median Crossover Guidelines*, and *NCDOT Roadway Standard Drawings Manual (English)*. In general, no single improvement will solve transportation issues along US 70, but together, the phased improvements recommended in the conceptual access management plan facilitate a safer, more systematic, predictable, and efficient transportation corridor consistent with the goals for the Strategic Corridor. Long-term solutions recommended in the plan begin to





## US 70 Access Management

*Ultimately, 75% of the 134-mile corridor will be converted to a freeway or will have a US 70 Bypass to preserve the mobility of the corridor*

establish the transportation hierarchy for the street system that will ultimately protect US 70 from encroaching development.

Under existing conditions, this 134-mile stretch of US 70 contains 264 full median openings, including 57 existing and/or proposed traffic signals. The proposed conceptual access management plan recommends closing 89 of the full median openings, converting 85 of them to directional median openings, and maintaining 90 of the existing full median openings in the future. In addition, median installations will provide access control for four segments (totaling 18,950 feet in length) with two-way left turn lanes and two additional segments in Morehead City (totaling 4,300 feet in length) separated by striping alone.

In all cases, the spacing between remaining full median openings is maintained at 2,000 feet or greater, consistent with NCDOT guidelines for divided highways with a posted speed limit greater than 45 miles per hour. In addition, 12 traffic signals are eliminated within the corridor in favor of closed medians. Forty-five existing and/or previously proposed traffic signals remain in the concept plan to provide convenient access to certain secondary roadways or major destinations, with one of those being relocated. The majority of these signals are located in Goldsboro, Havelock, and Morehead City and are planned for signal system upgrades and timing coordination.

The proposed conceptual US 70 Access Management Study maps display the recommendations for the corridor. The summary maps follow the *Conclusions and Summary* section. Descriptions of the segments shown in each map sheet are provided in Table 4. It should be noted for information on specific improvements, the reader is advised to review the large ("E" size) plan maps available at the NCDOT Division 2 and 4 offices.

Table 5  
US 70 Access Management Recommended Improvements

Map #	Vicinity	Segment description
Description of recommendations		
Johnston-1	<i>Clayton</i>	<i>NC 42 East to SR 1537 Olive Road</i>
	Short-term: Numerous mainline directional crossovers and median closures from NC 42 to start of proposed TIP Project #R-2552 Clayton Bypass Long-term: Additional median closures and new roadway connections with completion of TIP Project #R-2552 Clayton Bypass	
Johnston-2	<i>Wilsons Mill</i>	<i>SR 1537 Olive Road to SR 1555 Barbour Road</i>
	Short-term: Two mainline directional crossovers and signal timing/coordination Long-term: Access roads; one additional mainline directional crossover; one minor street directional crossover; one grade separation and signal removal; one interchange construction	
Johnston-3	<i>Selma</i>	<i>SR 1555 Barbour Road to Interstate 95</i>
	Short-term: One mainline directional crossover and one median closure with deceleration lane from Barbour Road to beginning of Buffalo Road interchange; advisory signing for truck traffic Long-term: No additional recommendations	
Johnston-4	<i>South Smithfield</i>	<i>Interstate 95 to SR 2310 Davis Mill Road</i>
	Short-term: Numerous mainline directional crossovers and median closures beginning at SR 1205 Firetower Road; one signal removal Long-term: New roadway connections and mainline directional crossover	
Johnston-5	<i>Pine Level</i>	<i>SR 2310 Davis Mill Road to SR 2314 Pondfield Road</i>
	Short-term: Numerous mainline directional crossovers and median closures; one minor street directional crossover at Martin Livestock Road Long-term: New roadway connections and closure of one mainline directional crossover	
Johnston-6	<i>Princeton</i>	<i>US 70A to SR 1331 Bridgers Road (Wayne Co.)</i>
	Short-term: Numerous mainline directional crossovers; one signal removal; intersection improvements for truck movements off mainline; one turn lane removal; one WB U-turn only median installment Long-term: Closure of one mainline directional crossover	

\* For specific details on recommendations, see large mapping available at your local NCDOT Division 2 and 4 offices.



# US 70 Access Management

Table 5 (continued)  
US 70 Access Management Recommended Improvements

Map #	Vicinity	Segment termini	Description of recommendations
Wayne-1	<i>Rosewood</i>	<i>SR 1331 Bridgers Road to East of NC 581</i>	
	Short-term: Numerous mainline directional crossovers Long-term: No additional recommendations		
Wayne-2	<i>NW Goldsboro</i>	<i>East of NC 581 to US 13/70/NC 117 Expressway</i>	
	Short-term: Numerous mainline directional crossovers and median closures west of Westwood Drive; proposed signals and signal timing/coordination in conjunction with TIP #R-1030 NC 117 Southern Bypass Long-term: Additional eastbound left-turn storage bay at SR 1453 Perkins Mill Road, completion of TIP #R-2554 Goldsboro Bypass		
Wayne-3	Short-term: Closure of service road access from Expressway east of Williams St. interchange <i>Note: US 13/70/NC 117 Martin Luther King, Jr. Expressway has full access control</i>		
Wayne-4	<i>SE Goldsboro</i>	<i>US 13/Berkley Boulevard interchange to SR 1721 Casey Chapel Road</i>	
	Short-term: "Signal ahead" flashers/signage at Oak Forest Road; numerous mainline directional crossovers; one median closure Long-term: Interchange conversion at Oak Forest Road, closure of WB left-turn lane to US 70 Business/Ash Street, new roadway connections, completion of TIP #R-2554 Goldsboro Bypass		
Wayne-5	<i>Walnut Creek</i>	<i>SR 1721 Casey Chapel Road to Wayne County Line</i>	
	Short-term: Numerous median closures; one minor street directional crossover with side street left turn lanes at Beston Road Long-term: Two new mainline directional crossovers, new roadway connections, and connections to TIP #R-2554 Goldsboro Bypass		

\* For specific details on recommendations, see large mapping available at your local NCDOT Division 2 and 4 offices.

Table 5 (continued)  
US 70 Access Management Recommended Improvements

Map #	Vicinity	Segment termini	Description of recommendations
Lenoir-1	La Grange	Wayne County Line to SR 1603 Washington Street	Short-term: Mainline directional crossover east of Washington Street Long-term: Median closure at Washington Street, new roadway connection for Washington Street to Jim Sutton Drive
Lenoir-2	Little Baltimore	SR 1525 W. Measley Road/SR 1327 J. Sutton Drive to SR 1519 Eason Road/SR 1324 Kennedy Home Road	Short-term: Numerous mainline directional crossovers and median closures; one minor street directional crossover at H. Sutton Road; one median U-turn Long-term: Flashing yellow left-turn signal at Measley/Sutton intersection, new roadway connection; long-term controlled access from Washington Street to H. Sutton Road west of TIP# R-2553 Kinston Bypass; closure of one mainline directional crossover
Lenoir-3	Falling Creek	SR 1519 Eason Road/SR 1324 Kennedy Home Road to Neuse River Bridge	Short-term: Two mainline directional crossovers with one signal removal; addition of right turn lane to one property; left-turn channelization for EB entrance ramps from WB US 70 Business Long-term: Numerous median closures; ramp connections to TIP #R-2719 future Crescent Road; new roadway connections; new access for one property when current entrances closed; completion of TIP# R-2553 Kinston Bypass
Lenoir-4	Kinston	Neuse River Bridge to east of Lenoir Community College	Short-term: Numerous mainline directional crossovers and median closures; one minor street directional crossover; addition of raised median east of NC 258 Business and from NC 258 Business to NC 58; one signal removal Long-term: New roadway connections; completion of TIP# R-2553 Kinston Bypass

\* For specific details on recommendations, see large mapping available at your local NCDOT Division 2 office.



## US 70 Access Management

Table 5 (continued)  
US 70 Access Management Recommended Improvements

Map #	Vicinity	Segment termini	Description of recommendations
<i>Lenoir-5</i>	<i>Kelly Pond</i>	<i>Lenoir Comm. College to Roy White Road (Jones Co.)</i>	Short-term: Numerous mainline directional crossovers; one median closure Long-term: New roadway connections; interchange with proposed Kinston Bypass (TIP#R-2553); long-term controlled access east of Kinston Bypass
<i>Jones-1</i>	<i>Dover</i>	<i>Roy White Road to east of SR. 2021 Kornegay Drive</i>	Short-term: Two mainline directional crossovers; two median closures; one median U-turn with EB acceleration lane; offset left-turn lanes on mainline at Kornegay Drive Long-term: Interchange at Kornegay Drive; new roadway connections
<i>US 70 from Kornegay Drive to Trent River Bridge (New Bern) not detailed based on existing full access control</i>			
<i>Craven-1</i>	<i>James City</i>	<i>US 17 interchange to east of SR 1131 Airport Road</i>	Short-term: Numerous median closures Long-term: Ramp-over interchange at Airport Road; conversion to one-way access road system; slip ramp access with median closure and signal removal at Williams Road; closure of remaining mainline access points and median openings
<i>Craven-2</i>	<i>Thurman</i>	<i>East of SR 1131 Airport Road to Day Star Lane</i>	Short-term: Numerous mainline directional crossovers and median closures Long-term: Ramp-over interchanges at Grantham and Thurman Roads; conversion to one-way access road system with service road extensions; slip ramp access with median closure and signal removal at Taberna Way; closure of remaining mainline access points and median openings

\* For specific details on recommendations, see large mapping available at your local NCDOT Division 2 office.



# US 70 Access Management

Table 5 (continued)  
US 70 Access Management Recommended Improvements

Map #	Vicinity	Segment termini	Description of recommendations
Craven-3	Croatan	Day Star Lane to SR 1107 Flanners Beach Road	Short-term: Numerous mainline directional crossovers; one median closure Long-term: Ramp-over interchanges at Camp Kiro, Fisher, and Catfish Lake Roads; conversion to one-way access road system with service road extensions, roadway connections and new cul-de-sacs; slip ramp access with median closure and signal removal at Taberna Way; closure of remaining mainline access points and median openings
Craven-4	Carolina Pines	SR 1107 Flanners Beach Road to McDonald Boulevard	Short-term: Numerous mainline directional crossovers and median closures Long-term: Ramp-over interchange at Carolina pines Boulevard with additional interchange improvements; conversion to one-way access road system north of Carolina Pines Boulevard with service road extensions; two-way service road system south of Carolina Pines Boulevard; connections to TIP#R-1015 Havelock Bypass; closure of remaining mainline access points and median openings
Craven-5	North Havelock	McDonald Boulevard to SR 1737 Cunningham Drive	Short-term: Median closure south of Slocum Road; median closures and signal removals at Jackson Drive and Roosevelt Boulevard; mainline directional crossovers and signal removal at Stonebridge Trail and Chadwick Avenue Long-term: Service road extensions from north south of Slocum Road; Service road extensions at Church Road; installation of raised median from Fontana Boulevard south to Pineview Street; completion of TIP# R-1015 Havelock Bypass

\* For specific details on recommendations, see large mapping available at your local NCDOT Division 2 office.



# US 70 Access Management

Table 5 (continued)  
US 70 Access Management Recommended Improvements

Map #	Vicinity	Segment termini
Description of recommendations		
Craven-6	South Havelock	SR 1737 Cunningham Drive to south of SR. 1247 W. Chatham Street (Carteret Co.)
	<p>Short-term: Numerous mainline directional crossovers; two median closures, one median U-turn; installation of raised median at Chatham Street with EB acceleration lane improvements to existing signal system and signal coordination</p> <p>Long-term: Installation of raised median from Fontana Boulevard south to Pineview Street; connections to TIP# R-1015 Havelock Bypass; median closures and signal removal per bypass plans; cross parcel access street</p>	
Carteret-1	Newport	SR 1129 Tom Mann Road to SR 1247 E Chatham Street
	<p>Short-term: Numerous mainline directional crossovers; one median closure; installation of bulbout at Tom Mann Road for U-turns; cross parcel access through right-of-way paving</p> <p>Long-term: New roadway connections additional mainline directional crossover</p>	
Carteret-2	Wildwood	SR 1247 E Chatham Street to SR 1177 Country Club Road
	<p>Short-term: : Numerous mainline directional crossovers; one median closure; one median U-turn; addition of auxiliary acceleration lane for left turn from Silver Hill Road; upgrade for existing copper wire signal interconnect to fiber optic from Harris Road to 4<sup>th</sup> Street</p> <p>Long-term: Paving for street connections</p>	
Carteret-3	White Oak	SR 1153 Arthur Farm Road to NC 1176 Bridges Street.
	<p>Short-term:</p> <p>Option 1 – Installation of raised median from Hestron Drive to Bridges Street with signalized intersection at Bridges St. Extended, Country Club Road, Mansfield Parkway, and Friendly Road; improvements to existing signal system and signal coordination</p>	

\* For specific details on recommendations, see large mapping available at your local NCDOT Division 2 office.



# US 70 Access Management

Table 5 (continued)  
US 70 Access Management Recommended Improvements

Map #	Vicinity	Segment termini
Description of recommendations		
<i>Carteret-3 (cont'd)</i>	<i>White Oak</i>	<i>SR 1153 Arthur Farm Road to NC 1176 Bridges Street.</i>
	<p>Short-term: Option 2 – Creation of one-way pair with eastbound US 70 Arendell St. and westbound NC 1176 Bridges Street; new connection between Arendell and Bridges Streets with northern extension of Lake Avenue; improvements to existing signal system and signal coordination</p> <p>Long-term: Option 3 – Rerouting of US 70 to Bridge Street with grade separations for either end of segment; redesignation of Arendell Street from Bridge Street Extended to Bridge Street as US 70 Business; construction of functional access between US 70 and US 70 Business with new street connections from Jones Street to Country Club Road; removal of rail crossing on Bridge Street Extended with grade separation; new connection between Arendell and Bridges Streets with northern extension of Lake Avenue</p>	
<i>Carteret-4</i>	<i>Morehead City</i>	<i>NC 1176 Bridges Street to SR 1182 Atlantic Beach Causeway/23<sup>rd</sup> Street</i>
	<p>Short-term: Maintenance of two-way traffic flow; one median closure; one median U-turn; improvements to existing signal system and signal coordination</p> <p>Long-term: Option 2 (continued) – Extension of one-way pair system with eastbound US 70 Arendell St. and westbound NC 1176 Bridges Street; three additional median closures; one signal relocation from 30<sup>th</sup> Street to 28<sup>th</sup> Street</p>	
<i>Carteret-4</i>	<i>Radio Island</i>	<i>SR 1182 Atlantic Beach Causeway/23<sup>rd</sup> Street to Beaufort</i>
	Short-term: Improvements to existing signal system and signal coordination	

\* For specific details on recommendations, see large mapping available at your local NCDOT Division 2 office.

### Priority Segments and Intersections

Based on crash statistics and public comments, improvements at certain highway segments and intersections rank as a high priority. The recommendations provided by the conceptual management access study were reviewed in conjunction with the crash data in order to select the segments highlighted below. Crash rates, crash severity indices, corridor segment congestion, frequency of public comments, relation to adjacent segments, development pressure, and implementation issues were considered. The following segments represent critical areas for improvement to meet the goals of the Strategic Highway Corridor Initiative to “enhance the mobility function of critical highway facilities,” as stated in the program’s policy statement. These areas are typified by numerous businesses, industries, and residences fronting US 70 with direct driveway access. Cross streets and side roads require the addition of turn lanes and median openings, creating conflict points and decreasing safety through the area. Most of the intersections highlighted in the earlier section are included in these segments:

- Segment #1 NC 42 East to SR 1905 Gordon Rd.  
East of Clayton, Johnston Co.
- Segment #2 SR 2308 Peedin St. Ext./US 70 BUS to  
SR 2309 Stevens Chapel Rd.  
East of Selma, Johnston Co.
- Segment #3 SR 2316 Barden St./Old Rock Quarry Rd. to  
SR 1129 Luby Smith Rd.  
Princeton, Johnston/Wayne Co.
- Segment #4 Leslie Rd. to Little River Bridge  
Northwest Goldsboro, Wayne Co.
- Segment #5 East of US 70 Business/Ash St. to SR 1721 Casey  
Chapel Rd.  
East of Goldsboro, Wayne Co.
- Segment #6 Beston Rd. Intersection Improvements  
East of Goldsboro, Wayne Co.
- Segment #7 Electrolux Entrance to US 70/258 BUS Ramps  
Kinston, Lenoir Co.
- Segment #8 NC 11/55 to Lenoir Community College Entrance  
Kinston, Lenoir County



## US 70 Access Management

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- Segment #9 SR 1167 Williams Rd. to SR 1176 Carolina Pines Blvd.  
James City to north of Havelock, Craven Co.
- Segment #10 SR 1757 Ketner Blvd. to SR 1735 Cunningham Blvd.  
Havelock, Craven Co.
- Segment #11 SR 1124 Nine Foot Rd./SR 1245 Howard Blvd. to SR 1141 Hibbs Road, Newport, Carteret Co.
- Segment #12 SR 1237 Harris Rd. to Lockhart St.  
Morehead City, Craven Co.
- Segment #13 Lockhart St. to SR 1182 Atlantic Beach Causeway  
Morehead City, Craven Co.

Outside these segments, the following intersections warrant consideration as spot safety projects based on the criteria set forth for the segments above:

- SR 1234 Ebenezer Church Road/Capps Bridge Road (Johnston)
- SR 1711 Oak Forest Road (Wayne)
- SR 1831 Beston Road (Wayne)
- SR 1237 Jimmy Sutton Drive/SR 1525 William Measley Road (Lenoir)
- SR 1824 McCotter Blvd. (Craven)

### Summary and Conclusions

The goal of the US 70 Access Management Study looked to analyze existing conditions along the corridor in order to develop a conceptual access management plan to prioritize mobility on the facility. As a part of NCDOT Strategic Corridor program, US 70 provides a transportation link from the coast and the port of Morehead City to points inland like Kinston, Goldsboro, and Raleigh as well as other major US interstate, US primary, and NC primary routes. The short-term and long-term recommendations presented in this report and the conceptual access management plan offer opportunities that realize the Initiative's vision. Implementation of the treatments over any segment or the entire study area would serve to reduce travel time for motorists traveling on US 70 as well as reducing the number and severity of potential crashes, thereby increasing highway safety.



## *US 70 Access Management*

*For more detailed information on specific improvements or schedule for implementation of improvements, contact your local NCDOT Division office:*

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# APPENDIX I.

## CONCEPTUAL ACCESS MANAGEMENT PLAN MAPS



Kimley-Horn  
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