

FEASIBILITY STUDY

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SWANNANOVA
FROM US 70 TO SR 2416
WARREN WILSON COLLEGE BYPASS
BUNCOMBE COUNTY
U-2201

PREPARED BY
PLANNING AND RESEARCH BRANCH
DIVISION OF HIGHWAYS
N. C. DEPARTMENT OF TRANSPORTATION

JULY, 1987

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FROM US 70 TO SR 2416
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The subject project is included in the 1987-1995 Transportation Improvement Program for feasibility study and/or right-of-way protection. This report provides a brief, initial analysis of possible improvements.

I. GENERAL DESCRIPTION

The proposed project is a "bypass" route of Warren Wilson College utilizing portions of existing New Salem Road (SR 2412) in conjunction with a section of new alignment or possibly improvement to existing SR 2416-SR 2436-SR 2435. A total of three alternates were investigated. The length of the various alternates varies from approximately 1.3 to 1.9 miles. The roadway cross-section studied was an improved or newly constructed 22-foot pavement with 4-6 feet of grassed shoulder on the existing sections and 8-10 feet of grassed shoulder on the new alignment sections.

II. PURPOSE OF PROJECT

The western portion of Warren Wilson Road (SR 2416) bisects the campus of Warren Wilson College just north of its intersection with SR 2002. Requests for a route bypassing the college date back to 1973. In 1985 the college began again a concerted effort to obtain a connection between US 70 and Bee Tree Road that would bypass the campus. Dr. Reuben A. Holden, President, cited the following concerns in his letter of April 24, 1985:

1. Warren Wilson College campus is divided by a highly traveled, dangerous highway. Several hundred college students walk across Warren Wilson Road each day between their dormitories and athletic events and their classrooms and cafeteria. This is a very dangerous situation which needs to be corrected.

2. Warren Wilson Road is both narrow and hilly. The heavy use by large trucks requires constant repair and when in disrepair it becomes hazardous. In the winter months the road is often blocked by trucks which are unable to navigate. Constant accidents result.

3. A realignment of the highway will provide a much improved roadway for trucks and heavy traffic from Route 70 to Bee Tree, and at the same time provide much safer conditions for Warren Wilson students and the public in general.

The 1985 traffic volume on Warren Wilson Road through the campus was 3250 vehicles per day (vpd). This compares with an October 1973 volume of 2300 vpd. The capacity of the existing road is not the problem. North of Warren Wilson College on SR 2416 significant "industrial" develop exists in a rather compact area near its intersection with SR 2418. The complex includes CHEMTRONICS (a hazardous waste storage area), TANDY (electronics division facility), ASHEVILLE DYE AND FINISHING, and CHARLIE OWENS BLANKET FACTORY. The number of heavy trucks is estimated at 2% for TTST AND 2% for duals. The DHV is estimated to be approximately 11%.

III. EXISTING CONDITIONS

The pavement widths throughout the study area range between 17 and 20 feet. Generally the shoulders are not useable and are approximately 4-6 feet.

Following a short section of 18-foot pavement from US 70, the western portion of New Salem Road (SR 2412) is 20-foot of pavement. The eastern portion of this loop road is 17-foot of pavement. The studied section utilizing SR 2435, SR 2436, and the eastern portion of SR 2416 is 18-foot of pavement.

A relatively new water line follows the edge of pavement around New Salem Road. The line was observed on both sides of the road 10-15 feet from edge of pavement.

To select an alternate that involves the western portion of New Salem Road will require additional improvements at its intersection with Warren Wilson Road (SR 2416). A church is in the northeast quadrant and three residences are in the southeast quadrant. Four residential relocatees are anticipated, one relocatee at the SR 2416-SR 2412 intersection and three at the new intersection with SR 2416 near the Owens Blanket Factory. To select an alternate that involves the eastern portion of New Salem Road will require involvement with commercial and church property near US 70 and three relocatees at the new intersection with SR 2416 near the Owens Blanket Factory. To select the improvement of SR 2436-SR 2436-SR 2416 will require the replacement of Bridge No. 512 which has a width of 17'9" and a sufficiency rating of 47.7. Bridge No. 203 just east of the Owens Blanket Factory has a width of 19'9" and a sufficiency rating of 71.4. This latter structure would not require any work under current bridge replacement criteria; however, to accomodate the expected truck traffic consideration should be

given to widening this structure. One residential relocatee is anticipated.

The major contention involving this project seems to be one of safety. Accident records for the period January 1984 through December 1986 were examined for all sections of roadway under consideration. Warren Wilson Road from SR 2412 to its intersection with SR 2436 exhibited the following accident characteristics:

Total Accidents	50	
Total Accident Rate	451.67	acc/100mvm
Fatal Accident Rate	0	acc/100mvm
Run Off Road	52 %	
Rear End	14 %	
Passenger Veh.	47	61.8 %
Truck 2 Axle	20	26.3 %
Truck Tractor Semi Trailer	1	1.3 %
Rural State Avg. Total Acc Rate	541.1	acc/100mvm

New Salem Road experienced a total accident rate of 563.38 acc/100mvm during the same period. There were also no fatal accidents during the period. No heavy trucks were involved in any of the reported accidents.

On the short sections of SR 2435 and SR 2435 studied, the accident rates were extremely high (low volume and short sections). Almost all accidents involved running off the road or hitting the narrow bridge previously discussed.

IV. ALTERNATIVES

Three alternatives were studied which provide improved access to the Bee Tree area from US 70 and avoid passing the Warren Wilson College campus.

Alternate 1 utilizes the western portion of existing New Salem Road and construction on new alignment from the north end of the loop to a point immediately west of the Owens Blanket Factory. This alternate will involve approximately four residential relocatees.

Alternate 2 utilizes the eastern portion of existing New Salem Road and construction on new alignment from the north end of the loop to a point immediately west of the Owens Blanket Factory. This alternate will involve commercial/church property near US 70 and approximately three relocatees.

Both of these alternates involve a single new crossing of the Swannanoa River. The Swannanoa River in this location is a designated trout stream. A connecting point east of the Blanket Factory is not deemed feasible due to public recreational facilities, man-made water bodies, and potential expanded involvement with the Swannanoa River.

A third alternate involves improving an existing access to the Bee Tree area via SR 2435-SR 2436-SR 2416. This alternate would involve widening the existing pavement and replacing Bridge No. 512 and improvement to or replacing Bridge No. 203. One relocatee is anticipated with this alternate. Some minor additional right of way may be required however. An approved safety project will improve the alignment on SR 2416 just west of SR 2436.

V. RECOMMENDED IMPROVEMENTS

Under any alternate chosen for implementation, a cross-section of 22-foot of pavement with grass shoulders varying from 4-10 feet is recommended (existing; 4', cut and 6', fill and new alignment; 8', cut and 10', fill).

Within the limits of the scope of study, the costs of any of the three alternates are not significantly different. Alternate 1 is estimated to cost \$1,875,000 (construction, \$1,200,000 and r/w \$675,000); Alternate 2, \$1,725,000 (construction, \$1,200,000 and r/w \$525,000); and Alternate 3, \$2,250,000 (construction, \$1,150,000 and r/w \$1,100,000).

VI. POSSIBLE ENVIRONMENTAL IMPACTS

Please find attached an environmental report for the implementation of either Alternate 1 or Alternate 2. Since Alternate 3 basically involves only the widening of existing roadways the anticipated environmental impacts are minimal.

During the field investigation, "local archaeologists" were observed with a significant number of recognizable arrow heads. Tom Padgett, NCDOT Staff Archaeologist, confirmed that the area between the Blanket Factory and Warren Wilson College contained significant, documented archaeological sites.

Increase in noise level along the improved access route is anticipated. Correspondingly, a decrease in the noise level in the area of Warren Wilson College is expected.



STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

P. O. BOX 25201

RALEIGH 27611

April 7, 1986

JAMES G. MARTIN
GOVERNOR

JAMES E. HARRINGTON
SECRETARY

DIVISION OF HIGHWAYS

MEMORANDUM TO: David Modlin

FROM: Jerry McCrain *Jerry McCrain*

SUBJECT: Modifications to SR 2412 for the purpose of reducing vehicular traffic around Warren Wilson College, Buncombe County, N.C. (Unlisted Project)

The North Carolina Department of Transportation is conducting a feasibility study to determine if a viable option exists for eliminating heavy vehicular traffic on SR 2416 around Warren Wilson College in Buncombe County, N. C. Primary emphasis is being directed toward upgrading the east or west legs of existing New Salem Road (SR 2412) in conjunction with construction of a connector route on new location extending from the upper (northernmost) curve of SR 2412 to SR 2416. These improvements would allow for direct passage of large vehicles between US 70 and industrialized areas near the junction of SR 2416/2418.

A field investigation was conducted on March 27, 1986 in an effort to evaluate potential environmental impacts which may result from proposed improvements.

New Salem Road (SR 2412) is a two lane rural collector located near the town of Swannanoa in eastern Buncombe County. The scattered residential community serviced by SR 2412 is sandwiched between commercial strip development along US 70 and expanding industrial areas in the vicinity of SR 2416.

For the most part, property between SR 2412 and SR 2416 remains undeveloped with industrial and limited agricultural activities concentrated near primary road routes. However, upland areas immediately west of the C. D. Owens Blanket Company near the northern end of the proposed connector are presently being cleared - presumably to accommodate industrial expansion. A large recreational complex, complete with private lake, has been constructed for C. D. Owens employees between existing company buildings and the Swannanoa River near northeastern boundaries of the connector corridor. A power substation is located south of the river near SR 2412 and a cleared utility right of way corridor parallels or traverses much of the upper (northern) portions of the proposed connector route.

As expected, existing plant community patterns are largely a reflection of topography and area land use practices. Undeveloped mountain ridges support forest cover dominated by an oak (Quercus spp) - hickory (Carya spp) canopy along with scattered pines (Pinus strobus and P virginiana), red maple (Acer rubrum) and occasional beech (Fagus grandifolia) trees on lower slopes.

Open fields, disturbed highways margins and cleared utility corridors are characterized by growth of young saplings and successional grasses or herbs.

A seasonally flooded bottomland community is evident along the shoreline of the Swannanoa River extending from SR 2412 to upland ridges near the Owens Blanket plant. Typical wetland vegetation prevails throughout including river birch (Betula nigra), sycamore (Platanus occidentalis), black walnut (Juglans nigra), red maple, black cherry (Prunus serotina) and poplar (Liriodendron tulipifera). Cane (Arundinaria gigantea) is a common understory/groundcover component.

Similar wetland conditions prevail along the small unnamed drainage depression that crosses upper portions of the eastern leg of SR 2412. This minor, intermittent system is approximately 75 feet in width, situated between the road and an upland ridge. This bottomland community receives periodic flooding during times of heavy rains and supports vegetation similar to those species in lowland areas around the Swannanoa River.

The Swannanoa River is a major tributary of the French Broad River flowing in a westerly direction across upper segments of the connector corridor. The river is a Class C stream suitable for fishing, fish propagation, recreation and other uses requiring waters of lower quality (NCDEM, 1981). The Swannanoa River has a Smallmouth ecological classification (Fish, 1968) and supports good fishing for catfish and sunfish in lower reaches near Asheville and fair fishing for smallmouth bass in upper stream segments (near the project). In addition, the N.C. Wildlife Resources Commission has posted this particular stretch of river as "designated trout waters" indicating suitable habitat for native trout species.

Forested communities throughout the study area have all necessary components (flood, water, protective covering, etc) to support a variety of animal life characteristic of mountain communities. Small mammals expected include gray squirrels, rabbits, raccoons, opossums, skunks, foxes, chipmunks, mice and rats. The edging effect between forests and open or disturbed fields provides browsing opportunities for white tail deer which may occasionally forage in the area. A variety of songbirds are common to western North Carolina including robins, woodpeckers, wrens, chickadees, sparrows, warblers, and others.

Highway improvements to existing portions of New Salem Road are expected to result in few additional adverse impacts to natural communities in the area. Widening of the roadway will require removal of some fringing vegetation and limited cut and fill to accommodate improvements. However, if the eastern SR 2412 route is chosen, planned construction will involve crossing a minor, intermittent stream and associated bottomland community (approximately 75 feet in width) near the top of the curve immediately south of the power substation.

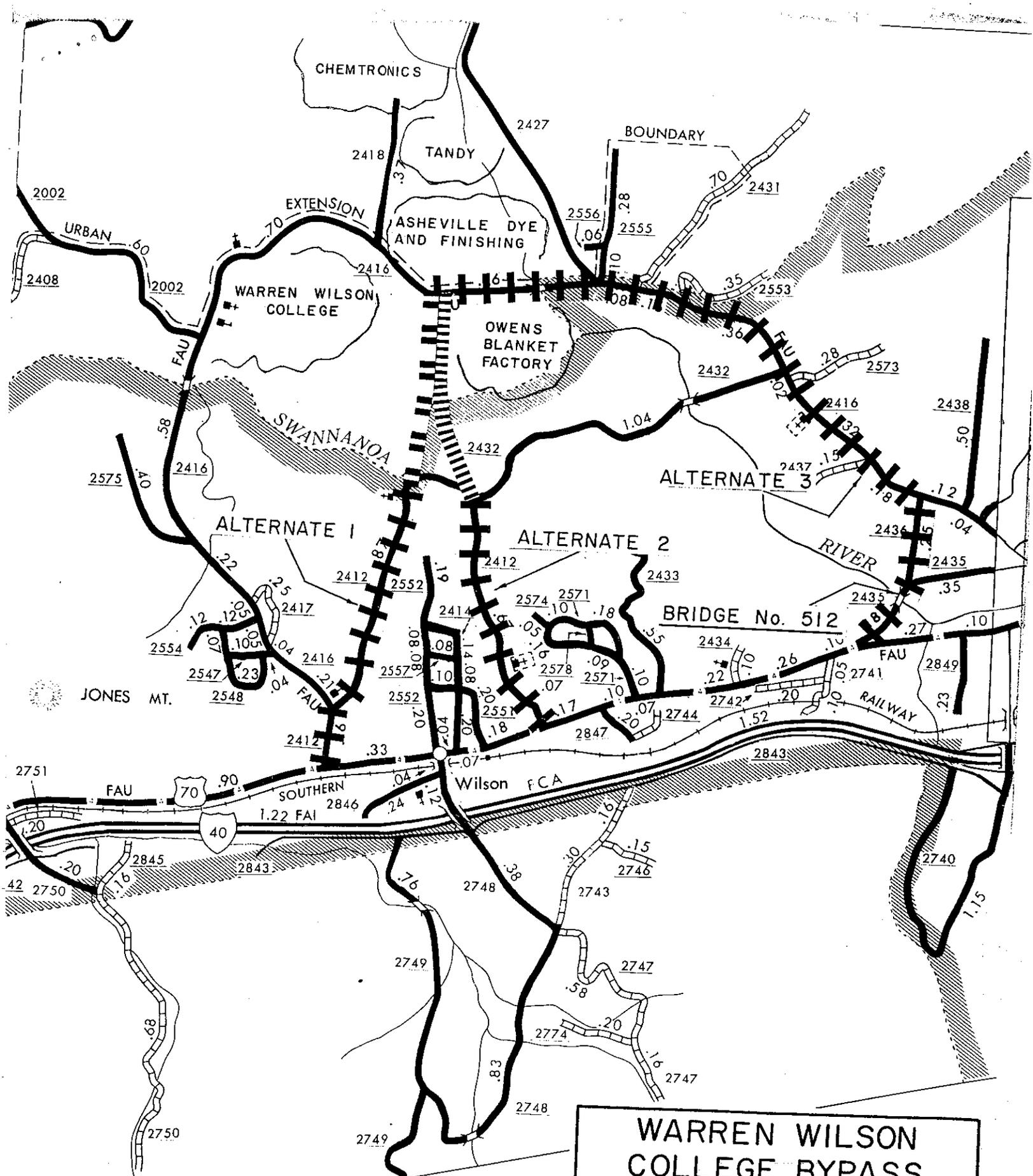
Disruption to an adjacent upland ridge will also be necessary to complete the connector route. This alternative will involve an undesirable, and apparently unwarranted, alteration of undisturbed communities. Improvements to the western leg of SR 2412 would adequately meet the needs of increased traffic demands with relatively fewer impacts.

The environmental effects associated with construction of the new connector between SR 2412 and SR 2416 are the greatest cause for concern. Not only will highway development require cut and fill removal along upland areas near the northern terminus of the project, but planned improvements will also infringe on approximately 1670± linear feet of seasonally flooded bottomlands between SR 2412 and the C. D. Owens Blanket Company. Fill placement in lowlands will be necessary at various points to raise grade levels and vegetation removal within new right of way limits will be unavoidable.

Ecologically, these communities receive periodic inundation and support growth of riparian vegetation typical of palustrine forested wetlands (U.S. Fish and Wildlife Service Classification). Although portions of the floodplain have been previously disturbed (clearing for power lines, substation construction, agricultural fields, etc), area bottomlands provide potential habitat opportunities for wildlife in addition to their hydrologic functions. Because of these facts, a 404 permit may be required for planned highway improvements. However, further coordination with the U.S. Army Corps, U.S. Fish and Wildlife Service and SCS soil mapping will be necessary to determine if these areas constitute jurisdictional wetlands for permit purposes.

There are no known rare or endangered species in the project vicinity and associated adverse impacts affecting their well being are not anticipated as result highway construction.

JM/sdt



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FIGURE 1 3" = 1mile
(SCALE)