



*Looking East on U.S. 50 / 1000' from Intersection*



800,  
" " " "



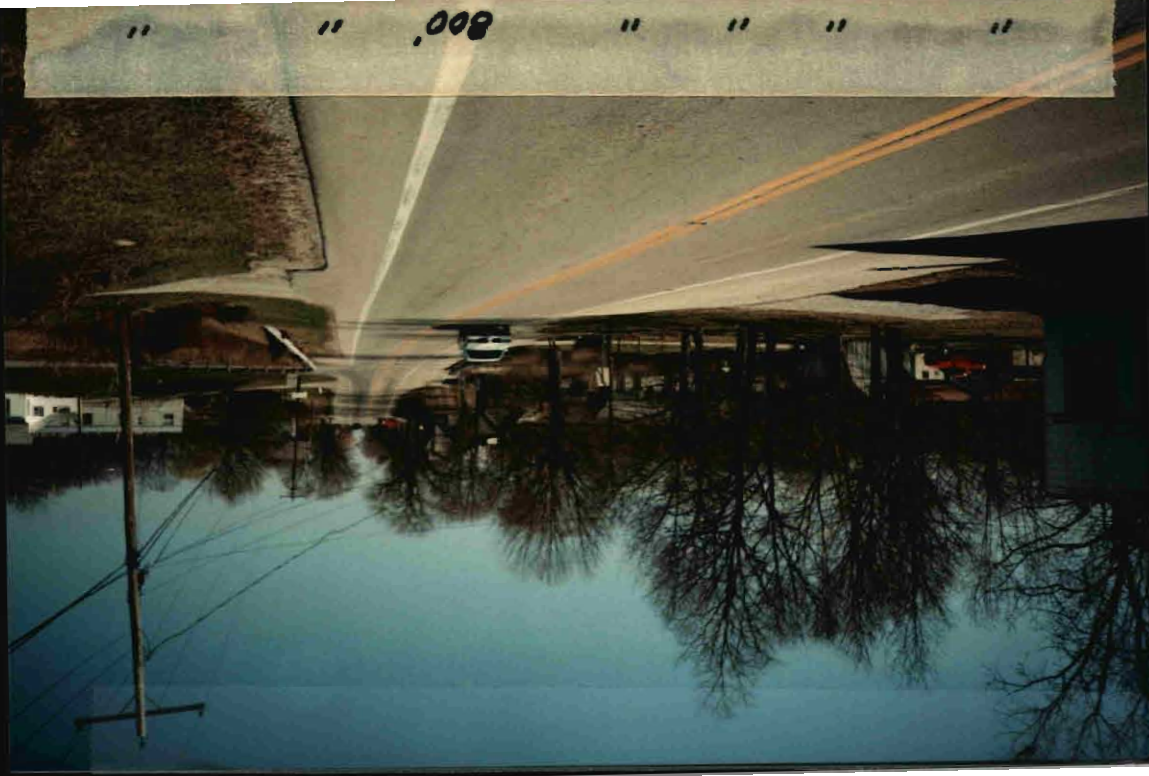


" " ,002 " " " "

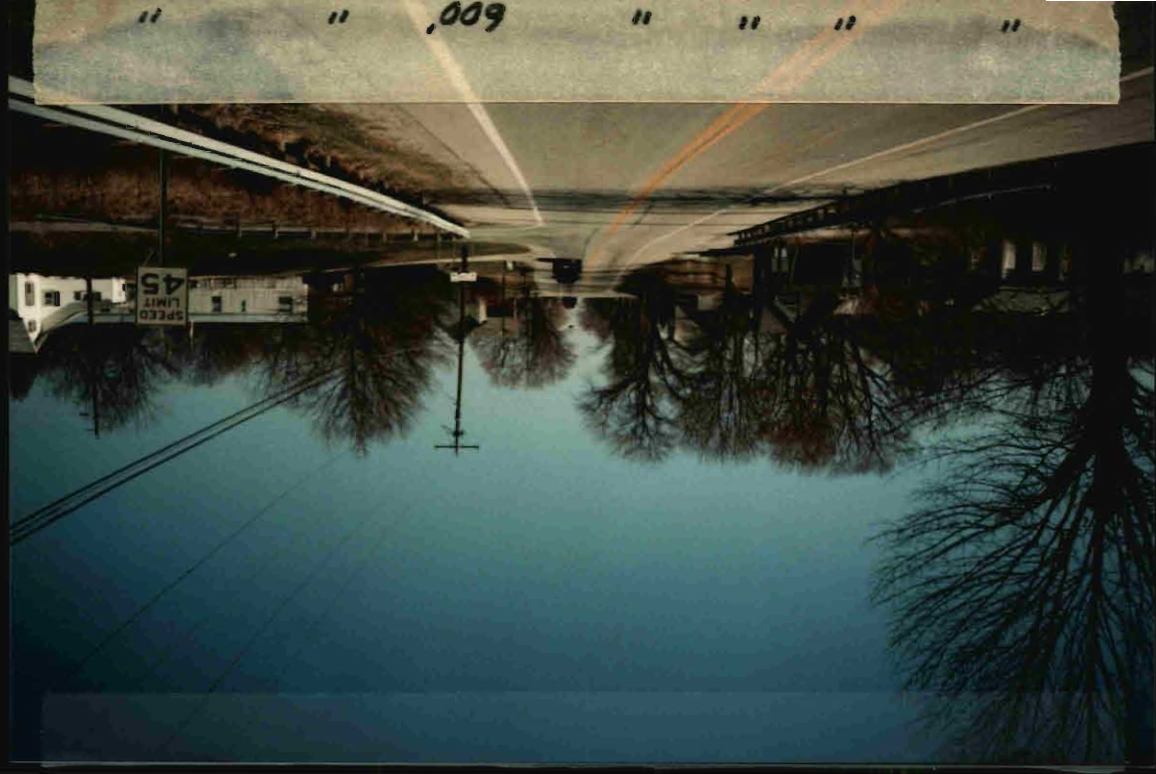




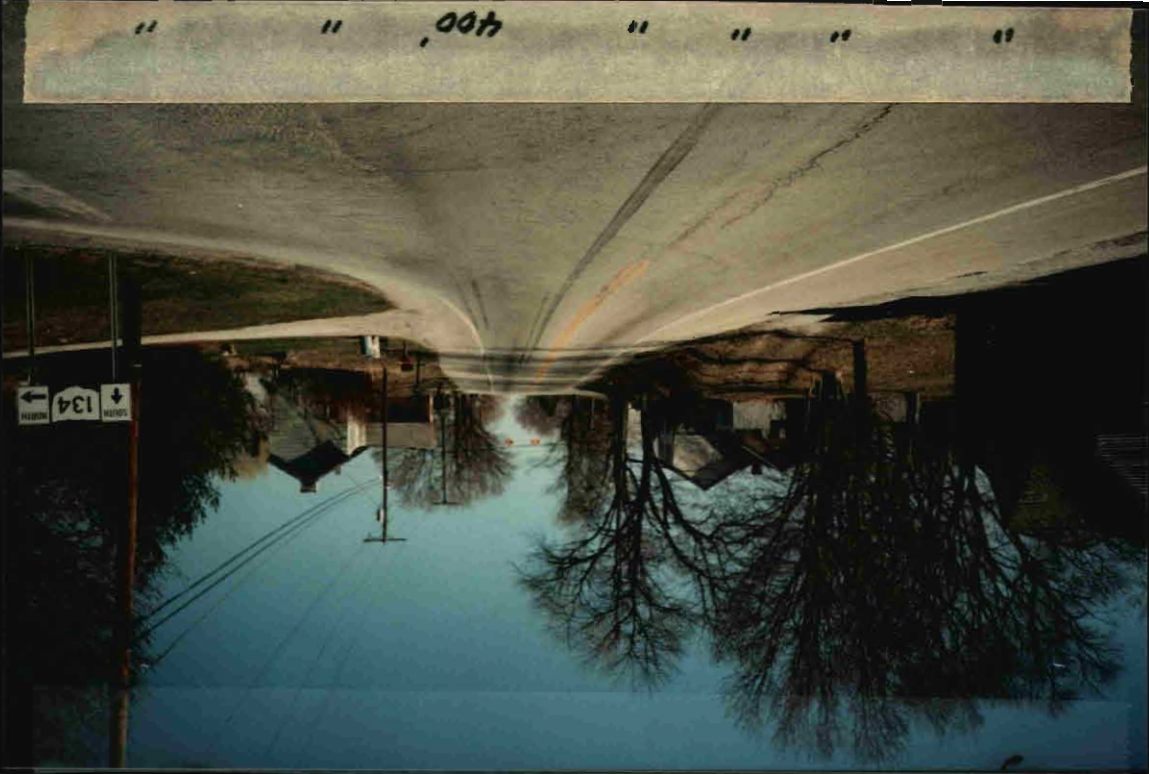
Looking West on U.S. 50 / 1000' from Intersection

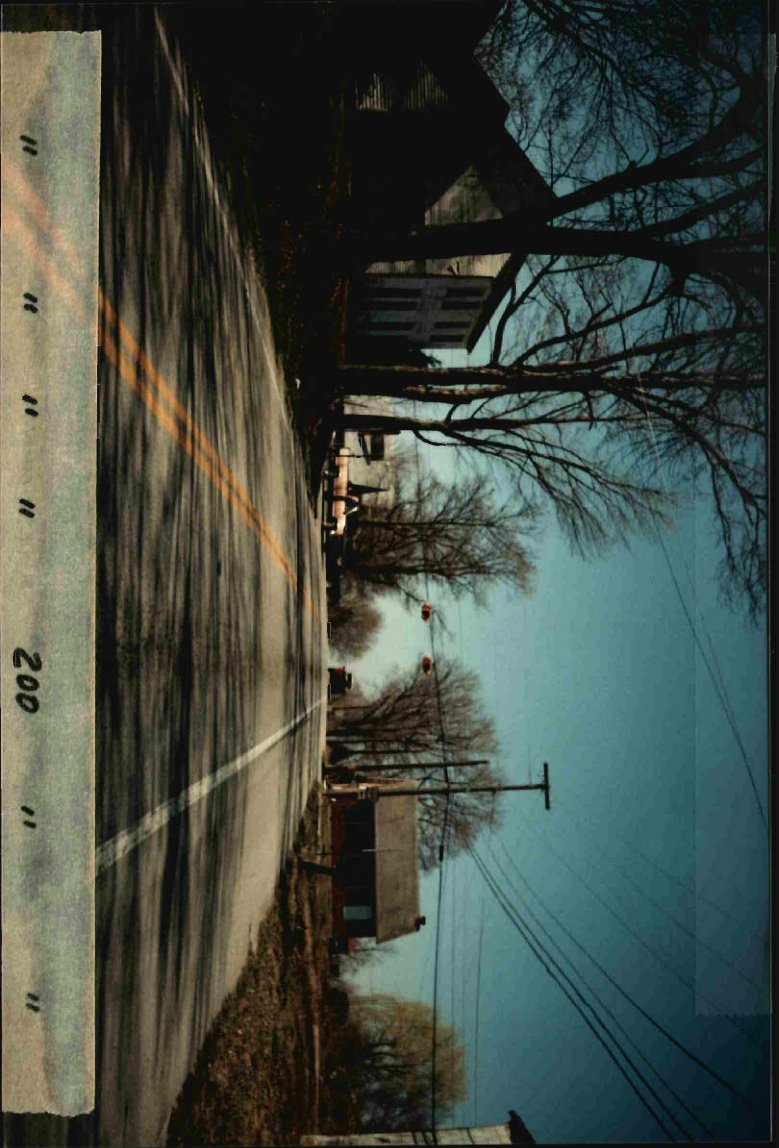


" " 800 " " " "









" " " " 200 " "

Looking North on S.R. 134 / 1000' from Intersection







400  
" " " " " "





ISD North leg of S.R. 134





134



NORTH

SOUTH





ISD South Leg of S.R. 134

































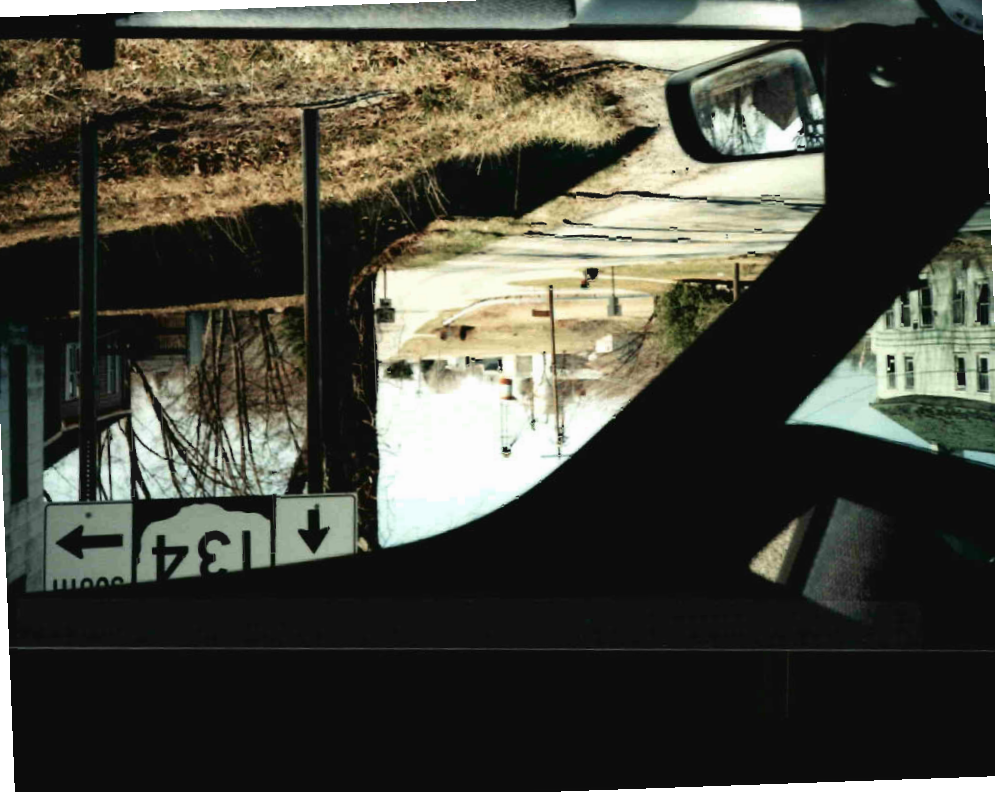












← 134 ↓



Intersection Study

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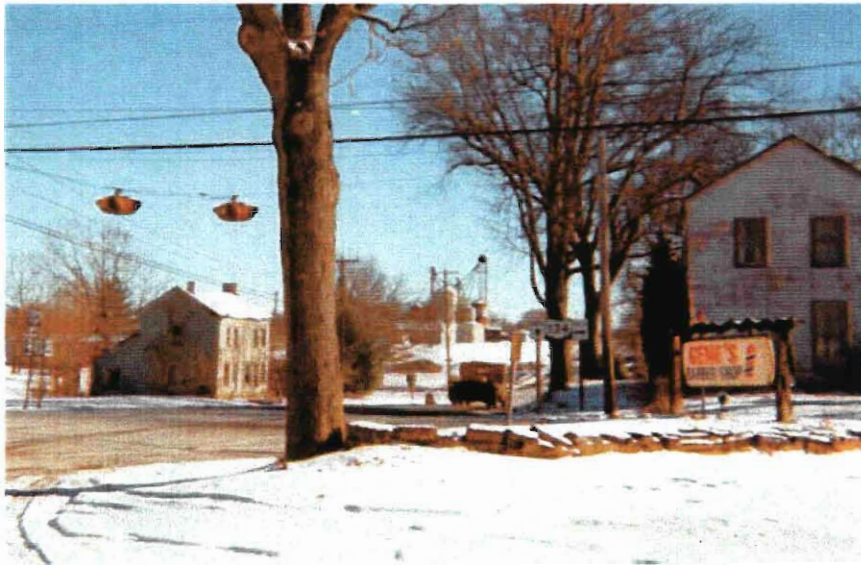
**HIG-50-2.18**  
**USR 50 AND SR134**

General Engineering Services Contract  
PID No. 19194

Prepared for: ODOT District 9

January 19, 2001





## Intersection Study

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# **HIG-50-2.18** **USR 50 AND SR 134**

General Engineering Services Contract  
PID No. 19194

Prepared for: ODOT District 9

January 19, 2001

**WOOLPERT LLP**  
2760 Airport Drive, Suite 140  
Columbus, Ohio 43219



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# TABLE OF CONTENTS

Narrative ..... Section 1

Photographs of Study Site ..... Section 2

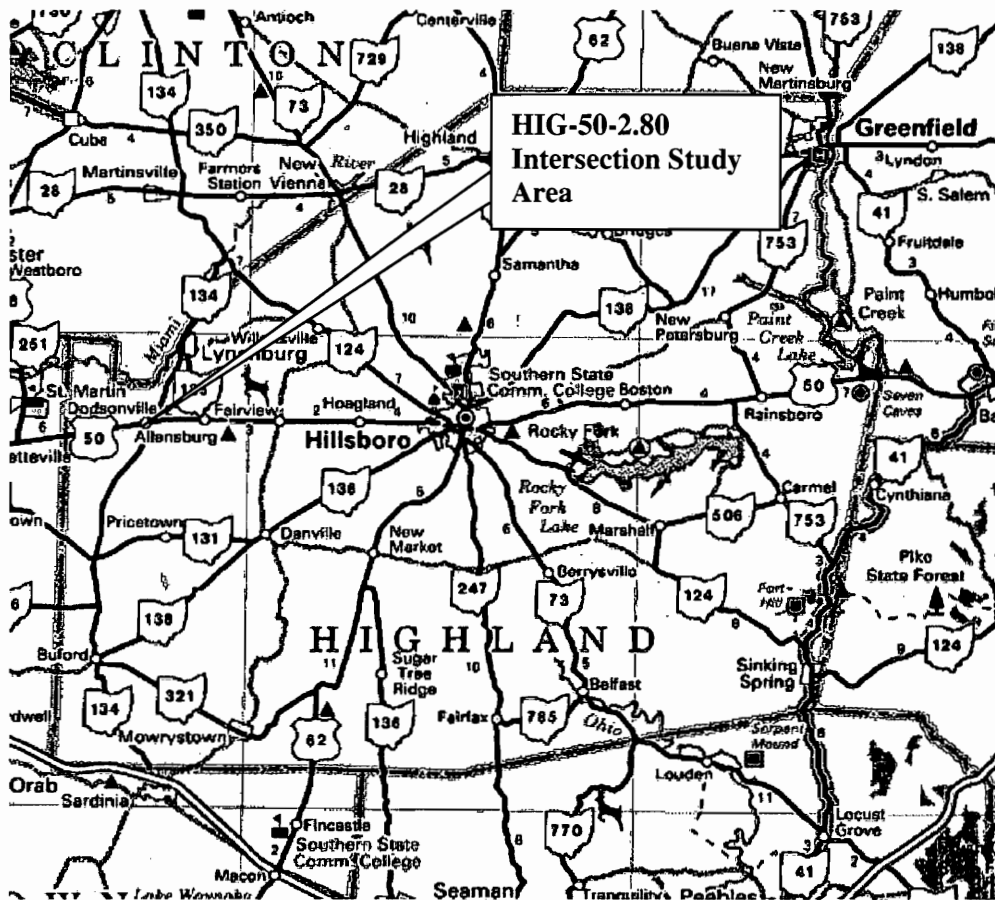
Cost Estimates ..... Section 3

Appendix .....

# INTERSECTION STUDY NARRATIVE

The purpose of this intersection study is to assess site physical conditions, provide several preliminary alignment and profile alternatives based upon "45-MPH" intersection sight distance (ISD) and stopping sight distance (SSD) design criteria. In addition, it is the intent to identify and recommend several cost-effective countermeasures designed to enhance traffic operation and safety by increasing intersection performance efficiency. An additional purpose is to evaluate environmental and right-of-way impacts of each alternative. Cost comparisons of the various alternatives are also presented herein.

## STUDY AREA MAP



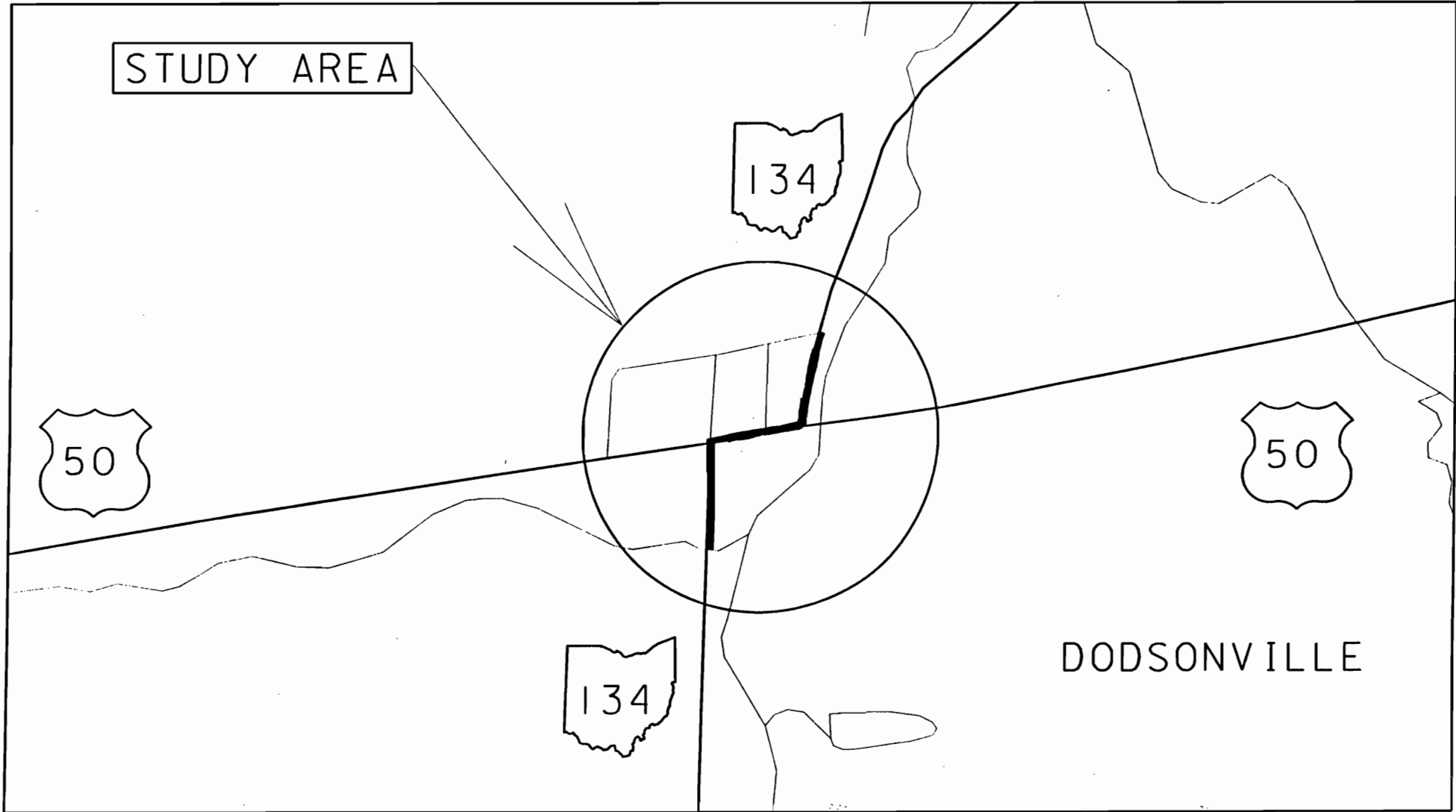
## STUDY AREA DESCRIPTION

United States Route 50 is classified as a rural arterial east-west route. It intersects the north-south route SR 134 in the unincorporated community of Dodsonville in Dodson Township in Highland County, Ohio. The south leg (or northbound approach) and the north leg (or southbound approach) do not intersect USR 50 at the same point resulting in a jogged intersection for SR 134 traffic. A distance of approximately 350 feet separates the SR 134 approaches. An elementary and high school complex is soon to be opened near the study location. The school complex is located approximately 1/2 mile south on SR 134 from the study area and it will generate typical school type traffic such as school buses, cars, and pedestrian traffic. The posted speed on USR 50 is 45 MPH. SR 134 is posted at 55 MPH, but has "Reduce Speed Ahead" signs (R-11Bs) posted on the SR 134 approaches. See the enlarged study area diagram for more details on the following page.

STUDY AREA



DODSONVILLE



Northbound SR 134 traffic arriving at the stopped approach to USR 50 are presented with a crest vertical curve to their left which significantly limits their cross corner or intersection sight distance. While on the other hand, they are presented with a sag vertical curve to the right due to the presence of the lower lying ground and the bridge over Snitch Creek. Likewise, southbound SR 134 traffic arriving at the stopped approach to USR 50 are presented with a crest vertical curve to their right which significantly limits their cross corner or intersection sight distance. While on the other hand, they are presented with a sag vertical curve to the left due to the presence of the lower lying ground and the bridge over Snitch Creek.

## EXISTING CONDITIONS WITHIN THE STUDY AREA

The existing study area is basically an intersection with two intersecting approaches offset approximately 350 feet. USR 50 is the major road with the SR 134 approaches operating as minor roads. The crest vertical curve to the west of the intersection coupled with the sag vertical curve to the east along with the SR 134 offset approaches make this intersection difficult for many motorists to negotiate safely. Furthermore, the west intersection operates with an intersection control beacon, which provides a caution warning to USR 50 traffic of the intersection's existence. The following accident, volume, and speed data further describe the existing characteristics of the study location.

## TRAFFIC ACCIDENT DATA

During the three year period beginning January 1, 1997 and ending December 31, 1999 there were four accidents. Three were logged for the west intersection of USR 50 and SR 134 and one was logged for the east intersection of USR 50 and SR 134. The accident data is summarized in the following table:

<b>ACCIDENT DATA SUMMARY</b>	<i>Roadway</i>			
Date	08/12/97	07/20/98	11/13/98	02/22/97
Intersection	West	West	West	East
Time of Day	12:00 PM	11:10 AM	1:35 PM	8:00 PM
Day of Week	Tuesday	Monday	Friday	Sunday
Light Conditions	Daylight	Daylight	Daylight	Dark
Fatality	None	None	None	None
Injury	None	Yes	None	None
PDO	Yes	None	Yes	Yes
Weather Conditions	Clear	Clear	Clear	Clear
Road Conditions	Dry	Dry	Dry	Dry

Driver characteristics associated with these four accidents are presented in the table below. The predominant accident type appears to be angle accidents. However, the sheer lack of a greater number of Accidents over a three-year period limit any statistically significant accident pattern that could be established. It also makes it difficult selecting any associated realistic countermeasure based upon such limited accident data.

<b>ACCIDENT DATA SUMMARY Driver</b>				
Accident Type	Rear End	Angle	Angle	Angle
Direction At Fault Driver	WB USR 50	NB SR 134	NB SR 134	NB SR 134
Speed At Fault Driver	35 MPH	35 MPH	10 MPH	30 MPH
Driver Condition	Normal	Normal	Normal	Normal
Violation	UACD	FTY	FTY	FTY

### TRAFFIC VOLUME DATA

The project design designation data is as described in the table below:

<b>PROJECT DESIGN DESIGNATION INFORMATION</b>	
Opening Year Average Daily Traffic --- 2002	3300
Design Year Average Daily Traffic --- 2022	3900
Design Hour Volume --- 2022	390
Directional Distribution	55%
Trucks (24 Hour B & C)	13%

## SPEED DATA

The speed data collected for this location by District Nine personnel is included within this report in the Appendix. The speed statistics summary based upon this data are as follows for the each direction of travel on USR 50 as shown in the table below:

<i>SPEED STATISTIC PARAMETER</i>	<i>SPEED PARAMETER VALUE</i>	<i>SPEED PARAMETER VALUE</i>
<b>SPEED MEASUREMENT DIRECTION</b>	<b>WESTBOUND</b>	<b>EASTBOUND</b>
15 <sup>th</sup> PERCENTILE SPEED	40 MPH	39 MPH
MEDIAN SPEED	44 MPH	44 MPH
AVERAGE SPEED -ALL VEHICLES	46.5 MPH	45.1 MPH
85 <sup>th</sup> PERCENTILE SPEED	50 MPH	49 MPH
95 <sup>th</sup> PERCENTILE SPEED	54 MPH	54 MPH
10 MPH PACE SPEED	40-50 MPH	40-50 MPH
NUMBER OF VEHICLES IN PACE	65	65
PERCENT OF VEHICLES IN PACE	81.25%	87.84%
NUMBER OF VEHICLES > 55 MPH	5	3
PERCENT OF VEHICLES > 55 MPH	6.25%	4.05%

## DESCRIPTIONS OF ALTERNATIVE IMPROVEMENTS & CORRESPONDING IMPACTS

### *Alternative # 1 "Cut-Down-the-Crest-Vertical-Curves" on West Leg of USR 50 & South Leg of SR 134*

This alternative consists of two parts. The first is cutting the crest vertical curve or lowering the roadway profile on USR 50 from approximately station 12+75 to station 18+10. The cutting may be severe or moderate depending on cost and cross section impacts on USR 50. The purpose being to improve the stopping sight distance (SSD) and the intersection sight distance (ISD) using a 3.5 feet "height-of-eye" and a 4.25 feet "height-of-object" standards based upon a design speed of 45 MPH.

The second improvement is cutting the crest vertical curve or lowering the roadway profile on SR 134 on the south leg for northbound traffic from approximately station 12+40 to station 15+33. The cutting may be severe or moderate depending on cost and cross section impacts on SR 134. The purpose being to improve the stopping sight distance (SSD) and the intersection sight distance (ISD) using a 3.5 feet "height-of-eye" and a 4.25 feet "height-of-object" standards based upon a design speed of 45 MPH.

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The negative impact of this alternative is that it lowers the pavement elevation for frontage properties along both USR 50 and SR 134. This causes what amounts to real damage in that adjustments to steps, sidewalks, and a handicapped entrance ramp, to one particular residence, would all have to be made to tie the adjacent property frontages to the lower profile alignment. These impacts will be more severe for USR 50 property frontages than for SR 134 frontages.

Right-of-Way easements would be needed for the construction of U.S. 50 and U.S. 134. This would include ten foot easements on the north and south sides of U.S. 50 as well as ten foot easements on the east and west sides of U.S. 134. The total area of the easements is approximately 0.5 acres and would be affecting eight parcels along these easements.

In addition, two variations of this alternative are feasible. The first involves cutting the existing profiles on both USR 50 and SR 134 South Approach to meet ODOT standards, while, the other variation involves more moderate profile cuts. The more moderate cuts would require design exception approval. Although meeting required standards is always desirable for improvements, fiscal restraints should be considered.

Maintaining traffic operations will be significant with this alternative as "half-width" construction techniques are mandated for it. Lost capacity during the various construction phases will result in significant delays.

After a cursory field review of the project site, it appears that there are no significant issues regarding hazardous waste, wetlands and farmlands or other major environmental concerns related to this alternative. A cultural resource literature search would be required if this alternative is selected.

<See Figure 1-1a and 1-1b>

***Alternative # 2 "Raise-the-Sag-Vertical-Curve" on East Leg of USR 50***

This alternative involves raising the profile of USR 50 from approximately station 15+00 to station 25+00 in order to improve the stopping sight distance (SSD) and the intersection sight distance (ISD). Use of a 3.5 feet "height-of-eye" and a 4.25 feet "height-of-object" standards based upon a design speed of 45 MPH would be appropriate.

The negative impact of this alternative is that it is not realistic from a cost containment perspective and was not pursued as a feasible or practical solution. This alternative involves a section of USR 50 with a bridge over Snitch Creek. Raising the roadway profile for USR 50 by several feet over Snitch Creek is economically prohibitive. The construction cost for this alternative in contrast to benefit gained would not be justified on the basis of sound engineering economic principles.

Construction of this alternative would mandate complete closure of all intersection approaches on both USR 50 and SR 134.

After a cursory field review of the project site, it appears that there are no significant issues regarding hazardous waste, wetlands and farmlands or other major environmental concerns related to this alternative. Raising the sag vertical curve would most likely require an ecological survey for Snitch Creek. A cultural resource literature search would be required if this alternative is selected.

Right-of-Way impacts associated with this cost-prohibitive alternative were not developed.

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***Alternative # 3 “Realign NB SR 134 Approach—Without Elimination of the Intersection Jog”***

This alternative involves relocation of the south leg for northbound SR 134 traffic so that it intersects USR 50 at station 14+95 rather than at its current intersection at station 16+75. This realignment scheme for this approach essentially moves the present T-intersection to the west a sufficient distance, so that it intersects USR 50 near the top of the crest vertical curve. Thus resulting in improved stopping sight distance (SSD) for USR 50 traffic and intersection sight distance (ISD) for SR 134 northbound traffic.

Right-of-Way acquisition would be needed as well as removal of three existing structures (house trailer, business auto repair shop, and wood frame house) for the new alignment of U.S. 134. The new alignment would involve three parcels with a total Right-of-Way take of approximately 1.0 acres.

The negative impact of this alternative is that it would require taking one residential property, one business property and one combined residential/business property in order to provide for the new approach alignment and connection to USR 50. Its adoption still results in SR 134 approaches being offset to an even greater distance.

Maintaining traffic operations will be less significant for this alternative as “half-width” construction techniques are not required. The realigned south approach of SR 134 will be all new construction and will not have significant direct negative impacts on USR 50 and SR 134 traffic. Some capacity losses during the various construction phases will result in moderate delays.

After a cursory field review of the project site, it appears that there are no significant issues regarding hazardous waste, wetlands and farmlands or other major environmental concerns related to this alternative. A cultural resource literature search would be required if this alternative is selected.

<See Figure 1-2>

***Alternative # 4 “Realign NB SR 134 Approach—With Elimination of the Intersection Jog”***

This alternative involves relocation of the south leg for northbound SR 134 traffic so that it intersects USR 50 at station 20+35 rather than at its current intersection at station 16+75. This realignment scheme for this approach essentially moves the present T-intersection to the east a sufficient distance, so that it intersects USR 50 near the bottom of the sag vertical curve. This alternative will result in improved stopping sight distance (SSD) for USR 50 traffic and intersection sight distance (ISD) for SR 134 northbound and southbound traffic, as well as, aligning the north and south legs of SR 134 to be across from each other.

Right-of-Way would also need to be acquired for the new alignment. Two parcels would be affected by this new alignment including two existing structures (barn and barn/garage). The total amount of Right-of-Way acquired is approximately 1.0 acres.

The negative impacts of this alternative is that it would require taking portions of two farm/residential properties with each having barns that would require demolition. One of the two barns, the one closer to USR 50 is currently falling and in a state of disrepair.

Maintaining traffic operations will be less significant for this alternative as “half-width” construction techniques are not required. The realigned south approach of SR 134 will be all new construction and will not have significant direct negative impacts on USR 50 and SR 134 traffic. Some capacity losses during the various construction phases will result in moderate delays.



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After a cursory field review of the project site, it appears that there are no significant issues regarding hazardous waste, wetlands and farmlands or other major environmental concerns related to this alternative. A cultural resource literature search would be required if this alternative is selected.

In regard to the historical impacts associated with this alternative, the following is offered. The two-story wood frame barn located along the eastside of the south intersection leg of the west T-intersection of USR 50 and SR 134 at Station 12+75, 45' right is potentially historic. If this is determined to be the case after more study, a moderate variation of this alternative's horizontal alignment can be developed to avoid the need to take this structure. This would result in additional construction costs of approximately \$33,000.00.

In addition, the combination wood frame structure, dilapidated barn and block garage located along the south side of the east T-intersection of USR 50 and SR 134 at Station 19+75, 45' right has probably been altered too much to be eligible for inclusion in the National Register of Historic Buildings.

<See Figure 1-3>

## **CONSTRUCTION COST ESTIMATES FOR EACH ALTERNATIVE IMPROVEMENT**

### ***Alternative # 1 "Cut-Down-the-Crest-Vertical-Curves" on West Leg of USR 50 & South Leg of SR 134***

The approximate construction cost estimate for this alternative is \$322,000.

### ***Alternative # 2 "Raise-the-Sag-Vertical-Curve" on East Leg of USR 50***

This alternative is assumed to be cost prohibitive, therefore no approximate cost was developed.

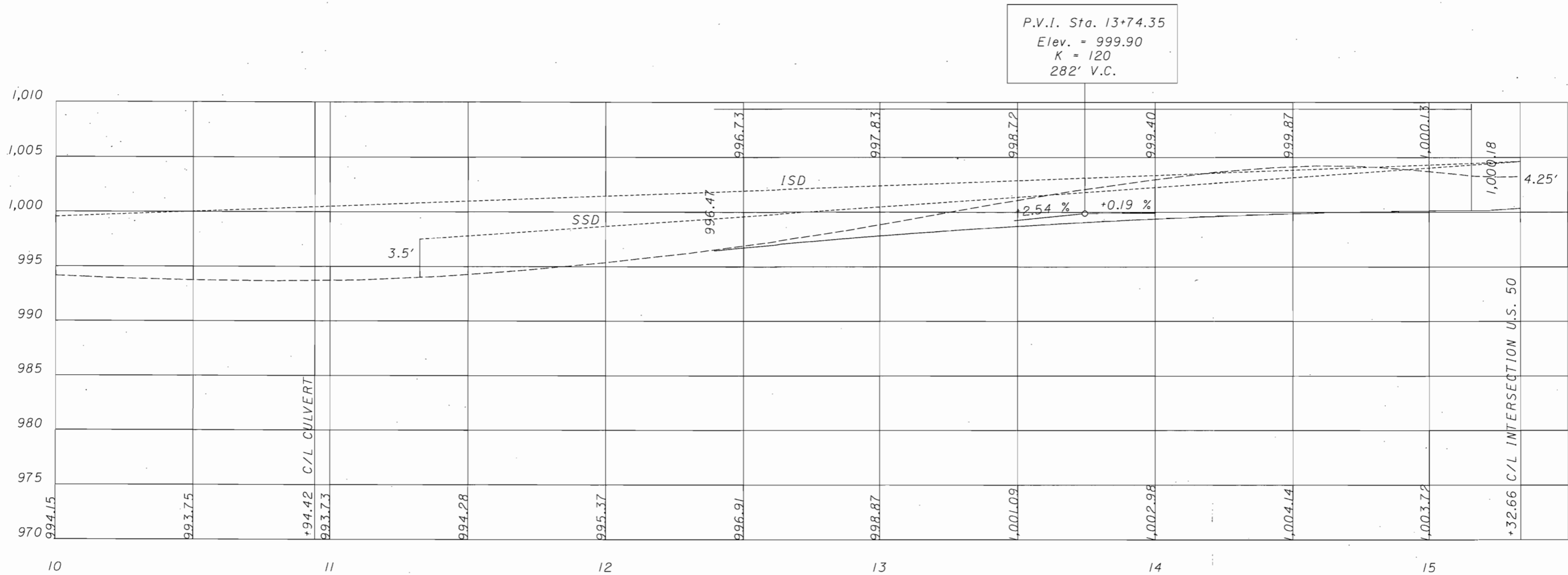
### ***Alternative # 3 "Realign NB SR 134 Approach—Without Elimination of the Intersection Jog"***

The approximate construction cost estimate for this alternative is \$524,000.

### ***Alternative # 4 "Realign NB SR 134 Approach—With Elimination of the Intersection Jog"***

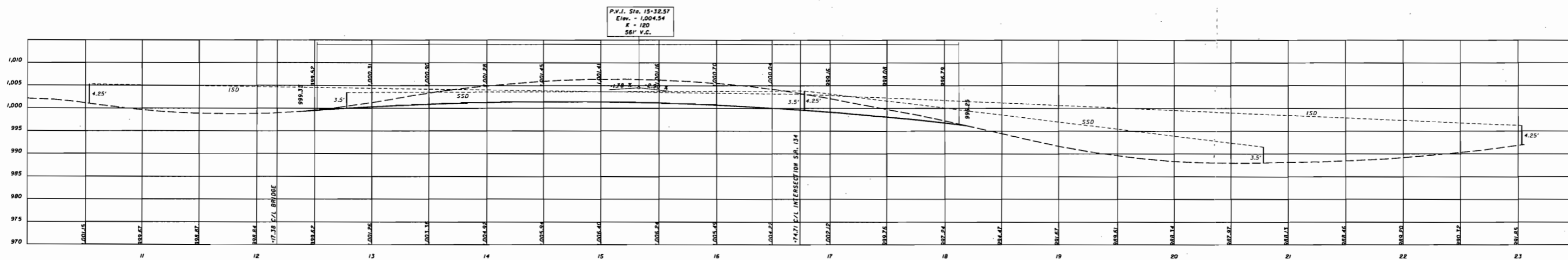
The approximate construction cost estimate for this alternative is \$297,000.

The Construction Costs for each Alternative are described in detail in Section 3 of this document.



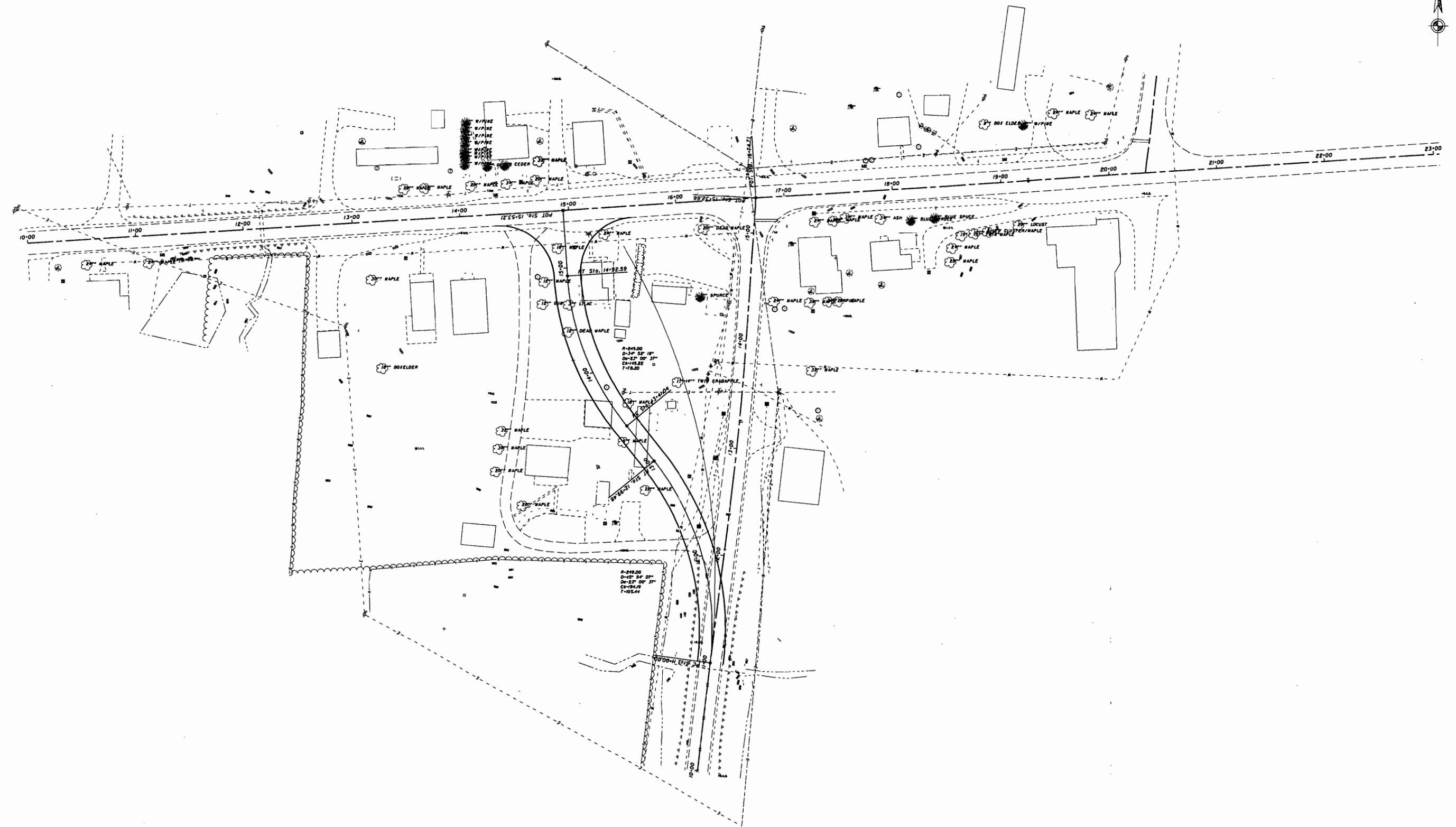
S.R. 134 - Existing Alignment Proposed Profile Alternative No. 1

Figure 1-1a



U.S. 50 - Existing Alignment Proposed Profile Alternative No. 1

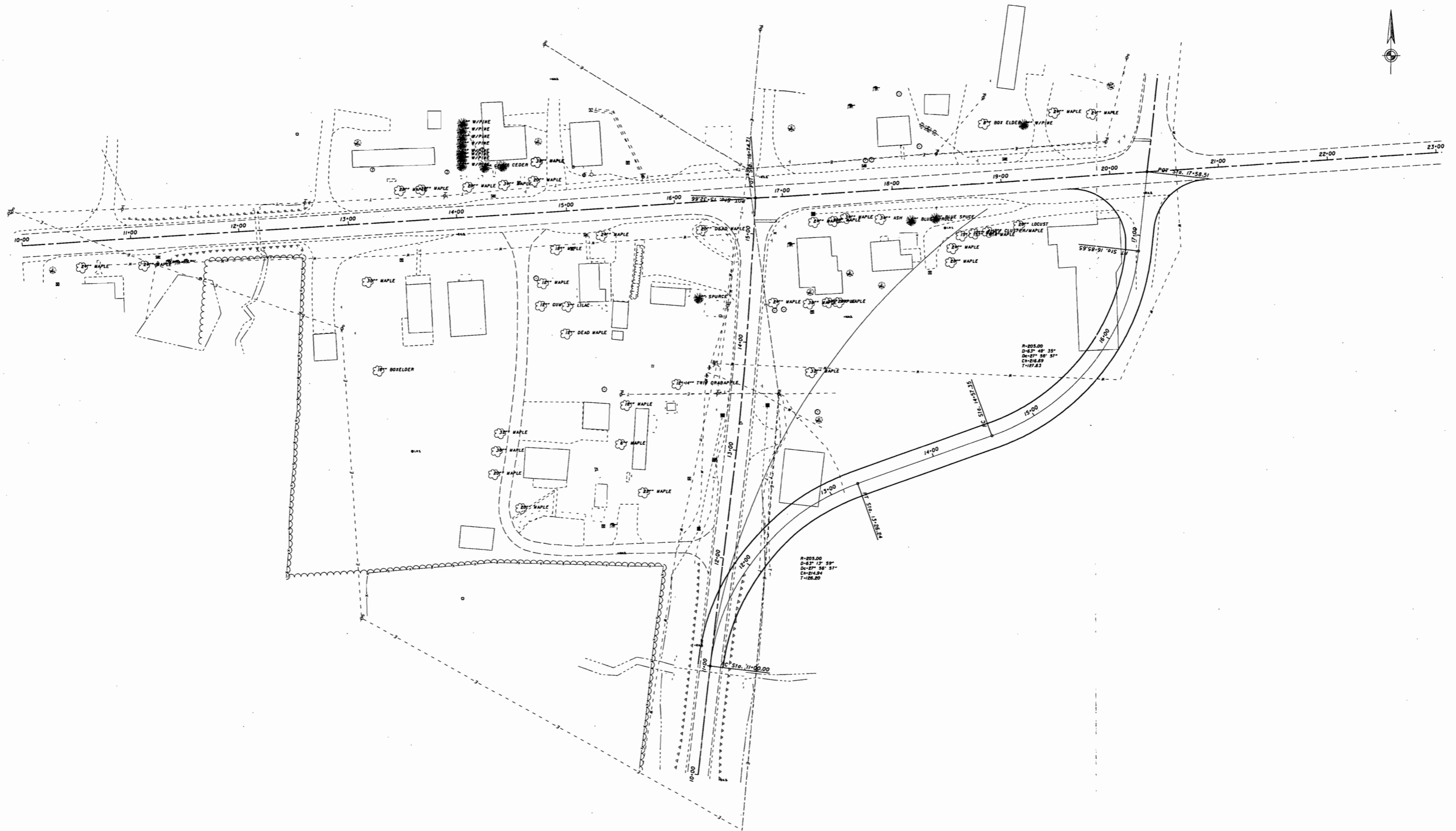
Figure 1-1b



WOOLPERT

S.R. 134 - Proposed Alignment Alternative No. 3

Figure 1-2



S.R. 134 - Proposed Alignment Alternative No. 4

Figure 1-3





# USR 50 & SR 134

## Photographs of Study Site

**LOOKING EAST ON WEST LEG OF USR 50 & SR 134**



LOOKING EAST ON USR 50 1,000 FEET FROM INTERSECTION



LOOKING EAST ON USR 50 800 FEET FROM INTERSECTION



LOOKING EAST ON USR 50 600 FEET FROM INTERSECTION



LOOKING EAST ON USR 50 400 FEET FROM INTERSECTION





LOOKING EAST ON USR 50 200 FEET FROM INTERSECTION

**LOOKING WEST ON EAST LEG OF USR 50 & SR 134**



LOOKING WEST ON USR 50 1,000 FEET FROM INTERSECTION



LOOKING WEST ON USR 50 800 FEET FROM INTERSECTION



LOOKING WEST ON USR 50 600 FEET FROM INTERSECTION



LOOKING WEST ON USR 50 400 FEET FROM INTERSECTION



LOOKING WEST ON USR 50 200 FEET FROM INTERSECTION

**LOOKING NORTH ON SOUTH LEG OF SR 134 & USR 50  
WEST INTERSECTION**



LOOKING NORTH ON SR 134 1,000 FEET FROM INTERSECTION



LOOKING NORTH ON SR 134 800 FEET FROM INTERSECTION



LOOKING NORTH ON SR 134 600 FEET FROM INTERSECTION



LOOKING NORTH ON SR 134 400 FEET FROM INTERSECTION



LOOKING NORTH ON SR 134 200 FEET FROM INTERSECTION

**CROSS CORNER SIGHT DISTANCE FOR EAST AND WEST INTERSECTIONS**



ISD (CCSD)--LOOKING EAST FROM SR 134 SOUTHBOUND APPROACH  
OR NORTH LEG AT EAST INTERSECTION



ISD(CCSD)--LOOKING WEST FROM SR 134 SOUTHBOUND APPROACH  
OR NORTH LEG AT EAST INTERSECTION



ISD(CCSD)--LOOKING WEST FROM SR 134 NORTHBOUND APPROACH  
OR SOUTH LEG AT WEST INTERSECTION



ISD(CCSD)--LOOKING EAST FROM SR 134 NORTHBOUND APPROACH  
OR SOUTH LEG AT WEST INTERSECTION

**LOOKING SOUTH ON US 134 ON NORTH LEG OF USR 50/SR  
134 EAST INTERSECTION**



LOOKING SOUTH ON SR 134 / 1000 FEET FROM INTERSECTION





LOOKING SOUTH ON SR 134 / 800 FEET FROM INTERSECTION



LOOKING SOUTH ON SR 134 / 600 FEET FROM INTERSECTION



LOOKING SOUTH ON SR 134 / 400 FEET FROM INTERSECTION



LOOKING SOUTH ON SR 134 / 200 FEET FROM INTERSECTION



LOOKING SOUTH ON SR 134 / 100 FEET FROM INTERSECTION

**VARIOUS LAND USE DESCRIPTIONS**



LAND USE EAST INTERSECTION SOUTH OF US 50



LAND USE EAST INTERSECTION SOUTH OF US 50



LAND USE EAST INTERSECTION SOUTH OF US 50

**LOOKING WEST ON USR 50 FROM EAST INTERSECTION**



US 50 WESTBOUND



US 50 WESTBOUND (LAND USE KARATE SCHOOL)



US 50 WESTBOUND



US 50 WESTBOUND

**LOOKING EAST ON USR 50 FROM WEST INTERSECTION**



US 50 EASTBOUND



US 50 EASTBOUND



US 50 EASTBOUND



INTERSECTION CONTROL BEACON (WEST INTERSECTION)





INTERSECTION CONTROL BEACON (WEST INTERSECTION)

## CULVERT OVER SNITCH CREEK



CULVERT ON US 50, EAST OF PROJECT



CULVERT ON US 50, EAST OF PROJECT



CULVERT ON US 50, EAST OF PROJECT

**CEMETERY ALONG WEST SIDE OF SR 134 SOUTHBOUND**



CEMETARY NEAR PROJECT SITE



CEMETARY NEAR PROJECT SITE



CEMETARY NEAR PROJECT SITE

**NEW SCHOOL COMPLEX SITE HALF MILE SOUTH OF USR  
50 ON SR 134 SOUTH LEG**



SCHOOL SITE NEAR PROJECT SITE



SCHOOL SITE NEAR PROJECT SITE



SCHOOL SITE NEAR PROJECT SITE

## COST ESTIMATES FOR INTERSECTION IMPROVEMENTS

	Alternative #1	Alternative#2	Alternative #3	Alternative #4
<b>Roadway</b>	\$168,800.75	Cost Prohibitive	\$143,472.50	\$156,219.40
<b>Traffic Control</b>	\$20,247.25	Cost Prohibitive	\$26,579.25	\$26,579.25
<b>Highway Lighting</b>	\$15,715.00	Cost Prohibitive	\$15,715.00	\$15,715.00
<b>Maintaining Traffic</b>	\$74,998.80	Cost Prohibitive	\$29,975.80	\$29,975.80
<b>Land &amp; Buildings</b>	\$0.00	Cost Prohibitive	\$240,000.00	\$30,000.00
<b>15% Contingency</b>	\$41,964.27	Cost Prohibitive	\$68,361.38	\$38,773.42
<b>Project Total</b>	<b>\$321,726.07</b>	<b>Cost Prohibitive</b>	<b>\$524,103.93</b>	<b>\$297,262.87</b>

## Total Project Cost Analysis

<b>Alternative #4 - Realign South Leg SR 134 to East</b>	<b>\$297,262.87</b>
<b>Alternative #1 - Lower Profiles on USR 50 and SR 134 South Leg</b>	<b>\$321,726.07</b>
<b>Alternative #3 - Realign South Leg SR 134 to West</b>	<b>\$524,103.93</b>
<b>Alternative #2 - Raise Sag Vertical Curve on USR 50</b>	<b>Cost Prohibitive</b>

**ALTERNATIVE # 1--LOWER PROFILES ON USR 50 AND SR 134 SOUTH LEG**

<b>ITEM NO</b>	<b>DESCRIPTION</b>	<b>ESTIMATED QUANTITIES</b>	<b>UNIT</b>	<b>UNIT COST TOTAL</b>	<b>TOTAL COST</b>
<b>Roadway</b>					
202	Pavement Removed	1500	S.Y.	\$ 6.00	\$ 9,000.00
202	Walk Removed	75	S.Y.	\$ 0.65	\$ 48.75
202	Tree Removed 30"	4	EACH	\$ 750.00	\$ 3,000.00
203	Excavation	10000	C.Y.	\$ 5.00	\$ 50,000.00
203	Embankment	1000	C.Y.	\$ 4.00	\$ 4,000.00
203	Subgrade Compaction	2400	S.Y.	\$ 1.00	\$ 2,400.00
301	Bituminous Aggregate Base	600	C.Y.	\$ 55.00	\$ 33,000.00
304	Aggregate Base	410	C.Y.	\$ 22.00	\$ 9,020.00
448	Asphalt Concrete, Surface Course	80	C.Y.	\$ 70.00	\$ 5,600.00
448	Asphalt Concrete, Intermediate Course	110	C.Y.	\$ 72.00	\$ 7,920.00
408	Bituminous Prime Coat	960	GAL	\$ 1.00	\$ 960.00
448	Asphalt Concrete, Surface Course Driveways	15	C.Y.	\$ 100.00	\$ 1,500.00
448	Asphalt Concrete, Intermediate Course Driveways	15	C.Y.	\$ 86.00	\$ 1,290.00
605	Aggregate Drains	10	C.Y.	\$ 7.00	\$ 70.00
870	Seeding and Mulching	1800	S.Y.	\$ 0.50	\$ 900.00
610	Retaining Wall	70	S.Y.	\$ 250.00	\$ 17,500.00
608	Concrete Steps	22	L.F.	\$ 86.00	\$ 1,892.00
690	Special Mailbox Support	2	Each	\$ 100.00	\$ 200.00
877	Erosion Control	Lump		\$ 8,000.00	\$ 8,000.00
619	Field Office	Lump		\$ 4,500.00	\$ 4,500.00
623	Construction Staking	Lump		\$ 4,000.00	\$ 4,000.00
624	Mobilization	Lump		\$ 4,000.00	\$ 4,000.00
	<b>SUBTOTAL</b>				<b>\$ 168,800.75</b>
<b>Traffic Control</b>					
642	Edge Line	1.14	MILE	\$ 1,030.00	\$ 1,170.45
642	Center Line	0.57	MILE	\$ 1,955.00	\$ 1,110.80
642	Stop Line	96.00	L.F.	\$ 5.00	\$ 480.00
202	Raised Pavement Marker Removed for Storage	38	EACH	\$ 5.00	\$ 190.00
621	Raised Pavement Marker Installation Only	38	EACH	\$ 12.00	\$ 456.00
621	Raised Pavement Marker Casting Installation Only	5	EACH	\$ 11.00	\$ 55.00
621	Prismatic Retroreflector	5	EACH	\$ 7.00	\$ 35.00
632	Removal of Intersection Control Beacon, as per Plan	1	EACH	\$ 1,870.00	\$ 1,870.00
632	Vehicular Signal Head, 1-Section, 12 Inch Lens 4-Way	2	EACH	\$ 685.00	\$ 1,370.00
632	Strain Pole, Type TC-81.10M, Design 1	2	EACH	\$ 1,225.00	\$ 2,450.00
632	Strain Pole Foundation	2	EACH	\$ 1,600.00	\$ 3,200.00
633	Flasher Control Unit	1	EACH	\$ 770.00	\$ 770.00
632	Messenger Wire 7 Strand 3/8 Inch	60	L.F.	\$ 6.00	\$ 360.00
632	Signal Cable, 3-Conductor, No. 14 AWG	60	L.F.	\$ 2.00	\$ 120.00
632	Power Service	1	EACH	\$ 975.00	\$ 975.00
632	Power Cable, 2-Conductor, No. 8 AWG	50	L.F.	\$ 2.00	\$ 100.00
632	Conduit Riser, 2 Inch Diameter	20	L.F.	\$ 270.00	\$ 5,400.00
625	Ground Rod	1	EACH	\$ 135.00	\$ 135.00
	<b>SUBTOTAL</b>				<b>\$ 20,247.25</b>

<b>Highway Lighting</b>					
625	Light Pole	2	EACH	\$ 1,340.00	\$ 2,680.00
625	Light Pole Foundation	2	EACH	\$ 1,130.00	\$ 2,260.00
625	Ground Rod	2	EACH	\$ 135.00	\$ 270.00
625	Pull Box, Type 713.08, 18 Inch	3	EACH	\$ 465.00	\$ 1,395.00
625	Trench	150	L.F.	\$ 3.00	\$ 450.00
625	Trench In Paved Areas, Type A	50	L.F.	\$ 25.00	\$ 1,250.00
625	Trench In Paved Areas, Type B	50	L.F.	\$ 20.00	\$ 1,000.00
625	Conduit, 2 Inch, 713.07, Type-II or III	150	L.F.	\$ 5.00	\$ 750.00
625	Transformer Base	2	EACH	\$ 385.00	\$ 770.00
625	No.-10 AWG, Pole and Bracket Cable	100	L.F.	\$ 0.50	\$ 50.00
625	Power Service	1	EACH	\$ 2,255.00	\$ 2,255.00
625	Cable Splicing Kit	.4	EACH	\$ 60.00	\$ 240.00
625	1-1/2 Inch Duct-Cable with 3 No. 4 AWG, 5,000-Volt Cables	400	L.F.	\$ 3.00	\$ 1,200.00
625	High Voltage Test	Lump		\$ 1,145.00	\$ 1,145.00
	<b>SUBTOTAL</b>				<b>\$ 15,715.00</b>
<b>MAINTAINING TRAFFIC</b>					
614	Sign, Flat Sheet	300	S.F.	\$ 14.00	\$ 4,200.00
614	Work Zone Speed Limit Sign Overlay	5	EACH	\$ 120.00	\$ 600.00
614	Work Zone Marking Sign	10	EACH	\$ 85.00	\$ 850.00
614	Double Fines In Work Zone Sign	5	EACH	\$ 145.00	\$ 725.00
614	Temporary Edge Line, Class 1	1.14	MILE	\$ 670.00	\$ 763.80
614	Temporary Raised Pavement Markers, Type A	40	EACH	\$ 4.00	\$ 160.00
622	Portable Concrete Barrier, 32 Inch, as per Plan	1000	L.F.	\$ 12.00	\$ 12,000.00
626	Barrier Reflectors, Type B	40	EACH	\$ 5.00	\$ 200.00
614	Object Markers	40	EACH	\$ 9.00	\$ 360.00
614	Temporary Impact Attenuators	2	EACH	\$ 6,000.00	\$ 12,000.00
615	Temporary Pavement (pg. 64 Binder), Class A	300	S.Y.	\$ 20.00	\$ 6,000.00
614	Bituminous Concrete for Maintaining Traffic	40	C.Y.	\$ 135.00	\$ 5,400.00
616	Water	50	M.GAL	\$ 20.00	\$ 1,000.00
616	Calcium Chloride	9	TON	\$ 200.00	\$ 1,800.00
614	Portable Changeable Message Signs, as per Plan	3	SIGN-MO.	\$ 1,480.00	\$ 4,440.00
614	Replacement Drums	20	EACH	\$ 60.00	\$ 1,200.00
614	Replacement Signs	20	EACH	\$ 10.00	\$ 200.00
614	Removal of Pavement Markings	1000	L.F.	\$ 0.50	\$ 500.00
614	Law Enforcement Officer with Patrol Car	360	HOUR	\$ 35.00	\$ 12,600.00
614	Maintaining Traffic	Lump		\$ 10,000.00	\$ 10,000.00
	<b>SUBTOTAL</b>				<b>\$ 74,998.80</b>
	<b>15% Contingency</b>				<b>\$ 41,964.27</b>
<b>PROJECT TOTAL</b>				<b>\$</b>	<b>321,726.07</b>





**ALTERNATIVE # 3--REALIGN SOUTH LEG SR 134 TO WEST**

<b>ITEM NO</b>	<b>DESCRIPTION</b>	<b>ESTIMATED QUANTITIES</b>	<b>UNIT</b>	<b>UNIT COST TOTAL</b>	<b>TOTAL COST</b>
<b>Roadway</b>					
202	Structure Removal	Lump		\$ 24,000.00	\$ 24,000.00
202	Pavement Removed	1600	S.Y.	\$ 6.00	\$ 9,600.00
202	Guardrail Removed	400	L.F.	\$ 1.00	\$ 400.00
202	Catch Basin Removed	1	EACH	\$ 220.00	\$ 220.00
202	Pipe Removed	80	L.F.	\$ 12.00	\$ 960.00
203	Excavation	1500	C.Y.	\$ 5.00	\$ 7,500.00
203	Embankment	5500	C.Y.	\$ 4.00	\$ 22,000.00
203	Subgrade Compaction	2017.5	S.Y.	\$ 1.00	\$ 2,017.50
301	Bituminous Aggregate Base	650	C.Y.	\$ 55.00	\$ 35,750.00
304	Aggregate Base	340	C.Y.	\$ 22.00	\$ 7,480.00
448	Asphalt Concrete, Surface Course	70	C.Y.	\$ 70.00	\$ 4,900.00
448	Asphalt Concrete, Intermediate Course	90	C.Y.	\$ 72.00	\$ 6,480.00
408	Bituminous Prime Coat	810	GAL	\$ 1.00	\$ 810.00
605	Aggregate Drains	15	C.Y.	\$ 7.00	\$ 105.00
870	Seeding and Mulching	3200	S.Y.	\$ 0.50	\$ 1,600.00
877	Erosion Control	Lump		\$ 7,150.00	\$ 7,150.00
619	Field Office	Lump		\$ 4,500.00	\$ 4,500.00
623	Construction Staking	Lump		\$ 4,000.00	\$ 4,000.00
624	Mobilization	Lump		\$ 4,000.00	\$ 4,000.00
	<b>SUBTOTAL</b>				<b>\$ 143,472.50</b>
<b>Traffic Control</b>					
642	Edge Line	1.14	MILE	\$ 1,030.00	\$ 1,170.45
642	Center Line	0.57	MILE	\$ 1,955.00	\$ 1,110.80
642	Stop Line	96.00	L.F.	\$ 5.00	\$ 480.00
202	Raised Pavement Marker Removed for Storage	38	EACH	\$ 5.00	\$ 190.00
621	Raised Pavement Marker Installation Only	38	EACH	\$ 12.00	\$ 456.00
621	Raised Pavement Marker Casting Installation Only	5	EACH	\$ 11.00	\$ 55.00
621	Prismatic Retroreflector	5	EACH	\$ 7.00	\$ 35.00
626	Barrier Reflector, Type A	21	EACH	\$ 6.00	\$ 126.00
630	Sign, Flat Sheet, Type G	222	S.F.	\$ 15.00	\$ 3,330.00
630	Removal of Sign and Disposal, Flat Sheet	44	EACH	\$ 8.00	\$ 352.00
630	Ground-Mounted Support, No. 3	325	L.F.	\$ 6.00	\$ 1,950.00
630	Sign Backing Assembly	2	EACH	\$ 95.00	\$ 190.00
630	Removal of Ground-Mounted Post Support and Disposal	32	EACH	\$ 12.00	\$ 384.00
632	Removal of Intersection Control Beacon, as per Plan	1	EACH	\$ 1,870.00	\$ 1,870.00
632	Vehicular Signal Head, 1-Section, 12 Inch Lens 4-Way	2	EACH	\$ 685.00	\$ 1,370.00
632	Strain Pole, Type TC-81.10M, Design 1	2	EACH	\$ 1,225.00	\$ 2,450.00
632	Strain Pole Foundation	2	EACH	\$ 1,600.00	\$ 3,200.00
632	Flasher Control Unit	1	EACH	\$ 770.00	\$ 770.00
632	Messenger Wire 7 Strand 3/8 Inch	60	L.F.	\$ 6.00	\$ 360.00
632	Signal Cable, 3-Conductor, No. 14 AWG	60	L.F.	\$ 2.00	\$ 120.00
632	Power Service	1	EACH	\$ 975.00	\$ 975.00
632	Power Cable, 2-Conductor, No. 8 AWG	50	L.F.	\$ 2.00	\$ 100.00
632	Conduit Riser, 2 Inch Diameter	20	L.F.	\$ 270.00	\$ 5,400.00
625	Ground Rod	1	EACH	\$ 135.00	\$ 135.00
	<b>SUBTOTAL</b>				<b>\$ 26,579.25</b>



**ALTERNATIVE # 4--REALIGN SOUTH LEG SR 134 TO EAST**

<b>ITEM NO</b>	<b>DESCRIPTION</b>	<b>ESTIMATED QUANTITIES</b>	<b>UNIT</b>	<b>UNIT COST TOTAL</b>	<b>TOTAL COST</b>
<b>Roadway and Buildings</b>					
202	Structure Removal	Lump		\$ 16,000.00	\$ 16,000.00
202	Pavement Removed	1467	S.Y.	\$ 6.00	\$ 8,802.00
202	Guardrail Removed	400	L.F.	\$ 1.00	\$ 400.00
202	Catch Basin Removed	1	EACH	\$ 220.00	\$ 220.00
202	Pipe Removed	80	L.F.	\$ 12.00	\$ 960.00
203	Excavation	1500	C.Y.	\$ 5.00	\$ 7,500.00
203	Embankment	5500	C.Y.	\$ 4.00	\$ 22,000.00
203	Subgrade Compaction	2690	S.Y.	\$ 1.00	\$ 2,690.00
301	Bituminous Aggregate Base	650	C.Y.	\$ 55.00	\$ 35,750.00
304	Aggregate Base	450	C.Y.	\$ 22.00	\$ 9,900.00
448	Asphalt Concrete, Surface Course	90	C.Y.	\$ 70.00	\$ 6,300.00
448	Asphalt Concrete, Intermediate Course	125	C.Y.	\$ 72.00	\$ 9,000.00
408	Bituminous Prime Coat	1076	GAL	\$ 1.00	\$ 1,076.00
601	Rock Channel Protection with Fabric Filter	4	C.Y.	\$ 50.00	\$ 200.00
602	Concrete Masonry	1.72	C.Y.	\$ 620.00	\$ 1,066.40
603	24" Conduit, Type B	200	L.F.	\$ 65.00	\$ 13,000.00
605	Aggregate Drains	15	C.Y.	\$ 7.00	\$ 105.00
870	Seeding and Mulching	3200	S.Y.	\$ 0.50	\$ 1,600.00
877	Erosion Control	Lump		\$ 7,150.00	\$ 7,150.00
619	Field Office	Lump		\$ 4,500.00	\$ 4,500.00
623	Construction Staking	Lump		\$ 4,000.00	\$ 4,000.00
624	Mobilization	Lump		\$ 4,000.00	\$ 4,000.00
	<b>SUBTOTAL</b>				<b>\$ 156,219.40</b>
<b>Traffic Control</b>					
642	Edge Line	1.14	MILE	\$ 1,030.00	\$ 1,170.45
642	Center Line	0.57	MILE	\$ 1,955.00	\$ 1,110.80
642	Stop Line	96.00	L.F.	\$ 5.00	\$ 480.00
202	Raised Pavement Marker Removed for Storage	38	EACH	\$ 5.00	\$ 190.00
621	Raised Pavement Marker Installation Only	38	EACH	\$ 12.00	\$ 456.00
621	Raised Pavement Marker Casting Installation Only	5	EACH	\$ 11.00	\$ 55.00
621	Prismatic Retroreflector	5	EACH	\$ 7.00	\$ 35.00
626	Barrier Reflector, Type A	21	EACH	\$ 6.00	\$ 126.00
630	Sign, Flat Sheet, Type G	222	S.F.	\$ 15.00	\$ 3,330.00
630	Removal of Sign and Disposal, Flat Sheet	44	EACH	\$ 8.00	\$ 352.00
630	Ground-Mounted Support, No. 3	325	L.F.	\$ 6.00	\$ 1,950.00
630	Sign Backing Assembly	2	EACH	\$ 95.00	\$ 190.00
630	Removal of Ground-Mounted Post Support and Disposal	32	EACH	\$ 12.00	\$ 384.00
632	Removal of Intersection Control Beacon, as per Plan	1	EACH	\$ 1,870.00	\$ 1,870.00
632	Vehicular Signal Head, 1-Section, 12 Inch Lens 4-Way	2	EACH	\$ 685.00	\$ 1,370.00
632	Strain Pole, Type TC-81.10M, Design 1	2	EACH	\$ 1,225.00	\$ 2,450.00
632	Strain Pole Foundation	2	EACH	\$ 1,600.00	\$ 3,200.00
632	Flasher Control Unit	1	EACH	\$ 770.00	\$ 770.00
632	Messenger Wire 7 Strand 3/8 Inch	60	L.F.	\$ 6.00	\$ 360.00
632	Signal Cable, 3-Conductor, No. 14 AWG	60	L.F.	\$ 2.00	\$ 120.00
632	Power Service	1	EACH	\$ 975.00	\$ 975.00
632	Power Cable, 2-Conductor, No. 8 AWG	50	L.F.	\$ 2.00	\$ 100.00
632	Conduit Riser, 2 Inch Diameter	20	L.F.	\$ 270.00	\$ 5,400.00
625	Ground Rod	1	EACH	\$ 135.00	\$ 135.00
	<b>SUBTOTAL</b>				<b>\$ 26,579.25</b>





# USR 50 & SR 134

## Appendix

# TRAFFIC ACCIDENT ANALYSIS

Division No. 09

Time Period: From 1-1-97 to 12-31-99

Report No. \_\_\_\_\_

Location Intersection of U.S. 50 & S.R. 134 (West Intersection) County Highland

Page No. 1 of 1

LOCATION OF ACCIDENT								TYPE B DAY	VEH.	DRIVERS				INDICATE TRAFFIC COLLISION DIAGRAM		
DATE OF ACCIDENT	TIME	LIGHT	K.	INJ.	PD-§	WEATHER	ROAD COND.			DIR.	SPEED	COND.	VIOLATIONS			
8-12-97	P 12:00	D	0	0		Clear	Dry	Rear End	86 Whit	1	W	TK 35	N	Following Too Close		
REMARKS #1, 68, M, Goshen, OH								Tues	83 olds	2	W	C 0	N	None		
										3						
7-20-98	A 11:10	D	0	1		Clear	Dry	Angle	93 Plym	1	N	C 35	N	Ran Stop Sign		
REMARKS #1, 80, F, Fayetteville, OH								Mon	95 Mack	2	W	TT 45	N	None		
										3						
11-13-98	P 1:35	D	0	0		Clear	Dry	Angle	90 Pont	1	E	C 35	N	None		
REMARKS #2, 54, F, Fayetteville, OH								Fri	94 Ford	2	N	SUV 10	N	Failure To Yield		
										3						
										1						
										2						
										3						
										1						
										2						
										3						

### LEGEND

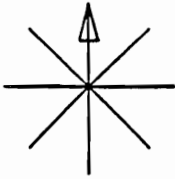
#### DIRECTIONAL ANALYSIS

- Motor vehicle movement before accident \_\_\_\_\_
- Vehicle movement after accident \_\_\_\_\_
- Pedestrian movement \_\_\_\_\_
- Sliding vehicle \_\_\_\_\_
- Vehicle overturning out of control \_\_\_\_\_

- Sideswipe \_\_\_\_\_
- Head-on collision \_\_\_\_\_
- Rear-end collision \_\_\_\_\_
- Vehicle struck fixed object \_\_\_\_\_
- Parked vehicle \_\_\_\_\_

#### CONDITION OF DRIVER

- N - Normal
- D - Drinking
- I - Intoxicated
- A - Asleep or Fatigued
- PD - Physical defect



INDICATE NORTH

# COLLISION DIAGRAM

TUE-8-12-97-12:00P-DRY-DAY

FRI-11-13-98-1:30P-DRY-DAY

MON-7-20-98-11:00A-DRY-DAY

U.S. 50  
(RD. NAME)

ACC SUMMARY

PD	2
INJ	1
TOTAL	3

S.R. 134  
(RD. NAME)

**SYMBOLS**

- MOVING VEHICLE
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN
- PARKED VEHICLE
- FIXED OBJECT
- FATAL ACCIDENT
- INJURY ACCIDENT

**TYPES OF COLLISIONS**

- REAR END
- HEAD ON
- SIDE SWIPE
- OUT OF CONTROL
- LEFT TURN
- RIGHT ANGLE

**SHOW FOR EACH ACCIDENT**

1. DAY, DATE, AND TIME
2. WEATHER AND ROAD SURFACE - IF UNUSUAL CONDITION EXISTED
3. NITE - IF BETWEEN DUSK AND DAWN

INTERSECTION High U.S. 50 AND S.R. 134  
 PERIOD 3 Years : FROM 1-1-97 TO 12-31-99



# TRAFFIC ACCIDENT ANALYSIS

Division No. 09

Time Period: From 1-1-97 to 12-31-99

Report No. \_\_\_\_\_

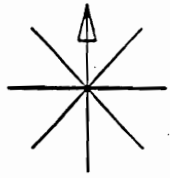
Location Intersection of U.S. 50 & S.R. 134 (East Intersection) County Highland

Page No. 1 of 1

LOCATION OF ACCIDENT							TYPE B DAY	VEH.	DRIVERS			COLLISION DIAGRAM		
DATE OF ACCIDENT	TIME	LIGHT	K.	INJ.	PD-#	WEATHER			ROAD COND.	DIR.	SPEED		COND.	VIOLATIONS
2-22-97	8:00 P	N	0	0		Clear	Dry	Angle	89 Toyo	1 S	C 30	N	Failure To Yield	<p style="text-align: center;">u.s. 50</p>
#1, 33, F, Milford, Ohio							Sat	86 Chev	2 W	C 30	N	None		

### LEGEND

- |   |   |
|---|---|
| <p><b>DIRECTIONAL ANALYSIS</b></p> <ul style="list-style-type: none"> <li>Motor vehicle movement before accident _____</li> <li>Vehicle movement after accident _____</li> <li>Pedestrian movement _____</li> <li>Sliding vehicle _____</li> <li>Vehicle overturning _____</li> <li>Sidewipe _____</li> <li>Head-on collision _____</li> <li>Rear-end collision _____</li> <li>Vehicle struck fixed object _____</li> <li>Parked vehicle _____</li> </ul> | <p><b>CONDITION OF DRIVER</b></p> <ul style="list-style-type: none"> <li>N - Normal</li> <li>D - Drinking</li> <li>I - Intoxicated</li> <li>A - Asleep or Fatigued</li> <li>PD - Physical defect</li> </ul> |
|---|---|

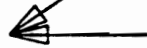


INDICATE NORTH

SAT-2-22-97-8:00P-DRY-NITE

S.R. 134


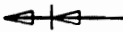
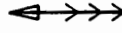
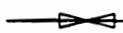










# COLLISION DIAGRAM



U.S. 50

### ACC SUMMARY

PD	1
INJ	0
TOTAL	1

SYMBOLS		TYPES OF COLLISIONS		SHOW FOR EACH ACCIDENT
	MOVING VEHICLE		REAR END	1. DAY, DATE, AND TIME  2. WEATHER AND ROAD SURFACE - IF UNUSUAL CONDITION EXISTED  3. NITE - IF BETWEEN DUSK AND DAWN
	BACKING VEHICLE		HEAD ON	
	NON-INVOLVED VEHICLE		SIDE SWIPE	
	PEDESTRIAN		OUT OF CONTROL	
	PARKED VEHICLE		LEFT TURN	
	FIXED OBJECT		RIGHT ANGLE	
	FATAL ACCIDENT			
	INJURY ACCIDENT			

INTERSECTION      Hig      U.S. 50      AND      S.R. 134       
 PERIOD      3 Years      : FROM      1-1-97      TO      12-31-99

# SPEED CHECK

## HAND HELD RADAR GUN

**LOCATION:** I-75-50-2.85 @ SR 134  
**DATE:** 03/06/2000      **DAY:** MONDAY      **COUNTY:** HIGHLAND  
**OBSERVER:** R. CHAFFIN, G. BAIRD - ODOT DISTRICT NINE  
**TYPE PAVEMENT:** ASPHALT      **DRY:** X      **WET:**      **CONDITION:** GOOD      **WIDTH:** 22 FT.  
**WEATHER:** CLEAR & SUNNY      **TEMPERATURE:** 65° F

WEST BOUND, TIME 1:00 P.M., TO 2:00 P.M.					M.P.H.	EAST BOUND, TIME 1:00 P.M., TO 2:00 P.M.					
CUM. %	CUM. TOTAL	NO.	VEHICLES			OVER	VEHICLES		NO.	CUM. TOTAL	CUM. %
			PASSENGER CARS	COMMERCIAL			PASSENGER CARS	COMMERCIAL			
					90						
					88						
					86						
					84						
					82						
					80						
					78						
					76						
					74						
					72						
					70						
					68						
					66						
					64						
					62						
100	80	1	1		60						
					58	1		1	74	100	
99	79	4	3	1	56	1	1	2	73	99	
94	75	2	2		54	3		3	71	96	
91	73	5	5		52	1		1	68	92	
85	68	11	7	4	50	5	2	7	67	91	
71	57	13	13		48	7	1	8	60	81	
55	44	18	15	3	46	8	2	10	52	70	
33	26	8	6	2	44	10	4	14	42	57	
23	18	7	6	1	42	13	2	15	28	38	
14	11	8	7	1	40	11		11	13	18	
					38						
4	3	1	1		36	2		2	2	3	
3	2	1	1		34						
					32						
1	1	1		1	30						
					28						
					26						
					24						
					22						
					20						
					18						
					16						
					14						
					BELOW						
		80	67	13	TOTALS	62	12	74			

Intersection: USR-50 and SR 134  
 No. of lanes per approach: North: 1 East: 1 Located in: City: \_\_\_\_\_  
 South: 1 West: 1 Village/DODS: \_\_\_\_\_  
 Presently Signalized? Yes X No \_\_\_\_\_ Rural: X  
 Maintaining Agency ODOT-DISTRICT 9

Calc. By: MARION WORLEY County HIGHLAND  
 Ckd. By: JOHN STICKNEY Route USR-50  
 Consultant WOOLPERT, LLP Section 2.80

**Additional Items Attached**

Sketch or Drawing	<u>YES</u>	Gap Analysis	<u>NO</u>	Aerial Photographs	<u>NO</u>
Vehicular Volume Count	<u>YES</u>	Speed Data	<u>YES</u>	Documentation/Explanation	<u>YES</u>
Traffic Projection	<u>YES</u>	Delay Analysis	<u>NO</u>	Other (Describe)	<u>INTERSECTION STUDY</u>
Accident Data	<u>YES</u>	Time/Space Diagram	<u>NO</u>		<u>SEASONAL FACTOR .97</u>
Pedestrian Count	<u>YES</u>	Ground Photographs	<u>YES</u>		

**Warrant #9 (Four Hour Volumes)** See Attached  
**Warrant #10 (Peak Hour Delay)** No  
**Warrant #11 (Peak Hour Volume)** See Attached

Condition	No. Lane	Adjusted Hourly Volumes			Warrant #1				Warrant #2				Warrant #3			
		Major St. 2-Way	Minor 1-Way	Minor 1-Way	100%		80%		100%		80%		100%		80%	
					Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Veh.	Ped.	Veh.	Ped.
Norm*	1				500	150	400	120	750	75	600	60	600	150	480	120
	2+				600	200	480	160	900	100	720	80				
70%*	1	X	X	X	350	105	280	84	525	53	420	42	420	105	336	84
	2+				420	140	336	112	630	70	504	56				
Mid - 1 am																
1 am - 2 am																
2																
3																
4																
5																
6																
7																
8		269	85		N	N	N	Y	N	Y	N	Y	N	N	N	Y
9		256	47		N	N	N	N	N	N	Y	N	N	N	N	N
10																
11																
Noon - 1 pm																
1 pm - 2 pm		267	38		N	N	N	N	N	N	N	N	N	N	N	N
2		313	35		N	N	Y	N	N	N	N	N	N	N	N	N
3		320	29		N	N	Y	N	N	N	N	N	N	N	N	N
4		314	39		N	N	Y	N	N	N	N	N	N	N	N	N
5		357	43		Y	N	Y	N	N	N	N	Y	N	N	Y	N
6		411	63		Y	N	Y	N	N	Y	N	Y	N	N	Y	N
7																
8																
9																
10																
11																
<b>Hours Met</b>					2	0	5	1	0	2	0	4	0	0	2	1

**Warrant #4 (School Crossing)-NOT APPLICABLE**  
 On approved school route? \_\_\_\_\_ YES \_\_\_\_\_ NO  
 Gap analysis made during period from \_\_\_\_\_ to \_\_\_\_\_  
 Number of vehicles during analysis period: \_\_\_\_\_  
 Pedestrian crossing time (t): \_\_\_\_\_ sec  
 Number of gaps greater than (t) during period: \_\_\_\_\_  
 Approximate vehicular speed: \_\_\_\_\_ MPH  
 Number of children crossing during period: \_\_\_\_\_  
 Warrant Satisfied? \_\_\_\_\_ YES \_\_\_\_\_ NO

**Warrant #5 (Progressive Movement)-NOT APPLICABLE**  
 Major street is: \_\_\_\_\_ 1-Way \_\_\_\_\_ 2-Way  
 Dist. to nearest signal in each direction on major street: \_\_\_\_\_ and \_\_\_\_\_  
 Time space diagram (attached) shows that this location can be implemented into a system: \_\_\_\_\_ YES \_\_\_\_\_ NO  
 Warrant Satisfied? \_\_\_\_\_ YES \_\_\_\_\_ NO

**Warrant #6 (Accident Hazard)-NOT APPLICABLE**  
 Adequate trial of less restrictive measures: \_\_\_\_\_ YES \_\_\_\_\_ NO  
 Number of accidents per year of a type which could be prevented by signalization: \_\_\_\_\_  
 80% of warrant #1 or Warrant #2 satisfied: \_\_\_\_\_ YES \_\_\_\_\_ NO  
 Will signalization disrupt progressive movement? \_\_\_\_\_ YES \_\_\_\_\_ NO  
 Warrant Satisfied? \_\_\_\_\_ YES \_\_\_\_\_ NO

**Warrant #7 (Systems)-NOT APPLICABLE**  
 Both streets are considered major routes: \_\_\_\_\_ YES \_\_\_\_\_ NO  
 At least 800 V.P.H. during weekday peak hour: \_\_\_\_\_ YES \_\_\_\_\_ NO  
 At least 800 V.P.H. for any 5 hours on a Saturday or Sunday: \_\_\_\_\_ YES \_\_\_\_\_ NO  
 Warrant Satisfied? \_\_\_\_\_ YES \_\_\_\_\_ NO

**Warrant #8 (COMBINATION)**  
 Warrants numbered 1 and 2  
 are each met at the 80% level: \_\_\_\_\_ YES X NO

**Warrant Satisfied?** NO  
 \* CONDITION IS DETERMINED BY ENVIRONMENT: Use 70% values if 85th percentile speed exceeds 40 mph on the major approach or if location is in the built-up area of an isolated community with a population of less than 10,000

Ohio Department of Transportation

District 9 - Planning

650 Eastern Ave, Chillicothe, Ohio 45601

1-888-819-8501

Weather: Dry 60's

Counted by: Walt West

Board #: D4-1489

Data: Station # 10636

Study Name: H50-134A

Site Code : 00000000

Start Date: 10/13/99

Page : 1

Vehicle group 1, Vehicle group 2, Vehicle group 3

Start Time	SR 134 SB Southbound				US 50 WB Westbound				SR 134 NB Northbound				US 50 EB Eastbound				Ped	Intvl.	Total
	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped			
10/13/99																			
06:00	0	0	0	0	5	46	1	0	3	0	8	0	0	7	0	0	0		70
06:15	0	0	0	0	3	47	0	0	0	0	11	0	0	7	1	0	0		69
06:30	0	0	0	0	2	43	0	0	1	0	6	0	0	20	0	0	0		72
06:45	0	0	0	0	8	33	0	0	3	0	10	0	0	19	1	0	0		74
Hour	0	0	0	0	18	169	243	1	7	0	42	35	0	53	2	0	0		285
07:00	0	0	0	0	5	33	0	0	3	0	16	0	0	19	0	0	0		76
07:15	0	0	0	0	8	41	0	0	6	0	42	0	0	21	1	0	0		119
07:30	0	0	0	0	13	34	0	0	2	0	12	0	0	31	4	0	0		96
07:45	0	0	0	0	7	33	0	0	2	0	5	0	0	24	3	0	0		74
Hour	0	0	0	0	33	141	277	0	13	0	88	75	0	95	8	0	0		365
08:00	0	0	0	0	4	22	0	0	2	0	12	0	0	33	1	0	0		74
08:15	0	0	0	0	14	30	0	0	4	0	5	0	1	28	4	0	0		86
08:30	0	0	0	0	3	35	0	0	2	0	8	0	0	26	3	0	0		77
08:45	0	0	0	0	7	31	0	0	1	0	14	0	0	22	0	0	0		75
Hour	0	0	0	0	28	118	264	0	9	0	48	39	0	109	8	0	0		312
09:00	0	0	0	0	9	30	0	0	0	0	11	0	0	36	2	0	0		88
09:15	0	0	0	0	8	35	0	0	0	0	7	0	0	31	3	0	0		84
09:30	0	0	0	0	3	25	0	0	3	0	8	0	0	27	4	0	0		70
09:45	0	0	0	0	4	28	0	0	1	0	3	0	0	28	1	0	0		65
Hour	0	0	0	0	24	118	274	0	4	0	33	29	0	122	10	0	0		307
10:00	0	0	0	0	5	30	0	0	2	0	9	0	0	39	1	0	0		86
10:15	0	0	0	0	5	26	0	0	3	0	9	0	1	26	0	0	0		70
10:30	0	0	1	0	3	22	0	0	4	0	6	0	0	28	4	0	0		68
10:45	0	1	0	0	9	26	0	0	2	0	7	0	0	29	2	0	0		76
Hour	0	1	1	0	22	104	256	0	11	0	42	31	0	122	7	0	0		300
11:00	0	0	0	0	5	21	0	0	3	0	8	0	0	23	3	0	0		63
11:15	0	0	1	0	3	32	0	0	3	0	9	0	0	36	2	0	0		86
11:30	0	0	0	0	10	31	0	0	1	0	4	0	0	39	5	0	0		90
11:45	0	0	0	0	3	28	0	0	4	0	3	0	0	28	0	0	0		66
Hour	0	0	1	0	21	112	269	0	11	0	35	24	0	126	10	0	0		305
Total	0	1	2	0	146	762	1	0	55	0	233	0	2	627	45	0	0		1874
% Apr.	-	33.3	66.6	-	16.0	83.8	0.1	-	19.0	-	80.9	-	0.2	93.0	6.6	-	-		-
% Int.	-	-	0.1	-	7.7	40.6	-	-	2.9	-	12.4	-	0.1	33.4	2.4	-	-		-

Ohio Department of Transportation

District 9 - Planning

650 Eastern Ave, Chillicothe, Ohio 45601

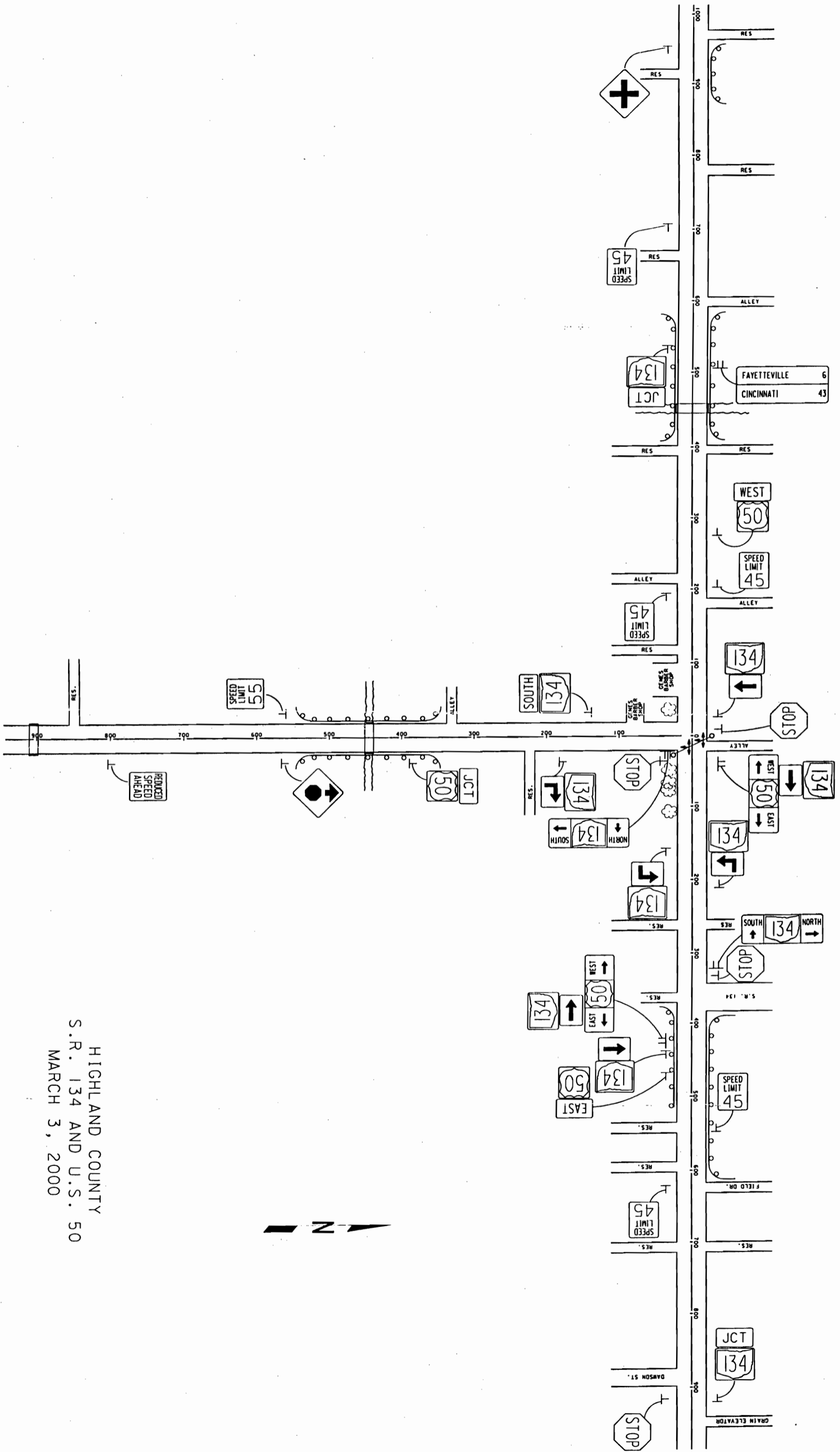
1-888-819-8501

Weather: Dry 44 deg  
 Counted by: Walt West  
 Board #:D4-1489  
 Data: Station 10636

Study Name: H50-134B  
 Site Code : 00010636  
 Start Date: 11/03/99  
 Page : 1

Vehicle group 1, Vehicle group 2, Vehicle group 3

Start Time	SR 134 SB Southbound				US 50 WB Westbound				SR 134 NB Northbound				US 50 EB Eastbound				Ped	Intvl.	Total
	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped			
11/03/99																			
13:00	0	0	0	0	8	37	0	0	3	0	8	0	0	42	2	0	0	0	100
13:15	0	0	0	0	5	36	1	0	0	0	13	0	0	26	2	0	0	0	83
13:30	0	0	0	0	5	27	0	0	1	0	8	0	0	28	1	0	0	0	70
13:45	0	0	0	0	7	27	0	0	2	0	4	0	0	20	1	0	0	0	61
Hour	0	0	0	0	25	127	275	1	6	0	39	33	0	0	116	6	0	0	314
14:00	0	0	0	0	8	43	0	0	3	0	4	0	0	34	1	0	0	0	93
14:15	0	0	0	0	8	34	0	0	2	0	6	0	0	35	1	0	0	0	86
14:30	0	0	0	0	7	42	0	0	3	0	10	0	0	32	0	0	0	0	94
14:45	0	0	0	0	6	38	0	0	1	0	7	0	0	30	4	0	0	0	86
Hour	0	0	0	0	29	157	323	0	9	0	36	27	0	0	131	6	0	0	359
15:00	0	0	0	0	4	35	1	0	2	0	7	0	0	40	1	0	0	0	90
15:15	0	0	0	0	9	33	0	0	3	0	6	0	0	26	1	0	0	0	78
15:30	0	1	1	0	20	29	0	0	3	0	3	0	0	33	4	0	0	0	94
15:45	0	0	0	0	18	43	0	0	1	0	5	0	0	31	2	0	0	0	100
Hour	0	1	1	0	51	140	330	1	9	0	30	21	0	0	130	8	0	0	362
16:00	1	0	0	0	9	32	0	0	3	0	7	0	0	33	2	0	0	0	87
16:15	0	0	0	0	9	29	0	0	2	1	8	0	0	38	2	0	0	0	89
16:30	0	0	0	0	12	43	1	0	2	0	8	0	0	38	4	0	0	0	108
16:45	0	0	0	0	7	34	0	0	2	0	7	0	0	27	4	0	0	0	81
Hour	1	0	0	0	37	138	324	1	9	1	40	30	0	0	136	12	0	0	365
17:00	0	0	1	0	10	34	0	0	2	0	8	0	0	48	3	0	0	0	106
17:15	0	0	1	0	10	31	0	0	1	0	10	0	0	35	5	0	0	0	93
17:30	1	0	0	0	24	28	0	0	3	0	5	0	0	41	2	0	0	0	104
17:45	0	0	0	0	8	40	0	0	0	0	15	0	0	45	4	0	0	0	112
Hour	1	0	2	0	52	133	368	0	6	0	44	38	0	0	169	14	0	0	415
18:00	0	0	0	0	16	37	0	0	1	0	18	0	0	48	4	0	0	0	124
18:15	0	0	0	0	18	38	0	0	1	0	14	0	0	54	5	0	0	0	130
18:30	0	0	0	0	10	36	1	0	4	0	13	0	0	55	4	0	0	0	123
18:45	0	0	0	0	11	33	0	0	0	0	14	0	0	52	2	0	0	0	112
Hour	0	0	0	0	55	144	424	1	6	0	65	59	0	0	209	15	0	0	489
Total	2	1	3	0	249	839	4	0	45	1	208	0	0	891	61	0	0	0	2304
‡ Apr.	33.3	16.6	50.0	-	22.8	76.8	0.3	-	17.7	0.3	81.8	-	-	93.5	6.4	-	-	-	-
‡ Int.	-	-	0.1	-	10.8	36.4	0.1	-	1.9	-	9.0	-	-	38.6	2.6	-	-	-	-



HIGHLAND COUNTY  
 S.R. 134 AND U.S. 50  
 MARCH 3, 2000

