FEASIBILITY STUDY

FS-0207A

Pegg Road (SR 1840)/Thatcher Road (SR 1842) from Gallimore Dairy Road (SR 1556) to West Market Street (SR 1008)

Guilford County

Division 7

Prepared by the
Program Development Branch
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11/23/05
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Greensboro/High Point

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I. General Description

This feasibility study describes the widening of Pegg Road/Thatcher Road to a multi-lane facility from Gallimore Dairy Road to West Market Street, a distance of 2.1 miles. This project also includes a new grade separation over I-40 and the parallel service roads (National Service Road and McCloud Road). The recommended right of way width for all alternatives is approximately 130-feet. The project location is shown on Figure 1. As part of this study four different alternatives were investigated, the details of which are as follows:

ALTERNATIVE 1: Construct four-lane divided curb and gutter section, from Gallimore Dairy Road to West Market Street. The majority of this alternative is along the existing alignment with a slight realignment for the proposed new grade separation over I-40. (See Figure 1).

ALTERNATIVE 2: Construct five-lane curb and gutter section, from Gallimore Dairy Road to West Market Street. As in Alternative 1, the majority of this alternative is along the existing alignment with a slight realignment for the proposed new grade separation over I-40. (See Figure 1).

ALTERNATIVE 3: Construct four-lane divided curb and gutter section from Gallimore Dairy Road to West Market Street with a new grade separation over I-40. This Alternative is similar to Alternative 1, except that it also contains a slight realignment to the west between Gallimore Dairy Road and Thorndike Road (See Figure 1).

ALTERNATIVE 4: Construct five-lane curb and gutter section, from Gallimore Dairy Road to West Market Street. This Alternative is the same as Alternative 2, except it also contains a slight realignment to the west between Gallimore Dairy Road and Thorndike Road (See Figure 1).

This study is the initial step in the planning and design process for this project and is not to be considered the product of exhaustive environmental or design investigations. The purpose of the study is to describe the problem, recommend a treatment including costs, and identify potential problem areas that deserve consideration in the planning and design phases.

II. Background

The primary purpose of this project is to improve the interconnectivity in the area and relieve traffic congestion on the adjacent facilities by providing a new grade separation across I-40. In addition, this project will also upgrade the traffic carrying capacity of the Pegg Road/Thatcher Road corridor by widening it to a multi-lane facility.

Both the Greensboro Urban Area MPO and Greensboro Urban Area TAC supports these improvements.

Pegg Road and Thatcher Road are not designated in the North Carolina Statewide Functional Classification System, however they are designated as urban collectors in the Greensboro Urban Area.

As it exists now Pegg Road is a two-lane facility with no shoulder section, 22-feet wide with additional widening at Piedmont Triad Parkway to accommodate left turn movements. Thatcher Road is a two-lane facility with a one-foot shoulder section, 24-feet wide with additional widening at West Market Street to accommodate the turning movements.

Land use along the corridor is primarily moderate commercial and industrial development mixed with some large undeveloped tracts and scattered residential.

Two adjacent TIP projects, R-2611 and U-4015 are located within the project corridor. R-2611 proposes to widen West Market Street to a multilane facility beginning from Bunker Hill Drive (SR 2007) at Colfax to NC 68 and scheduled for R/W in May 2008. U-4015 proposes to upgrade Gallimore Dairy Road to a multilane facility from NC 68 to West Market Street. U-4015 is portioned into two sections:

- U-4015A, the widening of Gallimore Dairy Road from NC 68 to 500-feet south of International Drive, scheduled for R/W in May 2012. The Gallimore Dairy Road intersection with NC 68 is approximately 0.5 miles east of the intersection with Pegg Road.

- U-4015B, the widening of Gallimore Dairy Road from 500-feet south of International Drive to West Market Street was completed in August 2005.

There is one structure located along the project route on Thatcher Road. Structure #570 is a triple barrel box culvert located at East Fork Deep River, south of West Market Street. This structure is 26-feet long and was constructed in 1982. Structure #570 currently has a sufficiency rating of 99.9 and will need to be extended to accommodate the proposed improvements.

Norfolk Southern Corporation (NSC) currently operates a railway which crosses the project at the northern end, 150-feet prior to West Market Street. This railway carries about six (6) trains per day at an average speed of 35 mph. Based on the policy and procedures manual, the exposure index for the Thatcher Road crossing is 82,800. With this exposure index, it would be desirable to provide a grade separation at this location. However, given the proximity of this railroad crossing to the West Market Street/NC 68 ramp terminal intersection, a railway grade separation in a situation such as this is not considered feasible or practical. Therefore, this feasibility study does not contain costs for grade separation at this time. The widening of the at-grade railroad crossing will pose significant challenges and the installation of four quadrant gates is considered a necessity.

III. Traffic and Safety

Under existing conditions, the current year Average Daily Traffic (ADT) along Pegg Road/Thatcher Road within the project limits ranges from 2,000 vehicles per day (vpd) at the south end of the project to 4,200 vpd at the north end. With the new grade separation over I-40 in place, the current year traffic volumes increases to 2,400 on the south end and 7,000 on the north end. For the design year 2030 build conditions, the estimated traffic volumes within the project limits ranges from 12,000 vehicles per day (vpd) at the south end of the project to 17,600 vpd at the north end of the project. Truck traffic is estimated to make up approximately 3% of daily traffic on the project.

The only existing signal within the project limits is located at the intersection of Thatcher Road and West Market Street and is currently operating at a level of service (LOS) 'D'. If the grade separation is provided, the existing Pegg Road/Thatcher Road cross section would accommodate the current year traffic volumes at a LOS "D" or better. However, these facilities are expected to operate at a LOS "F" prior to the 2030 design year if no additional improvements are provided. With the proposed multilane widening, this facility is to operate at a LOS "D" or better in design year, with the exception of the Thatcher Road/Market Street/NC 68 Ramp intersection. This intersection is expected to operate at a LOS "F" unless additional improvements greatly beyond the scope of this project are provided.

During the three year period from January 2000 to December 2002, there were 31 accidents reported within the project limits. There were 14 injury accidents and no fatalities as a result of these incidents. The accident rate for this 2.1 mile portion of roadway was 2,000.33 accidents per 100 million vehicle miles of travel (acc/100mvm), which was much higher than the 2000-2002 statewide rate of 426.57 accidents/100 mvm for two-lane undivided secondary routes.

IV. Description of Alternatives

All alternatives include a new bridge over I-40 and an extension of a triple barrel box culvert over East Fork Deep River. The length of each alternative is approximately 2.1 miles.

The four (4) alternatives discussed are similar in alignment between Piedmont Triad Parkway and West Market Street. Widening would be asymmetrical to the west between Piedmont Triad Parkway and National Service Road and asymmetrical to the east between McCloud Road and Triad Center. Between Triad Center and West Market Street, widening would be symmetrical along existing Thatcher Road. The alignments are only different between Gallimore Dairy Road and Piedmont Triad Parkway.

Additional improvements are necessary at the Industrial Village Road and Piedmont Triad Parkway intersections. Along with the proposed multilane widening of Pegg Road/Thatcher Road, improvements to these Y-lines would enhance the traffic safety and operations of this facility.

The construction cost estimate shown below for each alternative includes the installation of a five (5) foot sidewalk, on both sides of Pegg Road/Thatcher Road. This sidewalk is estimated to cost an additional $200,000 per side.

ALTERNATIVE 1: Construct four-lane divided curb and gutter section with 23-feet raised grass median, 75-feet wide face to face of curbs with 15-foot berms on 130-feet of right-of-way. This Alternative proposes widening symmetrically along existing Pegg Road between Gallimore Dairy Road and Piedmont Triad Parkway. The length of this alternative is approximately 2.1 miles.

With this alternative, one (1) residential relocations and zero (0) business relocations are expected. The total cost of this alternative, including construction and right-of-way is estimated to be $25,600,000.

Construction $19,700,000
Right-of-Way..... $5,900,000

Total Project Cost (Alternative #1).....$25,600,000

ALTERNATIVE 2: Construct five-lane curb and gutter section, 64-feet wide face to face of curbs with 15-foot berms on 130-feet of right-of-way. This alternative proposes widening symmetrically along existing Pegg Road between Gallimore Dairy Road and Piedmont Triad Parkway. The length of this alternative is approximately 2.1 miles.

With this alternative, one (1) residential relocations and zero (0) business relocations are expected. The total cost of this alternative, including construction and right-of-way is estimated to be $23,500,000.

Construction $17,600,000
Right-of-Way.....$5,900,000

Total Project Cost (Alternative #2).....$23,500,000

ALTERNATIVE 3: Construct four-lane divided curb and gutter section with 23-feet raised grass median, 75-feet wide face to face of curbs with 15-foot berms on 130-feet of right-of-way. Existing Pegg Road/Gallimore Dairy Road intersection will be shifted west of the existing location. Construct four-lane section on new location from Gallimore Dairy Road to Thorndike Road. Continue improvement symmetrically between Thorndike Road and Piedmont Triad Parkway. The length of this alternative is approximately 2.1 miles.

With this alternative, zero (0) residential relocations and zero (0) business relocations are expected. The total cost of this alternative, including construction and right-of-way, is estimated to be $25,600,000.

Construction.....$19,800,000
Right-of-Way.....$5,800,000

Total Project Cost (Alternative #3).....$25,600,000

ALTERNATIVE 4: Construct five-lane curb and gutter section 64-feet wide face to face of curbs with 15-foot berms on 130-feet of right-of-way. Existing Pegg Road/Gallimore Dairy Road intersection will be shifted west of the existing location. Construct five-lane section on new location from Gallimore Dairy Road to Thorndike Road. Continue improvements symmetrically between Thorndike Road and Piedmont Triad Parkway. The length of this alternative is approximately 2.1 miles.

With this alternative, zero (0) residential relocations and zero (0) business relocations are expected. The total cost of this alternative, including construction and right-of-way, is estimated to be $23,900,000.

Construction $18,300,000
Right-of-Way.....$5,600,000

Total Project Cost (Alternative #4).....$23,900,000

V. Recommendations

It is recommended to improve Pegg Road and Thatcher Road to a multi-lane facility with a new grade separation over I-40 and the parallel service roads. Proposed improvements start from Gallimore Dairy Road and end at West Market Street. Four different alternatives were investigated and the associated costs with the breakdowns are described in Section IV above.

Alternatives #1, #2, #3 and #4: Our analyses shows that both the four-lane divided and five-lane sections would accommodate the projected 2030 design year volumes with an acceptable level of service at each intersection, except West Market Street/NC 68 ramp terminal/Thatcher Road intersection. This intersection is expected to operate at a level of service "F" and the additional improvements needed to achieve a LOS "D" or better are well beyond the scope of this project.

Although 130-feet right-of-way is utilized in each alternative, the cost difference between four-lane divided and the five-lane sections ranges between $1.2 million and $1.5 million, in favor of the five-lane cross-section. However, five-lane sections tend to promote strip development and indiscriminate left turn movements, while four-lane divided sections minimize strip development, prevent indiscriminate left turn movements and provide refuge for pedestrians if needed. Due to these factors, the four-lane divided cross-sections (Alternative #1 and Alternative #3) are preferred over the five-lane alternatives.

Further analyses show that realignment of Pegg Road west of the existing location would enhance sight distances and eliminate the sharp curves between Tam O'Shanter Drive and Thorndike Road. Therefore, Alternative #3 is the recommended alternative.

VI. Additional Comments

A detail environmental study was not conducted for this feasibility study. However, the existing information available for this area has been screened for environmental and historic concerns. Based on maps at the Department of Environment & Natural Resources and Natural Heritage Section, impacts to threatened or endangered species are not anticipated in the project area. In addition, no impacts to historic properties are anticipated along this project.

Provisions for bicycles have been included in this report.

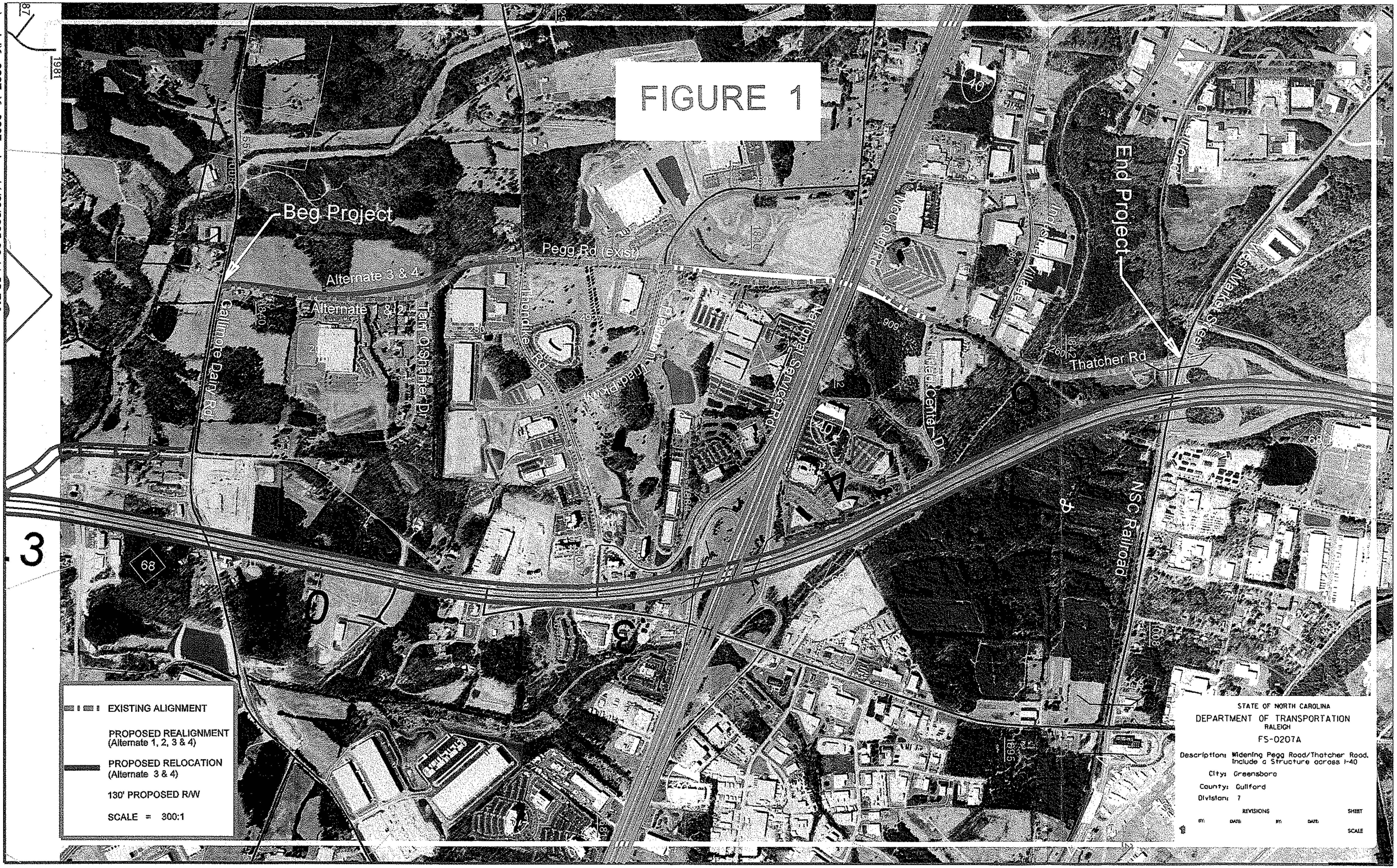

FIGURE 1

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