

# **APPENDIX F**

**DESIGN EXECUTIVE SUMMARY**

County: CLARK Item No.: 7-331.5

Federal Project No.: \_\_\_\_\_ UPN: FD04 027 7592 020 D

MARS No.: 60760 01 D UPN: \_\_\_\_\_

Project Description:

Winchester Bypass (SE)  
 From KY 89 to KY 627 (S)  
 Project Length = 4.15 miles

Roadway Classification:

Local   
  Collector   
  Arterial   
  Interstate   
  Rural   
  Urban

ADT(current) 3800 ADT ( 2022 ) 6600 DHV ( 2022 ) 580

Posted Speed Limit:   
 55 (rural)   
 35 (urban)   
 Other (Specify): N/A

Design speed selected by the Project Team 60 mph

Concurrence in noted Typical Exceptions to be obtained from Director of Design.

DESIGN CRITERIA	EXISTING	TYPICAL	PROJECT TEAM RECOMMENDATION
Number of Lanes	_____	4	4
Pavement Width	_____	12'	12'
Shoulder Width, Slope	_____	12', 4%	12', 4%
Bridge Width	_____	42' *	42' *
Minimum Radius (e <sub>max</sub> = 8 % )	_____	1205'	1800'
Maximum Grade	_____	6.00 %	4.00 %
Minimum Sight Distance	_____	570'	680'
Border Area (urban)	_____	_____	_____

Design Criteria Notes:

\* - Twin Bridges

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MARS No.: 60760 01 D UPN: \_\_\_\_\_

Access Control Type: Partially Controlled

Environmental Action: Environmental Overview Approval Date: \_\_\_\_\_

Existing Pavement Depths: N/A

- Attachments:
- (1) Provide map showing project location.
  - (2) List and discuss all considered alternates, including Preferred and Do Nothing. Also, include Six Year Plan and current phase cost estimates with discussion of cost considerations during project development as needed.
  - (3) 8 1/2 " X 11" Typical Section.
  - (4) 8 1/2" X 11" Typical Section, including bridge typical if applicable..

Submitted By: *James E. Ballinger* Date: 10-9-03  
District/Preconstruction Engineer - James E. Ballinger

Recommended By: *Frank Bush, Jr.* Date: 10-9-03  
Project Manager - Frank Bush, Jr.

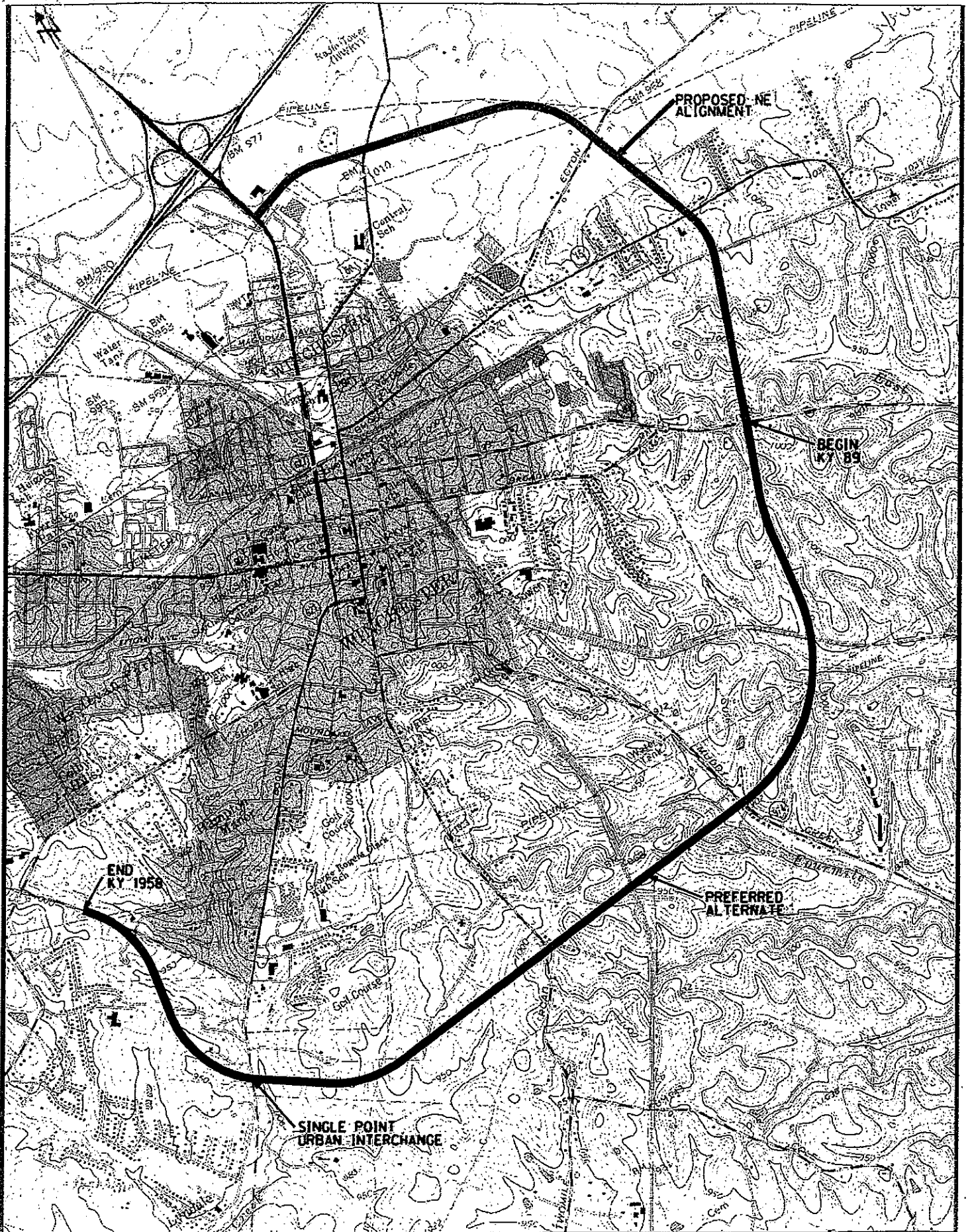
Recommended By: \_\_\_\_\_ Date: \_\_\_\_\_  
Location Engineer - Ananias Calvin, III

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_  
T.E.B.M. for Location - David Jones

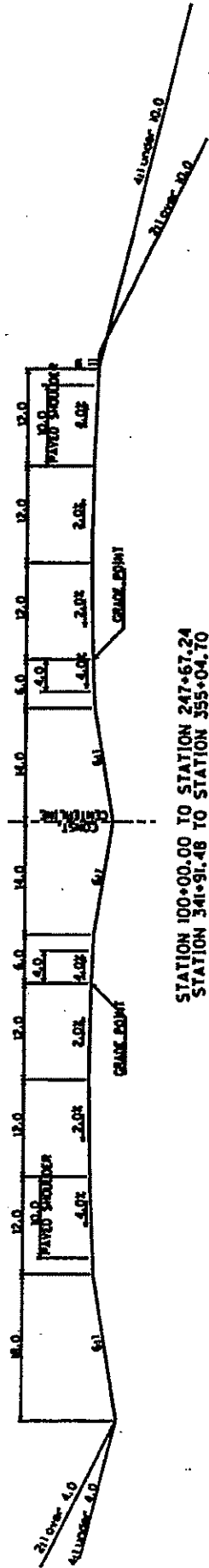
Comments:

GEOMETRIC APPROVAL GRANTED BY:

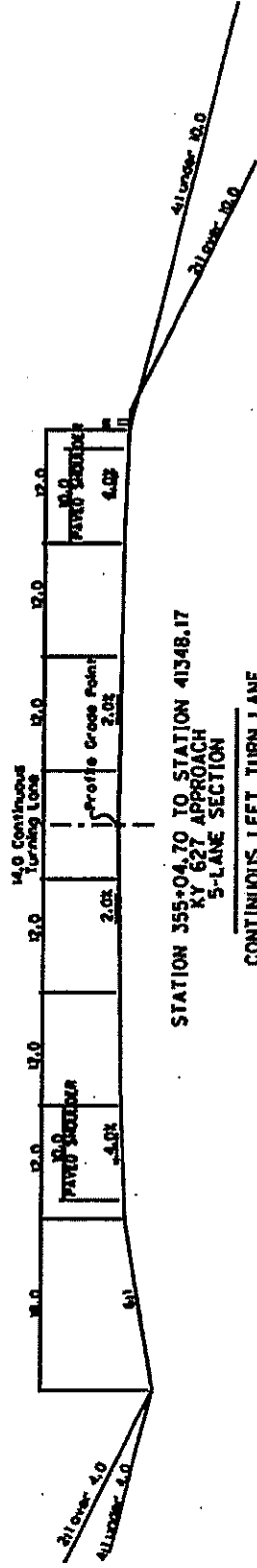
Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Director, Division of Highway Design - Gary Sharpe



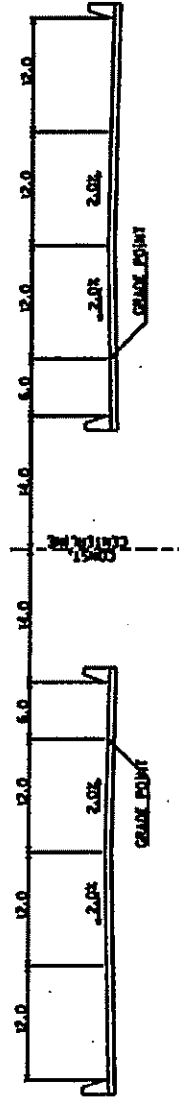
# TYPICAL SECTIONS Winchester Bypass



STATION 100+00.00 TO STATION 247+67.24  
 STATION 341+91.48 TO STATION 355+04.70  
 NORMAL RURAL SECTION  
 DEPRESSED MEDIAN



STATION 355+04.70 TO STATION 41348.17  
 KY 627 APPROACH  
 5-LANE SECTION  
 CONTINUOUS LEFT TURN LANE



BRIDGE TYPICAL

## DISCUSSION OF ALTERNATES

### Purpose and Need

The purpose and need of this project is to achieve a safe and efficient transportation system, with the least amount of disturbance to the surrounding area, meet safety requirements and serve the needs of all citizens of the Commonwealth of Kentucky who travel this route.

### Alternate 1

Alternate 1 begins on KY 89 at a point 0.30 miles from the intersection of KY 89 and East Broadway. From this point, it proceeds in a southerly direction crossing the CSX Railroad at a point 1.15 miles from the Winchester Station. It then proceeds in a southwesterly direction crossing Muddy Creek Road (KY 974) at a point 1.44 miles from the intersection of Main Street and KY 974. After crossing Muddy Creek Road, it continues southwesterly and crosses the CSX Railroad at a point 1.12 miles from the Winchester Station and then crosses Twomile Road (KY 1923) at a point 1.36 miles from the intersection of KY 627 and KY 1923. It continues in a southwesterly direction before turning west to its termini at KY 627, a point 0.49 miles from the intersection of KY 1958 and KY 627. Also included with this alternate is the upgrading of existing KY 627 to a five-lane urban facility from KY 1958 to the project terminus.

### Alternate 2

Alternate 2 begins at the same point as Alternate 1. From this point, it proceeds in a southerly direction crossing the CSX Railroad at a point 1.06 miles from the Winchester Station. It then proceeds in a southwesterly direction crossing Muddy Creek Road (KY 974) at a point 1.33 miles from the intersection of Main Street and KY 974. After crossing Muddy Creek Road, it continues southwesterly and crosses the CSX Railroad at a point 0.97 miles from the Winchester Station and then crosses Twomile Road (KY 1923) at a point 1.20 miles from the intersection of KY 627 and KY 1923. It continues in a southwesterly direction before turning west and crossing KY 627 at a point 0.32 miles from the intersection of KY 1958 and KY 627. It continues across KY 627 to its termini on KY 1958, a point 0.60 miles from the intersection of KY 627 and KY 1958.

### Do-Nothing Alternate

Due to the purpose and need and this project, the Winchester public officials and the bypass advisory committee believe that this project will help in future development for the city of Winchester. Also, the northeast bypass from KY 627 north to KY 89 is now under construction. Public officials believe that if the bypass were not continued through the southeast section of Winchester, this could hinder future growth and economics for the city. Since this bypass would play a major economic role in future growth for the city of Winchester, the "Do-Nothing" alternate is not an option considered for this study.

TABLE I – Estimated Costs

	Alternate 1	Alternate 2
Right of Way	5,000,000	5,700,000
Utility	7,410,000	6,803,000
Construction	13,934,489	17,686,612
Total	\$26,344,489	\$30,189,612

In addition to the alternates mentioned above, three (3) additional alternates were studied for the area around the intersection of the proposed bypass and KY 627S. For these additional alternates, Alternate 1 was the preferred alignment up to approximate Station 240+00. The additional alternates will be based upon alignments and configurations from this point ahead.

Alternate 3

Alternate 3 begins at Station 239+21.52 of Alternate 1 and proceeds westwardly crossing KY 627 at a point 0.20 miles from the intersection of KY 1958 and KY 627. It continues across KY 627 to its termini on KY 1958, a point 0.40 miles from the intersection of KY 627 and KY 1958. Alternate 3 utilizes a grade separation at its intersection with KY 627. The grade separation is a modified diamond interchange to promote the free-flow of traffic at ramp intersections.

Alternate 4

Alternate 4 begins at Station 247+67.24 of Alternate 1 and proceeds along the Alternate 2 alignment to its termini on KY 1958. Alternate 4 utilizes a grade separation at its intersection with KY 627. The grade separation is a diamond interchange with the uninterrupted movement being on the proposed bypass.

Alternate 5

Alternate 5 begins at Station 247+67.24 of Alternate 1 and proceeds along the Alternate 2 alignment to its termini on KY 1958. Alternate 5 utilizes a grade separation at its intersection with KY 627. The grade separation is a single point urban interchange with the uninterrupted flow movement being on KY 627.

TABLE II – Estimated Costs (From KY 89 to KY 1958)

	Alternate 3	Alternate 4	Alternate 5
Right of Way	6,600,000	8,671,000	9,429,600
Utility	8,450,000	7,620,000	7,620,000
Construction	17,645,612	20,514,147	20,334,584
Total	\$32,695,612	\$36,805,147	\$37,384,184

The preferred alternative for the treatment of the intersection of the proposed bypass and KY 627 was Alternate 5. This alternate was favored by the bypass advisory committee and the KYTC project team due to how well this interchange will function under the projected traffic volumes.

TABLE III – Estimated Costs (From KY 89 to KY 1958)

	Estimated	Preferred
	6 Year	Alternate
Right of Way	5,700,000	9,429,600
Utility	7,410,000	7,620,000
Construction	25,000,000	20,334,584
Total	\$38,110,000	\$37,384,184

This project is not currently in the Cabinet's 6-year plan. The estimated 6-year costs in table III were determined from the southeast bypass corridor study. The estimated 6-year right of way cost was based on an at-grade intersection with the southeast bypass and KY 627 south. The preferred right of way cost estimate is much higher than the estimated 6-year plan cost since additional right of way will need to be acquired for the urban interchange. There are no design exceptions for any alternate considered for the Winchester Bypass Southeast.

### MAINTENANCE OF TRAFFIC

The maintenance of traffic for this project will be primarily focused on the approach roads due to the fact that the proposed bypass is a new alignment. For both Muddy Creek Road (KY 974) and Twomile Road (KY 1923), the maintenance of traffic will involve the use of diversions and phase construction. For KY 627, due to the magnitude of traffic volume, the maintenance of traffic will be accomplished by phase construction utilizing partial width construction. During Phase 1, traffic will be maintained on the existing roadway while construction is completed on the widening of KY 627. During Phase 2, traffic will be diverted and maintained on the new construction while construction is completed over existing KY 627.