



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

W. LYNDO TIPPETT
SECRETARY

April 10, 2007

MEMORANDUM

TO: Michael Pettyjohn, P.E.
Division Engineer, Division 11

FROM: Derrick W. Lewis, P.E.
Feasibility Studies Unit Head
Program Development Branch 

SUBJECT: FS-0611B; Proposed Interchange at US 421 and SR 1300 (Swan Creek Road) in
Yadkin County

As requested, we have completed a cursory feasibility study for converting the US 421/ SR 1300 (Swan Creek Road) grade separation into an interchange. Our findings showed that **without** this proposed interchange in place, the current US 421 / SR 1100 (Oak Grove Church Road) interchange, approximately 1.4 miles east of Swan Creek Road, is projected to operate at a LOS B or better through 2035 design year. In addition, the current interchange at US 421 / SR 2413 (Dennyville Road), approximately 1.6 miles west of Swan Creek Road, is projected to operate at a LOS A through 2035 without this proposed interchange. Furthermore, less than 2900 vehicles per day on Swan Creek Road are anticipated to utilize a proposed interchange at this location in the 2035 Design Year.

Considering the low projected traffic volumes in the area and the ability of the current interchanges at SR 1100 and SR 2413 to easily accommodate the projected traffic well into the future, an interchange at Swan Creek Road is not deemed necessary to serve the anticipated traffic at this time.

Finally, placing a new interchange at Swan Creek Road would violate the *American Association of State Highway and Transportation Officials' Policy on Geometric Design of Highways and Streets, 2001*, which says, "A general rule of thumb for minimum interchange spacing is 2.0 miles in rural areas." (Page 811) With a new interchange at Swan Creek Road, the distance between the next interchange to the east (SR 1100) is 1.4 miles and the distance to the next interchange to the west (SR 2413) is 1.6 miles. Neither distance is desirable in a rural setting according to current engineering guidelines.

If future development patterns occur that would change the anticipated travel demands and rural characteristic of this area, we would be happy to revisit the issue.

If you require additional information or need to discuss this recommendation further, please do not hesitate to contact me at (919) 733-2039.

DWL:NMH

cc: Arnold Lakey, Board Of Transportation
Calvin W. Leggett, P.E.
Al Avant
Van Argabright, P.E.