

FINAL DRAFT FEASIBILITY STUDY

SUMMIT AVENUE WIDENING BRIGHTWOOD SCHOOL ROAD-REEDY FORK PARKWAY RAMP Guilford County-Division 7



Prepared For:



CITY OF GREENSBORO DEPARTMENT OF TRANSPORTATION
&
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



Prepared by:



Revised: June 2, 2004

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SUMMIT AVENUE WIDENING

Prepared For:

**City of Greensboro Department of Transportation
&
North Carolina Department of Transportation**

Prepared By:

Wilbur Smith Associates

**May 2004
Updated June 2004**

(WSA Project No. 390620)

I. GENERAL DESCRIPTION

This feasibility study describes the proposed transportation improvements along Summit Avenue from Brightwood School Road / Pineneedle Drive to Reedy Fork Parkway in Greensboro, North Carolina. This project is an extension of the alignment of Summit Avenue which is included in the US 29 / Eckerson Road Interchange Reconstruction Project (NCDOT TIP Project R-4707). The name of Eckerson Road was changed to Reedy Fork Parkway in August 2002; however the TIP project description has not been updated to reflect this name change. The project location is shown in Figure 1.

As part of this study, the following three (3) construction alternative cross-sections were initially considered:

- Construct a four-lane divided cross-section between the Reedy Fork Parkway US 29 southbound ramp and Brightwood School Road.
- Construct a three-lane undivided cross-section between Brightwood School Road and Bryan Park Road and a four-lane divided cross section between Bryan Park Road and the Reedy Fork Parkway / US 29 ramp southbound.
- Construct a five-lane undivided cross-section between Brightwood School Road and Reedy Fork Parkway.

The impact of a no build scenario was also considered.

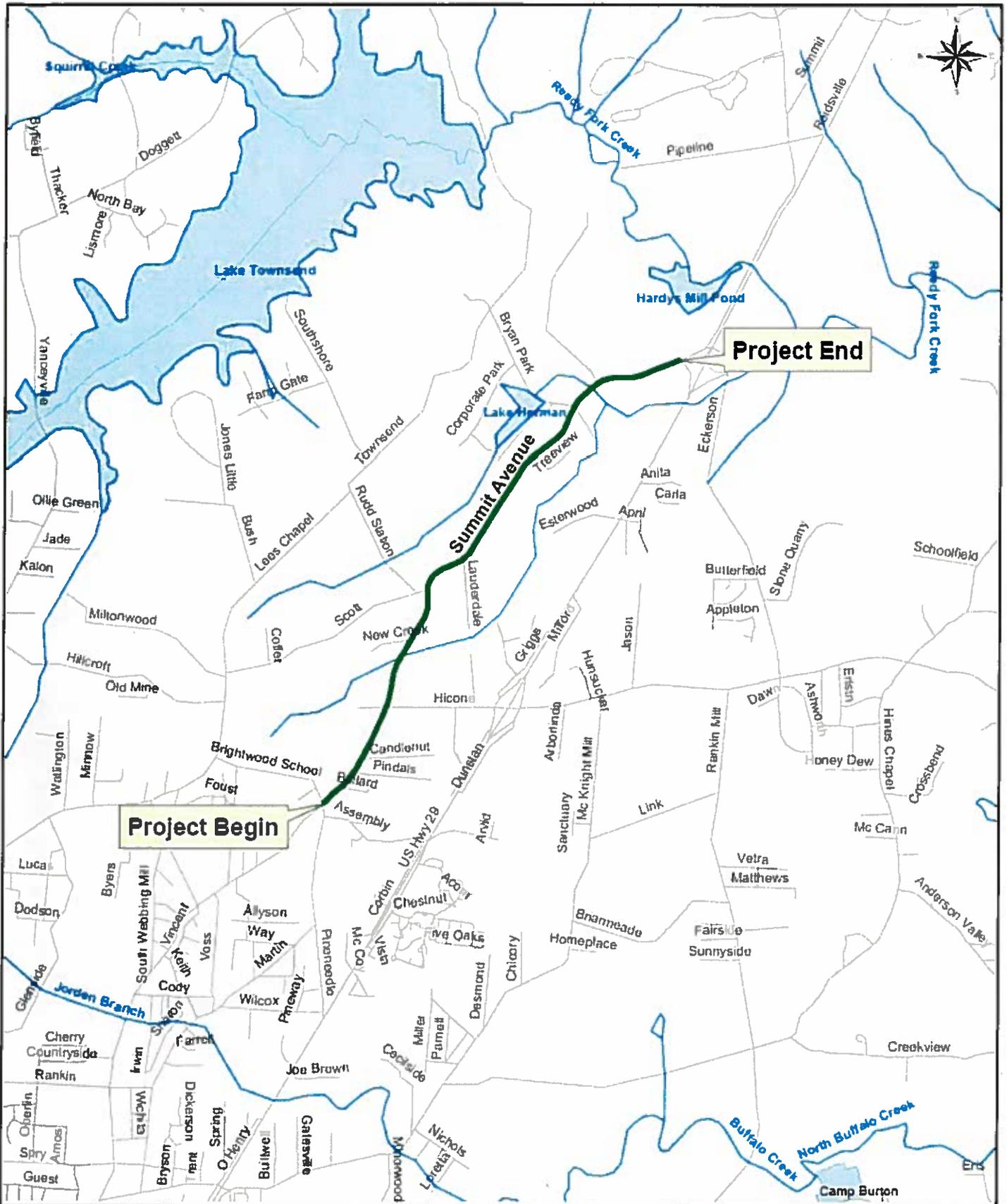
A feasibility study is the initial step in the planning and design process for this project. The City of Greensboro Department of Transportation (GDOT) commissioned this study to explore the possibility of entering this project into the North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) process. The purpose of this study is to develop information that can be used in determining future transportation priorities and information needed to move this project into the environmental assessment / preliminary design phase as follows:

- Project Need
- Project Description
- Preliminary Environmental Screening Information
- Project Cost Estimate
- Identification of "project stopping concerns"

II. BACKGROUND INFORMATION

General

Summit Avenue (Brightwood School Road to Reedy Fork Parkway) is functionally classified as a minor arterial and is identified as a minor thoroughfare on the Greensboro Long Range Transportation Plan. The alignment is moderately curvy and hilly with limited shoulders and passing opportunities.



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VICINITY MAP

FIGURE: 1
 SCALE:
 NONE

Summit Avenue is approximately 20 feet wide (2 10-foot lanes) between Brightwood School Road and Bryan Park Road. This facility is approximately 40 feet (3-lane section) wide between Bryan Park Road and Reedy Fork Parkway. Traffic signals currently exist at the Summit Avenue / Brightwood School Road / Pineneedle Drive intersection and the Summit Avenue / Hicone Road intersection.

Connections 2000

In the fall of 2000, the City of Greensboro identified a comprehensive and balanced list of projects needed to prepare the City to meet the multi-modal transportation challenges of the early 21st century. The improvement of Summit Avenue from Brightwood School Road to Reedy Fork Parkway was included on the City's list of proposed transportation system enhancements in *Connections 2000* as a phase II project.

In addition to this project, the section of Summit Avenue from McKnight Mill Road to Brightwood School Road was included in *Connections 2000*. This section was envisioned as phase I of proposed improvements to Summit Avenue.

Greensboro Connections 2025 Comprehensive Plan

In May 2003, the City of Greensboro adopted a comprehensive plan following extensive public involvement and a thorough assessment of community issues, and their inter-relationships, including transportation, land-use, and environmental quality. The Plan serves as a guide for future growth and development. Primary land uses in the general vicinity of the study corridor are projected to be a combination of moderate residential and mixed-use corporate park. Greensboro's City Council has established this region as an area for targeted growth in future years.

The *Connections 2025* plan recommended that the City develop a strategic investment plan to create better road networks in under-served and under-connected areas of the City, giving priority to connections and improvements that will stimulate economic development and support land use plans. It also provides for strategic widenings and extensions of existing facilities, primarily to fill bottlenecks and eliminate gaps in the system such as this one. The findings of this feasibility study are fully consistent with Greensboro's Comprehensive Plan.

Reedy Fork Ranch Development

This proposed development is located just north and east of the proposed northern terminus of this feasibility study. It is a large mixed used development of approximately 1800 acres which is projected to be fully developed by 2030. Over 3,700 single family residences and a retail shopping center have been approved for this development. The approved single family residences alone should generate over 37,000 trips per day.

Proposed Satellite Campus

Based on information provided by GDOT, UNC Greensboro and NC A&T State University have recently gained possession of the former North Carolina School for the Deaf site. This site is located east of the Summit Avenue / Bryan Park Road intersection. The two universities plan to transform the 75 acre site into a satellite campus with an emphasis on commuter programs. This facility is expected to be fully operational by 2030.

Other Planned Projects

There are three major transportation infrastructure improvement projects in the immediate vicinity of this proposed project. A listing of these projects is as follows:

- ***US 29 / Eckerson Road Interchange Project (NCDOT TIP Project R-4704)*** This project consists of the US 29 / Eckerson Road interchange and the upgrade of US 29 from a four-lane median divided to a six-lane median divided section meeting interstate standards for a distance of approximately one mile. This reflects the fact that US 29 has been federally designated as future I-785. This project is currently programmed for the required project development, environmental, and engineering services only.
- ***Eastern Loop (NCDOT TIP Project U-2525)*** The portion of the Greensboro Eastern Loop between US 70 and US 29 is currently programmed to begin construction in 2009; however it is anticipated this schedule will experience delay due to the need for NCDOT to update the Greensboro Eastern Loop EIS.
- ***US 29 Improvements (NCDOT TIP Project R-984)*** This project begins at 16th Street and ends at the Rockingham County Line. This is a concrete pavement and bridge rehabilitation project scheduled for completion in fall 2004.
- ***Summit Avenue Widening, Phase I.*** This project consists of widening Summit Avenue from McKnight Mill Road to Brightwood School Road. It is envisioned this facility will be improved to a multi-lane facility. A schedule has not yet been established for improving this section of roadway.

III. PURPOSE AND NEED

The purpose and need for the Summit Avenue widening project is described below. This was developed in consultation with City, County, and NCDOT Division 7 staff and reflects our assessment of projected traffic volumes and land uses in the area.

- Improve traffic safety along the entire corridor
- Improve mobility by providing additional traffic lanes to accommodate future projected traffic
- Provide a parallel facility to US 29 to support incident management and other general mobility needs. Additionally, this parallel access will provide access to properties located along US 29. When US 29 is upgraded to interstate standards and designated as Interstate 785, the properties along US 29 will no longer have access to this facility.
- Improve pedestrian and bicycle safety by including the provision for sidewalks and bike lanes or wide shoulders as part of the preferred alternative for this feasibility study
- Improve aesthetics along the corridor by providing a median and opportunities for landscaping along the section of roadway.
- Enhance the opportunities for future economic development and community development as result of the proposed infrastructure improvements

IV. PROJECTED TRAFFIC VOLUMES / LEVEL OF SERVICE

To provide an estimate of the projected 2030 traffic volumes, GDOT contracted with the firm of Martin / Alexiou / Bryson (MAB) to prepare traffic forecasts and a technical memorandum for the proposed Summit Avenue widening project. The technical memorandum is included in the Appendix and summarizes the assumptions, methodology, and results of the traffic forecasts.

MAB's 2030 traffic projections along Summit Avenue ranged from 8200 vehicles per day (north of Brightwood School Road) to 21,600 vehicles per day (north of Bryan Park Road). This forecast, which was derived primarily from the Piedmont Triad Regional Travel Model, assumes the completion of the northern and eastern legs of the Urban Loop, the development of the Reedy Fork Ranch project, and the UNC-G / NCA&T Satellite Campus. These volumes are shown in the Appendix.

In addition to projecting the 2030 daily traffic volumes on Summit Avenue, MAB projected the PM peak hour traffic volumes. These volumes were used in performing a Synchro analysis at three major intersections along the Summit Avenue study corridor. The results of the analysis are as follows:

<i>Intersection</i>	<i>2030 LOS No Improvements</i>	<i>2030 LOS With Improvements</i>
Summit / Brightwood (signalized)	B (18.1)	B (15.4)
Summit / Hicone (signalized)	D (54.7)	B (15.0)
Summit / Bryan Park (signalized)	F (212.0)	D (39.0)

The results of the analysis indicate the Summit Avenue / Bryan Park Road intersection is projected to be operating at an unacceptable Level of Service in 2030. For the Summit Avenue / Bryan Park intersection to operate at Level of Service D during the PM Peak Hour, Summit Avenue needs to be widened to a four-lane divided section between Bryan Park Road and the US 29 / Reedy Fork Parkway southbound ramp, and both approaches of Bryan Park Road need to be widened to provide exclusive left turn lanes.

V. PRELIMINARY ENVIRONMENTAL SCREENING

A preliminary environmental screening was performed to identify potential environmental issues early in the project planning process. As part of this feasibility study, potential environmental issues within an approximately one mile buffer of the existing roadway alignment were identified.

The environmental screening data collection process involved researching available information from the US Environmental Protection Agency (EPA), North Carolina State Historic Preservation Office (SHPO), National Wetland Inventory (NWI) Maps, and Federal Emergency Management Administration (FEMA) Mapping. A Geographic Information System (GIS) with the associated limited data base allowed for a high level preliminary examination of potential environmental issues. The areas examined included:

- EPA Regulated Hazardous Material Sites
- Historical Places
- Stream Crossings
- Wetlands
- Parks and other Section 4F Properties
- Endangered Species
- Archaeological Sites

Based on a review of the known or documented environmental issues, no known project stopping environmental impacts were identified. A more detailed study of potential environmental impacts will need to be conducted should this project advance to the environmental assessment / preliminary design phase. A land suitability map which shows the identified EPA regulated hazardous material sites, wetlands, and parks are shown in Figure 2.

A copy of the Summit Avenue Feasibility Study Environmental Screening document is included in the Appendix of this study.

VI. DESCRIPTION OF ALTERNATIVES

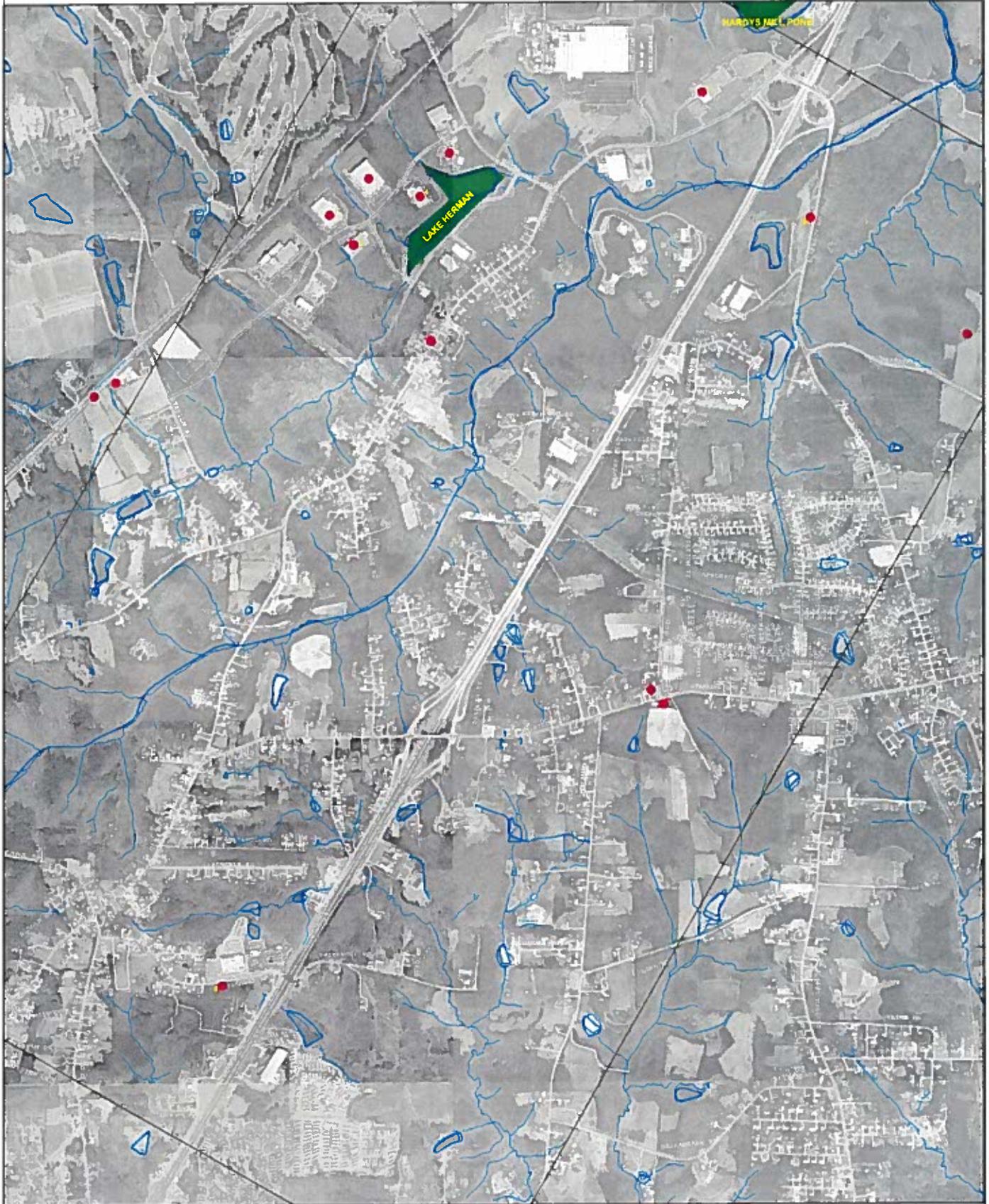
It is proposed that Summit Avenue be widened from a point approximately 0.1 miles south of Brightwood School Road to Reedy Fork Parkway (terminus of TIP Project R-4707), a total distance of approximately 2.7 miles. Due to the undesirable horizontal alignment of Summit Avenue (Lauderdale Road-New Creek Lane), approximately 0.7 miles of this project would be constructed on new alignment. The project location is shown in Figure 2. Three alternative cross-sections are proposed for consideration by the NCDOT as follows:

- **Alternative #1:** Construct a four-lane divided facility with a grass median and curb and gutter section. Additionally, it is proposed that the cross-section of this facility provide additional width for a bike lane in each direction and sidewalks along each side of the road. This proposed alternative meets the project's purpose and need and provides adequate traffic carrying capacity. The proposed right-of-way is 100 feet.

A review of a preliminary corridor alignment developed as part of this feasibility study indicates that approximately 20 homes would be taken by this alternative.

Summit Avenue Feasibility Study

Greensboro, North Carolina



Legend

-  EPA Regulated Hazardous Material Sites
-  Wetlands
-  Historic Districts
-  Parks



1 inch equals 500 feet



Date: October 2003

The projected cost estimate of Alternative #1 is as follows:

▪ Construction	\$ 8,775,000
▪ <u>Right-of-Way</u>	<u>\$ 3,975,000</u>
▪ Project Cost Estimate	\$12,750,000

- **Alternate #2:** Construct an interim 36' wide cross-section with ribbon pavement widening about the centerline of Summit Avenue generally between Brightwood School Road and Bryan Park Road. It is anticipated this improvement could be constructed with the purchase of minimal additional right-of-way. Furthermore, this alternative would include constructing a four-lane divided section between Bryan Park Road to the proposed terminus of the US 29 / Eckerson Road interchange improvements project. This proposed alternative does not meet the project's purpose and need; however it may be considered as an interim improvement should NCDOT funding for this project be unavailable.

Alternative #2 would not require the taking of any homes.

The projected cost estimate of Alternative #2 is as follows:

▪ Construction	\$4,500,000
▪ <u>Right-of-Way</u>	<u>\$ 750,000</u>
▪ Project Cost Estimate	\$5,250,000

- **Alternative #3:** Construct a five-lane undivided cross-section. During the initial stages of this feasibility study, there were discussions with GDOT regarding this alternative. In view of the number of driveways along this section of roadway and the City's desire to maximize safety and enhance aesthetics, this alternative was eliminated from consideration at this time. A cost estimate was not prepared for this alternative; however it is anticipated that the project cost estimate would be in the \$11-12,000,000 range.
- **Alternative #4 (No-Build):** In addition to the three construction alternatives previously described, there is a No Build or Do Nothing alternative. This alternative does not provide a transportation system which addresses the future projected traffic volumes, planned land uses, and other community needs in the study area. This alternative is not recommended for consideration by the Greensboro MPO at this time.

VII. RECOMMENDATIONS

Based on the projected future 2030 projected traffic volumes, it is recommended that a future four-lane divided section be planned from Brightwood School Road to the US 29 / Reedy Fork Parkway southbound ramp. It is further recommended that the City of Greensboro investigate the possibility of including the proposed widening of Summit Avenue from the US 29 / Reedy Fork Parkway southbound ramp to Bryan Park Road as part of the US 29 / Eckerson Road Project (NCDOT TIP Project R-4707). The preliminary right-of-way corridor for the recommended alternative is shown in Figures 3A and 3B and the recommended cross-section for this project is shown in Figure 4.



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PRELIMINARY R-O-W CORRIDOR

FIGURE 3A

SCALE: NONE



MATCHLINE A-A



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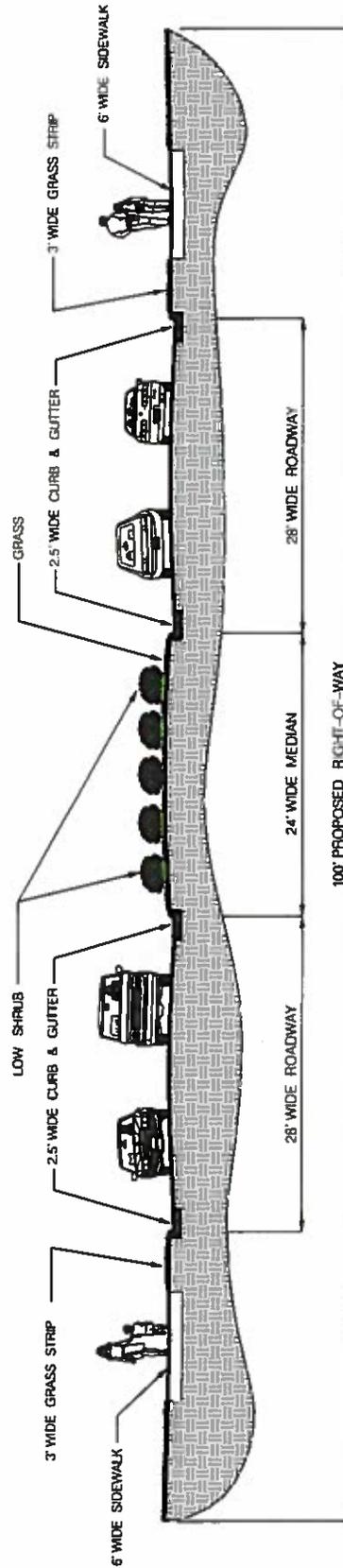
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PRELIMINARY R-O-W CORRIDOR

FIGURE 3B

SCALE: NONE

ILLUSTRATIVE TYPICAL SECTION SUMMIT AVENUE FEASIBILITY STUDY BRIGHTWOOD SCHOOL ROAD - REEDY FORK PARKWAY



PROPOSED TYPICAL SECTION - FOUR LANE DIVIDED ROADWAY WITH MEDIAN (VARIES)
NOT TO SCALE



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RECOMMENDED
TYPICAL SECTION

FIGURE: 4

SCALE: NONE

Due to the significant difference in the 2030 projected traffic north and south of Bryan Park Road, this project will more than likely need to be constructed in two separate phases, with the section of Summit Avenue north of Bryan Park Road being phase I. This will allow for a safe, efficient, and aesthetically pleasing "gateway entrance" from the proposed US 29 / Reedy Fork interchange to the Bryan Park Complex and the proposed satellite campus at the earliest possible date.

It is recommended that a four-lane divided section with median still be considered the future cross-section of the section of Summit Avenue between Bryan Park Road and Brightwood School Road. It is anticipated that the future traffic forecasts will be of the magnitude to require a multi-lane facility.

It is further recommended that bikeway and sidewalk accommodations be considered in conjunction with the next project planning phase. Sidewalks should be installed along both sides of Summit Avenue and additional widths should be added to the outside travel lanes.

VIII. ADDITIONAL COMMENTS

It is recommended that GDOT closely monitor traffic conditions along Summit Avenue (Bryan Park Road-Brightwood School Road) during the next few years and re-forecast future year traffic following the triad model update. It is likely that 2030 projected traffic volumes along this section will be substantially higher than those forecasted in this feasibility study.

In performing on-site observations of existing conditions along Summit Avenue during the conduction of this study, it was observed there are no left turns on any approaches of the two signalized intersections included in this feasibility study (Summit Avenue / Brightwood School Road and Summit Avenue / Hicone Road). To improve traffic operations and improve safety at these two signalized intersections, it recommended that NCDOT evaluate the need for providing left turn lanes in the next few years.