



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY E. PERDUE
GOVERNOR

TURNPIKE AUTHORITY

EUGENE A. CONTI, JR.
SECRETARY

October 18, 2012

Memorandum To: file
To: Christy Shumate
From: Bradley Reynolds, PE
Subject: STIP R-3329/R-2559 Monroe Connector/Bypass
US 74 Corridor Study (Stantec Consulting Services, Inc., July 2007)

Purpose. The purpose of this memo is to evaluate the *US 74 Corridor Study* (Stantec, 2007), its recommendations, and the ability of those recommendations to serve the long-term transportation needs of the US 74 corridor in Union County.

Background. In early 2007, the NCDOT Division 10 initiated a study to evaluate traffic operations for a 12-mile stretch of US 74 from Stallings Road (SR 1365) to US 601 South (Pageland Highway) in Union County, North Carolina. The purpose of this study was to provide recommendations for short-term improvements on US 74 to improve traffic operations until the Monroe Connector/Bypass could be constructed. As stated in the Executive Summary of the *US 74 Corridor Study*:

This study was a direct result of continued delays to the Monroe Bypass project (TIP #R-2559)...

These delays have resulted in the immediate need to address traffic operational issues along the highly congested US 74 corridor with the goal to improve safety and efficiency of the existing roadway infrastructure until construction of the Monroe Bypass can begin. Without any improvements, US 74 will be operating at an unacceptable LOS at most signalized intersections by year 2015. This vital transportation corridor will be in critical need of additional through lanes on US 74 or alternate routes will need to be identified to meet the demands of the public.

The US 74 Corridor Study was not reviewed prior to the publication of the Draft Environmental Impact Statement (EIS) for the Monroe Connector/Bypass (March 2009), as NCTA was not made aware of the study. However, NCTA did analyze the study in the Final EIS (May 2010), which was made available for public comment.

Summary. The *US 74 Corridor Study* (2007) identified a 12-mile section of US 74 with goals “to identify and develop improvements that, where possible, would provide a LOS of D or better at each signalized intersection for projected 2015 traffic volumes”. The study methodology was “to evaluate ‘as a whole’ the effects of upstream and downstream intersections on overall traffic operations for US 74”. The emphasis of the study was to extend the viability of US 74 through implementation of “short term”

and “long term” improvements, both meant to be implemented by 2015 to help alleviate the existing critical congestion conditions.

The study identified possible improvements to roadway geometry, lane configuration assignments, and traffic signal timing optimization and phasing sequence modifications that can enhance existing and projected traffic operational needs. **Table 1** summarizes the short and long term improvements recommended in the *US 74 Corridor Study (2007)*. In this study, long-term meant by 2015.

Table 1 – US 74 Corridor Study - Recommended Improvements for Design Year 2015

	Short-Term Improvements	Long-Term Improvements
Recommendation	TSM [^] measures to improve operational issues at intersections	Conversion to superstreet-type, implementation and optimization of closed-loop traffic signal systems, and addition of lanes to intersections
Analysis Year	2015	2015
Timeframe	Within 1 yr.	Several yrs. to achieve (complete by 2015)
# Intersections where Desired LOS D Was Achieved*	20 (not achieved at Rocky River Road, Indian Trail-Fairview Road, and Stallings Road)	22 (not achieved at Rocky River Road)
Total Cost (costs do not include right-of-way or traffic control)	\$3,100,000	\$10,200,000

* From total of 23 intersections studied.

[^] TSM measures include minor physical and operational enhancements in order to improve performance and safety, and to enhance traffic operations. Examples of TSM measures include signal retiming, installing new signals, adding medians or turn lanes, and other minor measures to improve traffic flow.

Note: LOS D is generally considered acceptable for urban conditions. LOS E or F is considered unacceptable and represents significant travel time delay, increased accident potential, and inefficient motor vehicle operation.

Nearly all of the recommended short-term improvements have been implemented by NCDOT in the corridor, including signal timing optimization, signal phasing modification, increased turn lane storage lengths, and lane assignment modification. Additionally, the recommended long-term improvements, with the exception of converting to a Superstreet facility, have been implemented. These include implementation of a closed loop signal system and addition of lanes at some intersections.

Intersections where there were signal upgrades and/or optimization have occurred include:

- US 74 @ Stallings Road (10-0599) – January 2011
- US 74 @ Indian Trail Fairview Road (10-0550) – June 2010
- US 74 @ Unionville Indian Trail Road (10-0649) – June 2010
- US 74 @ Faith Church Road (10-0713) – September 2010
- US 74 @ Wesley Chapel Stouts Road (10-1049) – September 2011

Conclusion. The *US 74 Corridor Study* recommendations were reviewed and were not considered a reasonable alternative to the Monroe Connector/Bypass. A comparison of year 2015 traffic volumes used in the *US 74 Corridor Study* to year 2035 No-Build volumes¹ used in the Monroe Connector/Bypass project, shows that volumes in 2035 along US 74 would be substantially higher than the 2015 volumes (see **Table 2**). Therefore, these improvements, while providing some short-term benefit, would be overwhelmed by projected traffic in the corridor and would not provide long-term benefit or meet the purpose and need for this project.

Table 2 – Comparison of Stantec 2015 Traffic Volumes with 2035 No-Build Traffic Volumes

US 74 Corridor AADT Location	2015 AADT Estimate*	HNTB 2035 AADT^	% Diff 2015-2035
	2015	2035	
E of I-485			
W of SR 1365 (Stallings)	73,500	89,100	21.2%
W of SR 1008 (Indian Trail-Fairview)	67,100	86,300	28.6%
E of SR 1520 (Furr)	63,300		
W of SR 1367 (Unionville-Indian Trail)	68,400	69,400	1.5%
E of SR 1367 (Unionville-Indian Trail)	62,100	72,300	16.4%
S of SR 1515 (Sardis Church-Wesley Chapel)	54,500	71,500	31.2%
W of SR 1007 (Rocky River)	45,600	67,100	47.1%
E of SR 1007 (Rocky River)		58,200	
W of SR 1223 (Dickerson)	45,600	66,500	45.8%
W of SR 1501 (Secret Shortcut)	59,500	65,000	9.2%
W of US 601	67,100	67,200	0.1%
E of US 601	68,400	74,800	9.4%
W of NC 200	65,900	69,800	5.9%
E of NC 200	59,500	66,900	12.4%
E of SR 1751 (Austin Grove Church)	48,100	55,500	15.4%
E of US 601	34,200	39,700	16.1%
E of SR 1941 (Pageland-Monroe)	31,700	41,000	29.3%
E of SR 1776 (Edgewood)	30,400		
W of SR 1758 (Whitmore)	30,400	42,700	40.5%
E of SR 1758 (Whitmore)	30,400	35,900	18.1%
E of SR 1740 (Old Hwy 74)	24,100	35,900	49.0%
W of SR 1740 (Old Hwy 74)	22,800	31,600	38.6%

* Calculated from forecast traffic factors to 2015 peak traffic volumes from *US 74 Corridor Study* (Stantec, 2007)

^ From *Revised Monroe Connector/Bypass No-Build Traffic Forecast Memo* (HNTB, March 2010)

It is clear that the purpose of the *US 74 Corridor Study* was to provide recommendations for interim and immediate actions until such time as the Monroe Bypass was constructed. The study itself notes that “this vital transportation corridor [US 74] will be in critical need of additional through lanes on US 74 or alternate routes will need to be identified to meet the demands of the public.”

¹ 2035 No-Build Traffic Forecast (HNTB, March 2010)