

STAFF REPORT

TO: Board of Aldermen

DATE: November 27, 2001

PROJECT: Request for a Conditional Use Permit to Allow an Architecturally Integrated Subdivision (AIS) to create sixty-four (64) Multi-Family Townhomes (Use 1.321) at 501 Berryhill Drive

APPLICANT: Berryhill Group, LLC
PO Box 16009
Chapel Hill, NC 27516

PURPOSE: Berryhill Group, LLC has submitted an application for a Conditional Use Permit to allow an Architecturally Integrated Subdivision of sixty-four (64) multi-family townhome lots to be located 501 Berryhill Drive. The name for the project is Morgan Ridge.

EXISTING ZONING: R-10, Residential

TAX MAP NUMBERS: 7.116..6

LOCATION: 501 Berryhill Drive (between Tennis Club Estates and Poplar Place Apartments)

TRACT SIZE: 25.16 acres

EXISTING LAND USE: Vacant

PROPOSED LAND USE: Major Subdivision (Use 26.100) – An Architecturally Integrated Subdivision of Multi-Family Townhome lots (Use 1.321)

SURROUNDING LAND USES:
North: R-3 – Multi-Family Residences (Poplar Place)
South: R-SIR/R-10 – Multi-Family and Single-Family Residences
East: R-3/R-10 – Single-Family Residences (T. Club Estates)
West: R-10 – Proposed Chapel Hill Park and Ride Facility

ZONING HISTORY: R-10 since 1991
R-SIR prior to 1991

RELEVANT ORDINANCE SECTIONS:
15-50 – Site Planning Procedures for major Subdivisions
15-182.3 – Residential density in Certain Districts
15-196 – Active Recreational Areas and Facilities Required
15-198 – Open Space
15-210 & 216 – Street Classification and Street Width
15-214 & 217 – Coordination With and General Layout of Streets
15-316 – Retention and Protection of Large Trees

ANALYSIS: (see following pages of “Staff Report”)

Background and General Layout

Berryhill Group, LLC has submitted an application for a Conditional Use Permit (CUP) for an Architecturally Integrated Subdivision (AIS) consisting of sixty-four (64) single-family detached lots (use 1.321) at 501 Berryhill Drive. The property for this project, which is to be called Morgan Ridge, is zoned R-10, Residential. The property contains 25.16 acres and is listed on the Orange County Tax Map as numbers 7.116.6.

The density calculation for the project is based on the adjusted tract acreage principles found in Section 15-182.3 of the Land Use Ordinance (LUO). Section 15-182.3 of the LUO requires that the amount of land found in certain types of sensitive areas (floodplain, steep slopes, etc.) be reduced by a 'density reduction factor'. This effectively reduces the number of permissible units on a site in an effort to alleviate some of the pressure off of the sensitive areas. Out of the 25.16 acres of property, only 14.757 can be used to calculate the density permissible on the tract. This yields sixty-four (64) permissible units. The applicant is proposing to construct the full allotment of units for the Morgan Ridge project.

In addition to the reduction in the number of permissible units allowed on the site as a result of the presence of sensitive areas, the Morgan Ridge project was also designed using the 'four-step' approach to subdivision design found in Section 15-50 of the LUO. Section 15-50 of the LUO is designed to identify and inventory sensitive areas and to require that the designer consider all of the constraints of a site in developing the layout. In compliance with the requirements of Section 15-50, an on-site 'walk-about' was held with representatives of the Advisory Boards, staff and the developer on March 24, 1999. Following the 'walk-about', the developer and his engineer prepared conceptual preliminary plans designed to protect the sensitive areas identified during the inventory and on-site walk. The end result is a conceptual preliminary plan that will satisfy the design objectives found in Section 15-50(g) of the LUO. When items in Section 15-50(g) are in conflict, the designer must make difficult decisions based on the needs of the project and the impact of the alternative. The designer (Ballentine Associates, PA) submitted a narrative explaining their design choices for this project (**Attachment C**). Staff has reviewed the narrative and finds that the reasons and justifications presented are valid. This site was extremely constrained and the designer have done a commendable job in fitting all of the required elements on the site while only minimally disturbing the sensitive areas.

The proposed Morgan Ridge project contains the proposed extension of a public street between Old Fayetteville Road Extension and Berryhill Drive. The internal, private 'loop' road that will serve the townhome units will be served by the proposed public street extension. There will be two (2) points of ingress/egress from the public street into the project. The townhomes are located off of the internal 'loop' road via driveways with ground level parking garages. There are significant areas of open space preserved along the perimeter of the property.

The LUO provisions related to subdivision design and density requirements have been met by the applicant for the Morgan Ridge project.

Street Configuration, Traffic Analysis and Private Roads

Street Configuration:

Vehicular traffic to the sixty-four (64) townhome units in Morgan Ridge will be served by extending Berryhill Drive from its current terminus in Tennis Club Estates to meet Old Fayetteville Road Extension near Poplar Place Apartments. This will provide dual means of ingress and egress for the proposed project and to Tennis Club Estates and will complete a missing link in the Town's transportation/street network. Old Fayetteville Road Extension/Berryhill Drive is/will be constructed as a collector street. Westbrook Drive is currently constructed as a collector street. Jones Ferry Road and NC 54 are arterials. The construction of the missing link provides a collector street connection between two arterial streets. What makes the construction of the missing link even better is that the collector street network does not provide an easy, direct access between the two arterial streets. The route is circuitous, hilly, involves several stop signs and even involves a turning movement.

The proposed connection is required by the Land Use Ordinance (LUO). Sections 15-214 and 15-217 of the LUO require the interconnectivity of streets. Section 15-214(a) states that the street system of a subdivision shall be coordinated with existing, proposed and anticipated streets outside the subdivision. Section 15-214(b) goes on to state that collector streets shall intersect with surrounding collector or arterial streets at safe and convenient locations. Section 15-217(a) states that, to the extent practicable, all streets shall be interconnected. In the case of the proposed Morgan Ridge project, the extension of Berryhill Drive satisfies the requirements of Sections 15-214 and 15-217. Additionally, the Berryhill Drive extension is shown on the Connector Road Plan as one of the "Southern Connectors" (**Attachment D**). Former Transportation Planner Kenneth Withrow took this item to the Transportation Advisory Board (TAB) in 1998. The TAB voted unanimously to continue the connection requirement and recommend that the connection not be waived for any development of the 'Odum' tract (the property where Morgan Ridge is proposed). Mr. Withrow's staff report to the TAB, as well as the TAB minutes from the meeting, are included as **Attachment E**. Additionally, the Carr Ridge Area Modeling Report, also prepared by Mr. Withrow, is included as **Attachment F**.

Traffic Analysis:

The applicant had a transportation engineering firm (Parsons Brinkerhoff Quade and Douglas, Inc.) complete a Traffic Impact Analysis to examine the impacts of providing the 'missing link' of the street network (Berryhill Drive). Excerpts from this document are included as **Attachment G**. The transportation engineering firm examined multiple 'build' conditions and analyzed the existing and proposed transportation network for each of the 'build' conditions. The analysis reveals that there will be very little true 'cut-through' traffic between Jones Ferry Road and NC 54 as a result of constructing the Berryhill Drive extension. The lack of significant 'cut-through' traffic between Jones Ferry Road and NC 54 using Berryhill Drive is due to the circuitous nature of the route, the stop and turning movements on the route, the hilly nature of the route and the fact that there is already a considerable delay at the Westbrook Drive/NC 54 intersection for persons attempting to head eastbound on NC 54. The higher volumes of 'cut-through' traffic will actually be from the Tennis Club Estates/Westbrook Drive neighborhoods electing to use the new Berryhill Drive connection to access the stop light on Jones Ferry Road. Given the Level of Service at the Westbrook Drive/NC 54 intersection in the AM (LOS F), many people may choose to use Berryhill Drive to access the stoplight on Jones Ferry Road in order to access NC 54 (or to head to points north or west of Carrboro). According to the report, there would be no net increase in traffic along Westbrook Drive. There would actually be a net decrease in traffic along Westbrook Drive near NC 54.

Under the 'build' scenario that includes constructing the Berryhill Drive connection, there are no negative impacts to any of the intersections or streets studied. The only area experiencing congestion would be the Westbrook Drive/NC 54 intersection, which is already experiencing an LOS F. According to the Traffic Impact Analysis, having the connector provides another means of ingress and egress and may lessen the congestion at this (the Westbrook Drive/NC 54) intersection.

Private Roads:

Since the proposed project is an Architecturally Integrated Subdivision (AIS) containing more than twenty-five (25) units, the property owner has chosen to provide private internal streets. These streets serve as 'vehicle accommodation areas' for the townhomes, with individual driveways accessed via the private road. Additionally, 'overflow' parking spaces have been strategically placed throughout the project along the private road. Section 15-220(b) of the LUO allows private roads that do not meet the public street standards of the LUO for AIS projects containing more than twenty-five (25) units. The Morgan Ridge project contains sixty-four (64) units and thus can use the private roads.

The LUO provisions related to street classification/street connectivity, traffic analysis and private roads have been met for the Morgan Ridge project. The traffic analysis reveals that the existing and proposed street network can accommodate the additional trips from the proposed Morgan Ridge project.

Parking

Section 15-291 of the LUO governs the amount of parking required for specific uses. Use 1.321 (the proposed use for the Morgan Ridge project) required 2 parking spaces per unit. Staff, believing that there

was a need for additional 'overflow' parking spaces for guests, requested that the applicant provide one (1) additional space for every four (4) dwelling units. That brought the overall parking requirement to 144 spaces. The applicant has provided 197 parking spaces with a combination of internal garage spaces, external driveway spaces and overflow spaces. In addition to the garage spaces, there is ample room for two (2) parking spaces in the driveway in front of every unit. As a result, the applicant more than satisfies the parking requirements specified in the LUO. All of the parking spaces, access aisles, driveway widths, paving specifications, the number of handicapped spaces, etc., meet the minimum standards of the LUO.

The LUO provisions related to parking have been met by the applicant for the Morgan Ridge project.

Tree Protection, Street Trees, Screening and Shading

Tree Protection:

There are 200 specimen trees indicated on the proposed Morgan Ridge site. Per Section 15-316 of the LUO, specimen trees are those trees that are eighteen (18) inches or greater in diameter or are classified as 'rare'. Section 15-316 requires that specimen trees be preserved to the extent practicable. The Morgan Ridge project proposes to remove eighty-six (86) of the 200 specimen trees located on the site. The trees proposed for removal are located in areas requiring substantial grading. Thirty-seven of the eighty-six (37 of the 86) specimen trees to be removed are within the right-of-way for Berryhill Drive extension, or within areas required for fill to construct the street extension. The other trees proposed for removal are clusters of trees located in where either units or the detention pond is located. The applicant has included a tree removal justification statement on sheet PA-5 of the plans. Additionally, the design narrative (**Attachment C**) outlines the exhaustive efforts the applicant took in designing the site. Given the extraordinary amount of primary and secondary constraints on the site, there are few 'buildable' areas left. As a result, specimen trees must be removed to allow for the construction of the proposed improvements. Staff has evaluated the tree removal justification letter, as well as the design narrative and finds that the reasons stated for removing the trees are consistent with accepted planning and site design practices as well as accepted methods for effective tree preservation.

Concentrating on the remaining specimen trees, 114 of the 200 specimen trees are being preserved for the proposed Morgan Ridge project. These trees are clustered in areas along both Morgan Creek and Tom's Creek. Additionally, the specimen trees are located within large stands of existing trees. Maintaining specimen trees within larger wooded areas is more effective than attempting to maintain individual trees that once were part of a wooded environment. The vast majority of the wooded perimeter is being maintained as a part of this project. The area of the proposed street connection is the only exception to the fully wooded perimeter.

Street Trees:

The proposed Morgan Ridge project must comply with Section 15-315, Required Trees Along Dedicated Streets. Section 15-315 of the LUO requires either the planting of new or preservation of existing trees along all dedicated streets. The applicant has included a detailed planting plan showing the placement of new landscaping material designed to satisfy the requirements of Section 15-315 of the LUO. The proposed street trees consist of a mix of willow oaks, scarlet oaks, red oaks, laurel oaks and chinese elms. One third (1/3) of the street trees are evergreen in variety for wintertime shading and color. The street trees must either be installed or bonded for prior to receiving final plat approval for the subdivision.

Screening:

The required screenings for this project are based on the requirements of Section 15-308. Section 15-308 specifies that a multi-family townhome project (Use 1.321) should provide a type 'C' screen between it and adjacent developer residential properties. A type 'C' screen has been provided along the eastern, southern and western property lines. The type 'C' screen will consist of existing plant material that will provide intermittent visual obstruction up to a height of twenty (20) feet. The existing wooded areas that will be preserved easily satisfy the requirements of the type 'C' screen. The proposed Morgan Ridge project must also provide a type 'C' screen along the proposed right-of-way. A combination of existing and proposed plantings will be used to satisfy the requirements for the type 'C' screen along Berryhill Drive.

Shading:

The vehicle accommodation area shading requirements for this project are based on Section 15-317 of the LUO. Section 15-317 requires that shade trees capable of shading 20% of the vehicle accommodation area be provided. The proposed Morgan Ridge project contains 84,416 square feet of vehicle accommodation area. As a result, trees providing 16,883 square feet of shade must be provided. By calculation, forty-six (46) new trees will provide 17,123 square feet of shade, thus satisfying the requirements. In actuality, there are a number of existing trees that push the total amount of vehicle accommodation shading provided well above the minimum. The proposed shade trees consist of a mix of willow oaks, scarlet oaks, red oaks, red maples, laurel oaks and chinese elms. One third $91/3$) of the shade trees are evergreen in variety for wintertime shading and color.

The LUO provisions related to the preservation of existing trees, the installation/preservation of street trees, the installation of screens and the installation of shade trees have been met by the applicant for the Morgan Ridge project.

Utilities, Lighting and Refuse Collection**Utilities:**

OWASA water and sewer will be available to the proposed lots from an extension of the existing systems. The water line will be extended to complete an eight-inch (8") loop between the existing water lines in Berryhill Drive and Old Fayetteville Road. The sewer lines to serve the new lots will be constructed for internal collection that will be maintained by OWASA. These new collection lines will connect to the existing outfall along Tom's Creek.

The proposed water and sewer connections have been reviewed by OWASA and have found to be in compliance with their connection and extension policies. Additionally, the Town of Carrboro Fire Department has reviewed the proposed subdivision plans and has found that they meet the requirements of the LUO and the Town Code for fire hydrant placement. As with all subdivision projects, no framing is authorized on any of the lots until such time as an all-weather surface has been installed to the satisfaction of the Carrboro Fire Department. This will be coordinated between the Zoning and Inspections Division and the Fire Department.

Other utilities, such as gas, electrical, telephone and cable television, will be provided within the public right-of-way of Berryhill Drive to serve the property. These utilities will be extended from the public right-of-way onto the property to serve each of the lots. All of the utility providers have submitted letters indicating that they do have available capacity and will be able to serve the proposed units/lots.

Lighting:

Section 15-242 and 15-243 of the LUO govern the lighting required on a site. Section 15-243(c) specifies that site lights must be fifteen feet (15') or less in height and must be shield or designed to direct light downward. The mounting height of the proposed lights is thirteen and one-half feet (13.5') and the lights are designed to direct light downwards. Additionally, Section 15-243(d) of the LUO specifies that the 0.2 foot-candle illumination contour must be contained on the site. This requirement has been satisfied for the proposed Morgan Ridge project.

In addition to the site lights, Section 15-242(b) requires that streetlights be provided. In accordance with this section, the applicant has provided streetlights at a sufficient distance to meet the lighting policies of the Town's Public Works Department. Three streetlights will be provided along the extended portion of Berryhill Drive.

Refuse Collection:

The Town of Carrboro Public Works Department has reviewed the plans for solid waste management. The proposed project has two refuse dumpsters, as well as a cardboard dumpster located at the easternmost driveway. In addition to the dumpsters, there are recycling boxes for various types of containers and

products. The proposed dumpsters and dumpster pad approaches, as well as the dumpster screening, meet the requirements of the LUO and have been approved by the Solid Waster Division of Carrboro Public Works.

The LUO provisions related to utilities, lighting and refuse collection have been met by the applicant for the Morgan Ridge project.

Drainage, Floodplain/Floodway, Grading, Stream Buffer and Erosion Control

Drainage:

The construction of the proposed Morgan Ridge townhome project will create additional impervious surface that will increase the amount, and degrade the quality, of stormwater runoff. In order to address the water quantity and water quality issues, an on-site drainage system must be installed to direct water off of the site in a uniform and safe manner. Section 15-262 of the LUO specifies that all development shall be provided with a stormwater management system containing drainage facilities that are adequately designed and constructed to prevent the undue retention of surface water on the site. Furthermore, all drainage facilities must meet the specifications set forth in Appendix C and Appendix I of the LUO.

The applicant proposes to install a stormwater management system on the site that will address all water quantity and water quality concerns. The proposed stormwater management system is designed to handle all on-site stormwater through a series of pipes, curb inlets, swales, culverts, roof drains and a stormwater quality pond. The Town Engineer (Sungate Design Group, PA) has reviewed the proposed plans and drainage calculations and has concluded that the project complies with the requirements of the LUO. Please note that according the erosion control plan, the stormwater quality pond will serve as a sediment basin throughout construction.

Section 15-263 of the LUO contains requirements related to the downstream impacts that proposed developments may have on both water quantity and water quality. The water quantity provisions of the LUO have been addressed. Due to the timing of the runoff in relation to the timing of the peak flow, it has been demonstrated through modeling that on-site detention is not needed on the site. The Morgan Ridge project has a drainage area of 25.16 acres (the entire site) and a pre-construction rate of flow during the 10-year storm of 43.7 cubic feet per second (cfs). All stormwater is being routed through a stormwater quality pond that will provide some detention. This detention will limit the peak rate of flow to 53.6 cfs during the 10-year storm. Given the overall amount of flow in the Morgan Creek basin (4870 cfs during the 10-year storm) and the timing of the peak rate of flow, the 9.9 cfs increase is insignificant. The water quantity issues have been addressed to the satisfaction of the Town Engineer (**Attachment H**).

The water quality provisions of Section 15-263 are being satisfied by the creation of a 'forebay' area for the stormwater quality pond. Additionally, grass-lined swales, level spreaders and filter strips are being used to satisfy the requirements outlined in the NCDENR publication entitled Stormwater best management Practices. These devices collect 95% of the proposed site impervious areas and will reduce the amount of contaminants in the stormwater by 85%. As a result, staff, in consultation with the Town Engineer, has determined that the project complies with the water quality requirements of Section 15-263 (**Attachment H**).

Floodway/Floodplain:

Please note that the project does contain FEMA regulated floodway/floodplain. Per Section 15-253 of the LUO, only certain uses are permitted within the floodway. One such permitted use is the crossing of a floodway by a road. In the case of the Morgan Ridge project, there is some construction activity located within the FEMA designated 100-year floodway/floodplain. The Berryhill Drive crossing of Tom's Creek will involve some work within the floodway/floodplain. Per Section 15-254 of the LUO, no filling or grading within the floodway/floodplain can occur without the approval of the responsible federal authority. The placement of culverts and associated grading and filling will necessitate the applicant receiving a CLOMR (conditional letter of map revision) from FEMA prior to beginning any work. This CLOMR submittal will be coordinated by the Town Engineer.

There is one additional floodway/floodplain item for the proposed Morgan Ridge project. As you may recall, the Town of Carrboro's *Parks and Greenways Master Plan* shows a spur of both the Morgan Creek and Tom's Creek greenways crossing the subject property. The applicant has provided a twenty foot (20') greenway easement along all of Morgan Creek and a good portion of Tom's Creek. There is a missing portion of the pedestrian easement between the sidewalk connection on the southside of Berryhill Drive and the portion of the floodway/floodplain north of Berryhill Drive. Unless this portion of the property is dedicated to the Town of Carrboro as public open space, a 20' bike and pedestrian access easement should be provided in manner that will allow the Tom's Creek greenway to 'mesh' with other upstream components of the greenway (i.e., the easement should tie into the easement of the property to the north).

Lastly, the Board may want to request that the applicant incorporate an extra, land-based, half-barrel culvert into the road design at the crossing of Tom's Creek. Staff notes that the inclusion of an extra barrel would allow pedestrians and bicyclists to gain access to the open space on the north side of Berryhill Drive without coming up to 'street-level.' Additionally, the extra barrel would allow safe passage for wildlife in the area, which addresses a concern of the Environmental Advisory Board (**Attachment L**).

Grading:

The proposed plans show an approximate balance in cutting, filling and excavation. The site currently has an approximate sixty-eight (68) foot range in elevation, from northwest to southeast, in the area proposed for disturbance (388 along the northwestern property line to 320 in the area surrounding the retention/detention pond). Upon completion of the proposed project, the elevation of the developed portion of the project along the northwestern portion of the site (within Berryhill Drive) would be 382 (a cut of 6'). About one-half (1/2) of Berryhill Drive involves minimal cutting. The other one-half (1/2) of Berryhill Drive involves a substantial amount of fill material. The majority of the area where the units are located will be cut from present grade (elevation). This is where the fill material for the construction of the road will be generated. The applicant is proposing the cut area in order to obtain a suitable grade for placing the townhome units and to allow for proper internal grades on the vehicle accommodation areas. The need for the fill material within Berryhill Drive comes from the Town's minimum engineering standards for roadway grades.

Please note that there are no specific standards in the LUO pertaining to site grading, so compliance with specific ordinance provisions is not an issue (please note, however, that there are general standards in the LUO such as erosion control requirements, minimum and maximum slope percentages, etc.). Staff (including the Town Engineer) has reviewed the grading plan and finds that it is a reasonable plan.

Stream Buffer:

There is a stream buffer located on this site. The stream buffer on the site is shown as the floodway/floodplain area on the plans. In cases where there are FEMA regulated floodways/floodplains identified, such areas serve as the stream buffers. For this project, there is disturbance proposed within the stream buffer. However, the disturbance that is proposed is in compliance with Section 15-268(f) and (g) of the LUO. These LUO sections authorize drainage improvements and other stormwater facilities to be located within the stream buffer area. Additionally, these sections permit recreation and other public uses within the stream buffer areas. The drainage facilities and recreation facilities do fall within the exempted categories of Section 15-268.

Erosion Control:

Per Section 15-264 of the LUO, the project must receive an erosion control permit issued by the Orange County Erosion Control Officer prior to beginning construction. To date, this permit has not been issued. The erosion control permit generally is not issued until just prior to beginning the construction activity. Based on an analysis of the proposed plans, Reyonlds Ivens, Orange County Erosion Control Officer, has indicated that an erosion control permit can be issued (**Attachment I**), but must be applied for by the applicant.

The LUO provisions related to drainage, floodway/floodplains, drainage, stream buffers and erosion control have been met by the applicant for the Morgan Ridge project. However, the Administration recommends the following:

- Unless the open space portion of the property on the north side of Berryhill Drive is dedicated to the Town of Carrboro as public open space, a 20' bike and pedestrian access easement should be provided across the property in manner that will allow the Tom's Creek greenway to 'mesh' with other upstream components of the greenway (i.e., the easement should tie into the easement of the property to the north).
- The Board may want to request that the applicant incorporate an extra, land-based, half-barrel culvert into the road design at the crossing of Tom's Creek to aid pedestrians, bicyclists, and wildlife.

Open Space and Recreation

Open Space:

Pursuant to Section 15-198 of the LUO, all subdivisions must provide 40% open space. The 40% open space must meet the minimum standards of Section 15-198(b)(2) of the LUO. Further, the 40% open space must come from primary and/or secondary constraints, first, then other areas can be considered. In the case of the Morgan Ridge project, the 40% open space requirement is more than satisfied by the primary constraints. The 25.16 acre Morgan Ridge project is required to provide 10.06 acres of open space in order to satisfy the requirements of Section 15-198 of the LUO.

The proposed Morgan Ridge townhome project contains the required 40% open space. The applicant for the Morgan Ridge project has submitted plans showing the preservation of 15.88 acres of open space (63.1% of the subject property). This open space consists of the floodway/floodplain areas, an additional stream buffer area and other natural and landscaped open space areas. As a result, the open space provisions of the LUO have been met for the proposed Morgan Ridge project.

Staff has asked the developer about the possibility of dedicating the open space on the north side of the Berryhill Drive connector to the Town of Carrboro. Such a dedication would provide a nice 'passive' area for Town of Carrboro residents and could possibly serve as a tax and insurance benefit for the developer and/or the Homeowner's Association. There would be very little maintenance required for the area until such time as a greenway trail was developed. The developer has requested that this be a discussion item for the Board during the deliberations for the project.

Recreation:

In addition to required open space areas, all major subdivisions must provide active recreation areas to serve the residents of the proposed subdivision. The amount of required recreational points is based on the number of units permitted in the subdivision. Per Section 15-196 of the LUO, multi-family residences must provide a variable rate of between 5.94 and 11.81 points per unit, depending on the number of bedrooms. In the case of the proposed Morgan Ridge project, the number of recreational points required is $720.74 [(15 \text{ units} @ 9.47 \text{ ppu} = 142.05 + 49 \text{ units} @ 11.81 \text{ ppu} = 578.69) = 720.74]$. The proposed Morgan Ridge project has provided recreational amenities totaling 767 points. The recreational amenities consist of a gravel jogging path/greenway, a play field/play area, a sandbox and play structure and some benches along the jogging trail and at the play structure for passive recreation. The Director of the Recreation and Parks Department has reviewed the proposed recreation amenities and has concluded that they meet the requirements of the LUO. Additionally, the Public Works Department has reviewed the construction specifications of the trail and finds that the trail will be of sufficient strength to withstand future paving, if the Board so desires (**Attachment J**).

As further information, staff has noted that two Advisory Boards (Environmental Advisory Board and Appearance Commission) have requested that the developer complete a payment-in-lieu to the Town's open space and recreational facilities fund instead of providing the proposed playfield (**Attachment L**). Staff notes that Section 15-203 of the LUO allows the permit-issuing authority to authorize the developer to pay this fee.

The LUO provisions related to open space and recreational amenities have been met by the applicant for the Morgan Ridge project.

Architecture/Exterior Design and Size-Limited Units

Architecture/Exterior Design:

The architectural standards of Section 15-177 are recommended standards. That is, they are not requirements of the LUO. As a result, compliance with the standards by the applicant would be a voluntary action. Section 15-177 has standards for porch widths, roof pitches, exterior siding, window size and orientation, trim details and garage door size and location. The applicant for the Morgan Ridge project has attempted to meet some of these requirements (see sheets RE-8 through RE-15 contain the architectural information and exterior elevations). They are as follows:

- Some of the units have front porches that span the entire front façade;
- Some of the units have clapboard siding meeting the exposure criteria;
- The windows meet the 2 to 1 vertical to horizontal ratio;
- The architect has incorporated some of the vent, gable, column and window details into the design of the units.

Although the project does not meet all of the recommended standards of Section 17-177, the applicant did make an effort to satisfy as many as the requirements as possible. With the staggered nature of these attached units, it is difficult to meet the front porch requirement. Additionally, it was the applicant's intention to have the garages be 'rear loaded'. However, the topography and site constraints limited the area available to have both front and rear access areas (i.e. to have a private road in front and in rear).

Size-Limited Units:

There are sixty-four (64) units proposed as part of the proposed Morgan Ridge project. Per Section 15-188 of the LUO, every residential subdivision containing twenty-one (21) or more units must ensure that 15% of the total number of units constructed are 1,110 square feet (sf) or less and must further ensure that 10% of the total number of units are 1,350 sf or less. The applicant has met this requirement for the proposed Morgan Ridge project. Nine (9) units must be 1,100 sf or less. The applicant has satisfied this requirement with the 'Radcliffe' design (see sheet RE-13). Six (6) units must be 1,350 sf or less. The applicant has satisfied this requirement with the 'Huntwick Place' design (see sheet RE-11). The 'size-limited units' are evenly distributed throughout the project and are not isolated/segregated from the 'non-restricted units'. To meet the requirements of the LUO, a condition must be placed on this permit stipulating that no additions or interior renovations designed to increase the heated square footage of the size-limited units can be approved/completed within the first year following the issuance of the Certificate of Occupancy (CO) per Section 15-188(e). This statement must also be included on the recorded final plat and reference the applicable 'size-limited unit' lots.

All of the applicable provision of the LUO related to Architecture and Size-Limited Units have been met by the applicant for the Morgan Ridge project. However, to ensure that the 'size-limited unit' requirements are met and are fully disclosed to potential buyers, the Administration recommends that the following condition be placed on the CUP:

- No additions or interior renovations designed to increase the heated square footage of the size-limited units can be approved/completed within the first year following the issuance of the Certificate of Occupancy (CO) per Section 15-188(e). This statement must also be included on the recorded final plat and reference the applicable 'size-limited unit' lots.

Neighborhood Meeting

The developers of the Morgan Ridge project held a formal neighborhood meeting at Town Hall on April 4, 2001 at 8:00 pm. The neighborhood meeting was held in order to discuss the scope of the project and to address any concerns or questions from the surrounding neighborhoods. Please note that this meeting is not required in the LUO but is rather a tool implemented by the Town in an attempt to foster a cooperative spirit between the developer and the neighborhood. The completed neighborhood meeting form is included in your packet as **Attachment K**. The primary concerns raised by the eight (8) attendees (out of 299

invitations mailed) were the issues surrounding the floodway/floodplain and the issues surrounding the street connection. Most in attendance agreed that the project was designed in a sensitive, responsible way.

Advisory Board Recommendation Statements

Please find the Town of Carrboro Advisory Board Recommendation Statements listed as **Attachment L**.

RECOMMENDATION:

The Administration recommends that the Board of Aldermen approve the conditional use permit request to allow a major subdivision (Use 26.100) of multi-family townhome lots (Use 1.321) at 501 Berryhill Drive property (TM# 7.116.6), subject to the following conditions:

1. That unless the open space portion of the property on the north side of Berryhill Drive is dedicated to the Town of Carrboro as public open space, a 20' bike and pedestrian access easement should be provided across the property in manner that will allow the Tom's Creek greenway to 'mesh' with other upstream components of the greenway (i.e., the easement should tie into the easement of the property to the north);
2. The Board may want to request that the applicant incorporate an extra, land-based, half-barrel culvert into the road design at the crossing of Tom's Creek to aid pedestrians, bicyclists, and wildlife;
3. That no additions or interior renovations designed to increase the heated square footage of the size-limited units can be approved/completed within the first year following the issuance of the Certificate of Occupancy (CO) per Section 15-188(e). This statement must also be included on the recorded final plat and reference the applicable 'size-limited unit' lots;
4. That a "No Rise Certification" will be obtained by the developer from FEMA through the CLOMR process for the Tom's Creek crossing prior to the construction plans being approved;
5. That a 404 National Wetlands Permit from the US Army Corp of Engineers and a 401 Water Quality Certification from NCDENR's Division of Water Quality be obtained by the developer prior to the construction plans being approved;
6. That a voluntary annexation petition will be submitted to the Town by the developer prior to recording the final plat;
7. That the "Homeowner's Association Documents" be reviewed and approved by the Town Attorney prior to final plat approval.

4. Re-write your response letter of October 29, 1999 in the form of a narrative explaining your various constraints and how that influenced your design considerations. Please explain any deviations from the recommended design guidelines as contained in the response letter (the narrative will make better sense to the Board of Alderman than the disjointed responses to my schematic review comments.) This will go to the Board of Alderman as part of their decision package;

We first submitted the Morgan Ridge Townhome project back in June of 1999. At that time this project was the first to fall within the recently approved density guidelines defined within Section 15-182.3 of the Land Use Ordinance. As we moved through the town's schematic design process many factors influenced decisions made regarding building and street placement. We thought it would be helpful to outline several of these major factors so that everyone would have a better understanding of how we arrived at the point we are at currently:

We began with the realignment of the connector street which the town has required us to propose between Berryhill Drive and Old Fayetteville Road. Several factors influenced our alignment:

- a) We tried to cross Tom's Creek as near to perpendicular as possible.*
- b) We tried to cross Tom's Creek at a location which minimizes roadway fill and hence, its impact to adjacent floodplain, stream buffer, wetlands, steep slopes, hardwoods and existing OWASA easements. All of these conservation areas will be affected by this crossing.*
- c) We tried to comply with the Town's standards for connector streets by providing a 35' b/b section with a minimum centerline radius of 250'.*
- d) Once across the creek (heading northwest) we tried to minimize impact to the 25% steep slope area adjacent to Tom's Creek along the new connector street's east side.*
- e) We tried to provide a means of access to "Potential Buildable Areas" along the connector street's route.*
- f) We tried to follow existing ridge lines wherever possible in order to minimize clearing and grading.*

We believe the proposed alignment addresses each of the factors listed above. We would also like to point out that we have designed the connector street's vertical alignment to place the northern section in cut. This has further minimized clearing and grading.

Once the connector street alignment was selected we looked at developing a plan to access the remaining "Potential Buildable Areas". We felt that a private looped drive would be important for circulation, emergency, and refuse access. The following factors influenced placement of the private loop drive:

- a) Within the northern half of the site we tried to locate a majority of the private loop road within existing cleared areas (damaged by Hurricane Fran). The northern half contains all of the site's 90% Hardwoods Area. Also, we tried to minimize additional clearing of this area beyond that which would be necessary to construct the connector street by locating as many units as possible on the project's southern half.
- b) The more compact our proposed development can be – the lesser the impact on adjacent floodplains. We tried to develop a private loop road alignment which would allow us to cluster our (64) unit density along its route.
- c) We tried to align the north/south segments for the private loop road to follow existing contours. This will minimize cut and fill slopes.

With the private loop road concept in hand we attempted to position and cluster as many of the (64) units along its route as possible. Turning radii dictated that the loop road would have to be located adjacent to the floodplain along the southern half of the site on at least one side (east or west). We selected the west side in an effort to maximize the natural landscape buffer which could be preserved along our projects' east side, and hence-act as a buffer to existing residential properties.

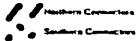
By clustering as many of the (64) units around the southern ridge as possible it will be difficult and improbable that the existing landscape will be able to be preserved within the confines of the new development. This will be due to the small separation between units and the need to gain access to them during construction. We do intend, however, to use several construction techniques to minimize the clearing adjacent to the floodplain. One such technique will dictate the use of retaining walls adjacent to or part of the units themselves. Another will be the incorporation of individual garages for each unit thereby minimizing the need to construct additional surface parking. Lastly, as is the case with the connector street and private loop road, we intend to set the units and/or garages in cut thereby minimizing perimeter grading. The soils within the area along the ridge are well draining. This will be very helpful for re-establishing new vegetation within the areas we disturb.

All of the factors described above led us to reduce recommended setbacks adjacent to conservation areas. We have been able to maintain a 50' setback to the floodplain for most portions of the project. We do get as close as 30' in some areas. We hope that you will agree that this project can be built in the manner described above. We believe that this project's biggest impact to conservation areas will be from the construction of the connector street and not the private loop road or the units themselves.

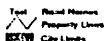
TOWN OF CARRBORO CONNECTOR ROADS PLAN

LEGEND

CONNECTOR ROAD



OTHER FEATURES



Map of Carrboro, North Carolina
Scale 1:25,000

Scale 1:25,000

Scale 1:25,000

Scale 1:25,000

Scale 1:25,000

Scale 1:25,000

Scale 1:25,000

Scale 1:25,000

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Scale 1:25,000



"THIS MAP IS NOT A CERTIFIED
SURVEY AND NO RELIANCE MAY
BE PLACED IN ITS ACCURACY"

This map was prepared by the Town of Carrboro, North Carolina, for the purpose of showing the location of the proposed connector roads. The map is not a certified survey and no reliance may be placed in its accuracy. The map is based on the best available information and is subject to change without notice. The map is not to be used for any other purpose without the written consent of the Town of Carrboro.

Map of Carrboro, North Carolina
Scale 1:25,000

III. CONNECTOR ROADS PLAN

The Connector Roads Plan proposes to meet the demands from full development of the northern development area by construction of a series of connector roads that will link this area with the arterial system to the north and to Estes Drive in the east. The construction of a connector road that parallels Hillsborough Road and North Greensboro Street, and providing access with Estes Drive is vitally important to reduce further congestion on Greensboro Street and the Town Center. Connector roads should also eliminate the disruption of residential neighborhoods to the south of areas under development. Connector roads would also be planned to extend north, permitting access to Homestead Road and to the I-40 interchanges.

The connector roads system in the southern development will provide access to the Laurel Hill Parkway thoroughfare which will loop the Bypass, beginning at Jones Ferry Road and connecting with NC 54 and eventually I-40. Because of the development that has already taken place in this area, the two connectors that are central to the overall system, Berryhill Drive and Rock Haven Road, have been approved for construction. In addition, portions of the Laurel Hill Parkway have also been approved for construction.

IV. DESIGN AND CONSTRUCTION STANDARDS

The Design Standards for connector roads should follow the Land Use Ordinance's guidelines, based on the individual road's classification, and its potential for traffic of all varieties in the future as well as when a development is presented to the board.

TRANSPORTATION ADVISORY BOARD

AGENDA ITEM ABSTRACT

MEETING DATE: April 16, 1998

ITEM NO. _____

SUBJECT: Carr Ridge Connector – TAB Courtesy Review

DEPARTMENT: PLANNING DEPARTMENT	PUBLIC HEARING: YES ____ NO <u>X</u>
ATTACHMENT: Map showing adopted Southern Connector Road Plan Correspondence from Carrboro Parks and Recreation Correspondence from Town Engineer.	FOR INFORMATION CONTACT: Kenneth Withrow, 968-7714
THE FOLLOWING INFORMATION IS PROVIDED:	
(x) Background	(x) Action Requested
() Alternatives	(x) Recommendation
	(x) Analysis

PURPOSE

The purpose of this item is for the Transportation Advisory Board to review the proposed Carr Ridge connection, and make a recommendation to the Board of Aldermen.

SUMMARY

The Carrboro Board of Aldermen at their June 24, 1997 meeting requested that the TAB hold a courtesy review for the Carr Ridge Development.

Previous advisory meetings concerning this subject that had been scheduled during the fall of 1997, however, those meetings were canceled.

The Town staff, staff from Phil Post & Associates, and staff from Sungate Design discussed the proposed connection during the fall of 1997.

The Town staff conducted data collection efforts, as well running traffic model scenarios during the fall and winter of 1997 in order to forecast possible trip productions along the collector routes.

ANALYSIS

As stated within the Carrboro Connector Roads Policy, connector roads have several purposes: (1) They are intended to provide access by linking new development with existing area of Town, (2) They are intended to relieve congestion on already existing roads which will soon meet capacity, and (3) They are intended to integrate those areas in Orange County's and Chapel Hill's planning jurisdiction with the Town's jurisdiction". The Policy furthermore states that, "A well designed connector roads system will benefit the existing road system by dispersing increased traffic resulting from new development over a more extensive and integrated system".

The proposed Carr Ridge Connector addresses the purposes of area integration and traffic dispersion. The Carr Ridge Connector is noted within the Southern Connector Roads Plan as outlined within the Carrboro Connector Roads Policy. The Carrboro Board of Aldermen adopted the Southern Connector Roads Plan on April 2, 1991. This plan showed a road alignment connecting the existing Berryhill Drive within the

Tennis Club Estates subdivision with Old Fayetteville Road. The proposed subdivision (a.k.a. Carr Ridge) would provide the connection between the two aforementioned streets.

The property through which the connection would run is the Odum property. The property is located between Poplar Place apartments in the northwest and Tennis Club Estates to the southeast. The property is also bordered by Morgan Creek along its southern edge. The developer of the property does not wish to create a connection between Old Fayetteville and Berryhill Drive. The developer has therefore proposed a subdivision with a cul-de-sac terminus that connects with Old Fayetteville Road. The proposed subdivision consists of 60 townhomes.

The staff created a model for the proposed Carr Ridge Connector between October 20 and November 20, 1997 (please see attached Westbrook Drive Modeling Report). Traffic counts for Westbrook Drive were conducted on September 9 through September 11, 1997. The staff also utilized traffic counts from NCDOT for Jones Ferry Road, NC 54 Bypass, and Old Fayetteville Road. A comparison of traffic models that showed a Carr Ridge connection versus no Carr Ridge connection was run and analyzed by the staff.

PROJECTED TRAFFIC VOLUME COMPARISONS - CARR RIDGE PROJECT OCT 20 - NOV 20 1997		
LINK	CONNECTION	WITHOUT CONNECTION
Berryhill Drive	884 ADT	NA
Carr Ridge Connection	992 ADT	497 ADT
Jones Ferry Road	10182 ADT	10876 ADT
NC 54 Bypass	13279 ADT	18209 ADT
Old Fayetteville Road	2881 ADT	2530 ADT
Westbrook Drive	2743 ADT	3158 ADT


The chart above indicates that traffic volumes as projected by the model: (1) will be higher without a connection along roads such as Jones Ferry Road, NC 54 Bypass, and Westbrook Drive than with a road connection, and (2) will be higher along Old Fayetteville Road and the Carr Ridge Connector when a connection is created. The proposed road connection provides an additional access to possible attractions (i.e. Carrboro Plaza, Willow Creek Shopping, etc.); while Westbrook Drive does not become an outlet to NC 54 Bypass for commuters west of Carrboro. The connection also provides additional access to the Chapel Hill Tennis Club for club members who may live west of Carrboro. The inclusion of bikelanes and sidewalks along the Carr Ridge Connector may reduce motor vehicle usage among the developments within the area. Furthermore, the current terminus of the C Bus Route at Poplar Place Apartments will provide additional coverage area for residents who live in the proposed Carr Ridge Development as well as the Tennis Club Estates subdivision.

Other concerns involving the Carrboro Parks and Recreation Department have addressed the roadway connection (i.e. impact upon greenways, wetlands, and slope/design speed constraints for road construction) and Town engineer respectively (see attachments). The topographic and recreational elements within the area of concern do not circumvent the construction of a connector; nor would the connection have a negative impact upon surrounding properties creeks and streams.

RECOMMENDATION

The staff recommends that the TAB endorse the road connection concept as an element of any future use application for the Odum property.

MEMORANDUM

TO: Kenneth Withrow, Transportation Planner 
FROM: Richard E. Kinney, Recreation and Parks Director
SUBJECT: Carr Ridge Connector Road and Proposed Greenways
DATE: April 6, 1998

As we have discussed in the past, I see no problem with the connector road bisecting the proposed greenway along Morgan Creek. The Town Engineer has stated that the road can be constructed to conform to greenway needs. The actual crossing of the greenway should be engineered so that the road and greenway are both accommodated. The bottom line answer is an engineering one and I understand that you are asking Henry Wells to address this. Please insure that the engineer addresses this need in reviewing any development proposals.

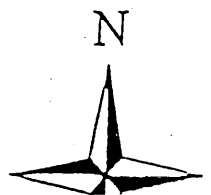
Thank you.

Town of Carrboro Southern Connector Roads



Adopted by the
Board of Aldermen
April 2, 1991

Text Text
 Southern Connector Roads
 City Limits
 Jurisdictional Limits



S

Keith

Sungate Design Group, P.A.

ENGINEERING • LANDSCAPE ARCHITECTURE • ENVIRONMENTAL

915-A Jones Franklin Road Raleigh, N.C. 27606

919-869-2243

November 14, 1997

Mr. Roy Williford
Planning and Economic Development Director
Town of Carrboro
PO Box 829
Carrboro NC 27510

Re: Carr Ridge Connector

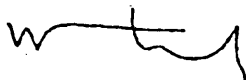
Dear Roy: .

We have reviewed the plans for the proposed Carr Ridge Connector submitted by Philip Post and Associates dated 10/9/97. This plan was discussed at the Development Review Meeting on 10/29/97. Following are our comments regarding the plans:

- 1) We see no reason that the 35 mph design speed cannot be accomplished. Adjustment to the grades and/or length of curve can be used to create a 35 mph design.
- 2) The culvert system shown on the plans does not appear to be practical. Only three of the culverts shown appear to be within the channel area. It is likely the other 6 culverts will silt up over time and provide little or no significant conveyance during large storms. Even with significant channel improvement in the head and tail ditch, it is likely that the stream will re-establish its natural shape over time.

If you have any questions or require further information please contact me or Tom Herring.

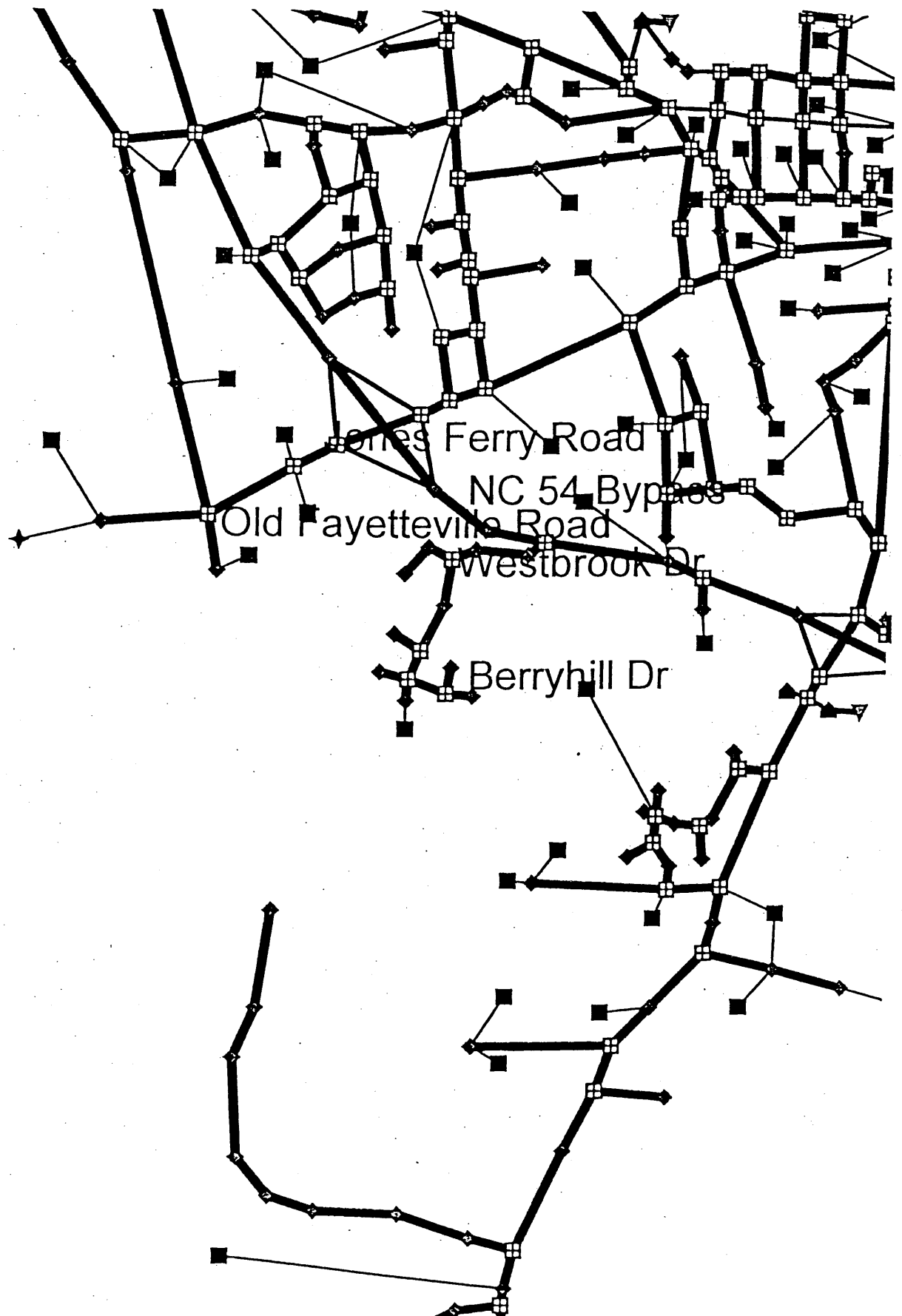
Sincerely,



W. Henry Wells, Jr., PE

cc: Mr. Kenneth Withrow

Carr Ridge Area Roads



Sungate Design Group, P.A.

ENGINEERING • LANDSCAPE ARCHITECTURE • ENVIRONMENTAL

915-A Jones Franklin Road Raleigh, N.C. 27606

919-859-2243

April 15, 1998

Mr. Kenneth Withrow
Town of Carrboro
301 W. Main St.
Carrboro, N. C. 27510

Re: Berryhill Dr. connector at the proposed Carr Ridge
Subdivision

Dear Kenneth:

We have received revised plans for the Berryhill Drive connector at the proposed Carr Ridge Subdivision from Philip Post & Associates. Our review reveals that the vertical alignment does not meet Town of Carrboro, NCDOT or AASHTO standards. The road will be classified as a "collector" and should have a design speed of 35 mph as specified in Appendix C of the Town of Carrboro Land Use Ordinance. This requires a minimum 200' sight distance for vertical curves, which results in a "K" factor of 30 at crest verticals and 40 at sag verticals. There do not appear to be any physical constraints that preclude a design that maintains the minimum standards.

You have requested options that might be used in providing a greenway crossing at the Toms Creek crossing. At present, there is no approved design for the crossing, but it will probably be either a reinforced concrete box culvert (RCBC) or a bridge.

If an RCBC is the chosen option, the greenway would be designed to utilize one of the barrels of the culvert for the crossing. This would require raising the floor in that barrel so that it would not be used for stream flow until a certain frequency flood is exceeded. Some of the negative aspects to this type design are that after floods the greenway has to be cleaned and debris removed, if the culvert is very long it can be dark in the barrel and artificial lighting may be necessary. In addition, the initial cost of the culvert will be higher because some of the capacity of the culvert is lost due to blockage by the greenway.

The greenway could also be designed so that it goes over the road at a pedestrian crossing. The culvert could then be designed as normal to pass the 100-year storm with no

blockage of any of the barrels. The height of the roadway at this location may make this option less desirable. The drawback to this type design is an increased exposure to traffic by users of the facility.

If the eventual stream crossing is a bridge, the greenway can be constructed on natural ground under the bridge. Since the width of the floodway appears to be located outside the top of bank of Toms Creek, there will probably be enough room under the bridge to facilitate construction of the greenway without significantly increasing the length of the structure. The main drawbacks of the bridge are higher up front costs, higher maintenance costs and shorter service life than an RCBC.

If you have any questions or require further information please contact me or Tom Herring.

Sincerely,



W. Henry Wells, Jr., PE

cc: Philip Post & Assoc.

TRANSPORTATION ADVISORY BOARD MINUTES

April 16, 1998

BOARD MEMBERS PRESENT

Neal Mochel, Chair
Ellen Perry, Vice-Chair
Alex Zaffron, Board of Aldermen Liaison
Kevin Cook - Excused
Dazzie Lane
Shirley Marshall
William Robinson

STAFF

Kenneth W. Withrow

SPECIAL GUESTS

Tom Herring
James Kempe
Phil Post

I. CALL TO ORDER

Mr. Neal Mochel, the TAB Chair, called the meeting to order.

II. APPROVAL OF MINUTES

The chair suggested to the rest of the TAB that approval of the minutes be dispensed until the conclusion of the meeting. The TAB agreed by consensus with the suggestion.

III. CARR RIDGE CONNECTOR

The TAB held a courtesy review to discuss the development of the Odum Tract, which lies between the terminus of Berryhill Drive and the terminus of Old Fayetteville Road. The developer of a proposed project for the site requested that a courtesy review be held to determine whether or not the TAB would require that a road connection link be made to the two aforementioned roads. The developer desires that the TAB provide a recommendation that would relieve him from crossing Tom's Creek to connect with Berryhill Drive.

Mr. Kenneth Withrow, the TAB staff liaison, addressed the TAB with a report on traffic model produced for this item. He explained how the model was created, the area that the model was designed to observe, and the purpose of the model for this study. The model scenarios created concluded that Westbrook Drive would not be used as a cut-through by commuters, and that Carr Ridge connector would fulfill the desires of the Connector Roads Policy adopted in 1991. Furthermore, Mr. Withrow stated that Chapel Hill Transit has indicated that bus service could be provided to the proposed Carr Ridge development. Transit service to the proposed Carr Ridge development would also provide residents in the Westbrook Drive area convenient access. Finally, Mr. Withrow noted that a proposed connection would be built as a "collector" road; and included bicycle and pedestrian features along the facility. Mr. Withrow closed his presentation by stating that notifications and reports for this meeting were sent to homeowner association presidents in the affected area.

Mr. Phil Post, the project engineer for the developer, addressed the TAB. He requested that the TAB relieve he and the developer of constructing the connector across Tom's Creek for the following reasons: (1) construction of the connection would be too expensive, (2) because it (construction of the connection) would cause environmental damage, (3) the residents and Weatherhill Pointe and Tennis Club Estates do not want to see a connection made, and (4) the development company desires to build a pedestrian\bikepath connection across the creek.

Another concern expressed by Mr. Post was that the construction of the roadway would be along a steep grade, which would create a tremendous amount of fill on the site. Mr. Post also shared his concerns about FEMA requirements for crossing Tom's Creek, the connection's impact upon the proposed greenway, and the fill impact upon OWASA's water and sewer lines. He finally noted that the roadway (as based upon the town's model) would not serve as an alternative to commuters, but would siphon traffic from Westbrook Drive onto the new connector.

The TAB members presented questions to Mr. Post regarding the pedestrian/bicycle connection. Mr. Kempe, president of the Tennis Club Estates Homeowners Association, believes that a connection would drastically change the character of the neighborhood. The Tennis Club Estates Homeowners Association is opposed to a connection between Berryhill Drive and Old Fayetteville Road. Mr. Kempe believes that the connection would create transient traffic. The homeowners association, however, would support a bikepath connection.

The TAB chair asked Mr. Post if a bicycle/pedestrian connection allow emergency access. Mr. Post stated that the path could accommodate police vehicle and ambulances, but not a firetruck. Mr. Tom Herring, the town engineer, noted that the major issue is the Connector Road Policy, and not the cost for constructing the roadway. Mr. Herring suggested that the TAB might want to review a "switchback" design of the bikepath before making a decision.

The TAB members provided comments on the Carr Ridge connector. They stressed the importance of the connections to the town. The TAB chair asked the engineer a final question as to whether a crossing (for motor vehicles) over Tom's Creek could be done with less dirt over the top of the culvert. Mr. Herring said that the scenario is possible, however, the cost of the project would normally be greater. Ms. Shirley Marshall moved that, "Because of the comments from the TAB members, the TAB does not recommend waiving (the crossing of Tom's Creek) or changing the Connector Roads Policy as it stands". Mr. William Robinson seconded the motion. VOTE: Ayes (Lane, Marshall, Mochel, Perry, and Robinson). Noes (None)., Abstain (None).

CARR RIDGE AREA MODELING REPORT

Area of Emphasis: Proposed Carr Ridge development as it relates to the Connector Road Policy adopted by the Town of Carrboro – April 2, 1991.

INTRODUCTION

The collector street known as Westbrook Drive services several single and multi-family developments as well as the Chapel Hill Tennis Club. Westbrook Drive and Berryhill are components to the Southern Connector Roads Plan adopted by the Carrboro Board of Aldermen on April 2, 1991. Some of the residents who live in the area desire that the final connection not be built for fear of high traffic volumes and high traffic speeds along Westbrook Drive and Berryhill Drive. The Town's purpose for connector roads is to "serve local neighborhoods, and provide access from neighborhoods to arterial roads"; as well as "to connect new or planned neighborhoods with minimal impact to existing neighborhoods".

The purpose of this report is to examine the validity of the Town's purpose for connector roads through various scenarios utilizing transportation modeling. The research involved an analysis of traffic volumes on residential streets and arterial roads in the southwestern portion of town. The modeling analysis, however, does not address traffic speeds on the connector roads.

The modeling process for this report is not a "static" exercise in the transportation planning process. This means that model runs may be performed many times before "reasonable" results can be generated; and each run involves a "tweaking" process to "fix" anomalies or errors. A continuous review of the model process must be conducted before conclusions are made.

CARR RIDGE AREA ANALYSIS

Transportation Problem: Would the road connection between Berryhill Drive and Old Fayetteville Road negatively affect the residents within the area of Westbrook Drive through increased traffic volumes?

Hypothesis: Road connection between Berryhill Drive and Old Fayetteville Road will negatively impact the adjoining neighborhoods by creating exceedingly high volumes, as well as create a traffic cut-through for eastbound commuters west of Old Fayetteville Road.

Independent Variable: Road connection (Carr Ridge) between Berryhill Drive and Old Fayetteville Road.

Dependent Variable: Negative impact (in the form of high traffic volumes) along Berryhill Drive and Westbrook Drive.

Control Variable(s): Existing road cross-sections and speeds along arterial roads (i.e. Jones Ferry Road, NC 54 Bypass, and Old Fayetteville Road).

Discussion: The examination of the relationship between the independent variable and the dependent will be conducted using the computer model software called QRSII for Windows. The QRSII software was created by Dr. Alan J. Horowitz, a professor within the Center for Urban Transportation Studies, Department of Civil Engineering and Mechanics at the University of Wisconsin at Milwaukee, as well as head of AJH Associates. Professor Horowitz is a recognized expert on computer application in urban transportation design and planning, and has published numerous articles on travel forecasting. He is the author of five major software packages for transportation planning, including QRSII and the Highway Land-Use Forecasting Model II+ (HLFMI+). Professor Horowitz obtained his BS and MS in Engineering from UCLA and his Ph.D. in Urban Planning also from UCLA. He has been on the faculty of UWM since 1979.

QRS was first introduced as a set of manual techniques in 1978; and the Federal Highway Administration (FHWA) released the first microcomputer version of QRS in 1981. Updates of the original QRS version have been done since 1987 into the 1990s. QRSII is a computer program for forecasting impacts of urban developments on highway traffic and for forecasting impacts of highway projects on travel patterns.

The data inputs to be utilized within this model include up to date traffic counts conducted by the Town of Carrboro, income and employment data as received from the Orange County Economic Development Office, the State of North

Carolina Library, and the Triangle Transit Authority (TTA). Traffic counts along the major arterial roads (i.e. Jones Ferry Road, NC 54 Bypass) will come from 1994 data supplied by NCDOT. The traffic forecasts will utilize data received from the Triangle Transit Authority (TTA) that have projected income and employment out to the year 2010.

MODEL VALIDITY

The purpose of this portion of the report is to document the process used to develop and validate the travel demand model for the area of study within the Carrboro Planning Jurisdiction. The travel demand model provides estimates of the roadway traffic based on data that describes the socio-economic conditions and transportation network in the Carrboro area. The model created focuses on the area of the planning jurisdiction in which concerns over traffic patterns have been presented. The model, can be used to forecast future traffic conditions that result from anticipated growth in population and employment. The model can also forecast the change in traffic conditions due to the introduction of alternate roadways, as well as new transportation services.

The model developed for the Town was completed as of September, 1997. The model was developed using the Quick Response System II (QRS) software as discussed earlier. Most of the parameters of the model are based on the National Cooperative Highway Research Program report # 187; which identifies nationally accepted default parameters based on the area's population. One of the default parameters used was the population parameter. The minimum value of the parameter was measured to be 50,000; which is nationally recognized population of the Chapel Hill-Carrboro urban area based on the 1990 census.

The area of study includes the entire Carrboro Planning Jurisdiction. The "focus area" for the study includes properties bordered by Morgan Creek (to the east and south), NC 54 Bypass (to the northeast), Jones Ferry Road (to the north), and Old Fayetteville Road to the west. The property owned directly by the University of North Carolina that borders the University Lake Watershed was not included within the "focus area".

The development of the zonal structure required that socio-economic data was a necessary input for the trip generation process. The trip generation program requires socio-economic data for each zone to calculate daily person trips for that zone. The information consists of number of dwelling units, income and/or autos per household, and employment segregated by retail and non-retail. The sources of the socio-economic data include the Town of Chapel Hill, the State of North Carolina, the Triangle Multiple Listing Service, the Orange County Department of Economic Development, the Triangle Transit Authority's Fixed Guideway Study, as well as banks and real estate agents. The model used in this study does not account for auto per household due to limited resources and

time needed to obtain a thorough account of autos; however, the model does use as a default parameter autos per household based on income level. The model also includes a System Attributes Table, in which various socioeconomic data are encoded. One of those attributes is Urban Area Population. The table only allows four different sets of urban population parameters: (1) 50,000 to 100,000, (2) 100,000 to 249,000, (3) 250,000 to 750,000, and (4) 750,000 +. Currently, the Town of Carrboro has a population of over 14,000 residents, however, the Chapel Hill-Carrboro Urban Area population is approximately 50,000. As a result, the parameter chosen for use was 50,000. This parameter is key due to the fact that the model assumes a "Reasonable Value of Person Trips per Dwelling Unit" for the 50,000 to 100,000 population to be 14.1 Person Trips per dwelling unit. This differs from the Institute of Transportation Engineers Trip Generation Manual, fifth edition; which utilizes 10.0 person trips per dwelling unit for single family units, and between 6 to 8 person trips per dwelling unit for multi-family units. The "Reasonable Value of Person Trips per Dwelling Unit" for the 50,000 to 100,000 population was modified to address 10.0 person trips per dwelling units for this model.

The roadway network is represented as a series of nodes and links. The links are coded to describe segments of roads between nodes. The nodes are used to describe the terminal points of the links and are used to represent intersection locations.

The trip generation program provides estimates of daily trip for three major parameters. The parameters include Home-based Work (HBW), Home-based Non-work (HBNW), and Non-home Based (NHB). Trip productions are calculated using "productions" and "attractions" for each of the three parameters. The term "productions" refers to trips generated at an origin - usually a dwelling unit or household. The term "attractions" refers to trips received at a destination - usually an employment or shopping center. Along with utilizing the NCHRP Report #187, the trips were split into the three trip purpose parameters by these percentages: 16 percent Home-based Work (HBW), 61 percent Home-based Non-work (HBNW), and 0 percent Non-home Based (NHB). The Non-home Based parameter is very difficult to measure; therefore productions and attractions for this parameter are "balanced" to equal each other.

The assignment and evaluation program demonstrates the model's ability to replicate observed traffic volumes. The roadway assignment is a capacity restrained iterative equilibrium/incremental assignment technique. The assignment program also provides an approximation of actual roadway congestion. A range of accuracy is expected when comparing observed traffic counts to model generated volumes. Observed traffic volumes vary greatly from day-to-day, month-to-month, and season-to-season. Personnel errors, special events, improper count locations, and mechanical failures can all attribute to the variations in counts. The ideal situation would be to take traffic counts for all of

the links in a network for the same year in which socio-economic data is being updated or available. Model generated volumes are generally acceptable with 5 percent of observed ground (traffic) counts in this study. Arterial links handle most of the traffic passing through the community, and are not subject to drastic changes in volume that may occur through seasonal changes (i.e. school sessions), and/or socioeconomic changes. The changes as noted can drastically affect traffic volumes along residential streets. Table one shows a comparison of the Carrboro ground counts versus model counts on arterial roads in the area of concern. The comparison shows that the model has the capability to accurately replicate values (traffic counts) on the arterial roads; however, refinements to strengthen model outputs need to be conducted as the Town develops a modeling process that is not only useful within the community, but is regionally compatible as well. Although most of the model counts were within 5 percent of the actual traffic counts, an "outlier" along Old Fayetteville Road was recorded in the model. The term "outliers" refers to recorded data that is well outside the range of the remainder of the data. The probable cause for this "outlier" effect is due to the fact that either the socioeconomic data collected from the apartment complex may be inaccurate, or the actual ground (traffic) counts may be inaccurate. Furthermore, the portion of Old Fayetteville Road under study does not operate as an arterial. When the connection between Old Fayetteville Road and Berryhill Drive is created, that portion of Old Fayetteville Road would be classified as a "collector". The probable remedy for this effect would be conducting a thorough trip count during the regular weekdays of Tuesday through Thursday.

ARTERIAL	RECORDED ADT	MODELED ADT	% DIFFERENCE
Jones Ferry Rd	10,900 (NCDOT Counts - 1994)	10,463	4%
NC 54 Bypass	13,600 (NCDOT Counts - 1994)	13,699	1%
Old Fayetteville Rd	1552	2119	27%

TABLE ONE

The modeling scenarios assume the current land uses and transportation networks as determined by the Town of Carrboro and the North Carolina Department of Transportation. These assumptions are necessary and are an integral part of the traffic forecasting for this study. The Triangle Fixed Guideway Study's Population and Employment Forecast indicates that the average annual growth rate for Orange County is 2.75% between 1990 to 2000, and 1.63% between 2000 to 2010 respectively. This study will utilize the arithmetic mean of 2.19% in average annual growth for Orange County in accounting for changes in productions and attractions within the model's external stations.

CARRBORO TRANSPORTATION MODEL SCENARIOS

There were three model scenarios created for this study. Each scenario addresses assumptions of road impacts upon the current roadway network. Other assumptions include: Projected growth rate for the Town of Carrboro and Orange County as forecasted within the Triangle Fixed Guideway Study as published by the Triangle Transit Authority (TTA), growth at existing employment centers such as Carrboro Plaza and the Carrboro Central Business District. The maps showing the study area and the scenarios are located at the end of the report

MODELING SUMMARY

- (1) The QRS II traffic model was used to forecast traffic circulation scenarios for the entire Carrboro Planning Jurisdiction. The traffic outputs provided by this model produced data sufficient to establish a general trend. The QRS II program utilizes a base population of between 50,000 and 100,000 people and assigns trip generation rates of 10 trips per household. The numbers written within the text below were rounded to the nearest whole number as compared to the attached modeled scenarios. Given the present assumptions and constraints of this model, the following characteristics of traffic circulation under the various scenarios are summarized as follows:

ANALYSIS OF SCENARIOS

1. Existing road system as of January 1, 1998

The modeled traffic counts indicate that there are 10,463 trips along Jones Ferry Road in the Willow Creek Shopping Center area, and 13,699 trips along NC 54 Bypass within the area of Westbrook Drive. The "outliers" included in this scenario are the Old Fayetteville Road segment between Jones Ferry Road and University Lake (2119 trips), as well as Westbrook Drive (3150 trips). The actual ground (traffic) counts for Westbrook Drive were recorded as 2425 trips. This discrepancy may be due to inaccurate socioeconomic data tabulated for the developments located along the Westbrook Drive system.

Existing Road	Modeled Traffic Counts
Jones Ferry Road	10,463 ADT
NC 54 Bypass	13,699 ADT
Old Fayetteville Road	2119 ADT
Westbrook Drive	3150 ADT

2. Existing road system, including the Carr Ridge Connection between Berryhill Drive and Old Fayetteville Road.

The traffic counts show that the connector system functions in accordance with the Policy as adopted in 1991. Traffic volumes along Westbrook Drive have also been reduced, which indicates that there is no "cut-through" activity occurring by commuters west and north of Old Fayetteville Road. Actual traffic volumes along Westbrook would be proportionately reduced to 2112 ADT. The chart below shows the counts for the connector configuration between Westbrook Drive and Old Fayetteville Road.

Roadway Connection	Modeled Traffic Counts
Westbrook Drive	2743 ADT
Carr Ridge Dr. (Berryhill DR over Tom's Creek)	883 ADT
Carr Ridge DR (connection to Old Fayetteville Rd.)	993 ADT
Old Fayetteville Road	2881 ADT

3. Existing road system, excluding the Carr Ridge connection between Berryhill Drive and Old Fayetteville Road, but including the connection of Carr Ridge as a cul-de-sac to the Old Fayetteville Road terminus.

The traffic counts listed within the chart on the next page indicate that traffic proportions along Westbrook remain fairly the same when no connection is provided. Traffic counts remain proportional within the Carr Ridge development

and along Old Fayetteville Road as traffic volumes increase upon reaching Jones Ferry Road.

ROADS (Without Connection)	Modeled Traffic Counts
Carr Ridge Road (cul-de-sac)	497 ADT
Old Fayetteville Road	2529 ADT
Westbrook Drive	3158 ADT

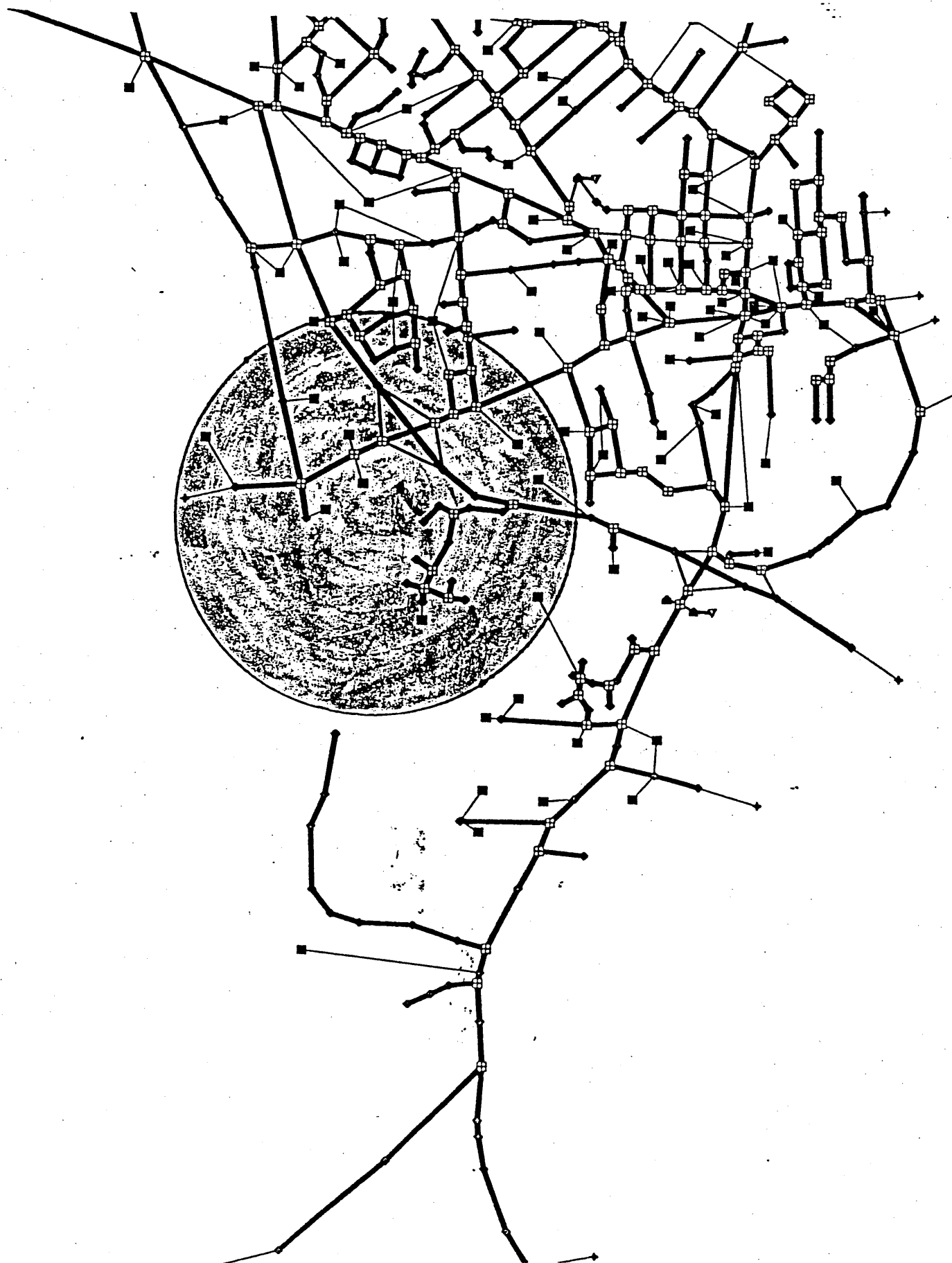
The models and the graphs as included indicate that the allowance of road connections, whether arterial, connector, or subcollector, has a direct impact upon the roads system. Less connections among the residential connector roads creates high volumes along the arterial road network. More connections among the residential connectors lessens the impact upon the arterial road network. Factors that influence road volumes include land use decisions, and socioeconomic conditions. Additionally, collector roads include opportunities for modal choice. The inclusion of sidewalks and bikelanes may further reduce motor vehicular traffic between Berryhill Drive and Jones Ferry Road. Officials from Chapel Hill Transit were shown the proposed connection between Berryhill Drive and Old Fayetteville Road. Chapel Hill Transit officials reviewed the proposal and noted that the opportunity for transit service to the Carr Ridge development looks acceptable. Residents in the Westbrook Drive area would have the opportunity to receive transit service in closer proximity to their homes.

THE REALITY OF MODELING

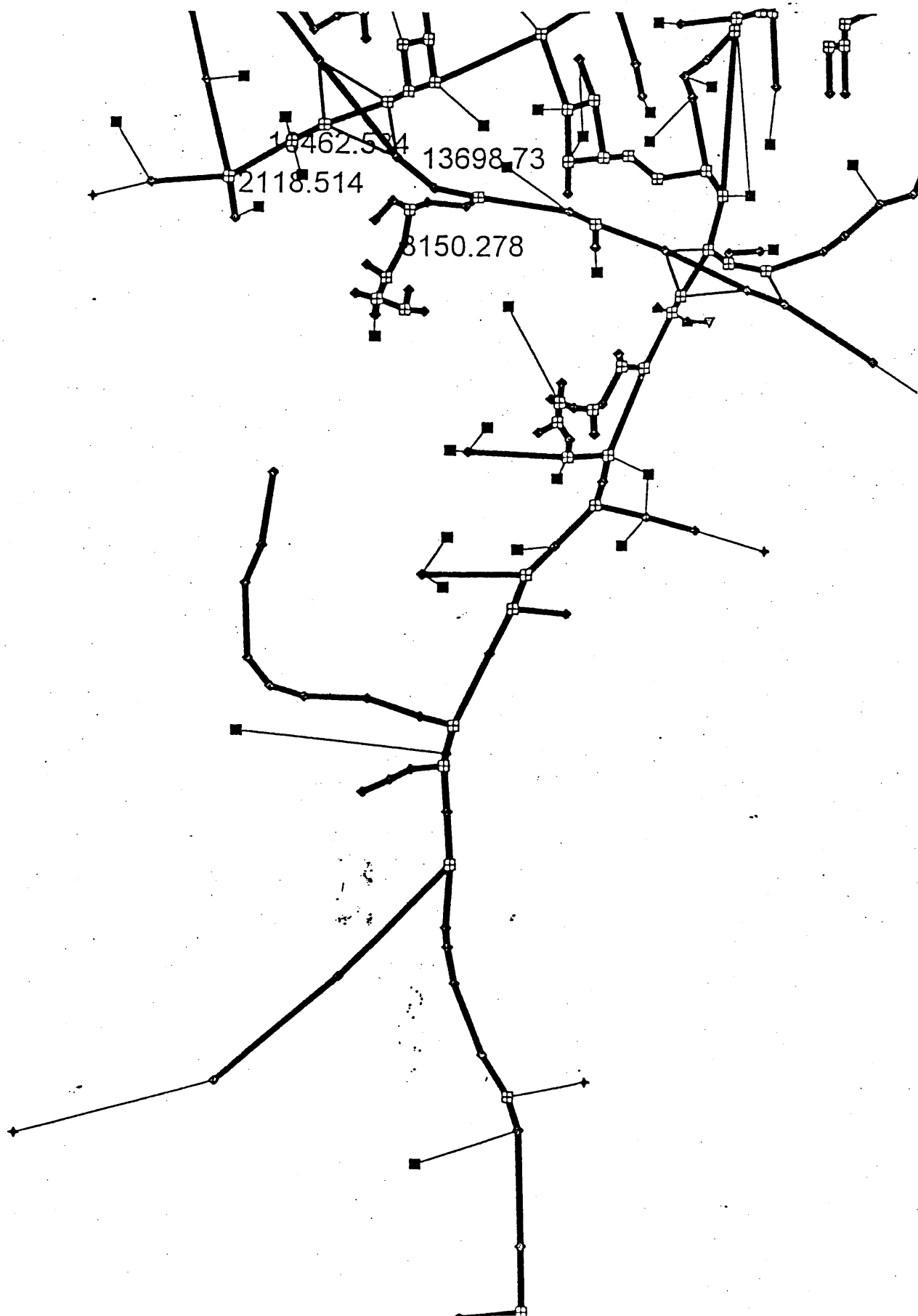
This modeling exercise validates the belief that more road connections lessen traffic impacts upon arterial roads. The models created, however, are based on assumptions. Mr. Kenneth A Spitz, author of the article "The Mythology of Modeling" states, "Traffic models are based on assumptions. The most important of these assumptions is projected land use. Land use estimates are generally based upon economic estimates. This means traffic model results are projections based on projections of projections... These assumptions can turn out to be nearly correct or just plain wrong". Therefore, traffic models (like those discussed) should be utilized as planning tools and not traffic plans.

The reason traffic modeling was developed was to help transportation officials determine future traffic demand on a regional basis (i.e. to locate the best route for an expressway, or whether to widen an arterial), as well as for developments that will have regional transportation impacts (i.e. shopping malls, stadiums, office centers, etc.). Today, traffic models are being used for site impact projects such as one hundred-home subdivisions. Mr. Spitz notes, "There are methods and standards already in place for the measure of impacts associated with such developments. The site impact study has a place in today's engineering and planning process which should not be supplanted by traffic models".

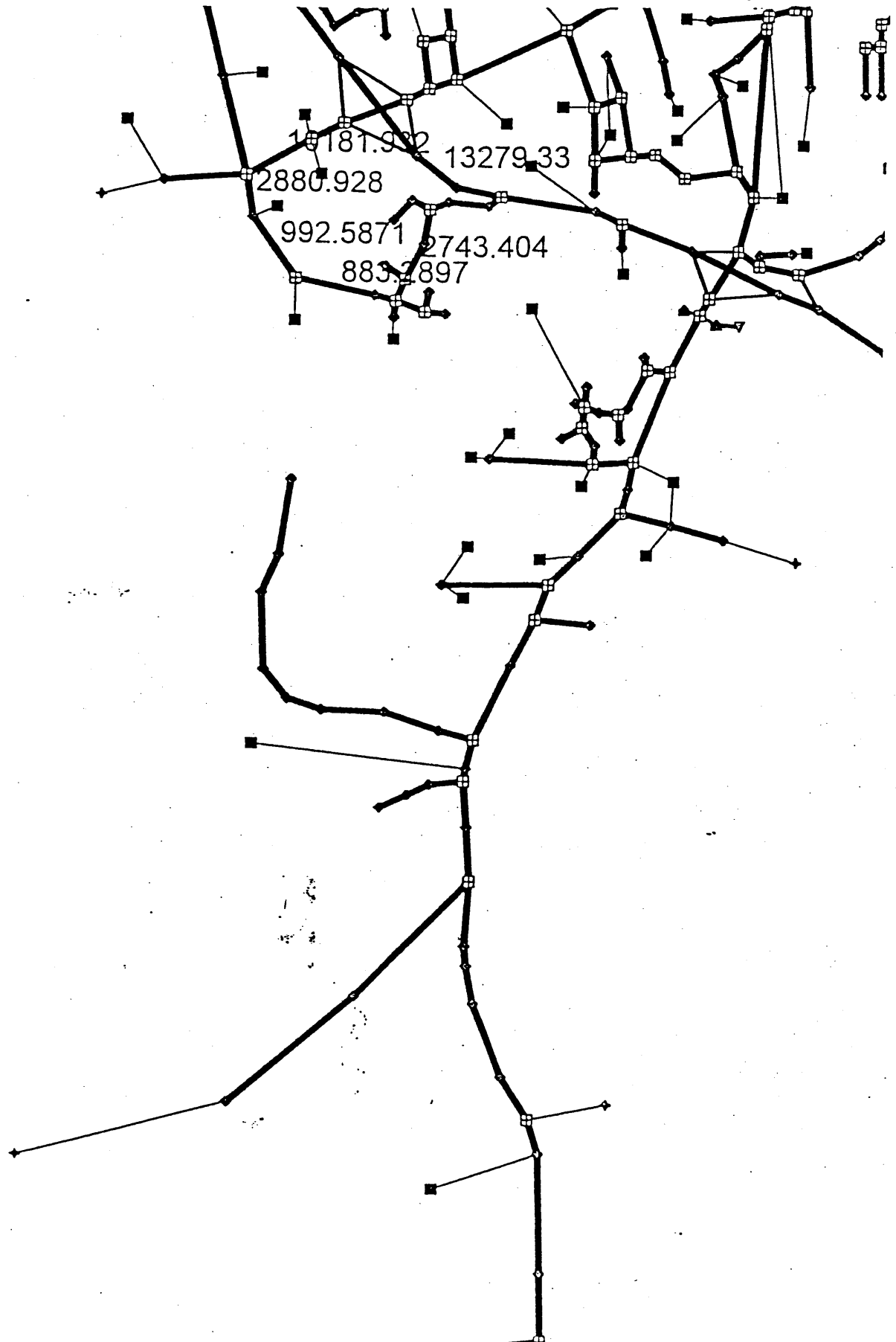
Carr Ridge Study Area



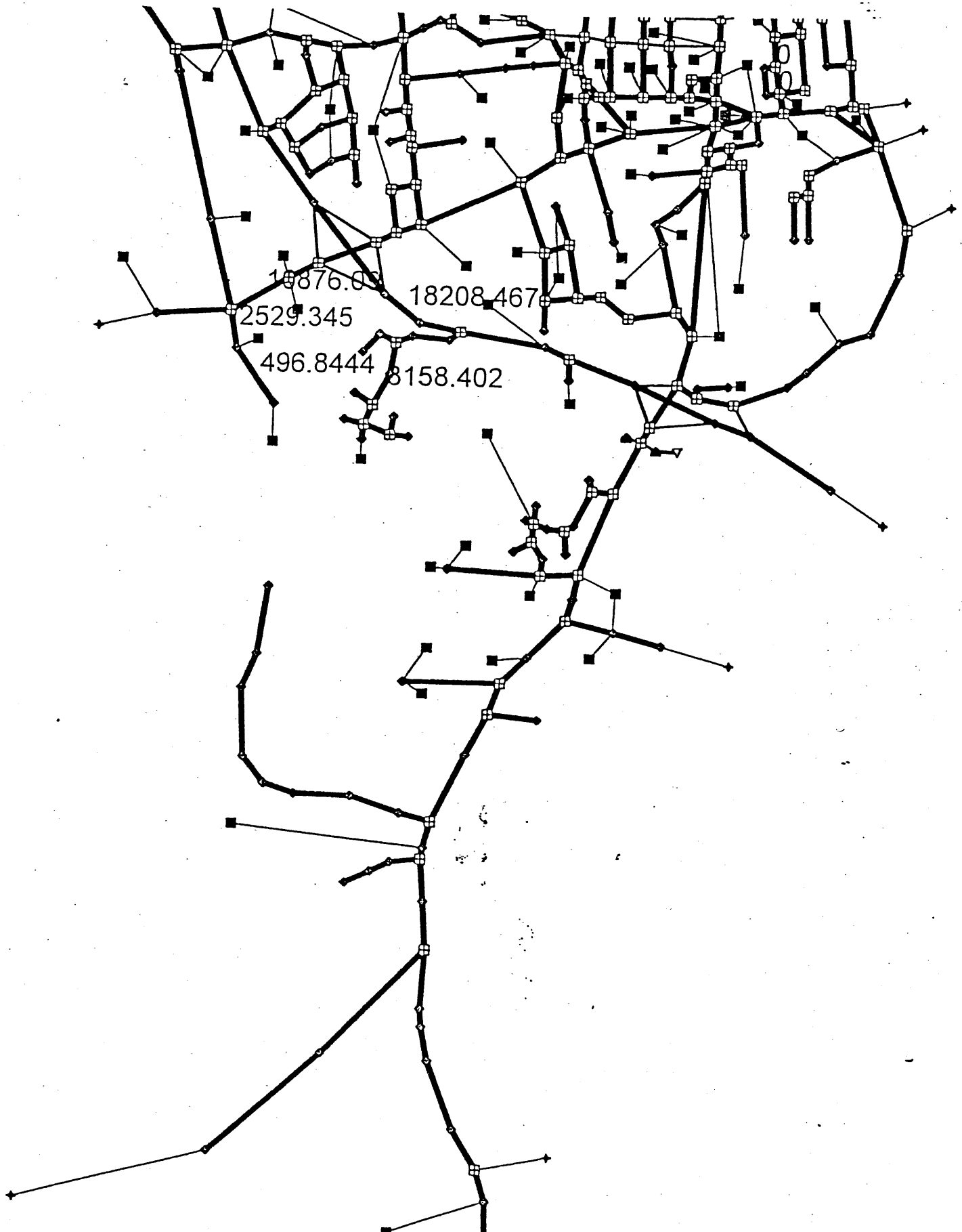
Carr Ridge Study - January 1, 1998¹⁰



Carr Ridge Study - With Connection



Carr Ridge Study - No Connection



EXECUTIVE SUMMARY

For Proposed Townhomes Development

The Berryhill Group is proposing to build 64 dwelling units of residential townhomes in the Town of Carrboro, North Carolina. The proposed development is located directly south of the NC 54 Bypass/Jones Ferry Road interchange and will have access to Jones Ferry Road by way of an extension of Old Fayetteville Road. The townhomes complex is anticipated to open in 2002 and this study is analyzed based on the year 2003, i.e., build year plus one.

Two access scenarios exist for this site. One possible scenario is to provide a single access via an extension of Old Fayetteville Road to Jones Ferry Road. The second possible scenario provides a connection between the Woodbridge and Berryhill communities by extending Berryhill Drive into Old Fayetteville Road. In addition to the Existing (year 2000) and No-Build (year 2003) analysis, two Build (year 2003) scenarios have been analyzed for the two possible access scenarios.

The capacity analysis indicated that no roadway improvements are required for this development since almost all intersections operate at LOS B or better, even under the Build scenarios. The immediate signalized intersection of Jones Ferry Road and Old Fayetteville Road will operate at a Level of Service (LOS) A during the PM peak hour and LOS B during the AM peak hour in the future scenarios. The four-way stop controlled intersection of Westbrook Drive at Berryhill Drive currently operates at LOS A and will continue to operate at LOS A in the future, even if a connector is built.

The only potential exception is the two-way stop controlled intersection of NC 54 bypass and Westbrook Drive. At this intersection, the northbound and southbound right turns experience LOS F conditions under existing conditions due to the heavy (2000+ vehicles) through traffic on NC 54 Bypass resulting in inadequate gaps to enter from the minor route. Regardless, overall LOS at the intersection should be acceptable since the majority of traffic (i.e., the NC 54 through traffic) passes with minimal delays.

The completion of the Berryhill connector would result in some through traffic on Berryhill Drive (approx. ___ vpd) due to traffic from the existing Berryhill and Westbrook neighborhood using the connector to reach Jones Ferry Road as well as to take a left turn onto NC 54. A very small number of through trips can be expected to cut through the neighborhood to avoid the NC 54/Jones Ferry Road interchange due to the relatively clear operations and the delays turning to/from Westbrook Drive onto NC 54.

Since minimal impacts are expected due to the low volume of trips generated with respect to the existing traffic volumes and the fact that all intersections operate at LOS C or better, no geometric or signalization improvements are required to provide acceptable intersection operations in the year 2003 with the development.

6.1 NO-BUILD SCENARIO

No-Build traffic was developed for 2003, the year following the scheduled year of completion for the new development. No-Build year intersection turn movement volumes were determined as follows.

- Growth rates and Build year were recommended by Phil Conrad, Town of Carrboro, based on historical rates and similar studies in the area of the site.
- The 2000 existing volumes (Figure 3) were increased by a four-percent annual growth rate. This growth rate was assumed to occur over the three-year period between 2000 and 2003. The annual growth rate factor was applied uniformly to all movements.
- There are no known approved or planned developments to consider in the vicinity of the site, therefore no additional background traffic was added.

The No-Build traffic volumes for the A.M. and P.M. peak hours are illustrated in Figure 6.

6.2 BUILD 1 SCENARIO (WITHOUT BERRYHILL DRIVE CONNECTOR)

The development of the 2003 traffic volumes with one access point, (i.e., the Build 1 scenario) included the following steps:

- The 2003 No-Build volumes (Figure 6) were used as a base to account for existing traffic
- The site generated trips without access to Berryhill Drive (Figure 7) were added to the 2003 No-Build volumes.

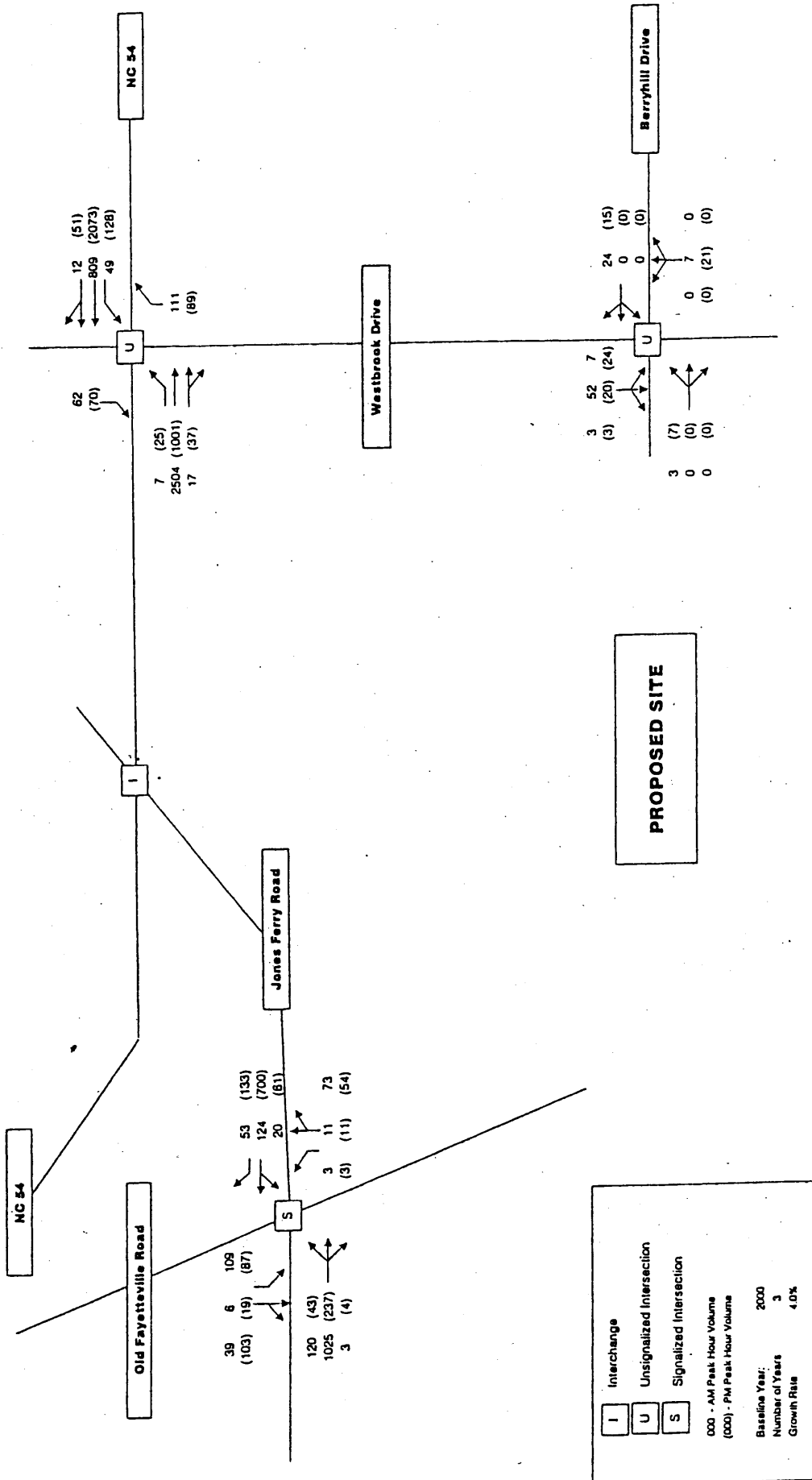
The Build 1 scenario (without the Berryhill Drive Connector) traffic volumes for the A.M. and P.M. peak hours are illustrated in Figure 8.

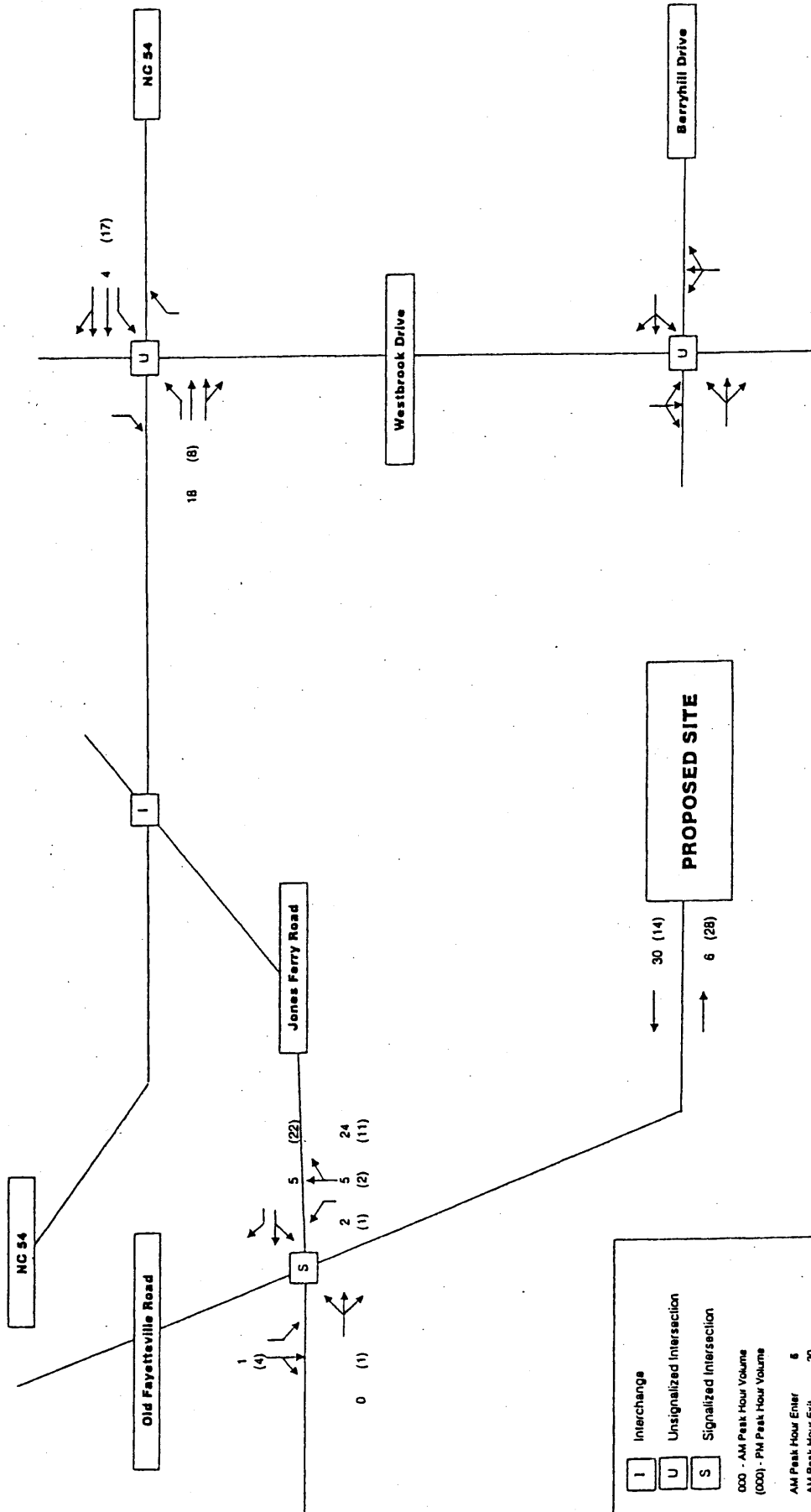
6.3 BUILD 2 SCENARIO (WITH BERRYHILL DRIVE CONNECTOR)

The development of the 2003 traffic volumes with two access points, (i.e., the Build 2 scenario) included the following steps:

- The 2003 No-Build volumes (Figure 6) were used as a base to account for existing traffic
- The site-generated trips with access to Berryhill Drive (Figure 9) were added to the 2003 No-Build volumes.
- The through trip diversion volumes (Figure 10) were added to the No-Build volumes and site trips. (For a more detailed discussion of the through trip findings refer to Section 6.4.

The Build 2 scenario (with the Berryhill Drive Connector) traffic volumes for the A.M. and P.M. peak hours are illustrated in Figure 11.

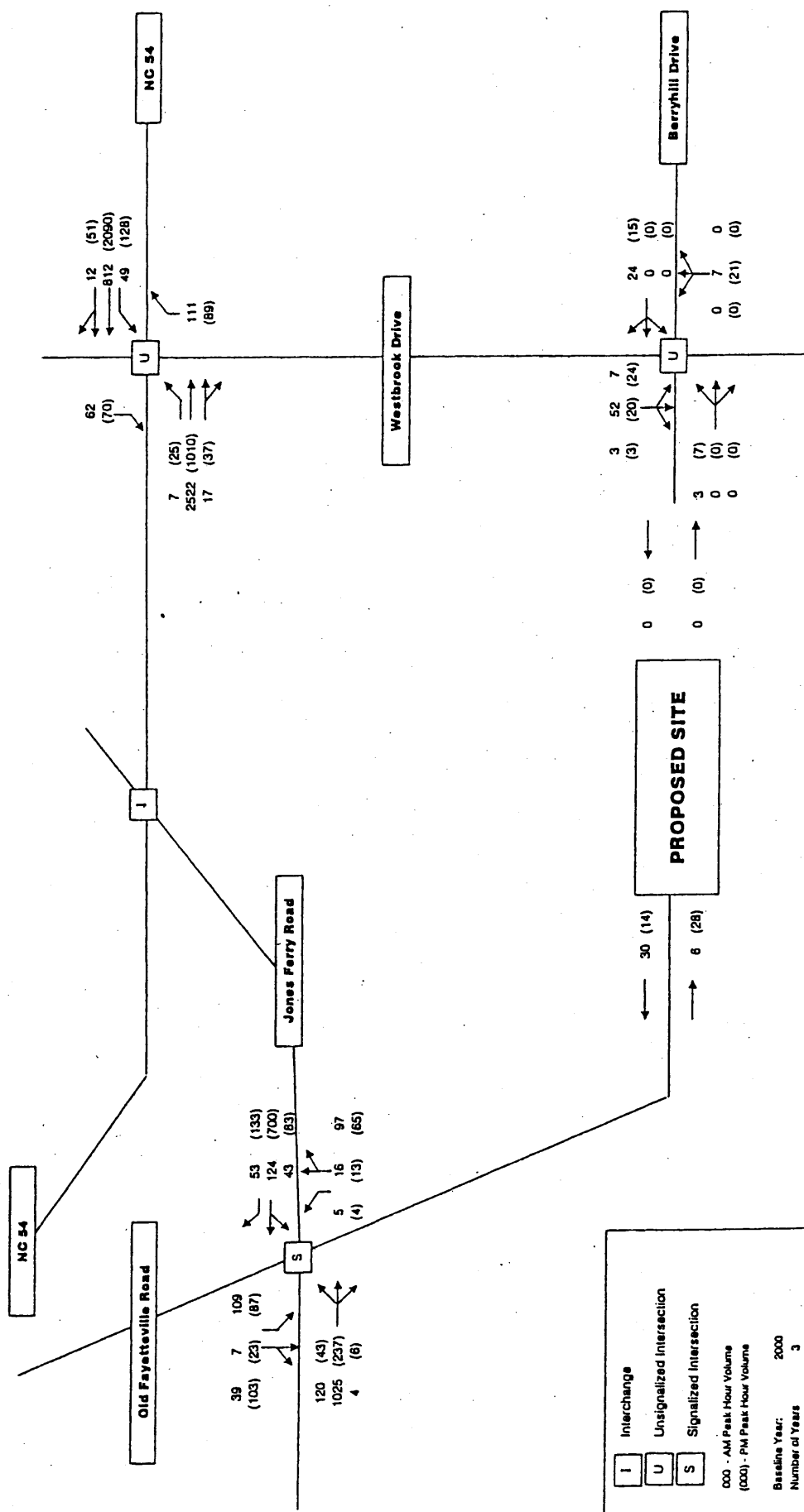




MORGAN RIDGE TOWNHOMES
TRAFFIC IMPACT STUDY
CARRBORO, NORTH CAROLINA

FIGURE 7
Site Trips Without
Access to Berryhill Drive

5



Legend:

- I** Interchange
- U** Unsignalized Intersection
- S** Signalized Intersection

Proposed Site Access:

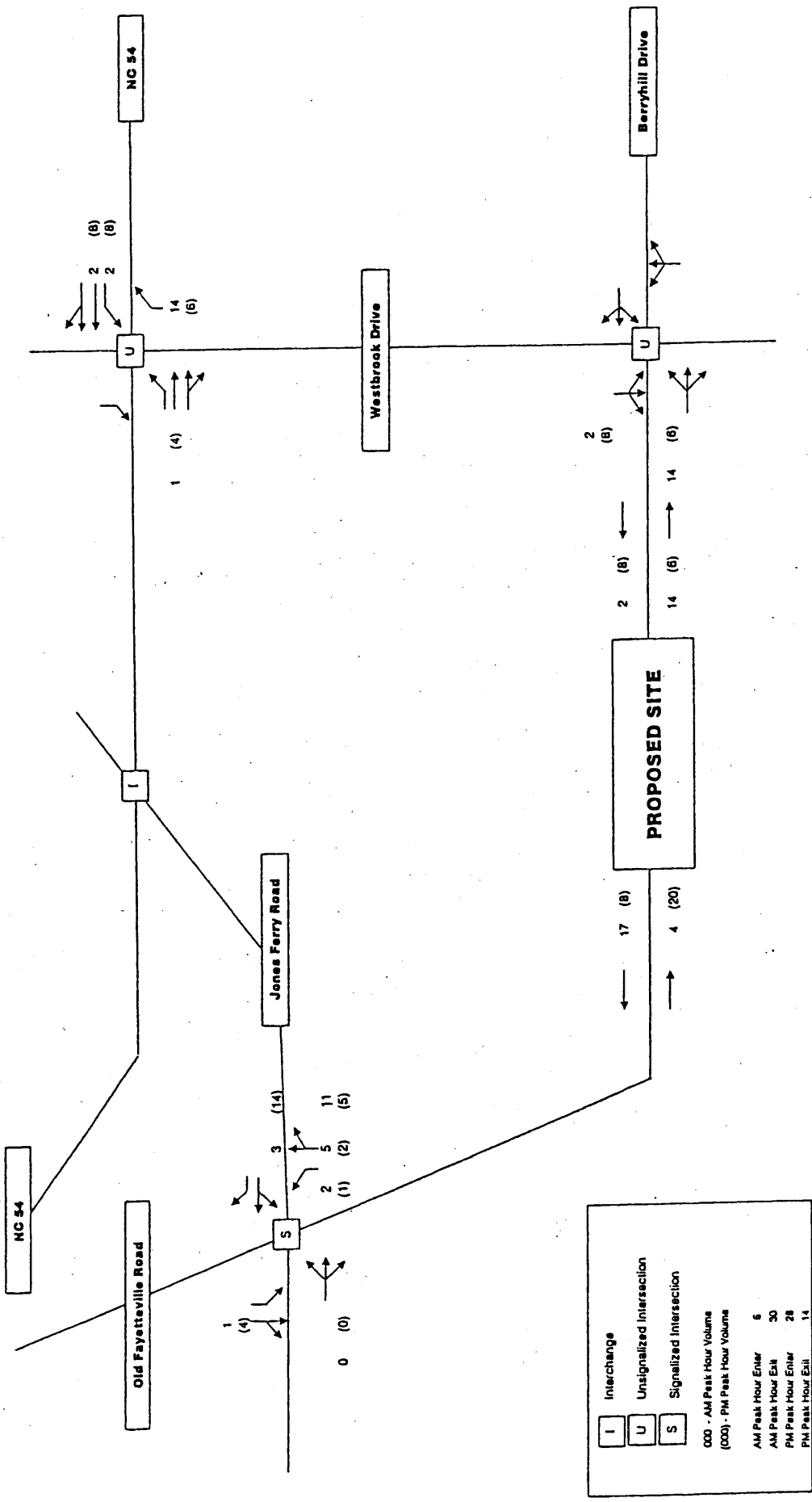
- From Jones Ferry Road: 30 (14) left, 6 (28) right

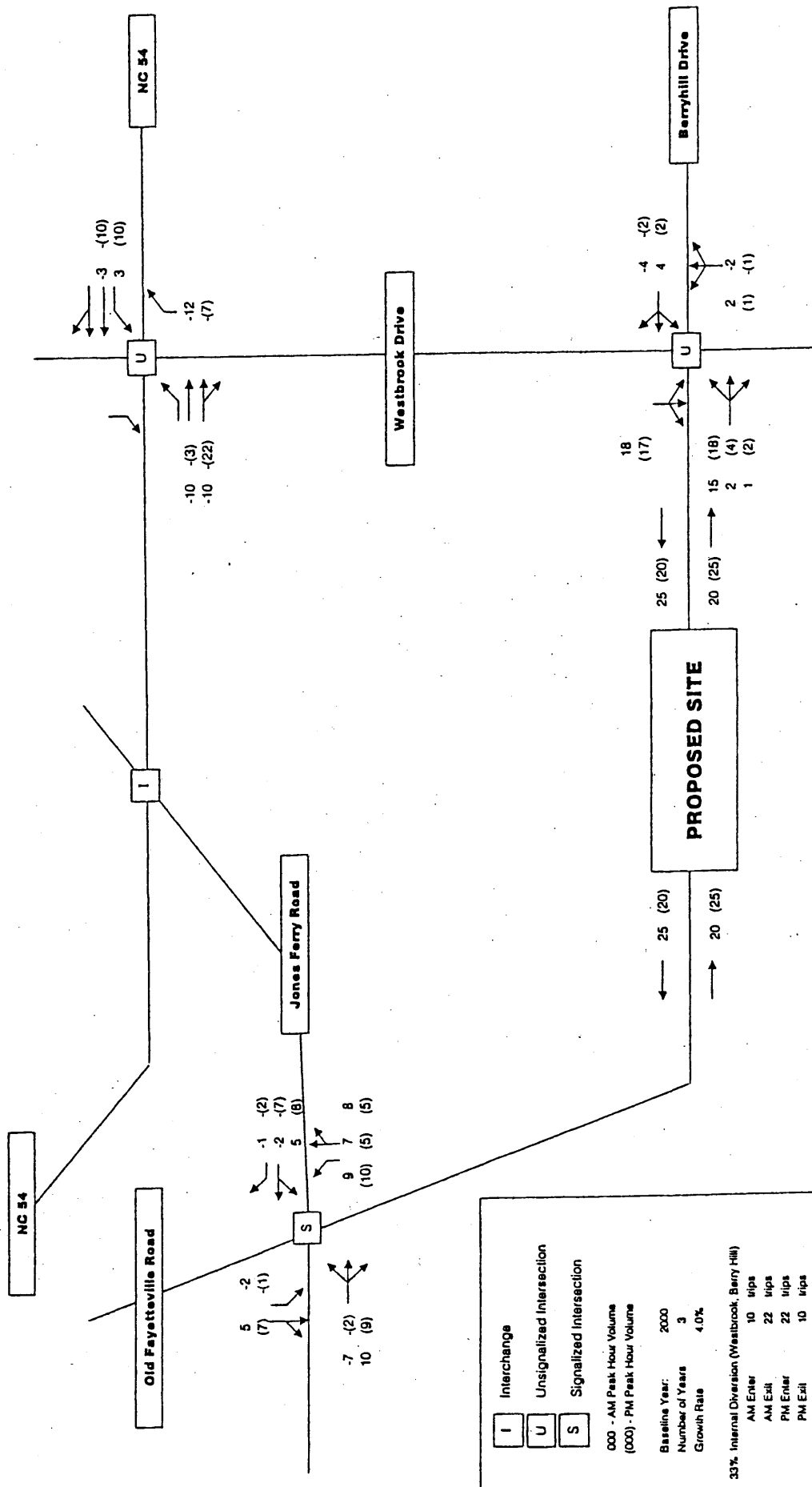
Intersections and Traffic Volumes (AM & PM Peak Hour):

- NC 54 / Old Fayetteville Road (I):**
 - NC 54 Northbound: 120 (43) left, 1025 (237) through, 4 (6) right
 - Old Fayetteville Road Southbound: 39 (103) left, 7 (23) through, 109 (87) right
- NC 54 / Jones Ferry Road (S):**
 - NC 54 Northbound: 53 (133) left, 124 (700) through, 43 (83) right
 - Jones Ferry Road Southbound: 5 (4) left, 16 (13) through, 97 (65) right
- NC 54 / Westbrook Drive (U):**
 - NC 54 Northbound: 62 (70) left, 7 (25) through, 2522 (1010) right
 - Westbrook Drive Southbound: 17 (37) left, 111 (88) through, 49 (128) right
- Westbrook Drive / Berryhill Drive (U):**
 - Westbrook Drive Northbound: 3 (3) left, 52 (20) through, 7 (7) right
 - Berryhill Drive Southbound: 24 (15) left, 0 (0) through, 0 (0) right
- Proposed Site / Berryhill Drive (U):**
 - Proposed Site Northbound: 0 (0) left, 0 (0) right
 - Berryhill Drive Southbound: 3 (7) left, 0 (0) through, 0 (0) right

FIGURE 8
Build 1 (Year 2003) AM & PM Peak Hour
Without Access to Berryhill Drive

FIGURE 9
Site Trips With
Access to Berryhill Drive



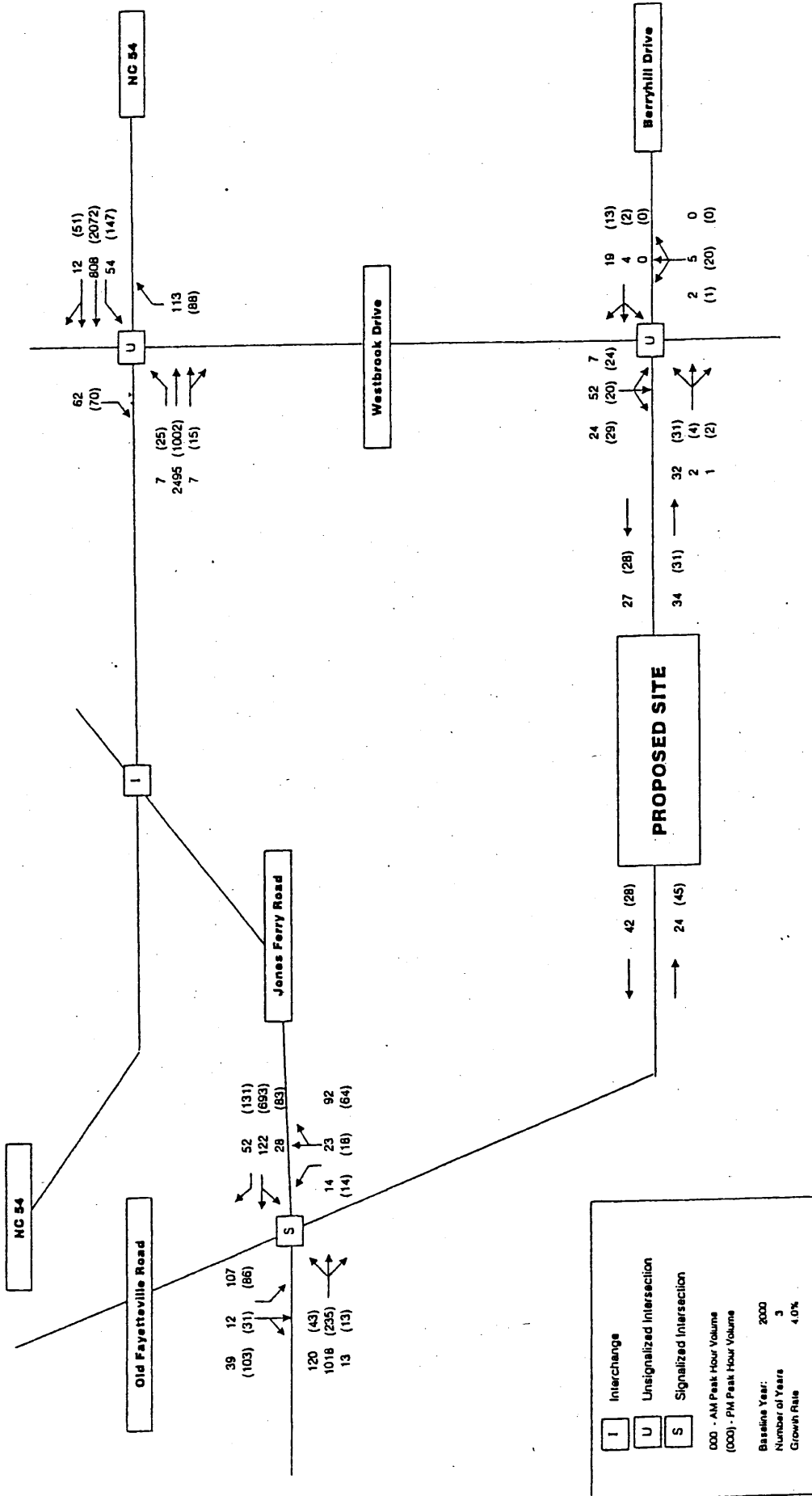


MORGAN RIDGE TOWNHOMES
 TRAFFIC IMPACT STUDY
 CARRBORO, NORTH CAROLINA

FIGURE 10
 Thru Trip Diversion
 Turning Movement Volumes

MORGAN RIDGE TOWNHOMES
TRAFFIC IMPACT STUDY
CARRBORO, NORTH CAROLINA

FIGURE 11
Build 2 (Year 2003) AM & PM Peak Hour
With Access to Berryhill Drive



6.4 THROUGH TRIPS WITH THE BERRYHILL DRIVE CONNECTOR

If the Berryhill Connector is constructed, an additional link is created in the roadway network allowing for through trips to pass through the Berryhill Drive/Westbrook Drive neighborhoods. An in-depth analysis indicated that there would be two primary types of through trips on the new connector – (1) true through trips cutting from Jones Ferry Road to NC 54 and (2) trips from the Berryhill Drive/Westbrook Drive neighborhood electing to use the new access instead of the existing Westbrook Drive access to NC 54. The through trip diversion is presented in Figure 10.

True through trips are those vehicles which would use the new connector to "cut-the-corner" in passing between Jones Ferry Road and NC 54. If heavy congestion occurs on the eastbound ramp onto NC 54 Bypass, then it is possible that vehicles may attempt to go through the local neighborhood roads for a time savings. At the present time, it appears that a very small portion of vehicles would use this connector as a cut-through. The path to NC 54 by way of Old Fayetteville Road and Westbrook Drive is a longer distance, has a lower speed limit, and has other factors such as stop signs, high grades, and more access points that would not be desirable for cut-through traffic. Most importantly, the access point at Westbrook Drive and NC 54 is subject to severe congestion during the peak period resulting in significant delays. To be conservative, however, we did allow for 1 percent of trips from Jones Ferry Road to use this cut-through. This treatment created 10 trips in the peak direction and 3 trips in the off-peak direction.

Higher volumes of through trips are anticipated to originate from traffic currently using the Berryhill Drive/Westbrook Drive neighborhood that now elect to use the new access on Jones ~~Franklin~~ ^{Ferry} Road. In addition to heavy delays at the sole existing access to this neighborhood, vehicles heading west on NC 54 Bypass from Westbrook Drive are currently forced to turn right and do a subsequent U-turn upstream on NC 54. If the destination of drivers is Old Fayetteville Road or Jones Ferry Road, drivers will have the option of avoiding the traffic and U-turn on NC 54 and now use the connector road to the signalized Old Fayetteville Road intersection. Traffic operations at this intersection is LOS A whereas vehicles turning right onto NC 54 in the AM witness a level of service F. During peak periods it is estimated that 33 percent of vehicles that currently using NC 54 will instead use Old Fayetteville Road to enter the main roadway network. This results in a 22-trip increase on the connector in the peak direction and a 10-trip increase in the non-peak direction for both AM and PM peak hours.

The result of this increase would be an average daily traffic of between 300 and 450 vpd on the connector. Along Westbrook Drive, the change in volumes would be the same near the Berryhill

Drive intersection but fall to a net decrease near NC 54 as local neighborhood traffic is diverted to the other route.

7. FUTURE LEVEL OF SERVICE ANALYSIS

The traffic volumes computed for the four scenarios were used to conduct an intersection capacity analysis in the same manner that the existing intersections were examined. The LOS results are summarized in Table 4 and Appendix C.

Table 4 Future Levels of Service Results Comparison

Existing, No-Build, & Build Analyses

Intersection	Existing		No-Build		Build 1 No Connector		Build 2 With Connector	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
<i>Signalized</i>								
Jones Ferry Road at Old Fayetteville Road	A	A	B	A	B	A	B	A
<i>Unsignalized</i>								
NC 54 Bypass at Westbrook Drive	NBR - F	NBR - B	NBR - F	NBR - B	NBR - F	NBR - C	NBR - F	NBR - B
	SBR - B	SBR - D	SBR - B	SBR - E	SBR - B	SBR - E	SBR - B	SBR - E
	WBL - A	WBL - C	WBL - A	WBL - D	WBL - A	WBL - D	WBL - A	WBL - D
Westbrook Drive at Berryhill Drive	A	A	A	A	A	A	A	A

Legend: X = intersection level of service; (Mvmt. - X) = movement level of service

The overall PM peak level of service remains at LOS A for the Jones Ferry Road at Old Fayetteville Road intersection for all conditions, however the AM Peak worsens to an LOS B for all three future conditions (i.e., both Build and No-Build conditions). Regardless, LOS B represents very good operations with minimal delays. Note that the timings for this intersection have been optimized to achieve the best level of service and may vary from timings installed in the future. The actual AM existing intersection delay per vehicle is 9.1 seconds and worsens to 13.3 seconds per vehicle in the Build 2 scenario.

Despite the increase of vehicles during both the AM and PM peak resulting from the site and through trips, the level of service at the Westbrook Drive at Berryhill Drive four way stop intersection remained LOS A in all directions with the connector in place.

The primary location for congestion was at the NC 54 Bypass intersection with Westbrook Drive. The critical movement is the northbound right onto NC 54 which operates at LOS F in the AM peak under both existing and future conditions. Under the existing condition, the analysis indicated that there is 67 seconds of delay. Due to projected increases in NC 54 traffic, the delay increases to just over 200 seconds in the No-Build and both Build scenarios. The extra delay is due to a reduction in the number of gaps on NC 54. Note that the other minor movements from the intersections operate at LOS E in all cases.

Despite the LOS F operations no improvements are proposed because:

- The critical turning movement is operating at LOS F under existing conditions and will continue in the future.
- Under both Build scenarios, the increase in delays for the critical movement is less than one percent.
- The turning volume is a relatively small volume of traffic.
- The intersection has already been improved to prevent left turns from crossing NC 54 from the minor roadways.
- LOS F is often acceptable in urban conditions.
- Signalization, even if warranted, would not be acceptable so close to the merging ramps from the Jones Ferry Road interchange.
- The existing bus stop just east of the intersection can (and does) serve as an acceleration lane for right turning traffic when not used by buses.

8. FINDINGS AND CONCLUSIONS

All intersections are projected to operate at LOS C or better in 2003 with the addition of the proposed Morgan Ridge Townhomes development. Therefore no geometric or signalization improvements are necessary for the network to function adequately in the year beyond the build year.

The only movement anticipated to experience significant delay (i.e., LOS F) is the northbound right at the NC 54 Bypass intersection with Westbrook Drive. These movements currently experience a poor LOS and will worsen in the future primarily due to the expected growth on NC 54. Having the connector present would provide vehicles an alternative to reaching NC 54 without the substantial delay at the Westbrook Drive intersection. A consequence of this connector, however, would be increased trips during the peak hours and other periods during the day along Berryhill Drive. In conclusion, minimal impacts are expected due to the additional development, mainly due to the low volume of trips generated with respect to the existing traffic volumes.



Sungate Design Group, P.A.

ENGINEERING • LANDSCAPE ARCHITECTURE • ENVIRONMENTAL

915 Jones Franklin Road • Raleigh, NC 27606 • Phone 919.859.2243 • Fax 919.859.6258

October 17, 2001

Memorandum

To: Chris Murphy
Development Review Administrator

From: Henry Wells
Town Engineer

Re: Morgan Ridge Townhomes – Stormwater quantity and quality.

We have completed the review of the design for the stormwater facility for the proposed Morgan Ridge Townhomes. We have determined that the revised design submitted for review has now satisfactorily addressed Section 15-263 of the Town of Carrboro Land Use Ordinance. Details of the design are outlined below:

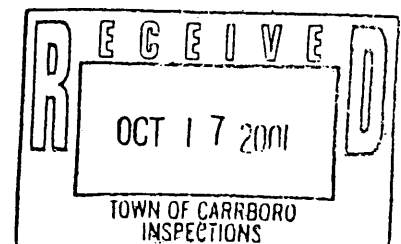
Stormwater Quantity

The design engineer has performed a Stormwater analysis comparing the pre and post construction Stormwater for the Morgan Ridge Townhomes property. The Morgan Ridge Townhomes has a total drainage area of 25.16 acres and a pre construction peak rate of flow during the 10-year storm of 43.7 cubic feet per second (cfs). The developed area is being routed through a Stormwater Quality Pond, which will provide some detention. This detention will limit the post construction peak rate of flow to 53.6 cfs during the 10-year storm. The drainage area for Morgan Creek at this location is 34 square miles (21760 acres) and has a peak rate of flow during the 10-year storm of 4870 cfs. The increase of 9.9 cfs from the Morgan Ridge Townhomes is insignificant when compared with Morgan Creek.

Stormwater Quality

The stormwater runoff from the developed areas of the Morgan Ridge Townhomes will be routed through a Stormwater Quality Pond prior to being released into Morgan Creek. The stormwater from the Berryhill Drive Extension will also be treated by using grass swales, level spreaders, and filter strips. These devices (Stormwater Quality Pond, grass swales, level spreader, and filter strip) were designed to meet the requirements outlined in the N.C. Department of Environment and Natural Resources (NCDENR) publication entitled Stormwater Best Management Practices. They collect 95% of the proposed site impervious areas, and according to NCDENR will reduce the amount of contaminants in the stormwater by 85%. It has been determined that by following the minimum requirements as set forth by NCDENR, the requirements of Section 15-263 have been satisfied.

If you have any questions or need further information, please contact me.



ORANGE COUNTY PLANNING & INSPECTIONS DEPARTMENT

POST OFFICE BOX 8181 306-F REVERE ROAD
HILLSBOROUGH, NORTH CAROLINA 27278



EROSION CONTROL DIVISION

Carrboro & Chapel Hill 968-4501 Durham 688-7331 Hillsborough 732-8181 Mebane 227-2031
Telephone Extension 2586 Fax (919) 644-3002
Direct Line 245-2586

March 15, 2001

Chris Murphy
Town Of Carrboro
301 West Main Street
Carrboro, North Carolina 27510

Re: Morgan Ridge Townhomes

Dear Chris:

I have reviewed the proposed erosion and sediment control plan for this project. A revised plan has been submitted to this office by Ballentine Associates, P.A. The plan dated 13 March 2001 has preliminary approval from Orange County Erosion Control.

Please note that my extension has changed to 2586 and the direct line is 245-2586.

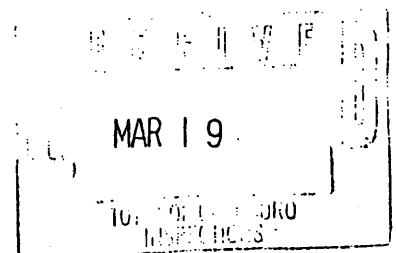
Sincerely,

A handwritten signature in black ink, appearing to read "Ren Ivins".

Reynolds J. (Ren) Ivins
Erosion Control Supervisor

XC: Peyman Yaghmaee, Ballentine Associates, P.A.

G:\ivins\newwork\carrboro\morganridge\comment2



Chris Murphy

From: David Poythress
Sent: Friday, July 27, 2001 1:49 PM
To: Chris Murphy
Cc: M.C. Peterson
Subject: Morgan Ridge Townhomes

Per request with reference to proposed future Public Maintained Pedestrian/Bike Path. I did look back over some of the completed Bikepath Projects constructed and ones proposed for the future - Roberson Place; and found easement widths varied. I did conclude that most of these did not have the topographic or vegetative type conditions as possibly the Tom's Creek Area.

Just to give you an idea; Libba Cotton - 20'; PTA - 14' but we had some Temporary construction easements; Frances Shelley - since there was already shown a 60' r-o-w for future extension of Elm St. , we used what we needed but kept limits pulled in to about 30' disturbance; Roberson Place - its not clear on plans that I have but it looks like we are going to use either all or part of OWASA 30' easement. Roy Williford or James Harris may be more definitive since they have worked on this some.

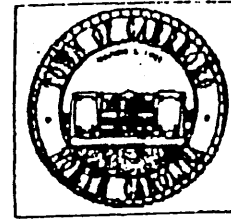
The Bikepath Width for the last two completed projects - PTA and Frances Shelley was 12' pavement width with a minimum of 2' shoulders. Pavement structure varied some; the last two required 4" of H-binder asphalt with 1.5" of I-2. I do know that 4" of Binder equals 8" of stone base so far as a structural equivalent.

I did return Mr. Brandewie's phone call with the following information. Right-of-Way minimum is 20' to allow for some meandering due to topographic or vegetative features along the length. Bikepath usable width is to be 13' leaving a 12' travel area with 2' shoulder widths. This would facilitate potential future paving since the 12' pavement can be placed leaving 6" extending beyond the pavement edges for pavement edge support.

Since, as I understand, the Town may in the future pave this facility, I indicated he needed to provide a minimum of 6" depth compacted ABC with 4" of compacted rock screenings. This would give us some flexibility regarding future development of the path and would provide a suitable accessible walk/running path for the time being.

David Poythress
Street Superintendent
Carrboro Public Works
Carrboro, N.C. 27510
dpoythress@ci.carrboro.nc.us
Office - 918-7432 Pager - 216-1901

TOWN OF CARRBORO



TO THE BOARD OF ALDERMEN OF THE TOWN OF CARRBORO:

DUE TO PROPOSED LAND DISTURBING ACTIVITY TO TAKE PLACE ON
PROPERTY LOCATED ~~AT~~ BETWEEN:

Old Fayetteville Rd and Berryhill Drive stubs out

TO BE CALLED Morgan Ridge Townhomes

AND TAX MAP REFERENCED AS 7.116..6;

I, James Brandewie, REPRESENTING Berryhill Group, LLC,

SUBMIT THIS NEIGHBORHOOD MEETING FORM TO ACKNOWLEDGE THAT:

[PLEASE CHECK THE APPROPRIATE BOX BELOW.]



A MEETING WAS HELD WITH THE MEMBERS OF THE NEIGHBORHOOD ON
April 4th, 2001.



Residents, up to 1000 feet of the property, were notified of the
neighborhood meeting.



A MEETING WAS NOT HELD WITH THE MEMBERS OF THE
NEIGHBORHOOD.

THIS NEIGHBORHOOD MEETING FORM IS RESPECTFULLY SUBMITTED TO THE
TOWN STAFF ON THIS 5th DAY OF April, 2001.

By affixing my signature, I attest to the accuracy of the submitted information

James A. Brandewie
Berryhill Group, LLC

Signature



PLANNING BOARD

301 West Main Street, Carrboro, North Carolina 27510

RECOMMENDATION

NOVEMBER 1, 2001

Conditional Use Permit Request:
Architecturally Integrated Subdivision to Create
Sixty-four Multi-family Townhomes to be Located at 501 Berryhill Drive

MOTION WAS MADE BY STAN BABISS AND SECONDED BY ANDE WEST THAT THE PLANNING BOARD RECOMMENDS THAT THE BOARD OF ALDERMEN APPROVE THE CONDITIONAL USE PERMIT REQUEST TO ALLOW THE DEVELOPMENT OF AN ARCHITECTURALLY INTEGRATED SUBDIVISION (AIS) TO CREATE SIXTY-FOUR (64) MULTI-FAMILY TOWNHOME LOTS TO BE LOCATED AT 501 BERRYHILL DRIVE SUBJECT TO THE CONDITIONS RECOMMENDED BY STAFF AND TO THREE (3) ADDITIONAL CONDITIONS:

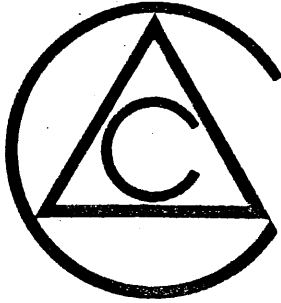
- I. THAT, CONTINGENT UPON THE ACCEPTANCE OF THE PROJECT WITH THE CURRENT LOCATION AND NUMBER OF UNITS PER THE PROJECT PROPOSAL, THE DEVELOPER WILL DEDICATE THE FLOODPLAIN TO THE TOWN OF CARRBORO AS A GREENWAY EASEMENT.
- II. THAT THE PROJECT PLANS RETAIN THE PROPOSED EXTENSION OF A PUBLIC STREET BETWEEN OLD FAYETTEVILLE ROAD EXTENSION AND BERRYHILL DRIVE.
- III. THAT, WHERE MORGAN CREEK CONNECTS WITH TOM'S CREEK, THE TOWN OF CARRBORO SHOULD WORK WITH THE DEVELOPER TO BALANCE THE PRESERVATION OF THE NATURAL AREA AND THE CONSTRUCTION OF THE PLAY FIELD.

VOTE: AYES (8) (BABISS, HAVEN-O'DONNELL, HOGAN, MARSHALL, POULTON, SEARING, TREAT AND WEST; NOES (0); ABSENT/EXCUSED (2) BATESON AND SNIDER:

Adam Searing, Chair

(date)

Town of Carrboro / Carrboro Appearance Commission / Carrboro, North Carolina 27510



THURSDAY, NOVEMBER 1, 2001

MORGAN RIDGE TOWNHOME CONDITIONAL USE PERMIT APPLICATION, 501 BERRYHILL DRIVE

The Appearance Commission Advisory Board hereby recommends denial of the Conditional Use Permit application for the Morgan Ridge Townhomes project for the following reasons:

1. The project is too dense as proposed, which necessitates a heterogeneous mixture of housing alignments. The Commission noted that a reduction in the number of units would allow for a design in which a more desirable housing alignment pattern could emerge (i.e.- all units could face the same direction, thereby eliminating the existing pattern consisting, in many cases, of fronts of houses facing the rears and/or sides of other houses);
2. The project contains no thoughtful architectural theme or character. Specifically, the Commission objected to the inclusion of projecting staircases, the variations in heights of buildings as related to topography, and the over-abundant mixture of architectural details;
3. The inclusion of a playfield area overlooking the creek will substantially diminish the natural beauty of the area.

If the project were to be approved, the Appearance Commission recommends the following, in addition to staff's recommendations:

1. That the playfield be eliminated and that the developer complete a payment-in-lieu to satisfy the appropriate number of recreation points;
2. That an alternate, non-invasive plant species be substituted for the proposed *Elaeagnus (elaegnus pungens)*.

VOTING:

AYES: 3 (Chuck Morton, Gail Gillespie, and Wendy Wenck)

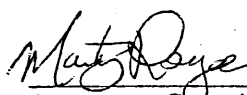
NOES: 1 (Catherine DeVine)

Members Present (4):

Chuck Morton, Gail Gillespie, Catherine DeVine, and Wendy Wenck

**Members Absent or
Excused (5):**

Leslie Rountree, Richard Taylor, Ruben Hayes, Karin Mills, and Joal Hall
Broun (Board Liaison)

 (on behalf of the AC)
Appearance Commission Chair

11-8-01
Date

TRANSPORTATION ADVISORY BOARD**RECOMMENDATION****November 1, 2001****SUBJECT:** Conditional Use Permit for Morgan Ridge Townhomes

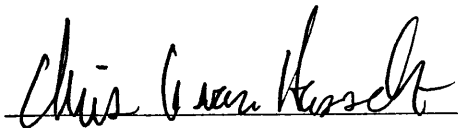
Motion: The Transportation Advisory Board (TAB) recommends that the Board of Aldermen approve the Conditional Use Permit with staff conditions. The TAB also makes three additional recommendations, as follows:

1. The location of crosswalks should be shown (1) at the entrances to the development off Berryhill Drive and (2) where pedestrian pathways cross private roads within the development.
2. The surface of pedestrian pathways should be Chapel Hill gravel.
3. Two more bike racks should be included in the development, and these should be centrally located near buildings.

Moved: Ms. Ellen Perry

Second: Mr. Andreas Hay

VOTE: Ayes (van Hasselt, Lane, Marshall, Shay), Noes (None)


TAB Chair

11 / 5 /01
DATE



TOWN OF CARRBORO

ENVIRONMENTAL ADVISORY BOARD

Meeting on November 12, 2001 at 7:30 p.m.
at the Carrboro Town Hall
Carrboro, North Carolina

RECOMMENDATION

MORGAN RIDGE TOWNHOUSES

MOTION WAS MADE BY KEITH BURWELL AND SECONDED BY SCOTT POHLMAN THAT THE ENVIRONMENTAL ADVISORY BOARD RECOMMENDS THAT THE BOARD OF ALDERMEN APPROVE THE REQUEST FOR THE CONDITIONAL USE PERMIT OF THE MORGAN RIDGE TOWNHOUSES WITH THE FOLLOWING RECOMMENDATIONS:

1. THE BALLFIELD BE ELIMINATED AND THE DEVELOPER COMPLETE PAYMENT-IN-LIEU TO THE TOWN FOR THESE RECREATION POINTS.
2. RELOCATE THE "TOT LOT" TO A SAFER AND MORE POTENTIALLY BENIGN LOCATION TO PREVENT EROSION AND PROTECT THE FLOODPLAIN. THE PROPOSED LOCATIONS ARE BETWEEN UNITS #9 & #48 OR #32 & #40 OR #15 & #41.
3. THE PROPOSED BRIDGE BE CHANGED TO PRESERVE AND MAXIMIZE THE WILDLIFE CORRIDOR, MINIMIZE IMPACT ON THE CREEK BED AND STREAM FLOW AND, IN THE FUTURE, THAT THE BOARD OF ALDERMEN CONSIDER REQUIRING THAT SPAN-TYPE STRUCTURES BE USED IN ALL CROSSINGS OF SIGNIFICANT STREAMS.
4. THE WALKING PATH REMAIN GRAVEL AND NOT BE PAVED IN THE FUTURE.
5. THE EROSION CONTROL MEASURES BE CLOSELY MONITORED ON THE MORGAN CREEK SIDE OF THE PROJECT.
6. THE STREAM BUFFER BE INCREASED TO A NET 50 FEET IN WIDTH WHEREVER THE WALKING PATH IS LOCATED IN CLOSE PROXIMITY.

VOTE: AYES (4) (Brown, Burwell, Gallagher, Gore, Pohlman); NOES (0); ABSENT/EXCUSED (2) (High, Matthews).

Glynis Gore, Chair

(date)

SUMMARY SHEET OF STAFF AND ADVISORY BOARD RECOMMENDATIONS

CONDITIONAL USE PERMIT— MORGAN RIDGE TOWNHOMES

Recommended by	Recommendations
1. Staff, EAB, PB and TAB	That the Board of Aldermen approve the Conditional Use Permit to allow major subdivision (Use 26.100) of multi-family townhome lots (Use 1.321) at 501 Berryhill Drive with conditions.
2. Staff, EAB, PB, and TAB	That unless the open space portion of the property on the north side of Berryhill Drive is dedicated to the Town of Carrboro as public open space, a 20' bike and pedestrian access easement should be provided across the property in manner that will allow the Tom's Creek greenway to 'mesh' with other upstream components of the greenway (i.e., the easement should tie into the easement of the property to the north).
3. Staff, EAB, PB, and TAB	That the Board may want to request that the applicant incorporate an extra, land-based, half-barrel culvert into the road design at the crossing of Tom's Creek to aid pedestrians, bicyclists, and wildlife.
3. Staff, EAB, PB, and TAB	That no additions or interior renovations designed to increase the heated square footage of the size-limited units can be approved/completed within the first year following the issuance of the Certificate of Occupancy (CO) per Section 15-188(e). This statement must also be included on the recorded final plat and reference the applicable 'size-limited unit' lots.
4. Staff, EAB, PB, and TAB	That a "No Rise Certification" will be obtained by the developer from FEMA through the CLOMR process for the Tom's Creek crossing prior to the construction plans being approved.
5. Staff, EAB, PB, and TAB	That a 404 National Wetlands Permit from the US Army Corp of Engineers and a 401 Water Quality Certification from NCDENR's Division of Water Quality be obtained by the developer prior to the construction plans being approved.
6. Staff, EAB, PB, and TAB	That a voluntary annexation petition will be submitted to the Town by the developer prior to recording the final plat.
7. Staff, EAB, PB, and TAB	That the "Homeowner's Association Documents" be reviewed and approved by the Town Attorney prior to final plat approval.
8. PB	That, contingent upon the acceptance of the project with the current location and number of units per the project proposal, the developer will dedicate the floodplain to the Town of Carrboro as a greenway easement.
9. PB	That the project plans retain the proposed extension of a public street between Old Fayetteville Road extension and Berryhill Drive.
10. PB	That, where Morgan Creek connects with Tom's Creek, the Town of Carrboro should work with the developer to balance the preservation of the natural play area and the construction of the play field.
11. TAB	That the location of crosswalks should be shown (1) at the entrances to the development off Berryhill Drive and (2) where pedestrian pathways cross private roads within the development.

12. TAB	That the surface of the pedestrian pathways should be Chapel Hill gravel.
13. TAB	That two more bike racks should be included in the development, and these should be centrally located near buildings.
14. EAB	That the ballfield be eliminated and that the developer complete a payment-in-lieu to the Town for these recreation points.
15. EAB	That the "Tot Lot" be relocated to a safer and more potentially benign location to prevent erosion and protect the floodplain. The proposed locations are between Units #9 & #48 or #32 & #40 or #15 & #41.
16. EAB	That the proposed bridge be changed to preserve and maximize the wildlife corridor, minimize the impact on the creek bed and stream flow, and, in the future, that the Board of Aldermen consider requiring that span-type structures be used in all crossings of significant streams.
17. EAB	That the walking path remain gravel and not be paved in the future.
18. EAB	That the erosion control measures be closely monitored on the Morgan Creek side of the project.
19. EAB	That the stream buffer be increased to a net 50 feet in width wherever the walking path is located in close proximity.
20. AC	That the Conditional Use Permit be denied for the following reasons:
21. AC	That the project is too dense as proposed, which necessitates a heterogeneous mixture of housing alignments. The Commission noted that a reduction in the number of units would allow for a design in which a more desirable housing alignment pattern could emerge (i.e. - all units could face the same direction, thereby eliminating the existing pattern consisting, in many cases, of fronts of houses facing the rears and/or sides of other houses).
22. AC	The project contains no thoughtful architectural theme or character. Specifically, the Commission objected to the inclusion of projecting staircases, the variations in heights of buildings as related to topography, and the over-abundant mixture of architectural details.
23. AC	The inclusion of a playfield area overlooking the creek will substantially diminish the natural beauty of the area.
24. AC	If the project were to be approved, the Appearance Commission recommends the following, in addition to staff's recommendations:
25. AC	That the playfield be eliminated and that the developer complete a payment-in-lieu to satisfy the appropriate number of recreation points.
26. AC	That an alternate, non-invasive plant species be substituted for the proposed <i>Elaeagnus</i> (<i>elaeagnus pungens</i>).

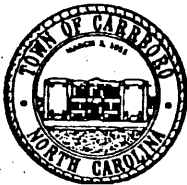


Town of Carrboro
Attn: Planning Department
301 West Main Street
Carrboro, NC 27510

Resident

Address

Carrboro, NC 27510



TOWN OF CARRBORO ADVISORY

NOTICE OF PUBLIC HEARING

FOR: Proposed Morgan Ridge Townhome Project
(vacant property located at 501 Berryhill Dr.—between Poplar Place Apt.'s & Tennis Club Estates)

DATE: November 27, 2001

TIME: 7:30 pm

LOCATION: Room 110, Carrboro Town Hall
301 West Main Street

Please contact the Planning Department at (919) 918-7336 for further information.

TOWN OF CARRBORO



CONDITIONAL OR SPECIAL USE PERMIT WORKSHEET

I. COMPLETENESS OF APPLICATION

- ☐ The application is complete.
- ☐ The application is incomplete.

II. COMPLIANCE WITH THE ORDINANCE REQUIREMENTS

- ☐ The application complies with all applicable requirements of the Land Use Ordinance.
- ☐ The application is not in compliance with all applicable requirements of the Land Use Ordinance for the following reasons:

III. CONSIDERATION OF PROPOSED CONDITIONS

If the application is granted, the permit shall be issued subject to the following conditions:

1. The applicant shall complete the development strictly in accordance with the plans submitted to and approved by this Board, a copy of which is filed in the Carrboro Town Hall. Any deviations from or changes in these plans must be submitted to the Zoning Administrator in writing and specific written approval obtained as provided in Section 15-64 of the Land Use Ordinance.
2. If any of the conditions affixed hereto or any part thereof shall be held invalid or void, then this permit shall be void and of no effect.

IV. GRANTING THE APPLICATION

- ☐ The application is granted, subject to the conditions agreed upon under Section III of this worksheet.

V. DENYING THE APPLICATION

- ☐ The application is denied because it is incomplete for the reasons set forth above in Section I.
- ☐ The application is denied because it fails to comply with the Ordinance requirements set forth above in Section II.
- ☐ The application is denied because, if completed as proposed, the development more probably than not:

(Over)

WORKSHEET: CONDITIONAL/SPECIAL USE PERMIT (con't)
Page # 2

DENYING THE APPLICATION (con't)

1. *Will materially endanger the public health or safety for the following reasons:*

2. *Will substantially injure the value of adjoining or abutting property for the following reasons:*

3. *Will not be in harmony with the area in which it is to be located for the following reasons:*

4. *Will not be in general conformity with the Land Use Plan, Thoroughfare Plan, or other plans officially adopted by the Board of Aldermen for the following reasons:*
