

FEASIBILITY STUDY

Winston Salem
US 52-Vargrave Street Interchange
Forsyth County
U-2223

Prepared by
Planning and Research Branch
Division of Highways
N. C. Department of Transportation

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The subject project is included in the 1987-1995 Transportation Improvement Program for feasibility study and/or right of way protection. This report provides a brief, initial analysis of possible improvements. The project is not currently funded. This study is based on functional designs provided by the City of Winston Salem.

I. GENERAL DESCRIPTION

The proposed project consists of reconstructing an existing interchange on US 52 at Vargrave Street (See Figure 1). Included as part of this project is construction of a new connection to Stadium Drive at the main entrance to Winston Salem State University. This proposal also includes the removal of the existing interchange on US 52 at Stadium Drive and the removal of the existing interchange on I-40 at Martin Luther King Drive.

II. PURPOSE OF THE PROJECT

This project has been proposed for two reasons. First, the new interchange would become the new main entrance to Winston Salem State University. The proposed interchange design would provide a direct connection with the main entrance to the campus from US 52 rather than the more indirect access now provided by the US 52-Stadium Drive interchange. This concept is included in the master plan for Winston Salem State University and has the support of University officials.

The secondary purpose for the project is the improvement in interchange spacing on freeways in Winston Salem. Interchange spacing which is too close creates problems with weaving and merging traffic which decrease the safety and capacity of the interchanges. The spacing between on US 52 between Stadium Drive and I-40 is approximately 0.3 mile, and between Stadium Drive and Vargrave Street it is 0.4 mile. Closing the Stadium Drive interchange would result in a spacing of approximately 0.7 mile. Minimum recommended interchange spacing is 1 mile in urban areas.

The interchange on I-40 at Martin Luther King Drive is located approximately 0.3 mile from the US 52 interchange. The safety and capacity of both of these interchanges are reduced because of their proximity to each other. Removal of the Martin Luther King Drive interchange would result in improved operation of the US 52 interchange on I-40.

Projected traffic at the Vargrave Street interchange is shown in Figure 2.

III. EXISTING CONDITIONS

The existing interchange at Vargrave Street is a modified trumpet-type interchange which provides for movements in all directions (See Figure 3A). It is located in an urban setting. It is adjacent to the Winston Salem Southbound Railroad which is located to the west of US 52.

IV. STUDIED ALTERNATIVES

The City of Winston Salem has submitted two possible alternate design concepts for the subject interchange. One of these was viewed as more feasible and is evaluated in this report. A schematic diagram of this interchange is shown in Figure 3B. The approximate cost of implementing this alternate is as follows:

Construction	\$6,100,000
Right-of-Way Cost	1,270,000
	<hr/>
TOTAL COST	\$7,370,000

This alternative requires the relocation of approximately 26 families and 1 business.

This interchange has a major disadvantage. Because two-way movement of traffic is allowed on ramps of the alternative interchange and because the alternative interchange is a non standard design, there is a potential for wrong way moves associated with this interchange. Wrong way movements onto controlled access, divided highways frequently result in high severity accidents because of the potential for head-on collisions.

The Do-Nothing Alternative (retaining the existing interchange) was also considered. This alternate will carry traffic as well as the other studied alternative. It will not provide a direct access into Winston Salem State University, however.

V. ENVIRONMENTAL CONSIDERATIONS

The studied interchange modification has several environmental consequences. It involves wetlands associated with Salem Creek on both sides of US 52. A Section 404 permit will likely be required. This alternate splits a minority neighborhood. There is a public park located directly east of the interchange and adjacent to it. Care must be taken to avoid this area because of potential 4(f) involvement. Also, the project involves the relocation of approximately 26 families and 1 business.

VI. CONCLUSION

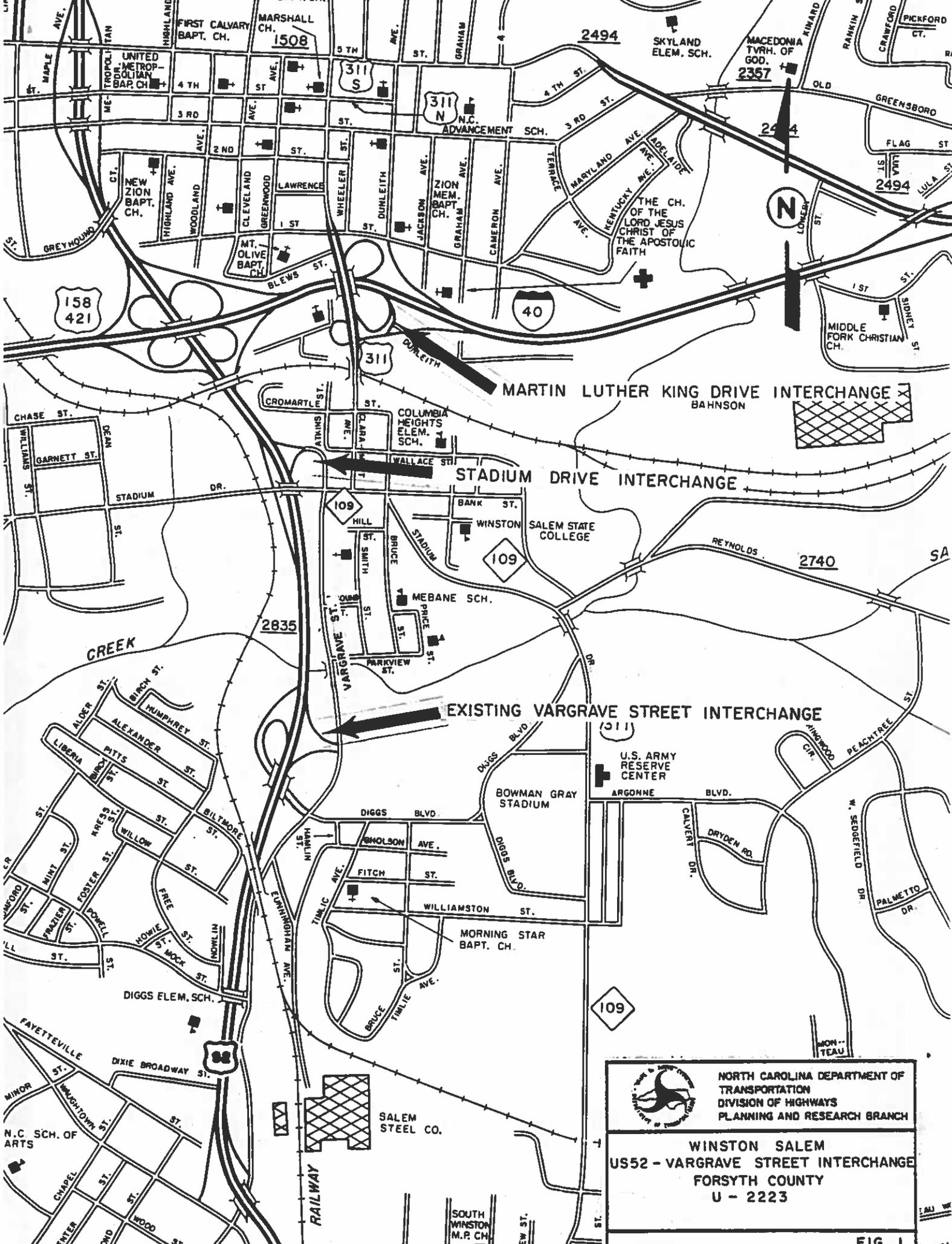
Implementation of the interchange modification will require the expenditure of approximately \$7.4 million. There should be an increase in safety realized by improved interchange spacing; however, the increase

is partially off-set by the potential for wrong way movements with the modified interchange. There is no significant increase in capacity.

While closing the Stadium Drive interchange and the Martin Luther King Drive interchange is desirable from a safety standpoint, it is often not possible to close an existing interchange because local business has become dependent on direct access. This study did not assess potential damages caused by removing the access at Stadium Drive or at Martin Luther King Drive.

It is recommended that any further study of modifications to the Vargrave Street interchange include not only the options considered in this study, but also the possibility of providing direct access to Winston Salem State University from the existing interchange.

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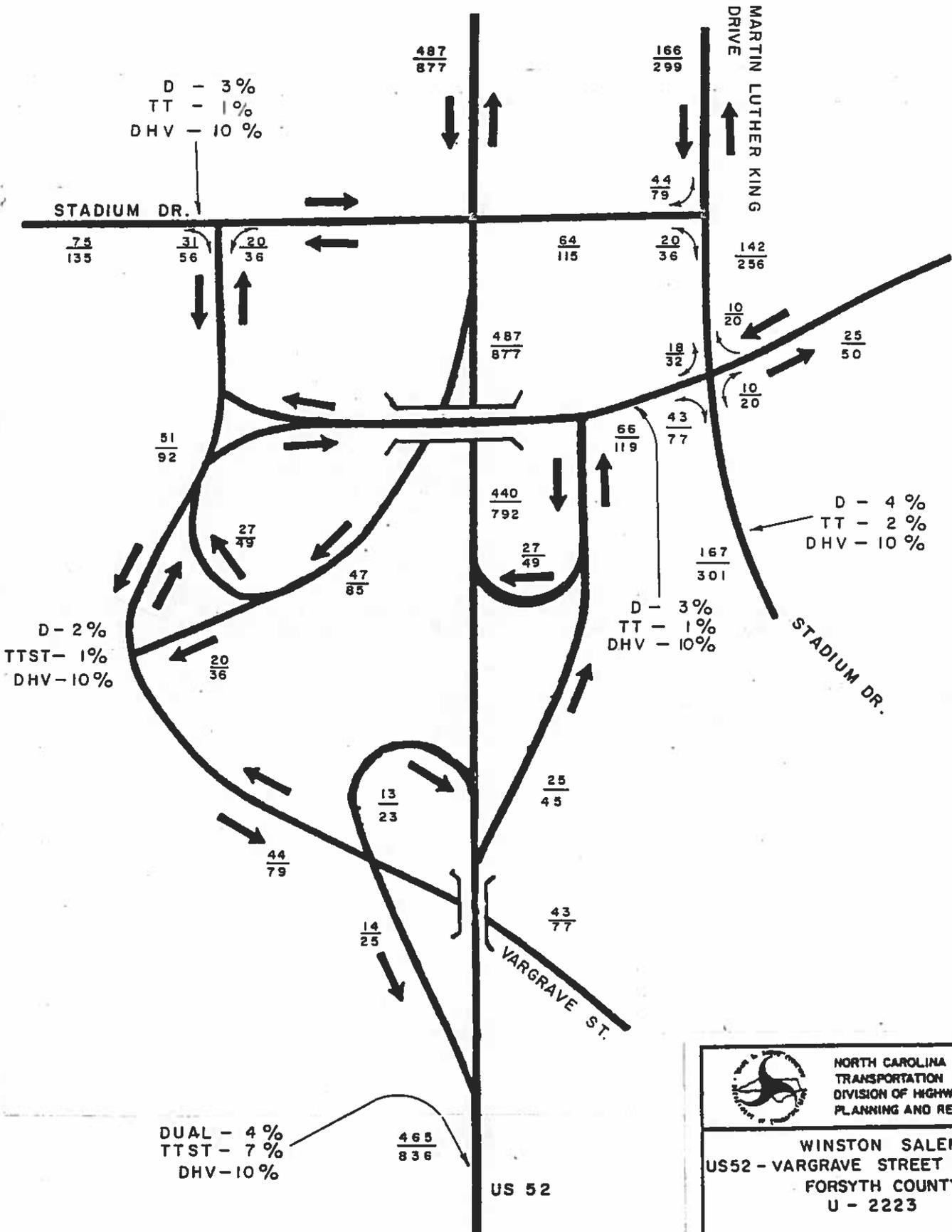



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FIG 1

ESTIMATED 1987/2007 ADT IN HUNDREDS




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FIG. 2

EXISTING INTERCHANGE

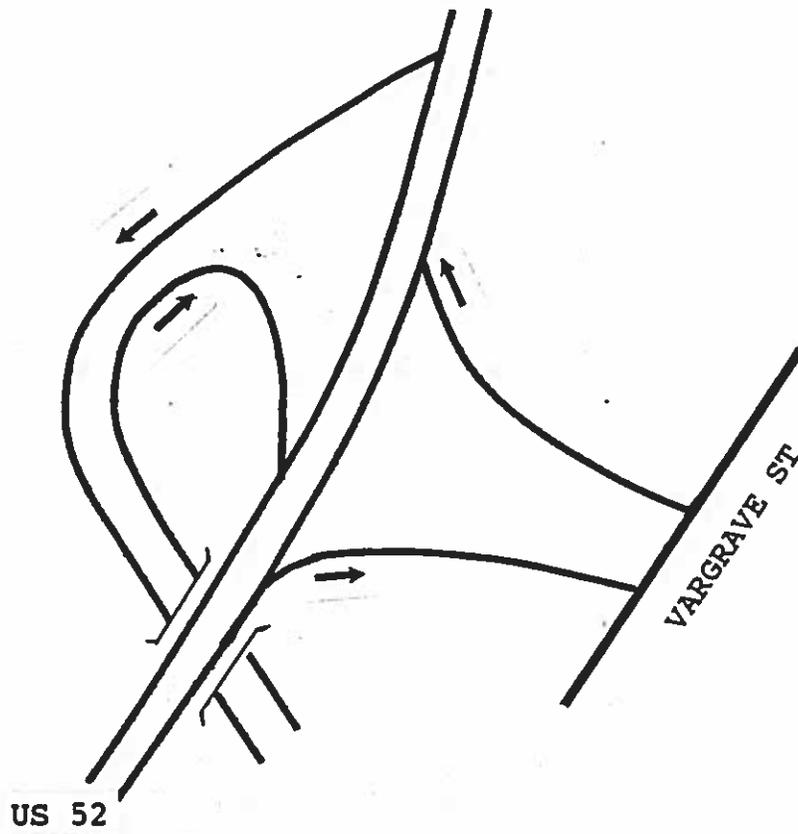


FIGURE 3A

ALTERNATIVE INTERCHANGE

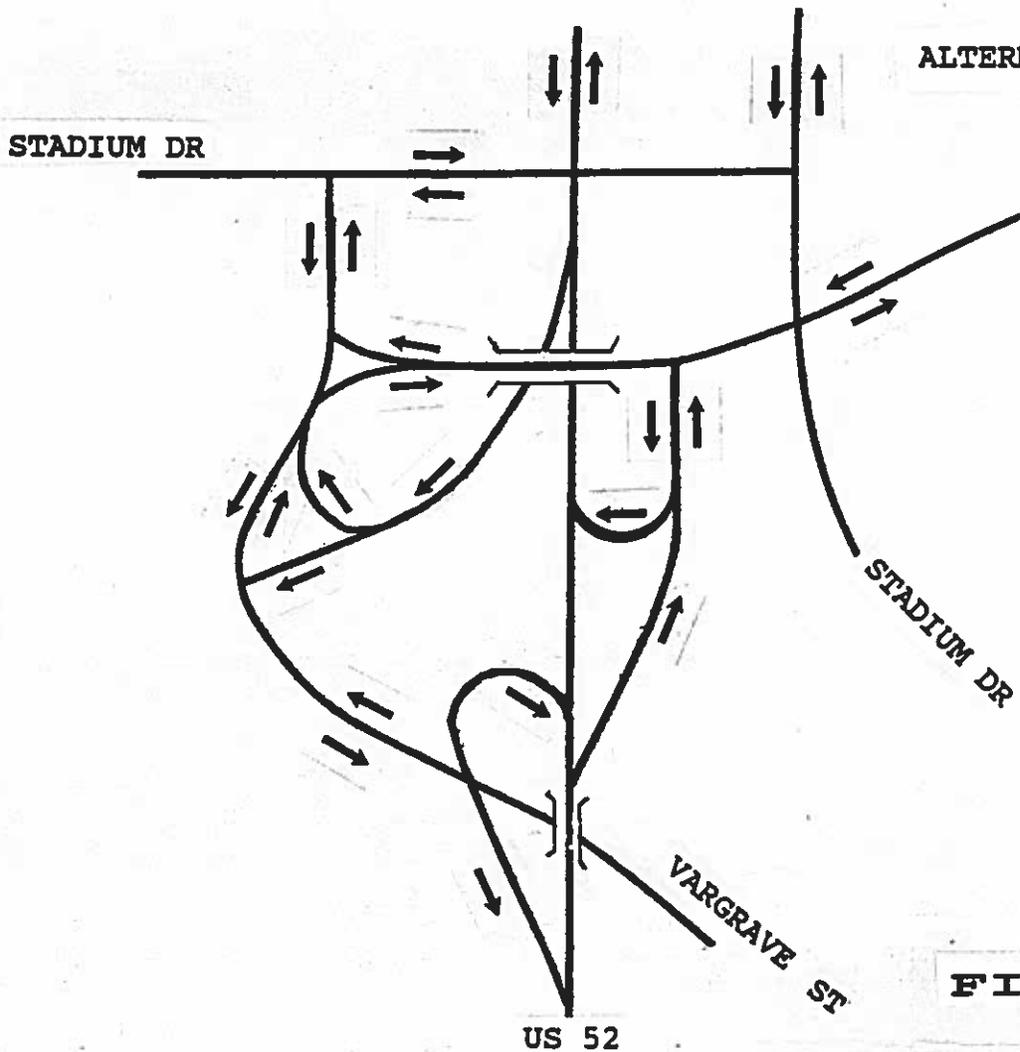


FIGURE 3B