Data Needs Analysis

Magoffin County

Bert T. Combs Mountain Parkway (KY 9009)

Item No. 10-140.00

Prepared By:
Kentucky Transportation Cabinet (KYTC)
Division of Planning & KYTC District 10

October 5, 2010

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I. INTRODUCTION

This study is a Data Needs Analysis (DNA) of a roadway project on the Mountain Parkway in Magoffin County, Item Number 10-140.00.

A. Study Purpose

The purpose of the DNA is to address the nine elements of Purpose and Need as defined by NEPA in order to develop a draft Purpose and Need Statement for the project. This study will also provide a more defined project scope, possible alternatives, planning-level cost estimates for the alternatives, an identification of potential environmental impacts, and other information that will be of assistance in the Project Development Phase of this project.

B. Location

This project is located on the Bert T. Combs Mountain Parkway (KY 9009) with project limits extending from the bridge over Licking River (MP 74.5) to the end of the Mountain Parkway (MP 75.6) in Salyersville (See ***Figure 1*** and Exhibit 1 in **Appendix A**). The project includes a partial cloverleaf interchange with KY 7, an intersection with US 460 and three structures. A topographic map of the study area, Exhibit 2, can also be viewed in **Appendix A**.

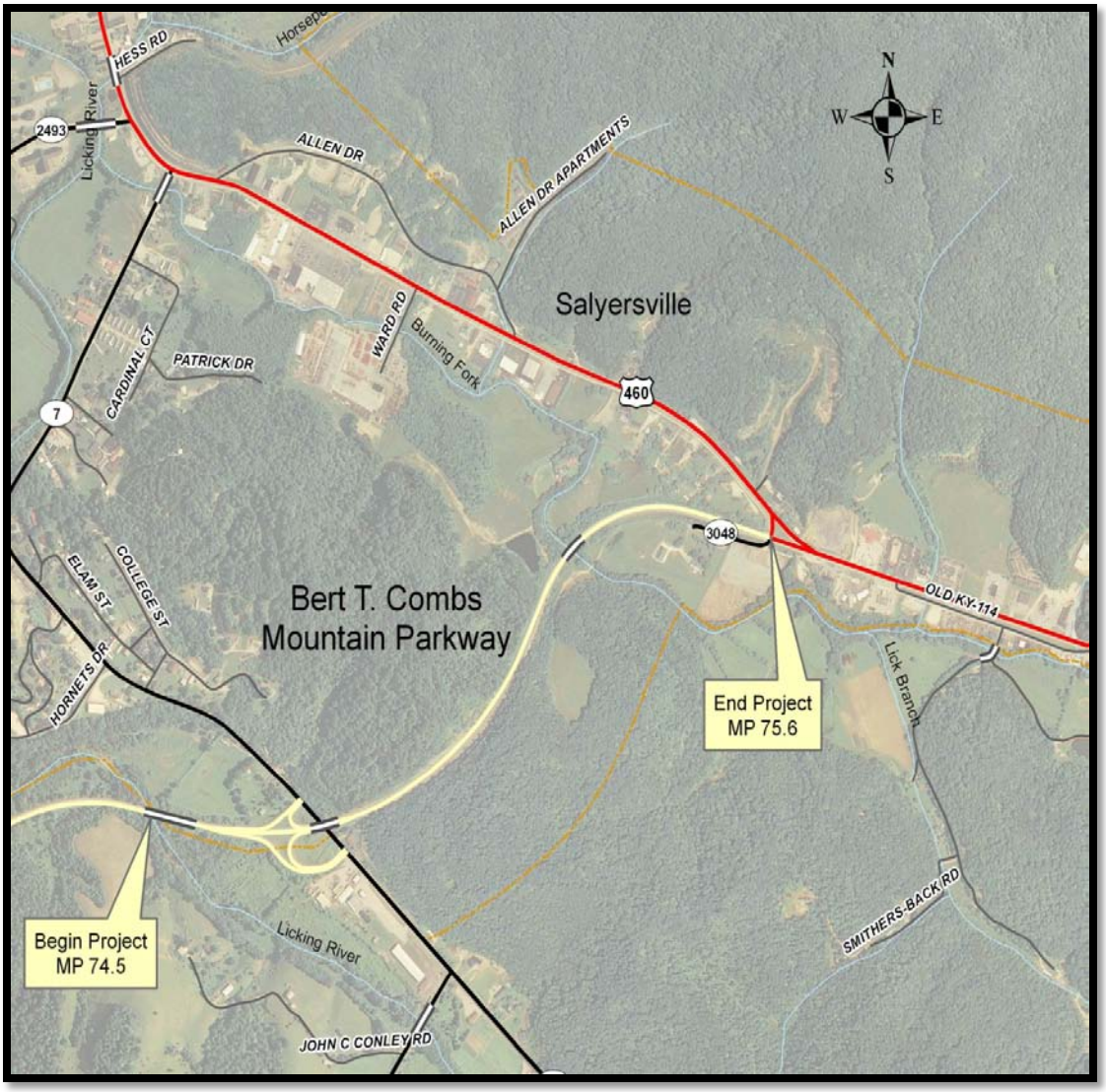


Figure 1: Project Location Map

II. PROJECT PURPOSE AND NEED

A. Legislation

This project was entered into the Six-Year Highway Plan (SYP) in 2006. The design phase funding of $600,000 (SP funds) was authorized in December 2006. The following is a description of the project as it is listed in the 2010 General Assembly's Enacted Roadway Plan.

- **Item #10-140.00, Magoffin County**

Phase	Fund	Year	Estimate
R:	SPB	2011	$560,000
U:	SPB	2011	$330,000
C:	SPP	2012	$15,750,000

MOUNTAIN PARKWAY WIDENING AND SAFETY IMPROVEMENTS FROM MP 74.5, LICKING RIVER BRIDGE, TO MP 75.6, KY-3048/US-460.

B. Project Status

Preliminary Design Plans were completed in 1999 for a new route to connect the Mountain Parkway with KY 114 south of the existing US 460/KY 114 route which would completely bypass the section of roadway in this project. Preliminary Design Plans were completed in 2004 for a new route which utilizes the existing KY 7 Ramps, but bypasses most of the section of roadway in this project. A 2010 programming study for improving the Mountain Parkway from Campton to Prestonsburg, currently in draft form, confirmed that a through Salyersville 4-lane section is an option. All of these proposed alignments can be viewed in Exhibit 3 in **Appendix A**.

The KYTC District 10 office has received public opposition to constructing a new alignment away from the developed section of US 460 that runs through Salyersville. They have also received opposition to routing the traffic through town. A final decision has not yet been made on whether or not to construct a new route south of Salyersville that would bypass the developed section of US 460. This segment of roadway was ranked first priority by KYTC Districts 10 and 12 as part of the 2010 Mountain Parkway Study.

Design funds for this project were authorized in 2006. A traffic forecast was completed in July 2010.

There is a project listed on the Unscheduled Project List (UPL) to widen the Mountain Parkway to four lanes from 0.3 miles east of the KY 134/Johnson Creek Bridge (MP 63.084) to KY 7 (MP 74.772). The Project Information Form (PIF) for this project can be viewed in **Appendix B**.

C. System Linkage

Mountain Parkway is a major, two-lane regional connection from I-64, soon to be 6-lanes, to US 23, a 4-lane roadway. US 23 is a North-South connection from the Great Lakes to Florida. The Mountain Parkway provides a connection from Central Kentucky to the many communities and rural areas of Southeastern Kentucky (See ***Figure 2*** and Exhibit 4 in **Appendix A**). With the recent completion of widening US 119 to four lanes

in West Virginia, the Mountain Parkway is becoming a greater link to Virginia and West Virginia.

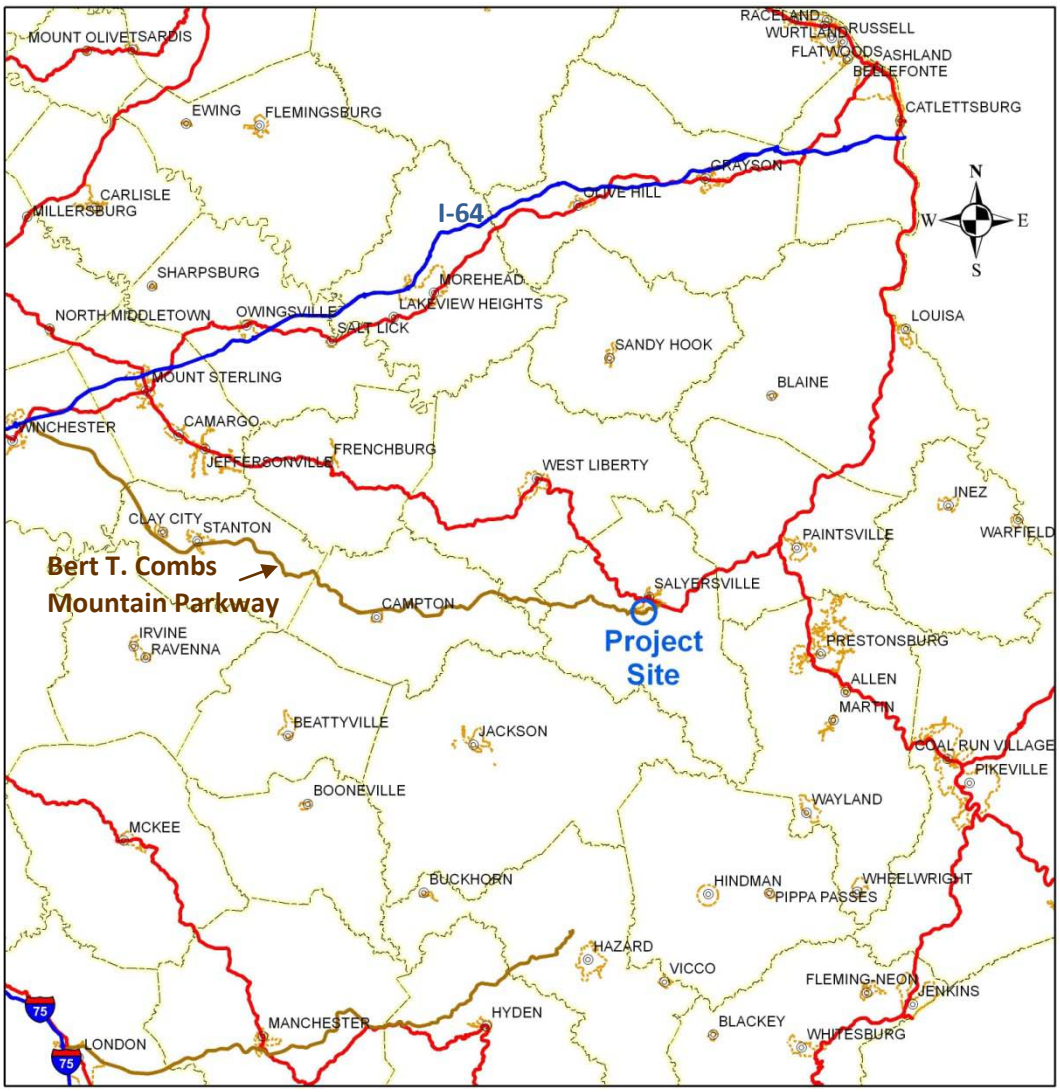


Figure 2: System Linkage Map

This segment of Mountain Parkway has the following roadway classifications:

- **Functional Classification** – Rural Principal Arterial
- **State System** – State Primary
- On the **National Truck Network**
- **Truck Weight Classification** – AAA
- On the **Appalachian Development Highway System**
- Not a designated Bike Route
- Limited Access Facility

D. Modal Interrelationships

There is no public transit on this route. CSX removed its railing a few years ago from this area. The closest active rail line is several miles southeast of the project site. This Mountain Parkway is used for coal haul and freight transport.

E. Social Demands & Economic Development

The Mountain Parkway is used to access shopping centers, higher education facilities, and hospitals in Central Kentucky and West Virginia. It is also used locally as a route to the schools in Salyersville. According to KYTC's Highway Information System (HIS) database, there were over 1.5 million tons of coal hauled on this route in 2009. There is development potential in communities located east of the project site in the communities of Paintsville and Pikeville.

F. Transportation Demand

A traffic forecast was recently completed for this project and can be viewed in detail in **Appendix C**. **Table 1** summarizes the information provided. The section from MP 74.5 to MP 74.772 is from the beginning of the project to the KY 7 interchange. The section from MP 74.772 to MP 75.6 is from the KY 7 interchange to the end of the Mountain Parkway. A 1.74% growth rate was applied to determine the 2032 traffic volumes.

Table 1: Traffic Forecast

	MP 74.5 to 74.772	MP 74.772 to MP 75.6
2010 ADT	6,000	8,100
2032 ADT	8,800	11,900
2032 DHV	820	1,080
2010 Truck%	20.80%	20.8
2032 Truck%	26.00%	26
20 YR ESALS	9,800,000	14,000,000

Directional traffic counts were also performed at the KY 7 interchange and the intersection with US 460. Details can be viewed in the Traffic Forecast Report in **Appendix C**.

G. Capacity

According to the Division of Planning's Adequacy Ratings Data, the current Vehicle/Service Flow (V/SF) is 0.33. It should also be noted that passing lanes exist on much of this segment of the parkway. Based on the traffic forecast, the current capacity of the existing roadway will be adequate for the near future. However, future economic

and social development demands may lead to an increase in traffic that would require additional capacity.

H. Safety

Collision data was obtained from the Kentucky State Police database for a three year period from June 1, 2007 to May 31, 2010. There were 21 reported collisions in the project area during this three year period. Fourteen of the collisions were located at the intersection with US 460 and were rear end collisions. Two were located on the ramp with KY 7. No night/day or weather pattern could be determined. No fatalities occurred on this segment of the Mountain Parkway during the three year analysis period. While there were only a couple of collisions that occurred on the ramps during the analysis period, KYTC District 10 has received several complaints about the safety of the ramps.

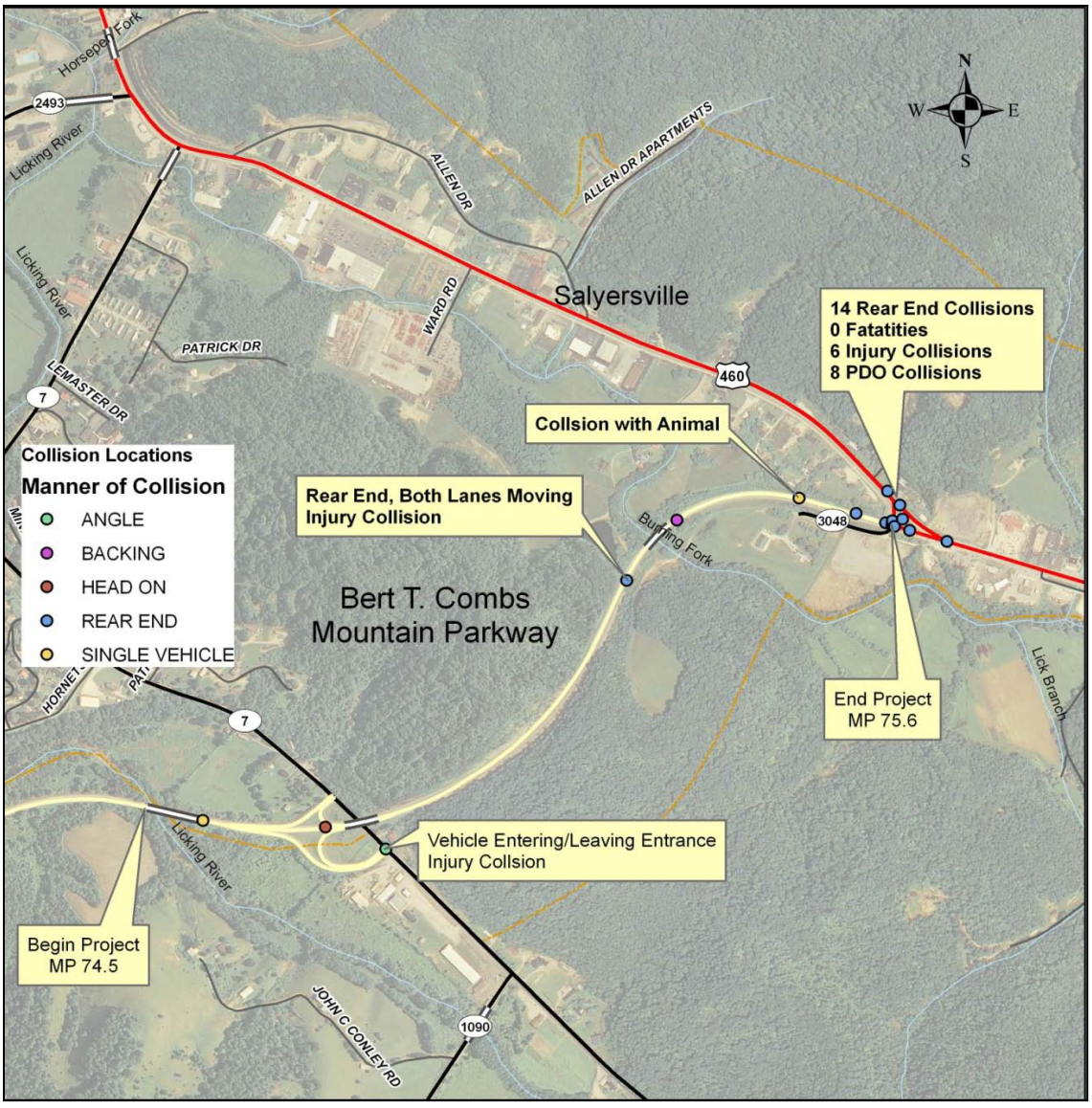


Figure 3: Collision Locations

A 0.10 Mile Spot Critical Rate Factor (CRF) was calculated near the intersection of the Mountain Parkway and US 460. The 0.10 Mile Spot CRF on KY 7 and US 460 was 0.49 and 0.69, respectively. However, 14 collisions of the same type in the same area of the roadway in a 3 year period indicates that there may be a problem with the US 460 intersection that needs to be examined. More detailed collision data can be viewed in **Appendix D**.

I. Roadway Deficiencies

a. Mainline Geometrics

The roadway currently has 12-ft lanes, 10-ft shoulders, a maximum grade of 5.5%, a posted speed limit of 55 MPH, and an Adequacy Rating Percentile of 56.19. KYTC's Common Geometric Practices for Rural Arterials recommends 12-ft lanes and 8-ft shoulders for a 60 MPH Design Speed and a maximum grade of 6% for mountainous terrain (see **Appendix E**). The roadway currently meets these recommendations. The curve at the end of the project has a radius of 954.83 feet which is slightly less than the recommended minimum radius of 1065 feet in the KYTC's Common Geometric Practices for Rural Arterials. Existing roadway plans can be viewed in **Appendix F**. Mountain Parkway also accommodates passing lanes along part of the roadway (see ***Figure 4***).

Figure 4: Passing Lanes

b. Bridges

There are three bridges located on this project. None are rated structurally deficient, but they are functionally obsolete with substandard bridge rails. The Structure Inventory and Appraisal Sheets for each bridge can be viewed in **Appendix G**. The bridges over the Licking River and over Burning Fork are not wide enough (29.9-ft curb to curb) to accommodate the recommended 8-ft shoulders. The bridge over Burning Fork can be seen in ***Figure 5*** below.

Figure 5: Bridge over Burning Fork

c. Ramps

The radius of the cloverleaf ramp in the northwest quadrant of the Mountain Parkway/KY 7 Interchange could not be determined from the As-Built plans available, but it measures at approximately 75 feet. The radius of the cloverleaf in the southwest quadrant measures approximately 125 feet. A minimum design speed of 30 MPH and a minimum radius of 230 feet are recommended by KYTC's Division of Highway Design for a cloverleaf ramp.

The interchange also does not meet minimum recommendations for acceleration and deceleration lengths at the ramp terminals. According to AASHTO's A Policy on Geometric Design of Highways and Streets, the recommended acceleration length is approximately 800 feet, and the recommended deceleration length is approximately 405 feet. The cloverleaf ramp that exits onto KY 7 has almost no deceleration lane (See ***Figures 6 and 7***). The cloverleaf ramp that is an entrance ramp to the Mountain Parkway has a dedicated lane which allows it to meet recommendations

for acceleration lengths. The other two ramps do not meet recommendations for acceleration and deceleration lengths.

Figure 6: Entrance to Cloverleaf Exit Ramp onto KY 7

Figure 7: Cloverleaf Exit Ramp onto KY 7

d. Intersections

Due to the crash history on the US 460 leg of the intersection with KY 9009, the adequacy of the geometrics in this area was analyzed. There is a vertical curve located on US 460 with its crest located approximately 480 feet prior to the intersection. The stopping sight distance was calculated from roadway plans to be 436 feet which meets a 50 MPH Design Criteria. The road is currently signed at 35 MPH. The vertical sight distance of the vertical curve did not appear to be an issue. Below, in ***Figure 8,*** is a picture taken near the crest of the vertical curve.

Figure 8: US 460 Site Distance

The lack of storage for vehicles turning left was observed during a site visit at this intersection. The storage length of the Left-Turn/Thru Lane on US 460 is not long enough to accommodate the left turning vehicles. According to the Traffic Forecast Report (see **Appendix C**), the left turning volume at this location is 4600 vehicles per day (vpd). The thru traffic is only 10 vpd. The design hour turning volume can be calculated to be approximately 500 vehicles per hour (vph). According to the Nomograph for Storage for a Single Turn Lane at a Signalized Intersection provided in Chapter 9 of the KYTC Highway Design Manual , the length of the turning lane should be a minimum of approximately 525 feet. The storage currently provided is approximately 100 feet (See ***Figure 9***).

Figure 9: US 460 Intersection

The Mountain Parkway leg of the intersection was also analyzed. Given the turning volumes described in the Traffic Forecast Report, the existing storage length of approximately 265 feet and the taper rate of approximately 18:1 were found to be adequate for the left-turn lane on the Mountain Parkway (KY 9009) at the KY 9009/US 460 Intersection.

e. Drainage

Flooding does not appear to be an issue in this area. The Flood Insurance Rate Maps (FIRMs) indicate that there is a flood zone just east of the bridge over the Burning Fork with a Base Flood Elevation of around 860 feet. The elevation of the roadway in this area generally stays above the Base Flood Elevation. The FIRM Maps of the project site can be viewed in **Appendix H**.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

Magoffin County is in attainment for all monitored air pollutants.

B. Archaeology

An archaeology Phase I Survey will need to be completed in order to rule out any impacts to archaeological sites. Archaeological sites could potentially be located along the Licking River and along Burning Fork.

C. Threatened and Endangered Species

The USFWS has identified the known and potential presence of a threatened and endangered species in Magoffin County. Potential habitat has been observed for Indiana bat, *Myotis sodalis*, in the forested corridor of the project area. A biological assessment or mitigation measures should address these potential impacts prior to construction.

D. Hazardous Materials

No properties appear to have a high probability of hazardous materials. However, due to the uncertainty of past land use, a more detailed field survey, particularly around the KY 7 intersection, should be conducted prior to final determination.

E. Historic Resources

Few structures were noted along the project corridor. Any structures at least 50 years of age meet the first screening requirement for the National Register of Historic Places. Possible cultural resource impacts will need to be explored further.

F. Permitting

Magoffin County does not have any exceptional waters or outstanding resource waters. Nonetheless, any impacts to waters of the United States will need a USACE 404 permit and a DOW 401 permit. Additionally, a surface water KYR 10 permit will be needed for construction disturbance.

G. Noise

Noise mitigation may need to be considered if additional lanes are added; however, similar projects along the Mountain Parkway and within this vicinity have not required noise walls or any other mitigation.

H. Socioeconomic

Socioeconomic impacts are not anticipated.

I. Section 4(f) Resources

If residences or structures located nearby are ruled as eligible for the National Register of Historic Places, they could be afforded protection under Section 4(f). KYTC has options to mitigate and avoid impacts to section 4(f) resources including a programmatic agreement for mitigating historic bridges, or using 'de minimus' guidance for properties with minor strip takings.

J. Section 6(f) Resources

No apparent impacts.

IV. PRELIMINARY PROJECT INFORMATION

A. Existing Conditions/Roadway Data

A summary of the existing conditions can be seen in **Table 2**. The segment of the roadway within the project limits has 12-ft lanes, 10-ft shoulders, and vertical curves with grades of approximately 5.5%. Other existing roadway information can be viewed in the roadway plans for Mountain Parkway (KY 9009) and US 460 in **Appendix F**. Additional pictures of the project site can be viewed in **Appendix I**.

Table 2: Existing Conditions and Data Summary

County:	Magoffin		
Route Number(s):	KY 9009	Road Name:	Bert T. Combs Mountain Parkway
Item No.:	10-140.00		
BMP:	74.5	EMP:	75.6
Project Length:	1.1 miles		
Rdwy. Class.:	Rural Principal Arterial	State Class.:	Primary
Truck Class:	AAA		
ADT (current):	6,000 to 8,100		
Terrain:	Mountainous	Access Control:	Controlled
Posted Speed:	55 MPH	Median Type:	Undivided
Funding Type:	D-SP, R&U-SPB, C-SB2		

Roadway Data:

	Existing Conditions	Design Criteria*
No. of Lanes	2 + Passing Lanes	2
Lane Width	12 ft	12 ft
Shoulder Width	10 ft	8 ft
Minimum Radius	954.83 ft	1205 ft
Maximum Grade	5.50%	6%
		** 60 MPH Design Speed*
Adequacy Rating %:	56.19	

Bridge Data:

	077B00040N	077B00041N	077B00042N
Max. Span Length	80.1 ft	51.8 ft	49.9 ft
Length	417.0 ft	161.1 ft	159.1 ft
Width, out to out	33.1 ft	45.3 ft	33.1 ft
Width, curb to curb	29.9 ft	42.0 ft	29.9 ft
Sufficiency Rating	70.8	87.1	80.0

B. Utilities

A summary of the utility contacts in the project area is below.

Electric: Kentucky Power Company (A.E.P.)
Ronald Canfield
12333 Kevin Ave.
Ashland, KY 41102
606-929-1462

Telephone: Foothills Rural Telephone
Tom Preston
P.O. Box 240
Staffordsville, KY 41256
606-297-3501

Water: Magoffin County Water District
Jim Hoskins
P.O. Box 47
Salyersville, KY 41465-0047
606-349-6818

Television: Rick Howard TV Cable
Rick Howard
P.O. Box 330 (Route 40)
Salyersville, KY 41465
606-349-3317

Gas: Sigma Gas Company
Estill Branham
P.O. Box 22
Salyersville, KY 41465
(606) 349-1505

B.T.U. Pipeline
Richard Williams
606-884-2000

A preliminary sketch of the approximate location of the utilities in the project area can be viewed in ***Figure 10***. This information was obtained from field inspection, existing roadway plans, and a GIS database. The location of utilities will need to be verified as the project survey is completed in Phase I Design.

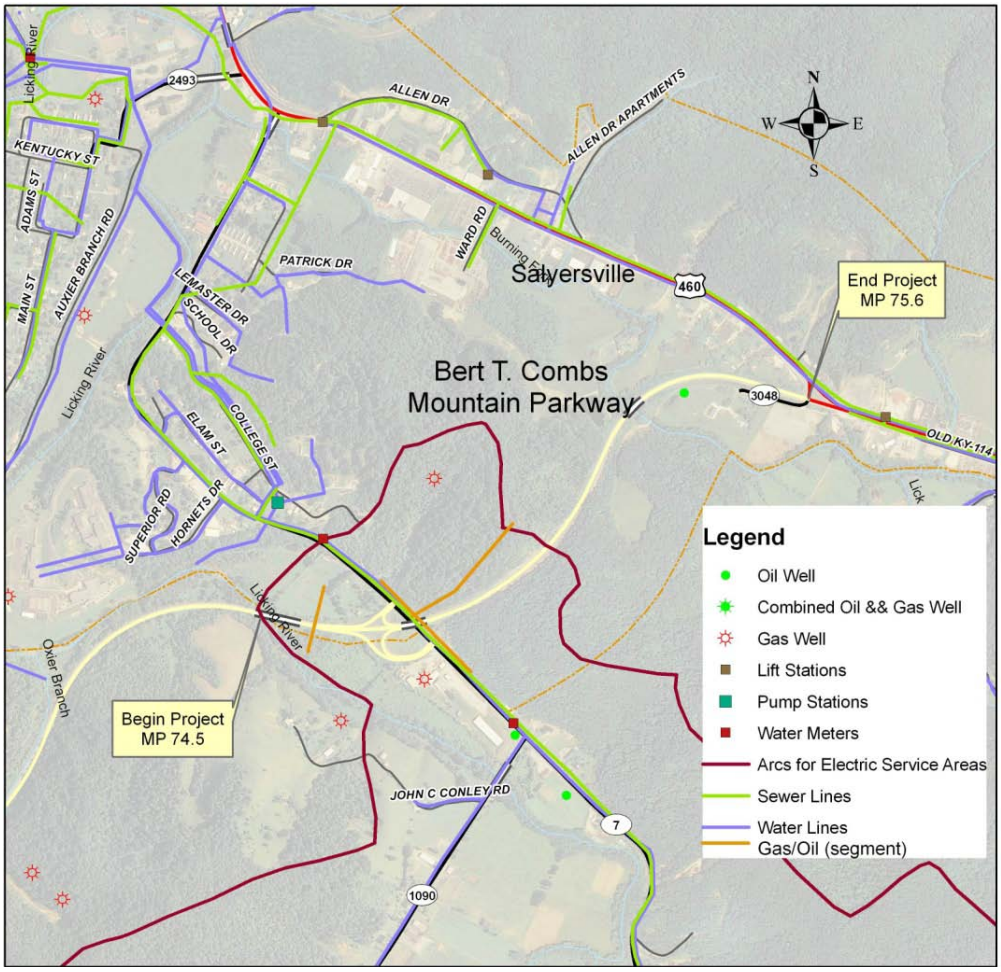


Figure 10: Utility Locations

C. Agency Coordination

The Project Team met on June 23, 2010 to review and discuss the project and the DNA. Several alternates were discussed. Considering the limited amount of money available for this project and the possibility of creating a new route south of Salyersville that would bypass much of this segment, the project team prefers not to proceed with an alternate to widen the parkway within the project limits. Instead the alternates considered include improvements to the interchange with KY 7 and the intersection with US 460.

The minutes of the meeting can be reviewed in **Appendix J**.

V. PROJECT PURPOSE AND NEED STATEMENT

A Purpose and Need Statement is the foundation for project decision-making and is needed for projects requiring NEPA documentation. Based upon the information presented in

Section II of this report and discussion of the project team, the following Purpose and Need Statement was drafted for this project:

The Mountain Parkway provides a vital connection between Central Kentucky and many communities and rural areas of Southeastern Kentucky. The Mountain Parkway interchange with KY 7 provides access to the parkway for residents, coal trucks, school buses and other traffic in the Salyersville area. The geometry of the ramps at the KY 7 interchange does not meet recommendations. The intersection of Mountain Parkway and US 460 has a history of rear-end collisions. **The purpose of this project is to improve the safety, the geometrics, and the connectivity between Central Kentucky and many communities and rural areas of Southeastern Kentucky, and to improve highway performance along this corridor to facilitate Economic Development.**

VI. POSSIBLE ALTERNATIVES

The following are several of the alternatives analyzed and discussed during the development of this study. All estimates were completed on a cost per unit bases. The yellow alignment in each Figure is a preliminary sketch of the alternate being discussed.

A. Alternate #1 - No Build

Put this project on hold until it is decided if the new route around Salyersville moves forward and where it will connect to the existing roadway.

B. Alternate #2 – Modify Existing Cloverleaf Exit Ramp

The cloverleaf ramp will be increased to the recommended minimum radius of 230 feet. The overpass bridge will need to be widened to accommodate the extension of the climbing lane that will become the deceleration lane at the off ramp. The westbound on-ramp to KY 9009 will have to be reconstructing and the bridge over the Licking River will need to be widened to accommodate the acceleration lane. The acceleration and deceleration lanes are recommended to be approximately 800 feet and 405 feet, respectively. At least two residences would be affected and there would be some impact to utilities. A sketch of this alternative can be viewed in ***Figure 11***.

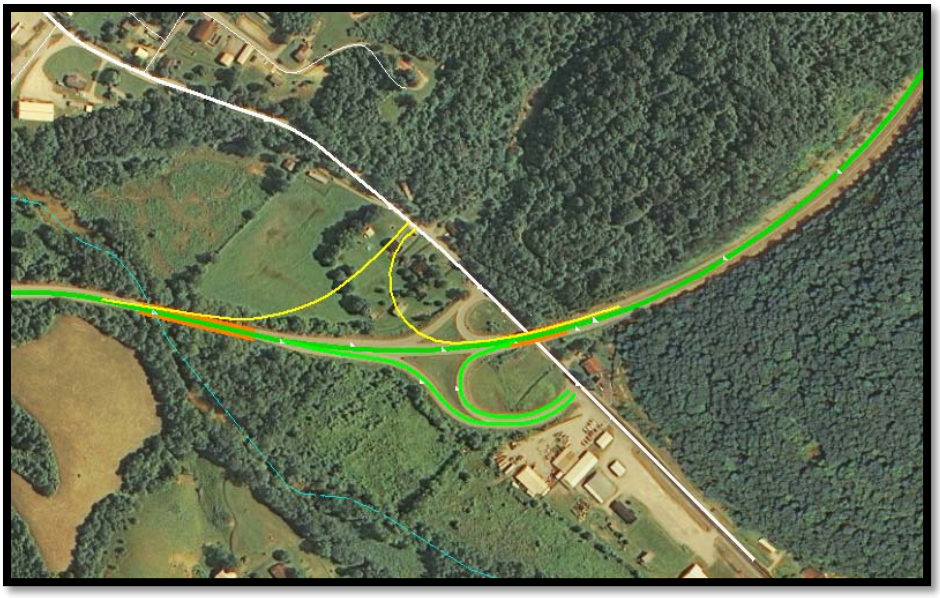


Figure 11: Alternate #2

The following is the preliminary cost estimated for Alternate #2:

Phase	**Estimate**
Right of Way	$200,000
Utilities	$100,000
Construction	$1,140,000
	$1,440,000

C. Alternate #3 – Construct Westbound Off-Ramp on North Side of KY 9009

This alternate would replace the westbound cloverleaf off-ramp with a diagonal ramp on the opposite side of KY 7 eliminating the substandard radius. There is a westbound passing lane that could be dropped at the ramp and used as a deceleration lane. This alternate would not require the widening of any structures. A sketch of this alternate can be seen in ***Figure 12***. The roadway plans, dated 1966, indicate that there could be two properties impacted, but no structures. Utilities would also be impacted.

The following is the preliminary cost estimated for Alternate #3:

Phase	**Estimate**
Right of Way	$5,000
Utilities	$100,000
Construction	$640,000
	$745,000

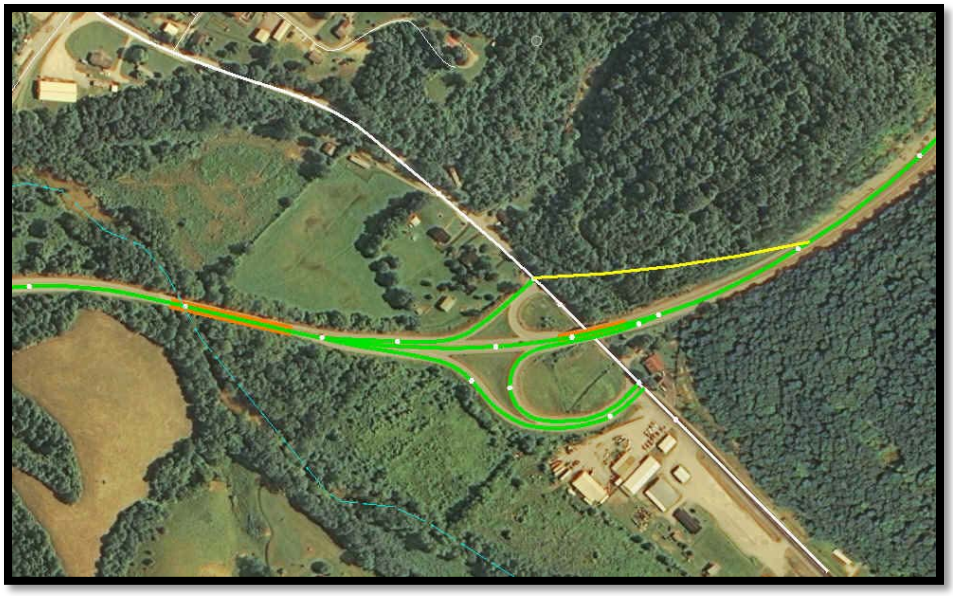


Figure 12: Alternate #3

D. Alternate #4 – Replace Ramps North of KY 9009 with a Tight Urban Diamond

This alternate would replace the westbound off ramp, and the westbound on-ramp with a tight diamond configuration. The existing westbound passing lane could be dropped at the entrance to the off-ramp and serve as the deceleration lane. This alternate would have less of an impact on right of way, would eliminate the tight radius of the cloverleaf ramp and would allow for adequate acceleration and deceleration lengths on the newly constructed ramps. The topography of the project site appears that it would support the tight urban diamond, but further analysis would need to be done in future project phases if this alternate is chosen to move forward. A sketch of this alternate can be seen in ***Figure 13.***

The following is the preliminary cost estimated for Alternate #4:

Phase	**Estimate**
Right of Way	$5,000
Utilities	$100,000
Construction	$750,000
	$855,000

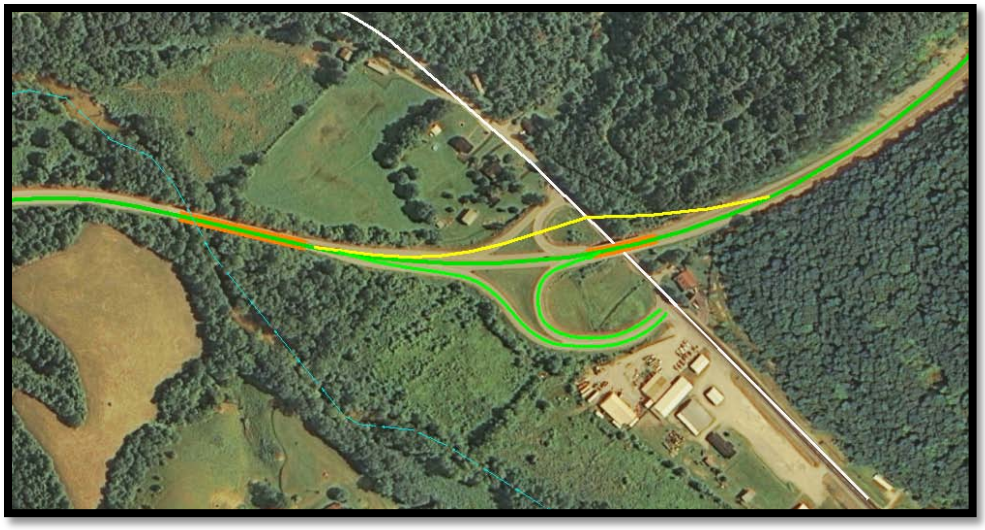


Figure 13: Alternate #4

E. Alternate #5 – Widen the overpass Bridge to Accommodate Westbound Exit Lane

This alternate would widen the KY 7 overpass bridge to accommodate the extension of the passing lane that would act as a deceleration lane and exclusive exit lane for the westbound off-ramp onto KY 7. The other ramps would remain the same. There would be no right of way impacts, and utility impacts would only occur as a result of the bridge widening. However, the existing radius of the off-ramp would decrease from 75 feet to approximately 67 feet. The roadway plans, dated 1966, indicate that there could be two properties impacted, but no structures. Utilities would also be impacted. A sketch of this alternate can be seen in ***Figure 14.***

The following is the preliminary cost estimated for Alternate #5:

Phase	**Estimate**
Right of Way	-
Utilities	$50,000
Construction	$530,000
	$580,000

Figure 14: Alternate #5

F. Alternate #6 – Extend US 460 Left Turn(& Thru) Lane/Restripe TWLTL

The left turning volume at this location is 4600 vehicles per day (vpd). According to the Nomograph for Storage for a Single Turn Lane at a Signalized Intersection provided in Chapter 9 of the Highway Design Manual, the length of the turning lane should be a minimum of approximately 525 feet. The storage currently provided is approximately 100 feet. Restriping of the existing Two-Way Left Turn Lane (TWLTL) for an additional 425 feet, or a length is considered feasible in this location, would create storage for left-turning vehicles to queue and may reduce the number of rear-end collisions that are occurring here. A sketch of this alternate can be seen in ***Figure 15.***

The preliminary cost to restripe the lane would be **$5,000**.

Figure 15: Alternate #6

VII. SUMMARY

This study is a Data Needs Analysis (DNA) of a project located on the Bert T. Combs Mountain Parkway in Magoffin County, Item Number 10-140.00, from the bridge over Licking River to the end of the Mountain Parkway in Salyersville. Through analysis of the existing roadway geometrics, crash data, site visits, and discussion with the project team, several needs were identified within the project limits. The following were identified as project needs:

- The ramp geometry at the KY 7 interchange currently does not meet recommendations in AASHTO's A Policy on Geometric Design of Highways and Streets.
- The intersection of Mountain Parkway and US 460 has a history of rear-end collisions.
- The Mountain Parkway provides a vital connection between Central Kentucky and many communities and rural areas of Southeastern Kentucky, but does not provide the same type of facilities as the roadways it connects in these regions (i.e. multi-lane roadways).

The purpose of this project is to improve the safety, the geometrics, and the connectivity between Central Kentucky and many communities and rural areas of Southeastern

Kentucky, and to improve highway performance along this corridor to facilitate Economic Development.

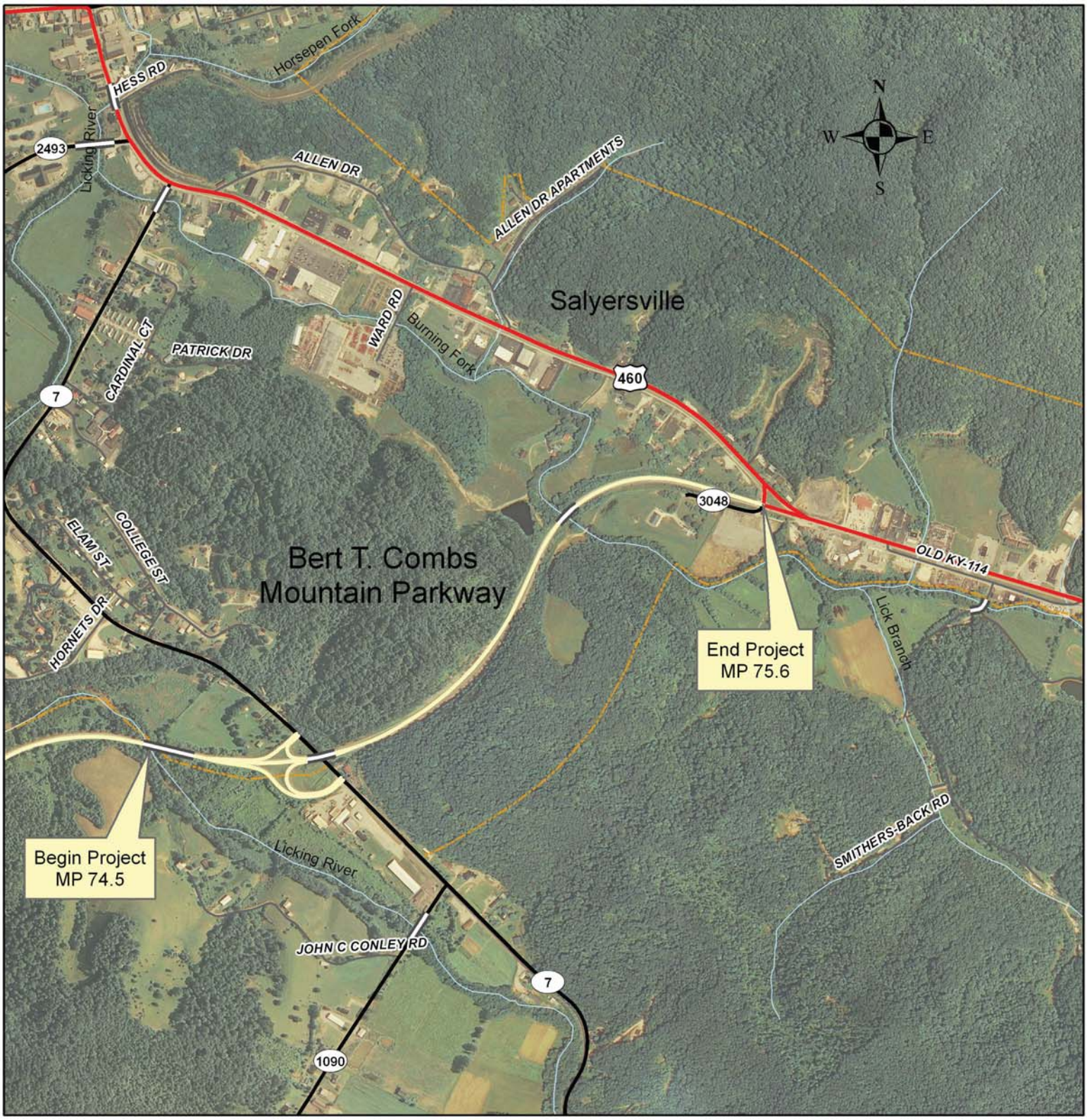
Considering the limited amount of money available for this project and the possibility of creating a new route south of Salyersville that would bypass much of this segment, the project team did not want to proceed with an alternate to widen the parkway within the project limits. Instead the alternates considered include improvements to the interchange with KY 7 and the intersection with US 460.

Included in the alternates were a no build recommendation, four alternates for improvements to the KY 7 Interchange ramps with costs ranging from $580,000 to $1.4 million, and an alternate to lengthen a turning lane on US 460 through restriping. All of these alternates are well within the money allocated to this project, which is over $16 million total.

For more information regarding this study please contact:

Jill Asher or Steve Ross, Strategic Planning Branch
Kentucky Transportation Cabinet
Division of Planning, 5th Floor West
200 Mero St.
Frankfort, KY 40622
(502) 564-7183

Appendix A - Exhibits



Legend

- Bridge
- US Highways
- Parkways
- State Roads
- Local Roads
- Stream
- Corporate Boundary Lines

Exhibit 1: Location Map
Item 10-140.00
Magoffin County
Mountain Parkway (KY 9009)

0 550 1,100 2,200 Feet

KENTUCKY TRANSPORTATION CABINET

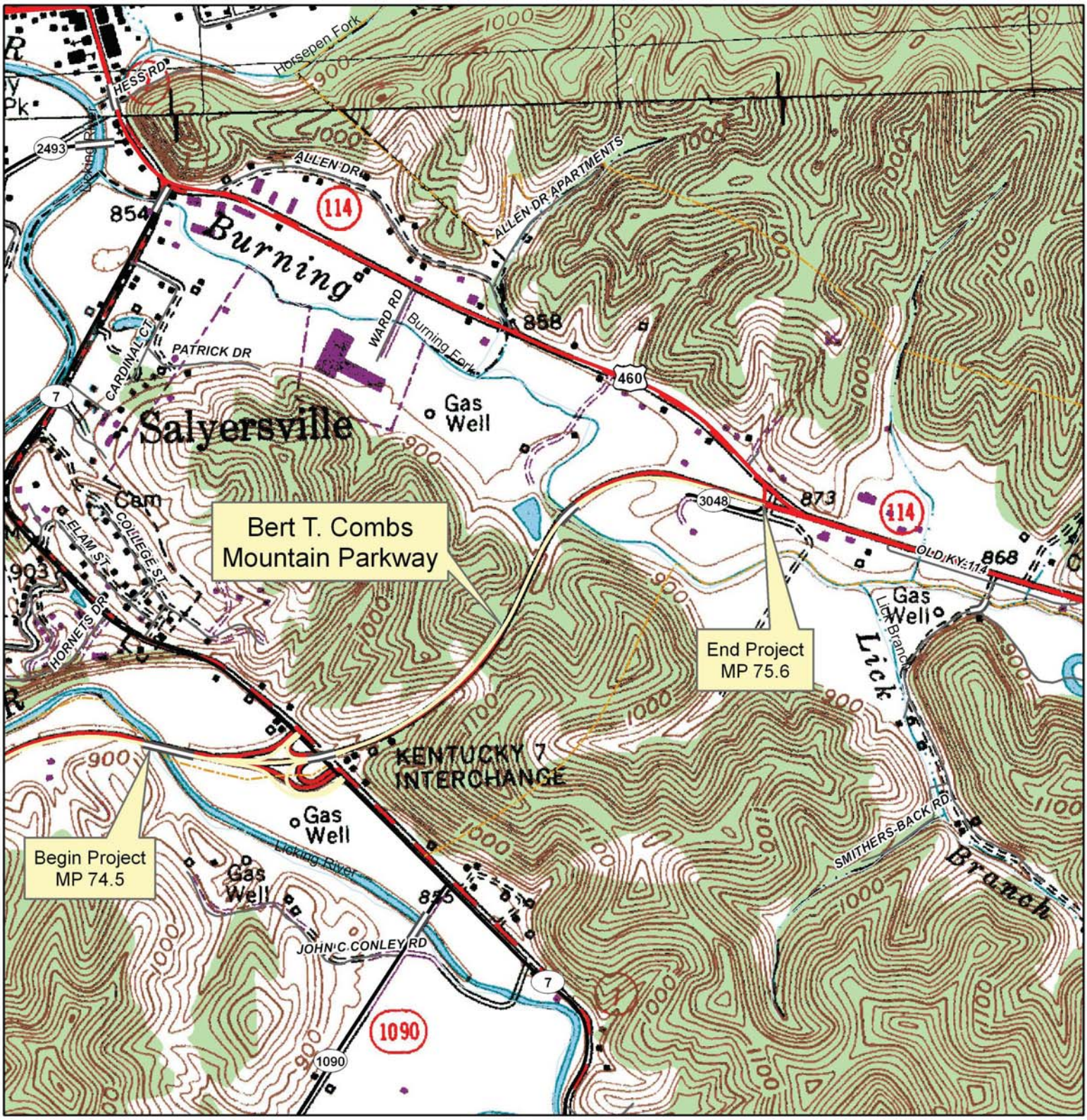
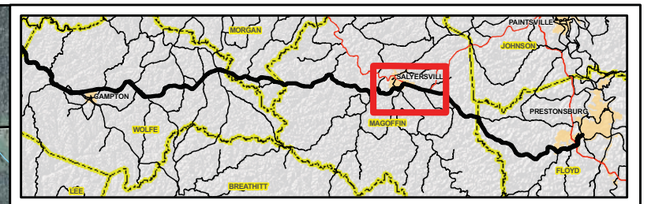


Exhibit 2: Topographical Map
Item 10-140.00
Magoffin County
Mountain Parkway (KY 9009)

0 550 1,100 2,200 Feet

N
W E
S

KENTUCKY TRANSPORTATION CABINET



"Through Salyersville" Conceptual Design
Designed By: WSA
Design Year: 2010
Design Speed: 55 MPH
NEPA Document: N/A

KY7 Interchange & Tie-Into Segment 2A
Designed By: WSA
Design Year: 2010
Design Speed: 65 MPH
NEPA Document: N/A

"Modified" 2004 Bypass
Designed By: ENTRAN
Design Year: 2004
Design Speed: 60 MPH
NEPA Document: N/A

"Original" 1999 Bypass
Designed By: ENTRAN
Design Year: 1999
Design Speed: 60 MPH
NEPA Document: FONSI (2003)

Study Area

SALYERSVILLE
Burning Fork
Mason
Lakeville

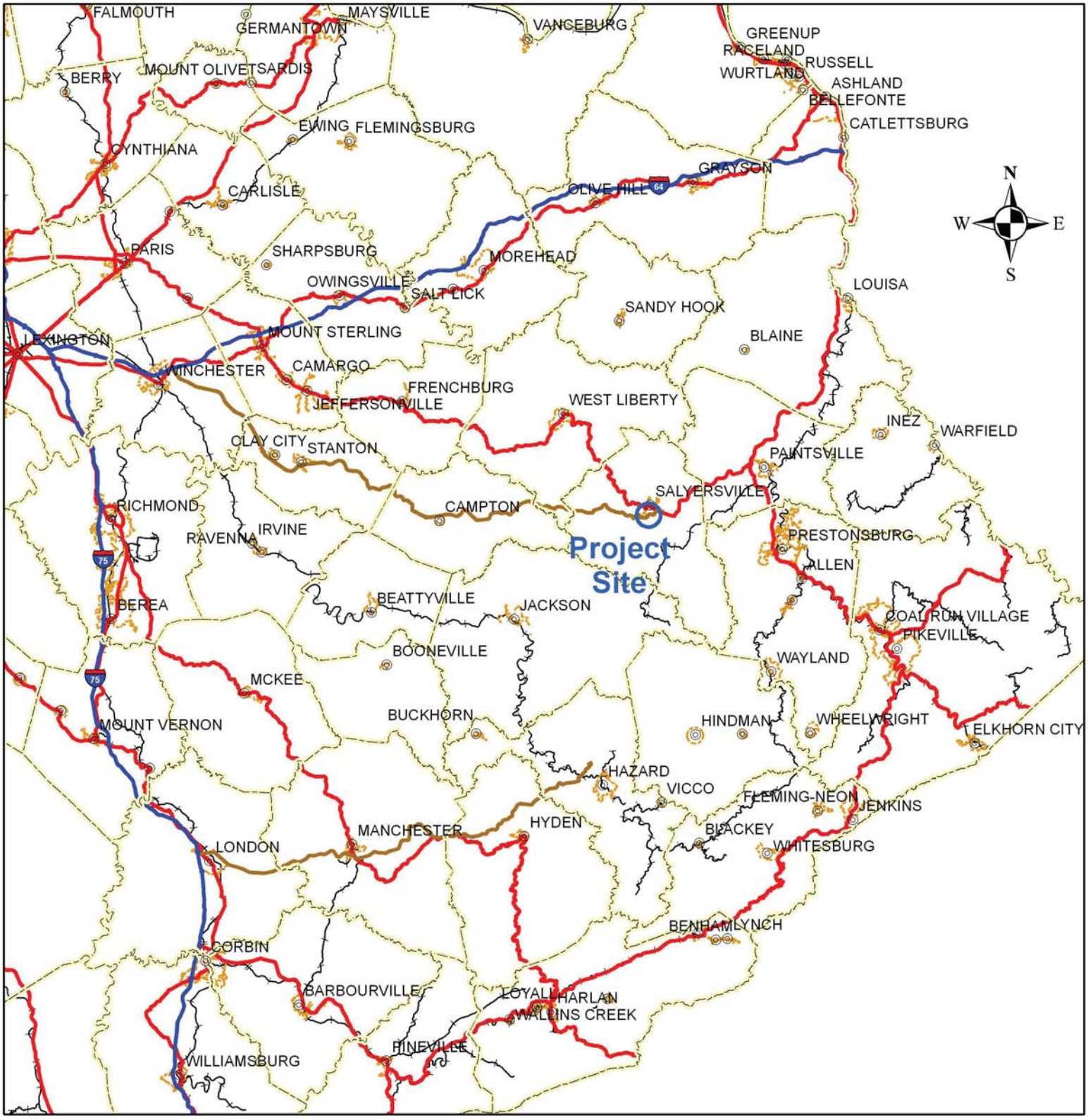
Exhibit 3: Proposed Alignments

KENTUCKY TRANSPORTATION CABINET

WilburSmith ASSOCIATES ENGINEERS PLANNERS ECONOMISTS

Mountain Parkway Extension / KY114 Programming Study
Campton to Prestonsburg
Six Year Plan Item # 10-126.01 and 12-001.00

Segment 2B



Legend

- City Points
- County Boundary Lines
- Interstates
- Parkways
- US Highways
- Corporate Boundary Lines

Exhibit 4: System Linkage Map
Item 10-140.00
Magoffin County
Mountain Parkway (KY 9009)

0 10 20 40 Miles

KENTUCKY TRANSPORTATION CABINET

Appendix B – UPL Project Information Forms

piF Project Identification Form UNSCHEDULED NEEDS

NEW PIF <> SEARCH <> STATUS **DIVISION OF PLANNING** ADMIN <> HELP <> LOGOUT

GENERAL INFO ROW/UTIL ECO/SOCIAL ENV/AIRQLTY COST EST HIGHWAY ATT PIF STATUS RANKING

GENERAL INFORMATION

The PIF has an attachment. Click this Image for PDF:

Control No:	10 077 D9009 106.30	**Status:**	Active
Requestor Name:		**Mode:**	Highways
Requestor Title:		**Type:**	Reconstruction
Requested By Date:	10/1/2004 12:00:00 AM	**ADD:**	BIG SANDY
Form Completed By:	Freddie Goble	**MPO:**	Select
Title/Organization:	BSADD	**Urban Area:**	n/a
Form Completed Date:	1/4/2004 12:00:00 AM	**Parent Control No:**	10 077 D9009 106.30
District:	10	**RSE Unique No:**	077-KY-9009 -000
County:	Magoffin		
Prefix:	KY		
Route No:	9009		
Route Type:	D		
Suffix:			
BMP :	63.084	**EMP:**	74.772
Length:	12.656		

State System:

BMP	EMP	SPRS
63.0840	75.6270	State Primary (Pa

Functional System:

BMP	EMP	FC
63.0840	75.6270	Rural Principal A

Existing Studies (Year): 1998 ADVANCE PLANNING STUDY

Project Description:

MOUNTAIN PKY EXTENSION - MAJOR WIDENING TO 4 LANES FROM 0.3 MI E OF THE KY 134/JOHNSON CREEK BRIDGE TO KY 7

Regional Goal: Achieve safer and more efficient access to central Kentucky, and improve economic prospects for southeastern Kentucky.

Last Updated By: jamie.pinson **Last Updated Date:** 6/14/2010 10:48:30 AM

Possible Funding source: ☐ IM ☐ NH ☐ HES ☐ BR ☑ STP ☐ SP ☐ TE ☐ CMAQ ☐ PLH

Other:

Highway Network: ☐ Non NHS ☑ NHS ☑ NN ☐ Scenic Way ☑ Coal Haul ☐ Bike ☐ Forest ☐ Strahnet ☑ Ext Weight ☑ ADHS

Cancel

Appendix C – Traffic Forecast Report

Executive Summary

Traffic Forecast Report
Mountain Parkway (KY 9009) Widening from Licking River Bridge to KY 3048 / US 460
Magoffin County, Kentucky
Item No. 10-0140.00

Final Report
July 26, 2010

Prepared for:

KENTUCKY TRANSPORTATION CABINET

Prepared by:

815 West Market Street ▪ Louisville, Kentucky 40202
502-585-2222

Table of Contents

Commonly Used Abbreviations and their Descriptions

ADT	Average Daily Traffic	Without any adjustment
DHV	Design Hour Volume	30th highest hour of a year
ESAL	Equivalent Single Axle Load	A measure of traffic's impact on roadway
%T	Truck Percentage	The percentage trucks to total volume
FC	Functional Class	Refers to a road's importance
GR	Growth Rate	A value normally compounded annually
PHF	Peak-Hour Factor	Considers a 15-minute spike in an hourly count
K-Factor	K-30th hour Factor	DHV divided by ADT (DHV/ADT)
D-Factor	Directional Factor	Percentage of dominant flow to total
MP	Mile Point	Miles increase easterly and northerly
ATR	Automatic Traffic Recorder	A permanent and continuous recording station
KYSTM	Kentucky Statewide Model	A computerized representation of KY roads

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Traffic Forecast Executive Summary
Mountain Parkway (KY 9009) Widening
from Licking River Bridge to KY 3048 / US 460
Item No. 10-0140.00

EXECUTIVE SUMMARY

Forecast Summary

The purpose of this report is to forecast traffic for two sections of the Mountain Parkway (KY 9009) between the Licking River Bridge and KY 3048 / US 460 and also two interchanges with KY 7 and KY 3048 / US 460 in Magoffin County, Kentucky (see Figure 1). The forecast will be used for the widening of the Mountain Parkway in the study area.

Summary Table

Location	2032 ADT	2032 DHV	2032 Truck %	20 Year ESALs
Mountain Parkway between Licking River Bridge and KY 7	8800	820	26	9.8M
Mountain Parkway between KY 7 and KY 3048 / US 460	11900	1090	26	14.6M
KY 7 South of Mountain Parkway	9100	800		
KY 7 North of Mountain Parkway	5000	540		
US 460 South of Mountain Parkway	24000	2400		
US 460 North of Mountain Parkway	14900	1600		

The sections which follow provide background and details concerning the types of forecasts that were developed for the project. A summary of the forecast methods and data include

- the current-year (2010) traffic volumes
- design year (2032) growth factors
- design-hour traffic volumes
- percentages of truck traffic
- peak-hour factors
- turning movements

Types of Forecasts

The following types of forecasts were developed:

- Build 2010 and 2032 Average Daily Traffic
- Build 2010 and 2032 Design-Hour Volumes (AM and PM)
- Build 2010 and 2032 Percent Trucks (ADT & Design Hour)
- Build Twenty-Year ESALs

Current-Year Volumes

Existing traffic count stations in the vicinity of the project are shown on Figure 2. The current (year 2010) traffic volumes, shown on Figure 3 and in Table 1, were based on count data from KYTC, peak hour turning movements were collected by Qk4 for this project in June of 2010 at the Mountain Parkway interchanges with KY 7 and KY 3048 / US 460. These peak-hour turning movement counts were collected during two time periods: AM (7-9 a.m.) and PM (4-6 p.m.).

Table 1: Current Traffic Count Data

Route	KYTC Station #	From	To	ADT	Year of Last Count	Daily Truck %	Peak Truck %
KY 9009	077 288	KY 30	KY 7	5,897	2009	n/a	n/a
KY 9009	077 287	KY 7	KY 3048 / US 460	8,022	2009	20.8%	14.9%
KY 7	077 251	KY 1090	KY 9009	6,045	2008	n/a	n/a
KY 7	077 A21	KY 9009	Hornets Drive	3,306	2009	n/a	n/a
US 460	077 279	KY 9009	Old KY 114	15,290	2009	11.3%	9.1%
US 460	077 A14	Ward Rd	KY 9009	10,064	2009	4.1%	3.9%

MP = Mile Post

Design-Year/Growth Factors

Multiple sources, including historical traffic volume counts, past population data, and future population projections, were analyzed to develop a traffic volume growth rate. The population projections in **Table 2** show an average annual growth rate of 0.70% for Kentucky and 0.17% for Magoffin County between 2005 and 2030. Historical traffic counts along the Mountain Parkway in the study area show a linear growth rate of 1.53% west of KY 7 and a growth rate of 1.73% east of KY 7. Statewide, the annual average growth rate for Rural Principal Arterials is listed as 2.62% in the KYTC's *Traffic Forecasting Report – 2008*. Furthermore, the average annual growth for the same functional class in Magoffin County alone is listed as 1.79% in the above-mentioned document.

Taking into account all of these sources of data, it was decided a 1.75% growth rate would be applied to determine future year 2032 traffic volumes.

Table 2: Population Data

HISTORICAL POPULATION SUMMARY

Area	1950 Population	1960 Population	1970 Population	1980 Population	1990 Population	2000 Population	50-60 Pct Change	60-70 Pct Change	70-80 Pct Change	80-90 Pct Change	90-100 Pct Change
Kentucky	-	3,038,156	3,220,711	3,660,334	3,686,892	4,041,769	-	6.0%	13.6%	0.7%	9.6%
Magoffin County	-	-	10,443	13,515	13,077	13,332	-	-	29.4%	-3.2%	1.9%

Sources: U.S. Bureau of the Census, Kentucky State Data Center

FUTURE POPULATION PROJECTIONS SUMMARY

Area	2005 Population	2010 Population	2015 Population	2020 Population	2025 Population	2030 Population	05 - 10 Pct Change	10 - 15 Pct Change	15 - 20 Pct Change	20 - 25 Pct Change	25 - 30 Pct Change
Kentucky	4,171,016	4,326,490	4,502,595	4,660,703	4,799,443	4,912,621	3.7%	4.1%	3.5%	3.0%	2.4%
Magoffin County	13,193	13,472	13,542	13,600	13,660	13,700	2.1%	0.5%	0.4%	0.4%	0.3%

Sources: U.S. Bureau of the Census, Kentucky State Data Center

ANNUAL POPULATION GROWTH RATES FROM HISTORICAL DATA AND PROJECTIONS

Area	50-60 GR	60-70 GR	70-80 GR	80-90 GR	90-00 GR	05 - 10 GR	10 - 15 GR	15 - 20 GR	20 - 25 GR	25 - 30 GR	05 - 30 GR
Kentucky	-	0.59%	1.29%	0.07%	0.92%	0.73%	0.80%	0.69%	0.59%	0.47%	0.70%
Magoffin County	-	-	2.61%	-0.33%	0.19%	0.42%	0.10%	0.09%	0.09%	0.06%	0.17%

Design-Hour Volumes

A high hour ratio (highest hourly volume/daily volume) was determined from KYTC traffic counts for each roadway segment. A DHV factor based on month and day of week was applied to this ratio to determine a K-factor for each roadway section. DHVs calculated from the 2010 turning movement counts were then divided by the calculated K-factors to estimate existing 2010 ADTs. This resulted in 2010 ADTs that are higher in some cases than those counted by KYTC in 2009 and 2010.

Example: Mountain Parkway Between KY 7 and US 460/ KY 3048

- ADT from 2009 Count – 9,083 vpd
- High hour from 2009 Count – 686 vph
- High Hour Ratio – 686 / 9,083 = 7.55%
- % to add for Thursday count in June for Rural Principal Arterial – 1.57%
- K-Factor – 7.55% + 1.57% = 9.12%
- Peak hour from 2010 Turning Movements – 891 vph
- DHV factor for Rural Principal Arterial in June – 1.20
- DHV calculated from Turning Movement peak hour – 891 x 1.20 = 1069
- Calculated 2010 ADT – 1069 / .0912 = 11,700 vpd

Truck Percentages

Year 2009 vehicle classification data was collected from KYTC count Station 077 287 on the Mountain Parkway at MP 75.4 between KY 7 and KY 3048 / US 460. Data from this count station shows a daily truck percentage of 20.8% and peak hour heavy truck percentage of 14.9%. Data from the *Traffic Forecasting Report – 2008* shows an average daily truck percentage for Rural Principal Arterials of 16.79% in Kentucky. The design hourly truck percentage for this same functional classification was 13.0%. Functional class averages were used to determine an overall average 1.0% annual growth rate for truck percentages. As a result, the 2032 forecasted truck percentage is 26%.

Turning Movements

Two 2010 peak hour (AM and PM) turning movement counts were collected in June of 2010 by Qk4, at the Mountain Parkway interchanges with KY 7 and KY 3048 / US 460. These counts were used to derive the turning movements for this forecast. They were factored to estimate current year ADT and DHV turning movements, which were grown to 2032 using methods described above.

For peak-hour analysis— possibly to be used for signal warrants, signal timing, simulation modeling, etc. —the DHV turning movements need to be reduced, as described in the turning movement data in Appendix A. It should be noted that each movement at a given intersection may have a different one-hour peak during the two hours counted. The peak-hour factor for each movement can be found in the turning movement counts performed for that intersection, shown in Appendix A.

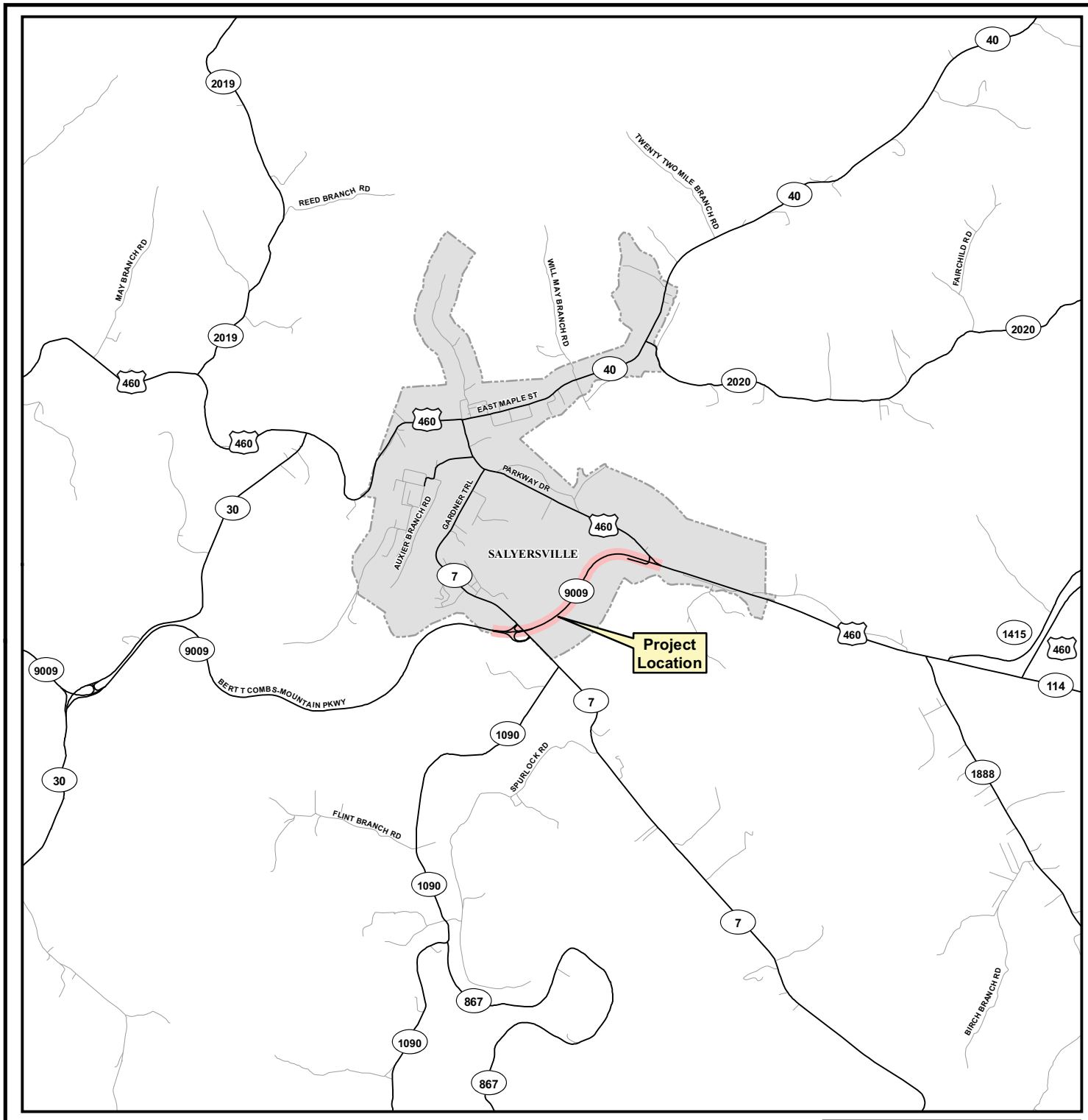


Figure 1

PROJECT LOCATION

Mountain Parkway Road Widening and Safety Improvements
Magoffin County, Kentucky
KYTC Item No. 10-0140.00

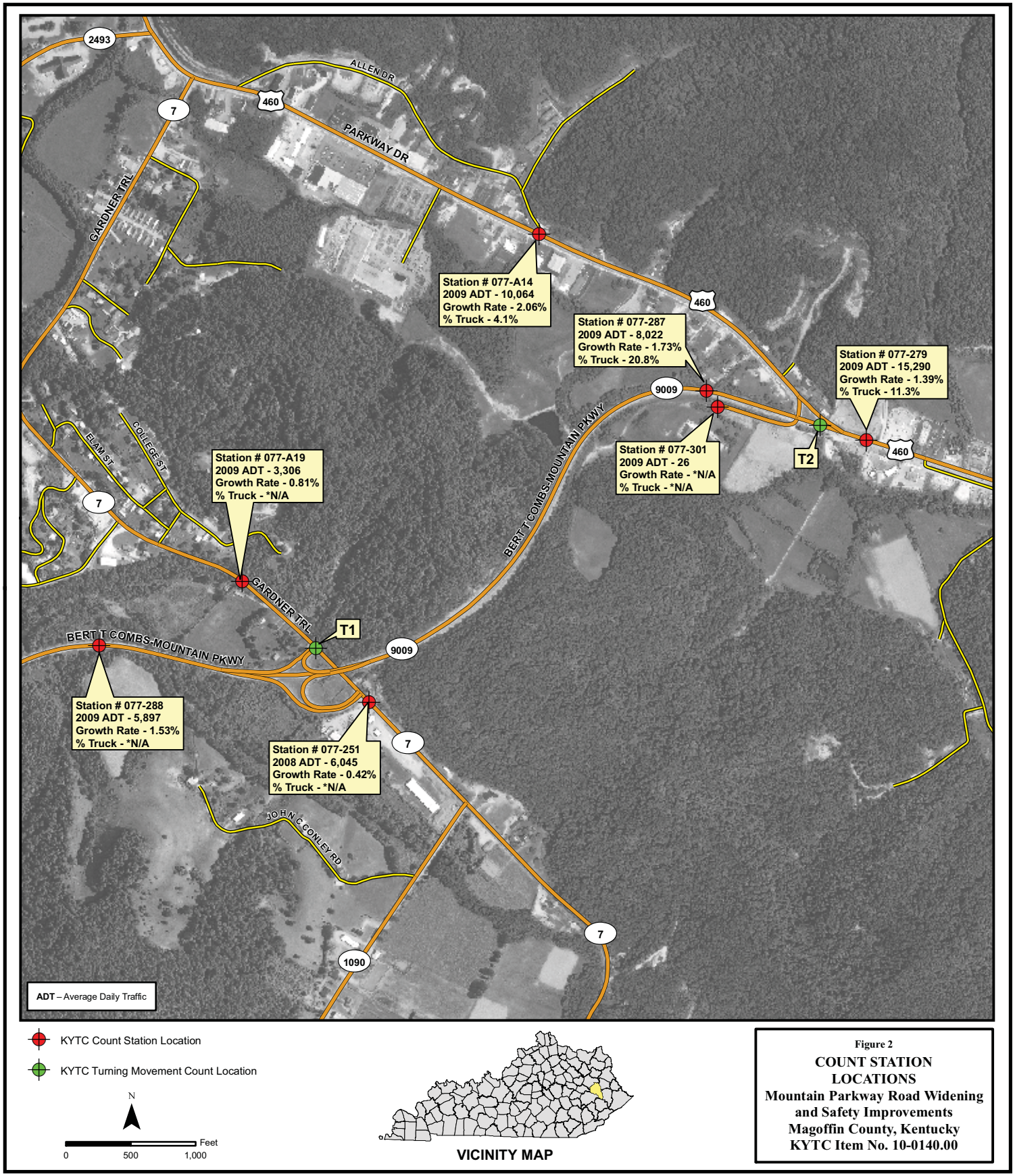
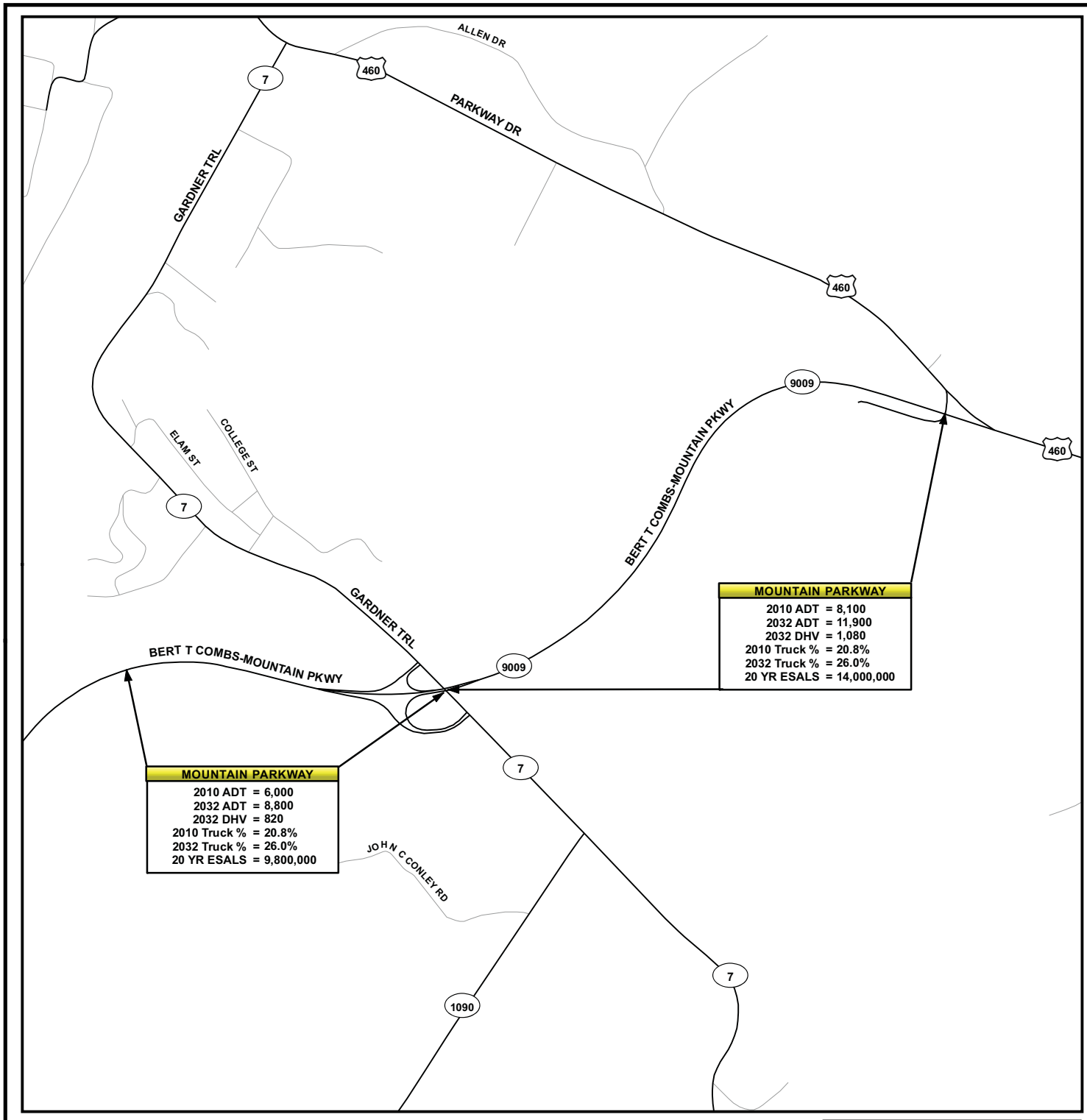


Figure 2

COUNT STATION LOCATIONS
Mountain Parkway Road Widening and Safety Improvements
Magoffin County, Kentucky
KYTC Item No. 10-0140.00



VICINITY MAP

Figure 3

TRAFFIC SUMMARY
Mountain Parkway Road Widening and Safety Improvements
Magoffin County, Kentucky
KYTC Item No. 10-0140.00

APPENDIX A

TURNING MOVEMENTS

2010 Turning Movements

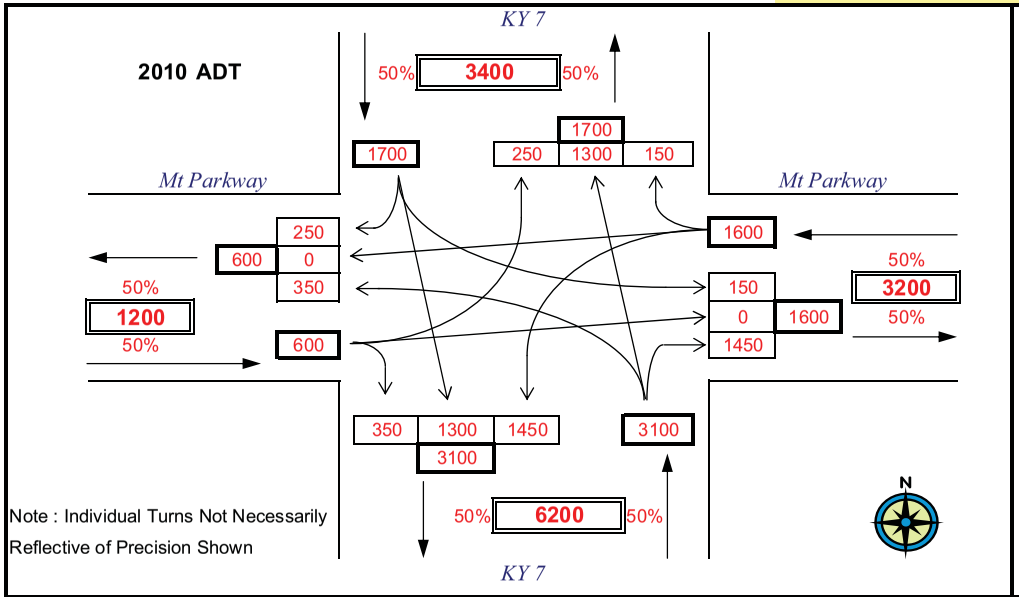
T1: Mountain Parkway & KY 7

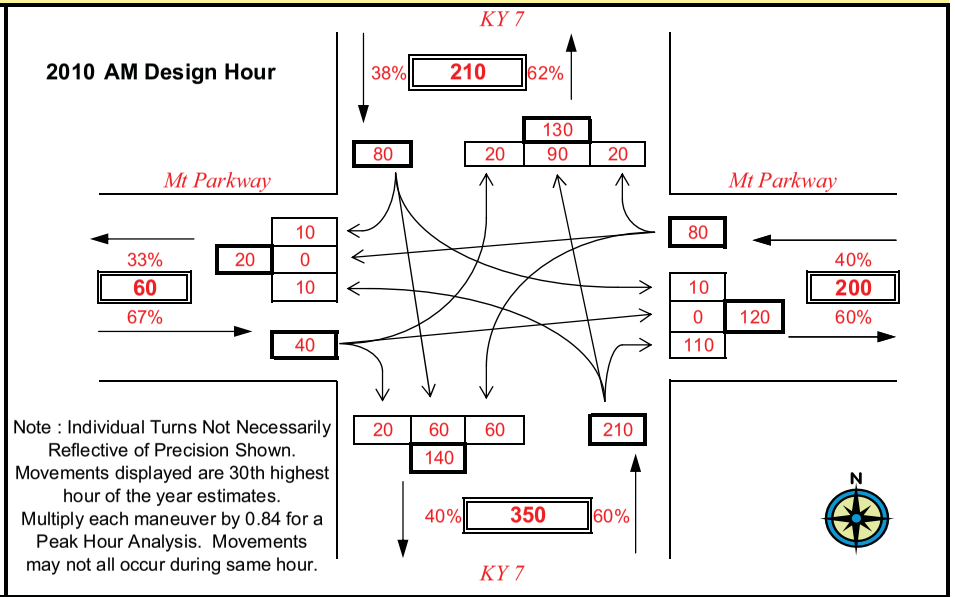
T2: Mountain Parkway & KY 3048 / US 460

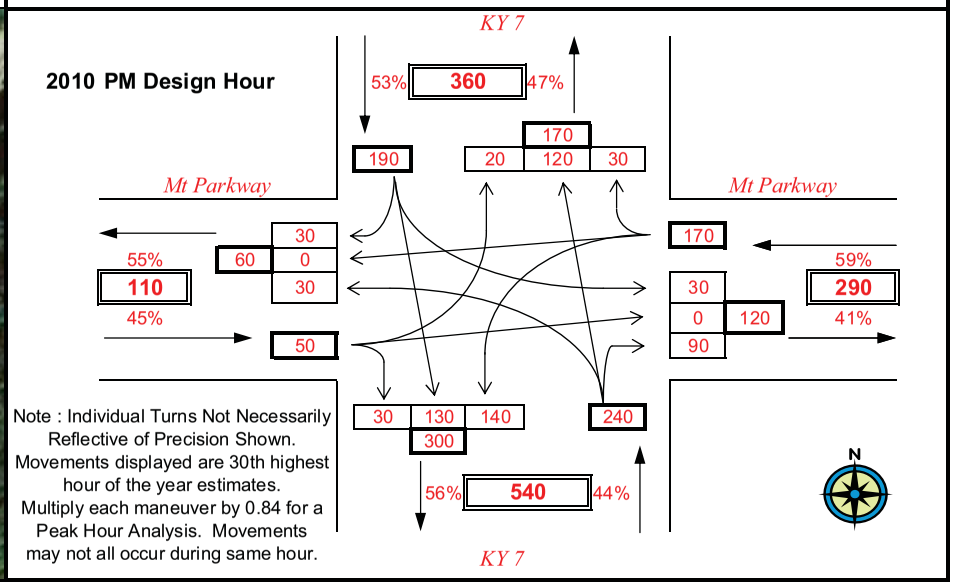
PROJECT: Mt. Parkway Improvements from Licking River Bridge to US 460
ITEM NUMBER: 10-140.00
MARS NUMBER: 80638 01D
REQUEST DATE: 6/16/2010
ANALYST: B Siria
SCENARIO: **2010 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 7 @ Mt. Parkway (KY 9009)

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**



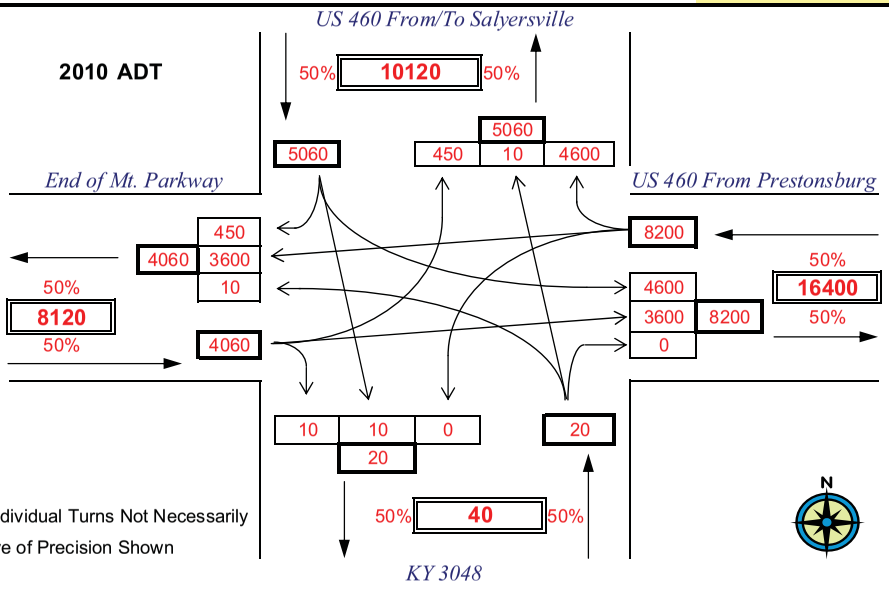


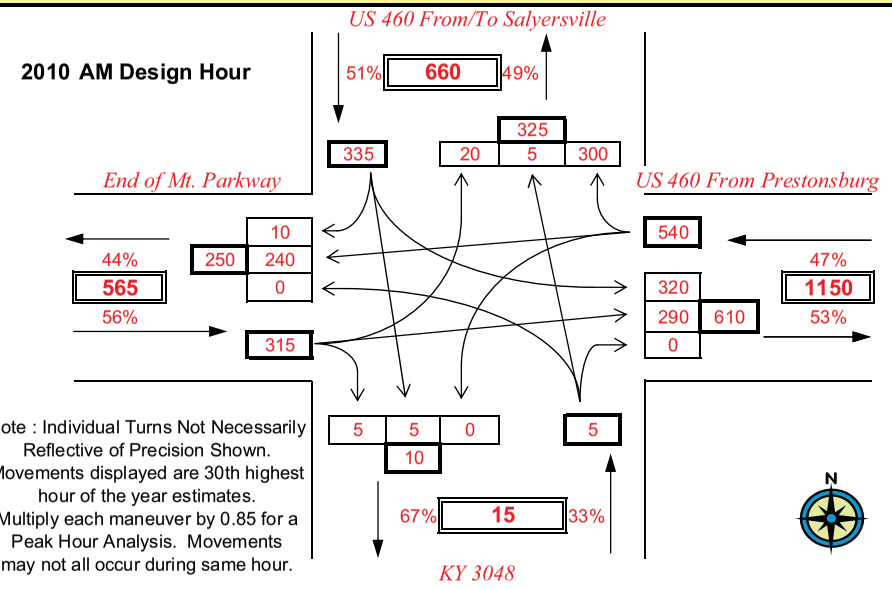


PROJECT: Mt. Parkway Improvements from Licking River Bridge to US 460
ITEM NUMBER: 10-140.00
MARS NUMBER: 80638 01D
REQUEST DATE: 6/16/2010
ANALYST: B Siria
SCENARIO: **2010 ADT and Design Hour Volumes**
INTERSECTION: T2: End of Mt. Parkway @ US 460/KY 3048

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

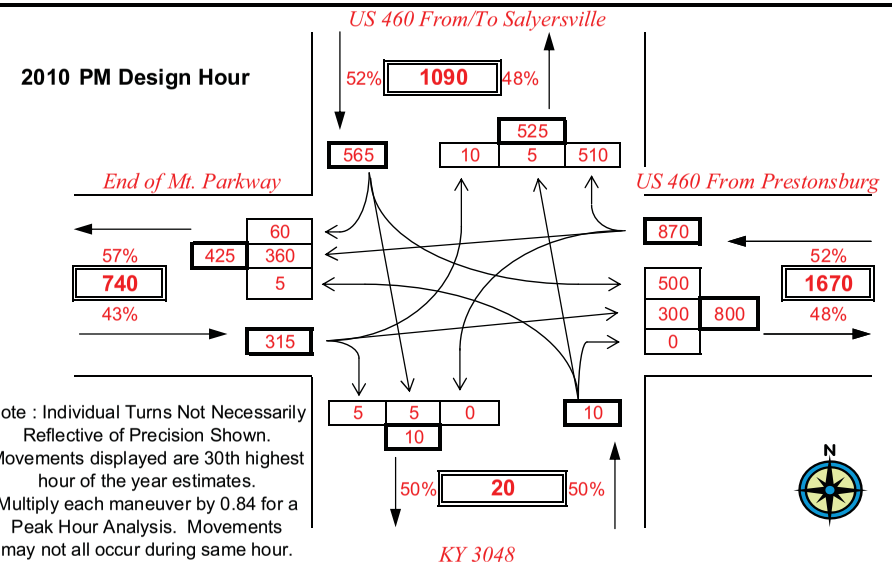
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**





Location Map

N



2032 Turning Movements

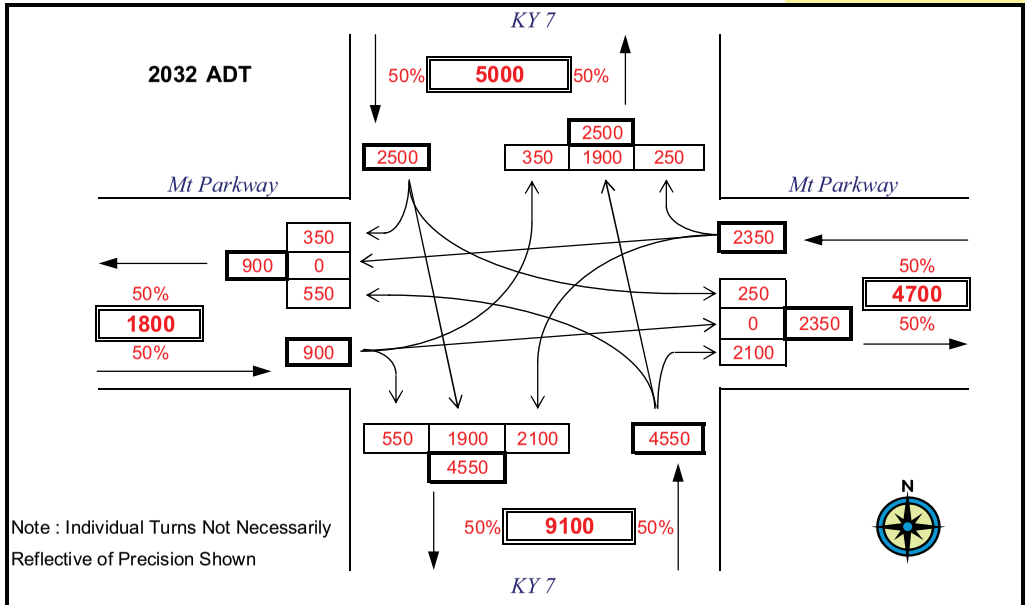
T1: Mountain Parkway & KY 7 North

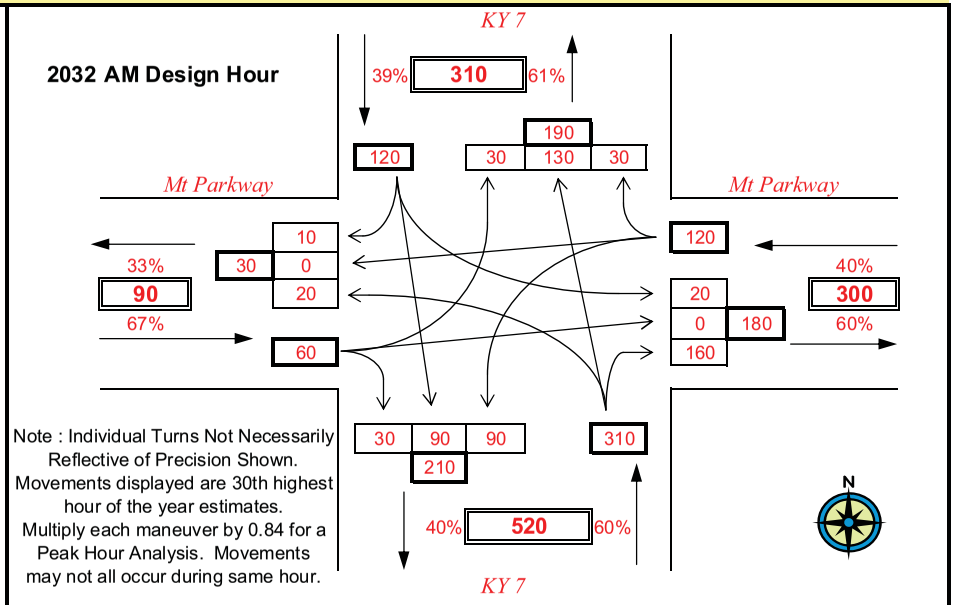
T2: Mountain Parkway & KY 3048 / US 460

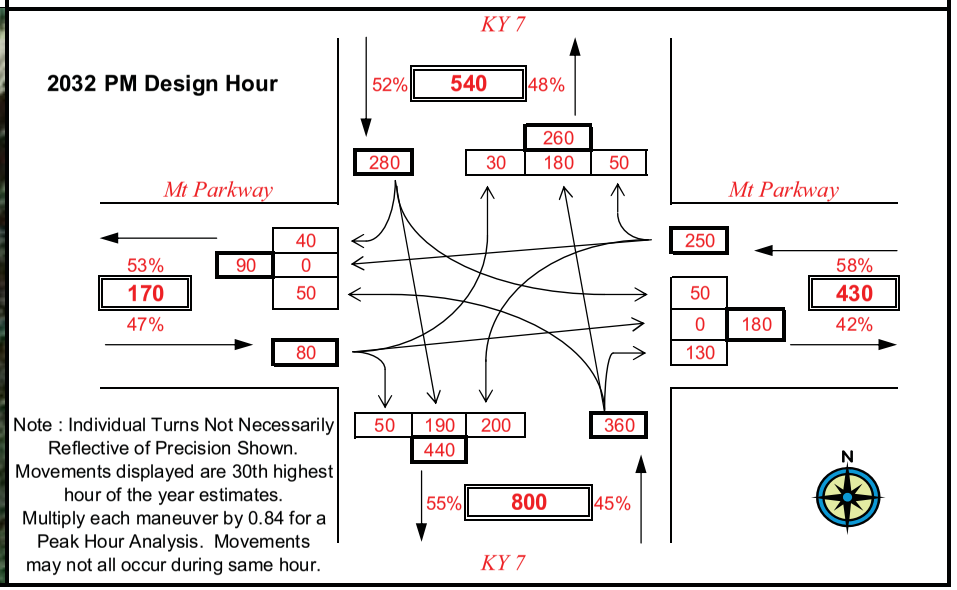
PROJECT: Mt. Parkway Improvements from Licking River Bridge to US 460
ITEM NUMBER: 10-140.00
MARS NUMBER: 80638 01D
REQUEST DATE: 6/16/2010
ANALYST: B Siria
SCENARIO: **2032 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 7 @ Mt. Parkway (KY 9009)

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**



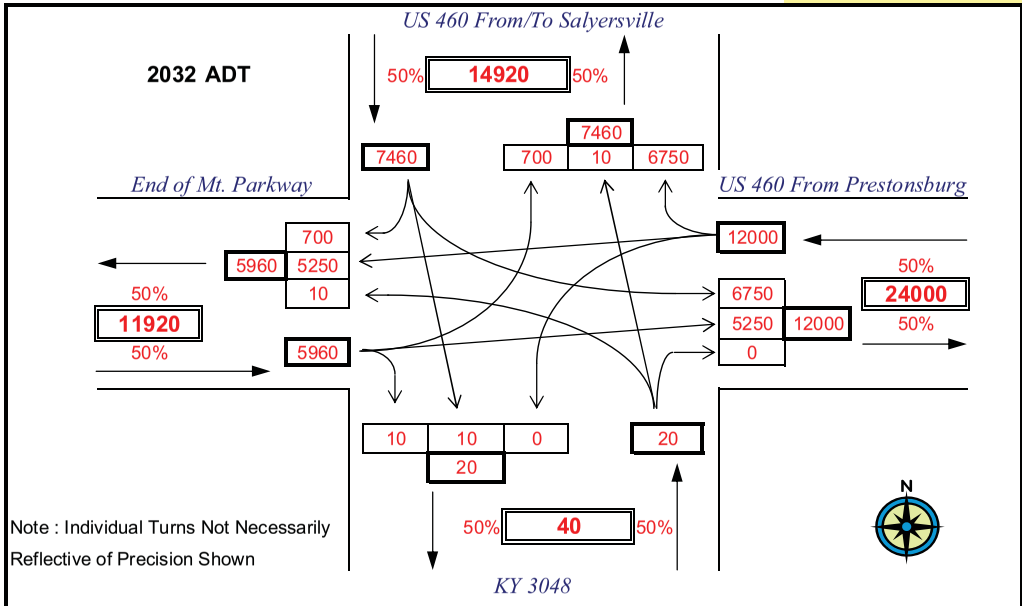


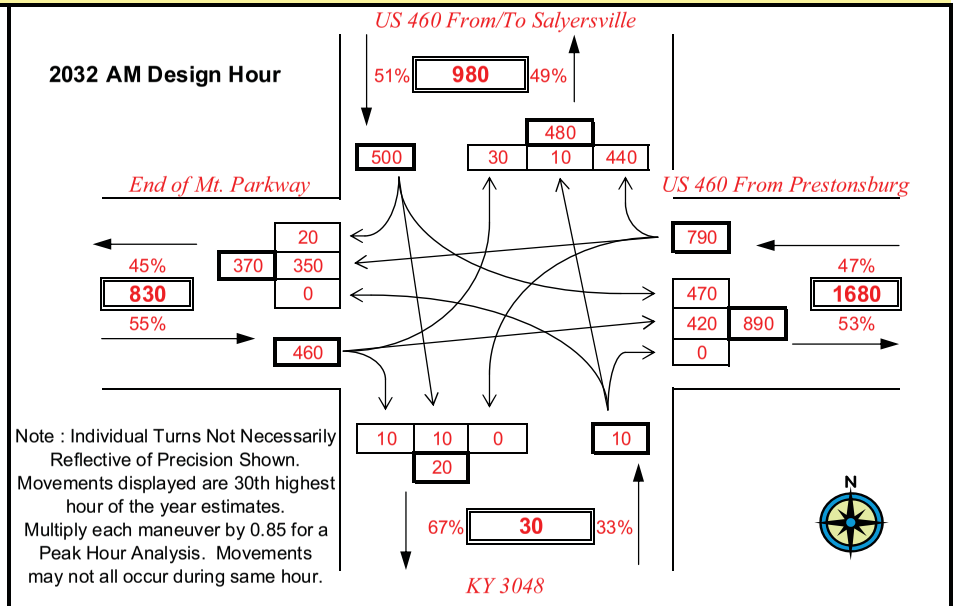


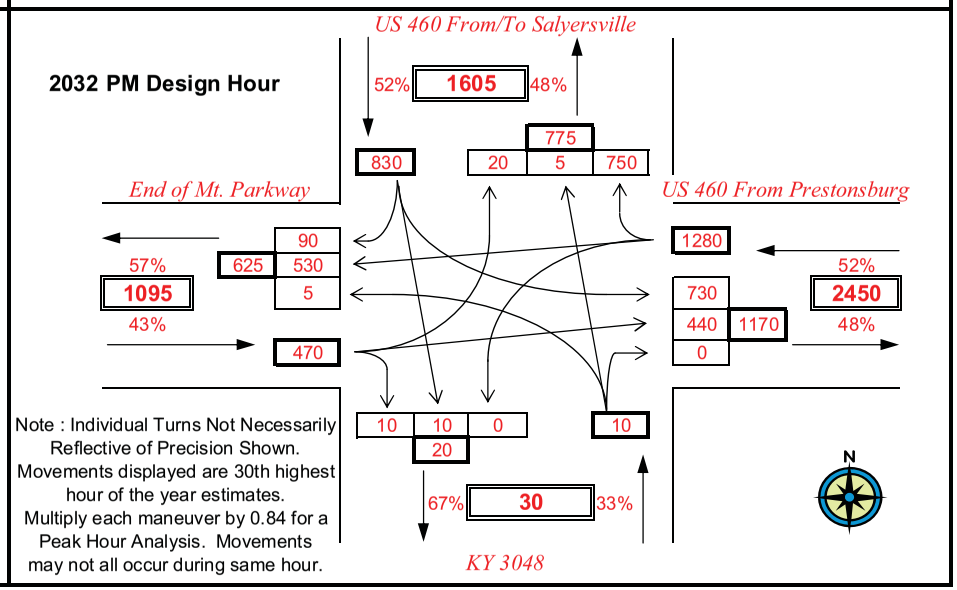
PROJECT: Mt. Parkway Improvements from Licking River Bridge to US 460
ITEM NUMBER: 10-140.00
MARS NUMBER: 80638 01D
REQUEST DATE: 6/16/2010
ANALYST: B Siria
SCENARIO: **2032 ADT and Design Hour Volumes**
INTERSECTION: T2: End of Mt. Parkway @ US 460/KY 3048

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







APPENDIX B

ESALs

FORECAST OF EQUIVALENT SINGLE AXLE LOAD ACCUMULATIONS (20-year)

ROUTE ID:

County	Magoffin	Date	07/23/10
		Forecaster	B Siria
Road Name	Mt. Parkway		
		MARS No.	80638 01D
Functional Class	2 - Rural Principal Arterial	Item No.	10-0140.00
		Route No.	KY 9009
Project Description	Road Widening & Safety Improvements	Beg. MP	74.486
		End MP	74.746
Scenario	No-Build	T.F. No.	LA 4
Segment Description	Segment 1 - Licking River Bridge to KY 7	No. of Lanes	2
		1 or 2 way	2

REFERENCES:

Previous Forecasts	1	K- Factor Value	10.0%
		K-Factor Source	287
Traffic Volume	287	PHF	0.9
Milepoint	75.4		
Truck Percent	287		
Milepoint	75.4		
ESAL Information	2007 Aggregated ESALS		
Growth Rate	1.75%		

TRAFFIC PARAMETERS:

		Present Year	Growth Rate	Construction Year	Median Year	Design Year
		2010		**2012**	**2022**	**2032**
Volume	(AADT)	6000	1.75%	6200	7400	8800
Percent Trucks	(%T)	20.8%	1.0%	21%	23%	26%
Number of Trucks		1200	2.8%	1300	1700	2300
Percent Trucks Hauling Coal	(%CT)	4%	-2.7%	4%	3%	2%
Non-Coal Trucks:						
Axles/Truck	(A/T)	3.083	0.00%	3.083	3.083	3.083
ESALs/Axle	(ESAL/A)	0.260	1.60%	0.268	0.315	0.369
Coal Trucks:						
Axles/Truck	(A/CT)	5.123	0.00%	5.123	5.123	5.123
ESALs/Axle	(ESAL/CA)	3.3	0.00%	3.300	3.300	3.300

ESAL CALCULATIONS: SEE ATTACHED ESAL CALCULATION SHEET

Design ESALs in Critical Lane

9,800,000

General Comments:

Segment 1 - Licking River Bridge to KY 7 N (No-Build)

Year	ADT	Car %	Truck %	Cars	Trucks	CT%	AX/T	ESAL/AX	AX/CT	ESAL/CA	LDF	ESALs	
2012	6,212	78.8%	21.2%	4894	1318	4.16%	3.08	0.27	5.123	3.3	0.500	364,433	
2013	6,321	78.6%	21.4%	4966	1355	4.05%	3.08	0.27	5.123	3.3	0.500	373,149	
2014	6,431	78.4%	21.6%	5039	1392	3.94%	3.08	0.28	5.123	3.3	0.500	382,251	
2015	6,544	78.1%	21.9%	5113	1431	3.83%	3.08	0.28	5.123	3.3	0.500	391,756	
2016	6,659	77.9%	22.1%	5188	1470	3.73%	3.08	0.29	5.123	3.3	0.500	401,683	5-yr ESALs
2017	6,775	77.7%	22.3%	5264	1511	3.63%	3.08	0.29	5.123	3.3	0.500	412,049	2,000,000
2018	6,894	77.5%	22.5%	5341	1553	3.53%	3.08	0.30	5.123	3.3	0.500	422,874	
2019	7,014	77.3%	22.7%	5419	1596	3.44%	3.08	0.30	5.123	3.3	0.500	434,179	
2020	7,137	77.0%	23.0%	5497	1640	3.34%	3.08	0.30	5.123	3.3	0.500	445,985	
2021	7,262	76.8%	23.2%	5577	1685	3.25%	3.08	0.31	5.123	3.3	0.500	458,313	10-yr ESALs
2022	7,389	76.6%	23.4%	5657	1732	3.17%	3.08	0.31	5.123	3.3	0.500	471,188	4,200,000
2023	7,519	76.3%	23.7%	5739	1780	3.08%	3.08	0.32	5.123	3.3	0.500	484,632	
2024	7,650	76.1%	23.9%	5821	1829	3.00%	3.08	0.32	5.123	3.3	0.500	498,672	
2025	7,784	75.9%	24.1%	5905	1880	2.92%	3.08	0.33	5.123	3.3	0.500	513,333	
2026	7,921	75.6%	24.4%	5989	1932	2.84%	3.08	0.34	5.123	3.3	0.500	528,643	15-yr ESALs
2027	8,059	75.4%	24.6%	6074	1985	2.76%	3.08	0.34	5.123	3.3	0.500	544,630	6,800,000
2028	8,200	75.1%	24.9%	6160	2040	2.69%	3.08	0.35	5.123	3.3	0.500	561,326	
2029	8,344	74.9%	25.1%	6247	2097	2.62%	3.08	0.35	5.123	3.3	0.500	578,760	
2030	8,490	74.6%	25.4%	6335	2155	2.55%	3.08	0.36	5.123	3.3	0.500	596,965	
2031	8,639	74.4%	25.6%	6424	2214	2.48%	3.08	0.36	5.123	3.3	0.500	615,976	20-yr ESALs
2032	8,790	74.1%	25.9%	6514	2276	2.41%	3.08	0.37	5.123	3.3	0.500	635,829	9,800,000

FORECAST OF EQUIVALENT SINGLE AXLE LOAD ACCUMULATIONS (20-year)

ROUTE ID:

County	Magoffin	Date	07/23/10
		Forecaster	A Coffey
Road Name	Mt. Parkway		
		MARS No.	80638 01D
Functional Class	2 - Rural Principal Arterial	Item No.	10-0140.00
		Route No.	KY 9009
Project Description	Road Widening & Safety Improvements	Beg. MP	74.746
		End MP	75.627
Scenario	No Build	T.F. No.	LA #4
Segment Description	Seg 2 - Between KY 7 and US 460	No. of Lanes	4
		1 or 2 way	2

REFERENCES:

Previous Forecasts	0	K- Factor Value	9.1%
		K-Factor Source	287
Traffic Volume	287	PHF	0.9
Milepoint	75.4		
Truck Percent	287		
Milepoint	75.4		
ESAL Information	2007 Aggregated ESALS		
Growth Rate	1.75%		

TRAFFIC PARAMETERS:

		Present Year	Growth Rate	Construction Year	Median Year	Design Year
		2010		**2012**	**2022**	**2032**
Volume	(AADT)	8100	1.75%	8400	10000	12000
Percent Trucks	(%T)	20.8%	1.0%	21%	23%	26%
Number of Trucks		1700	2.8%	1800	2300	3100
Percent Trucks Hauling Coal	(%CT)	7%	-2.8%	6%	5%	4%
Non-Coal Trucks:						
Axles/Truck	(A/T)	3.083	0.00%	3.083	3.083	3.083
ESALs/Axle	(ESAL/A)	0.260	1.60%	0.268	0.315	0.369
Coal Trucks:						
Axles/Truck	(A/CT)	5.123	0.00%	5.123	5.123	5.123
ESALs/Axle	(ESAL/CA)	3.3	0.00%	3.300	3.300	3.300

ESAL CALCULATIONS: SEE ATTACHED ESAL CALCULATION SHEET

Design ESALs in Critical Lane

14,600,000

General Comments:

Seg 2 - Between KY 7 and US 460 N (No Build)

Year	ADT	Car %	Truck %	Cars	Trucks	CT%	AX/T	ESAL/AX	AX/CT	ESAL/CA	LDF	ESALs	
2012	8,386	78.8%	21.2%	6607	1779	6.28%	3.08	0.27	5.123	3.3	0.475	572,959	
2013	8,533	78.6%	21.4%	6704	1829	6.11%	3.08	0.27	5.123	3.3	0.475	584,056	
2014	8,682	78.4%	21.6%	6803	1879	5.95%	3.08	0.28	5.123	3.3	0.475	595,647	
2015	8,834	78.1%	21.9%	6903	1931	5.79%	3.08	0.28	5.123	3.3	0.475	607,753	
2016	8,989	77.9%	22.1%	7004	1985	5.63%	3.08	0.29	5.123	3.3	0.475	620,399	5-yr ESALs
2017	9,146	77.7%	22.3%	7106	2040	5.48%	3.08	0.29	5.123	3.3	0.475	633,607	3,000,000
2018	9,306	77.5%	22.5%	7210	2096	5.33%	3.08	0.30	5.123	3.3	0.475	647,403	
2019	9,469	77.3%	22.7%	7315	2154	5.19%	3.08	0.30	5.123	3.3	0.475	661,813	
2020	9,635	77.0%	23.0%	7421	2214	5.05%	3.08	0.30	5.123	3.3	0.475	676,863	
2021	9,803	76.8%	23.2%	7528	2275	4.91%	3.08	0.31	5.123	3.3	0.475	692,582	10-yr ESALs
2022	9,975	76.6%	23.4%	7637	2338	4.78%	3.08	0.31	5.123	3.3	0.475	709,000	6,400,000
2023	10,149	76.3%	23.7%	7747	2403	4.65%	3.08	0.32	5.123	3.3	0.475	726,148	
2024	10,327	76.1%	23.9%	7858	2469	4.53%	3.08	0.32	5.123	3.3	0.475	744,057	
2025	10,508	75.9%	24.1%	7970	2537	4.41%	3.08	0.33	5.123	3.3	0.475	762,762	
2026	10,691	75.6%	24.4%	8084	2608	4.29%	3.08	0.34	5.123	3.3	0.475	782,298	15-yr ESALs
2027	10,879	75.4%	24.6%	8199	2680	4.17%	3.08	0.34	5.123	3.3	0.475	802,702	10,200,000
2028	11,069	75.1%	24.9%	8315	2754	4.06%	3.08	0.35	5.123	3.3	0.475	824,011	
2029	11,263	74.9%	25.1%	8432	2830	3.95%	3.08	0.35	5.123	3.3	0.475	846,266	
2030	11,460	74.6%	25.4%	8551	2908	3.84%	3.08	0.36	5.123	3.3	0.475	869,509	
2031	11,660	74.4%	25.6%	8671	2989	3.74%	3.08	0.36	5.123	3.3	0.475	893,784	20-yr ESALs
2032	11,864	74.1%	25.9%	8793	3072	3.64%	3.08	0.37	5.123	3.3	0.475	919,135	14,600,000

Appendix D – Collision Data

LATITUDE	LONGITUDE	ROADWAY NUMBER	MILE POINT	DATE	TIME	UNITS	KILLED	INJURED	WEATHER	ROAD CONDITION	DIRECTION1	MANNER OF COLLISION	ROAD CONDITION	LIGHT CONDITION
37.73615	-83.066643	KY9009	74.002	6/26/2009	745	1	0	0	CLOUDY	WET	COLLISION WITH FIXED OBJECT NON - INTERSECTION - FIRST E	SINGLE VEHICLE	STRAIGHT & LEVEL	DAYLIGHT
37.73596	-83.063859	KY9009	74.716	4/25/2009	2130	2	0	6	CLEAR	DRY	HEAD-ON COLLISION	HEAD ON	CURVE & GRADE	DARK-HWY LIGHTED/ON
37.73552	-83.062493	KY0007	23.929	5/8/2010	1525	2	0	2	CLEAR	DRY	1 VEHICLE ENTERING/LEAVING ENTRANCE	ANGLE	STRAIGHT & LEVEL	DAYLIGHT
37.74035	-83.056817	KY9009	75.227	9/25/2007	1030	2	0	3	CLEAR	DRY	REAR END IN TRAFFIC LANES BOTH VEHICLES MOVING	REAR END	CURVE & LEVEL	DAYLIGHT
37.74143	-83.055633	KY9009	75.327	6/14/2007	1251	2	0	0	CLEAR	DRY	VEHICLE BACKING	BACKING	STRAIGHT & GRADE	DAYLIGHT
37.74178	-83.052829	KY9009	75.458	11/17/2008	1700	1	0	0	CLOUDY	DRY	COLLISION WITH ANIMAL	SINGLE VEHICLE	CURVE & GRADE	DAYLIGHT
37.74146	-83.051542	KY9009	75.505	12/12/2008	1821	2	0	1	CLOUDY	WET	OTHER ROADWAY OR MID-BLOCK COLLISION	REAR END	STRAIGHT & LEVEL	DARK-HWY LIGHTED/ON
37.74128	-83.050869	KY9009	75.531	10/1/2008	510	2	0	2	CLEAR	DRY	REAR END IN TRAFFIC LANES BOTH VEHICLES MOVING	REAR END	STRAIGHT & LEVEL	DARK-HWY NOT LIGHTED
37.74123	-83.05073	US0460	12.546	2/26/2009	1952	2	0	0	CLOUDY	DRY	VEHICLE BACKING	BACKING	STRAIGHT & LEVEL	DARK-HWY LIGHTED/ON
37.74123	-83.050731	KY9009	75.536	6/2/2009	1858	2	0	0	RAINING	WET	OTHER ROADWAY OR MID-BLOCK COLLISION	REAR END	STRAIGHT & LEVEL	DAYLIGHT
37.74125	-83.050689	US0460	12.545	8/28/2009	1801	2	0	0	CLEAR	DRY	REAR END IN TRAFFIC LANES BOTH VEHICLES MOVING	REAR END	STRAIGHT & LEVEL	DAYLIGHT
37.74131	-83.050718	US0460	12.543	3/23/2009	1447	2	0	0	CLEAR	DRY	REAR END IN TRAFFIC LANES BOTH VEHICLES MOVING	REAR END	STRAIGHT & LEVEL	DAYLIGHT
37.74121	-83.050675	US0460	12.547	5/19/2008	1920	2	0	4	RAINING	WET	REAR END - OTHER	REAR END	STRAIGHT & LEVEL	DAYLIGHT
37.74159	-83.050538	US0460	12.539	1/9/2009	1408	2	0	0	CLEAR	DRY	REAR END IN TRAFFIC LANES BOTH VEHICLES MOVING	REAR END	STRAIGHT & LEVEL	DAYLIGHT
37.74113	-83.050329	US0460	12.569	2/26/2010	1010	2	0	0	CLOUDY	DRY	REAR END IN TRAFFIC ONE VEHICLE STOPPED	REAR END	STRAIGHT & LEVEL	DAYLIGHT
37.74133	-83.050483	US0460	12.603	11/2/2007	1804	3	0	1	CLEAR	DRY	REAR END IN TRAFFIC LANES BOTH VEHICLES MOVING	REAR END	STRAIGHT & LEVEL	DAYLIGHT
37.74133	-83.050483	US0460	12.688	9/20/2007	1632	2	0	5	CLEAR	DRY	REAR END IN TRAFFIC ONE VEHICLE STOPPED	REAR END	STRAIGHT & LEVEL	DAYLIGHT
37.74133	-83.050483	US0460	12.551	12/7/2007	1811	2	0	0	RAINING	WET	REAR END IN TRAFFIC ONE VEHICLE STOPPED	REAR END	STRAIGHT & LEVEL	DARK-HWY LIGHTED/ON
37.7409	-83.049483	US0460	12.618	8/28/2009	1714	2	0	0	CLEAR	DRY	REAR END IN TRAFFIC ONE VEHICLE STOPPED	REAR END	STRAIGHT & LEVEL	DAYLIGHT
37.74077	-83.046783	US0460	12.491	12/18/2007	1901	3	0	3	CLEAR	DRY	REAR END IN TRAFFIC LANES BOTH VEHICLES MOVING	REAR END	STRAIGHT & LEVEL	DARK-HWY LIGHTED/ON

Appendix E – KYTC Common Geometric Practice Guidelines

COMMON GEOMETRIC PRACTICES
RURAL ARTERIAL ROADS (OTHER THAN FREEWAYS) (4)

		TRAFFIC VOLUME			
		UNDER 400 A.D.T.	400-1500 A.D.T.	1500-2000 A.D.T.	OVER 2000 A.D.T.
	DESIGN SPEED (6)	40-50 M.P.H.	40-70 M.P.H.	40-70 M.P.H.	40-70 M.P.H.
PAVEMENT WIDTH (FEET)	40 MPH	22	22	22	24
	45 MPH				
	50 MPH			24	
	55 MPH				
	60 MPH	24	24		
	65 MPH				
	70 MPH				
MINIMUM GRADED SHOULDER WIDTH (FT) (5)	ALL SPEEDS	4	6	6	8
MINIMUM CLEAR ROADWAY WIDTH OF NEW AND RECONSTRUCTED BRIDGES	ALL SPEEDS	APPROACH ROADWAY WIDTH			

MINIMUM RADIUS (FEET)	DESIGN SPEED	eMAX. 4%	eMAX. 6%	eMAX. 8%
	30 MPH	300	275	250
	35 MPH	420	380	350
	40 MPH	565	510	465
	45 MPH	730	660	600
	50 MPH	930	835	760
	55 MPH	1190	1065	965
	60 MPH	1505	1340	1205
	65 MPH	—	1660	1485
	70 MPH	—	2050	1820

NORMAL PAVEMENT CROSS SLOPES (3)	RATE OF CROSS SLOPE = 2%											
NORMAL SHOULDER CROSS SLOPES	EARTH = 8%							PAVED = 4%				
MAXIMUM GRADE (PERCENT)	M.P.H.	30	35	40	45	50	55	60	65	70	75	80
	LEVEL	-		5		4		3				
	ROLLING	-		6		5		4				
	MOUNTAIN	-		8	7		6		5			
MINIMUM STOPPING SIGHT DISTANCE (1)	(FEET)	200	250	305	360	425	495	570	645	730	820	910
MINIMUM PASSING SIGHT DISTANCE (2)	(FEET)	1090	1280	1470	1625	1835	1985	2135	2285	2480	2580	2680

(1) MINIMUM STOPPING SIGHT DISTANCES ARE BASED ON HEIGHT OF EYE OF 3.5 FT AND HEIGHT OF OBJECT OF 2.0FT. BOTH HORIZONTAL AND VERTICAL ALIGNMENTS ARE CONSIDERED.

(2) MINIMUM PASSING SIGHT DISTANCES ARE BASED ON HEIGHT OF EYE 3.5 FT AND HEIGHT OF OBJECT OF 3.5 FT. BOTH HORIZONTAL AND VERTICAL ALIGNMENTS ARE CONSIDERED.

(3) NORMAL PAVEMENT CROSS SLOPES ON BRIDGES SHALL BE 2%.

(4) FOR GUIDANCE ON FREEWAYS, REFER TO AASHTO, "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS", CURRENT EDITION.

(5) WIDEN 3 FT FOR GUARDRAIL.

(6) JUSTIFICATION FOR A DESIGN SPEED LESS THAN THE REGULATORY OR POSTED SPEED MUST BE DOCUMENTED AND AVAILABLE FOR REVIEW IN THE PROJECT FILES.

Appendix F – Existing Roadway Plans

S.P. 77-720		STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		KY	1961	1	269

EKE 5-2

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

MAGOFFIN COUNTY
EASTERN KENTUCKY TURNPIKE

SP 77-720
EKE 5-2

SUBSECTION OF CONTRACT
MAGOFFIN COUNTY EKE 5-2
SP 77-720-4

77-720-401 GRADE, DRAIN AND SURFACE FROM STA. 3740+00. TO STA 3951+50.
77-720-481 BRIDGE (3-50' RCDG SPANS - 26°31'15" SKEW) STA. 3746+46.62.
77-720-482 BRIDGE (60'-80'-60' CONT. & 4-50' RCDG SPANS - 45° SKEW) STA. 3892+25.
77-720-483 BRIDGE (50'-52'-50' RCDG SPANS - 32°32' SKEW) STA. 3905+82.34.
77-720-484 BRIDGE (3-50' RCDG SPANS - 0° SKEW) STA. 3934+48.50.

THIS PROJECT IS A FULLY CONTROLLED ACCESS HIGHWAY

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	LAYOUT SHEET
2-4	TYPICAL SECTIONS
5	SUBSUMMARY OF QUANTITIES
6-8	GENERAL NOTES & SURFACING QUANTITIES
9	GENERAL SUMMARY OF QUANTITIES
10-17	EKT PLAN & PROFILE SHEETS
18-39	ACCESS ROADS DETAILS & PLAN & PROFILE SHEETS
40-68	CONSTRUCTION DETAILS
69-76	SOIL PROFILE SHEETS
77-91	EKT PIPE SHEETS
92-94	ACCESS ROADS PIPE SHEETS
95-128	ACCESS ROADS CROSS SECTION SHEETS
129-269	EKT CROSS SECTION SHEETS

LIST OF STANDARD DRAWINGS

10.01	CURVE WIDENING AND SUPERELEVATION
10.02	SOLID ROCK AND BOX INLET SECTIONS
10.03	MISCELLANEOUS STANDARDS PART 1
10.04	MISCELLANEOUS STANDARDS PART 2
10.05	SLOPE PROTECTION
10.06	TYPICAL ROADWAY SECTIONS
11.01	DRAINAGE PIPE STANDARDS (CIRCULAR PIPE)
11.03	30"-36"-42" DIAMETER PIPE CULVERTS
11.07	30"-36"-42" DIAMETER PIPE CULVERTS AT 30° SKEW TO ROADWAY
11.10	48"-54"-60" DIAMETER PIPE CULVERTS AT 45° SKEW TO ROADWAY
11.18	TYPICAL MEDIAN DRAIN INSTALLATIONS
11.22	PIPE BEDDING DETAILS
11.23	FILL COVER HEIGHTS, GAGES & DIMENSIONS FOR CIRCULAR & NON-CIRCULAR PIPE
14.03	PRIVATE ENTRANCES & ROAD INTERSECTIONS
15.01	ROLL & BARRIER CURB FRAME, GRATING & CURB BOXES
15.02	ROLL CURB BOX INLET TYPE A
15.07	MISCELLANEOUS DRAINAGE STRUCTURES PART 2
15.08	MISCELLANEOUS DRAINAGE STRUCTURES PART 3
15.14	DETAIL OF SHOULDER TRANSITION, GUARD RAIL INSTALLATION & DRAINAGE AT BRIDGE ENDS
17.01	RIGHT OF WAY FENCE
17.02	RIGHT OF WAY FENCING DETAILS
17.03	STEEL BEAM GUARD RAIL
17.04	GUARD RAIL INSTALLATION
18.01	TIED DOWN STRAW MULCH
19.03	UNDER CONSTRUCTION SIGN NON-FEDERAL PROJECTS
19.04	END OF CONSTRUCTION SIGN NON-FEDERAL PROJECTS
14.01	CURBS & CURB & GUTTER
14.02	CONCRETE MEDIANS & PRIVATE ENTRANCES
11.40	PERFORATED PIPE STANDARDS
	TOTAL DRAWINGS 29

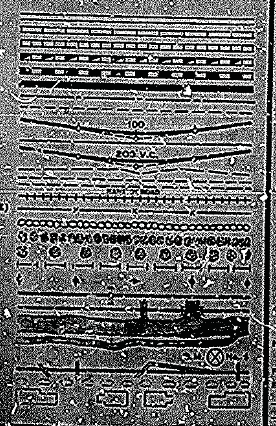
63 TOTAL BRIDGE SHEETS

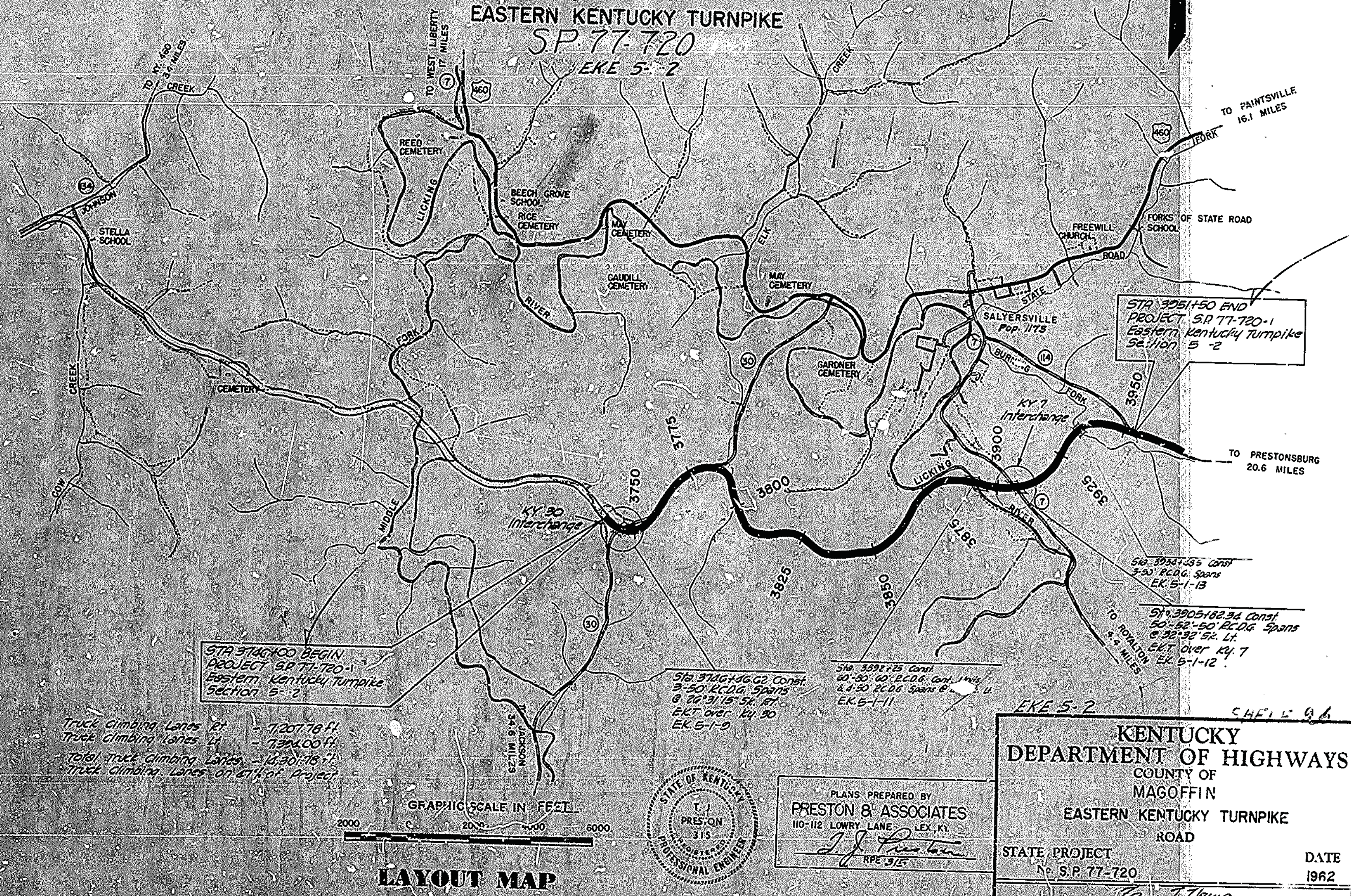
	NO. SETS	DATE
SENT FOR FEDERAL APPROVAL		
RECORD PLANS		
CONSTRUCTION PLANS	11	7-19-62

REVIEWED BY
DIVISION OF CONSTRUCTION

FILED 7-19-62

CONVENTIONAL SIGNS





LAYOUT MAP

PLANS PREPARED BY
PRESTON & ASSOCIATES
110-112 LOWRY LANE LEX. KY.
RPE 315

STATE OF KENTUCKY T. J. PRESTON 315 PROFESSIONAL ENGINEER

Surfacing: 21,150.00 — 4.005
Grade & Drain: 21,150.00 — 4.005

LETTING DATE 6-15-62

EKE 5-2

KENTUCKY DEPARTMENT OF HIGHWAYS
COUNTY OF MAGOFFIN
EASTERN KENTUCKY TURNPIKE
ROAD

STATE PROJECT No. S.P. 77-720 — DATE 1962

SURVEYED JAN. 1960 BY PRESTON & ASSOC. — CHIEF OF PARTY
SURVEY APPROVED 6/11 1960 BY — CHIEF LOCATING ENGINEER
PLAN CHECKED 5-17 1962 BY SMITH POLLITTE & ASSOC.
SURVEY AND PLAN APPROVED 5-17 1962 BY SMITH POLLITTE & ASSOC.
SURVEY AND PLAN APPROVED 6-11-62 BY D. H. Bray R.O.B. — STATE HIGHWAY ENGINEER

APPROVED ________ 19____

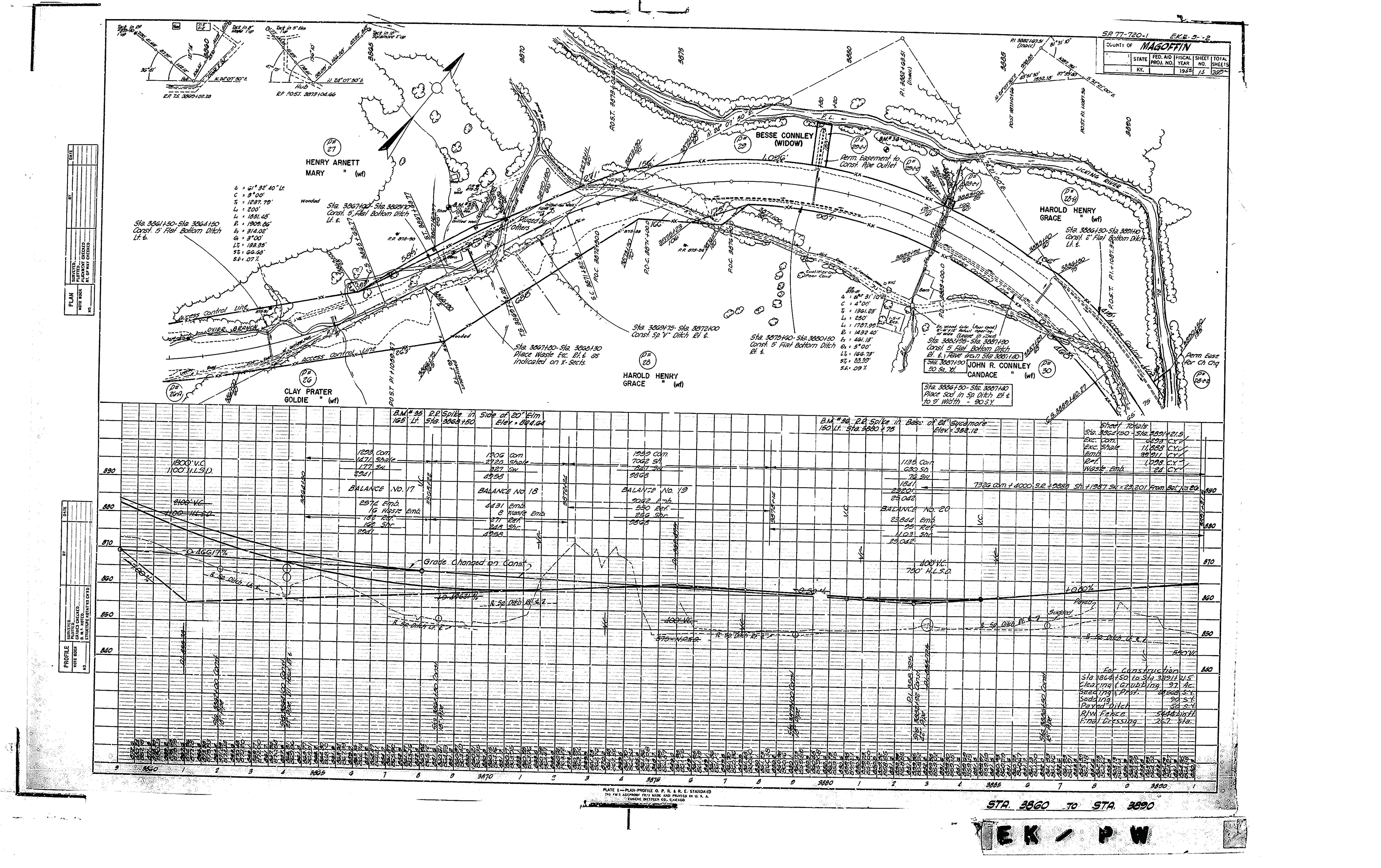
BY: ________
COMMISSIONER OF HIGHWAYS

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
RECOMMENDED FOR APPROVAL:
________ DISTRICT ENGINEER — DATE
APPROVED:
________ DIVISION ENGINEER — DATE

DESIGN CRITERIA

CLASS OF HIGHWAY	5
TYPE OF TERRAIN - LIGHT MOUNTAINOUS	
DESIGN SPEED	60 M.P.H.
REQUIRED N.P.S.D. (Min.)	550'
REQUIRED P.S.D.	2000'
MAXIMUM DISTANCE W/O PASSING	1.0 MILE
P.S.D. MIN. % OF TOTAL	50%
DESIGNED	
P.S.D. HORIZONTAL	57%
P.S.D. VERTICAL	93%
P.S.D. COMBINED (Total)	51%
MAX. DISTANCE W/O PASSING	1.0 MILE

EK / PW


SP 77-720-1 E.K.L. 5-2
COUNTY OF MAGOFFIN
STATE KY.
FISCAL YEAR 1962
SHEET NO. 13
HENRY ARNETT
MARY " (wf)
CLAY PRATER
GOLDIE " (wf)
HAROLD HENRY
GRACE " (wf)
BESSE CONNLEY (WIDOW)
JOHN R. CONNLEY
CANDACE " (wf)
Access Control Line
LICKING RIVER
Perm. Easement to Const. Pipe Outlet
Sta. 3861+50-Sta. 3864+50 Const. 5' Flat Bottom Ditch Lt. ℄
Sta. 3867+00-Sta. 3869+00 Const. 5' Flat Bottom Ditch Lt. ℄
Sta. 3867+50-Sta. 3868+30 Place Waste Etc. Rt. ℄ as indicated on X-Sects.
Sta. 3869+75-Sta. 3872+00 Const. Sp. "V" Ditch Rt. ℄
Sta. 3875+50-Sta. 3880+50 Const. 5' Flat Bottom Ditch Rt. ℄
Sta. 3884+95-Sta. 3887+90 Const. 5' Flat Bottom Ditch Rt. ℄ Pave from Sta. 3887+40
Sta. 3886+50-Sta. 3891+10 Const. 2' Flat Bottom Ditch Lt. ℄
Sta. 3886+50-Sta. 3887+40 Place Sod in Sp. Ditch Rt. ℄ to 9' Width - 90 S.Y.
B.M. #35 R.R. Spike in Side of 20" Elm 165 Lt. Sta. 3868+50 Elev. = 864.64
B.M. #36 R.R. Spike in Base of 21" Sycamore 160 Lt. Sta. 3880+75 Elev. = 858.12
BALANCE No. 17
BALANCE No. 18
BALANCE No. 19
BALANCE No. 20
Grade Changed on Const.
Sheet Totals
Sta. 3864+50 - Sta. 3891+21.5
Exc. Com. 6293 C.Y.
Exc. Shale 11,888 C.Y.
Emb. 32,911 C.Y.
Ref. 1,098 C.Y.
Waste Emb. 26 C.Y.
For Construction
Sta. 3864+50 to Sta. 3891+21.5
Clearing & Grubbing 9.7 Ac.
Sodding 90 S.Y.
R/W Fence
Final Dressing 26.7 Sta.
PLATE 1 - PLAN-PROFILE O. P. R. & R. E. STANDARD
EUGENE DIETZGEN CO. CHICAGO
STA. 3860 TO STA. 3890
EK / PW

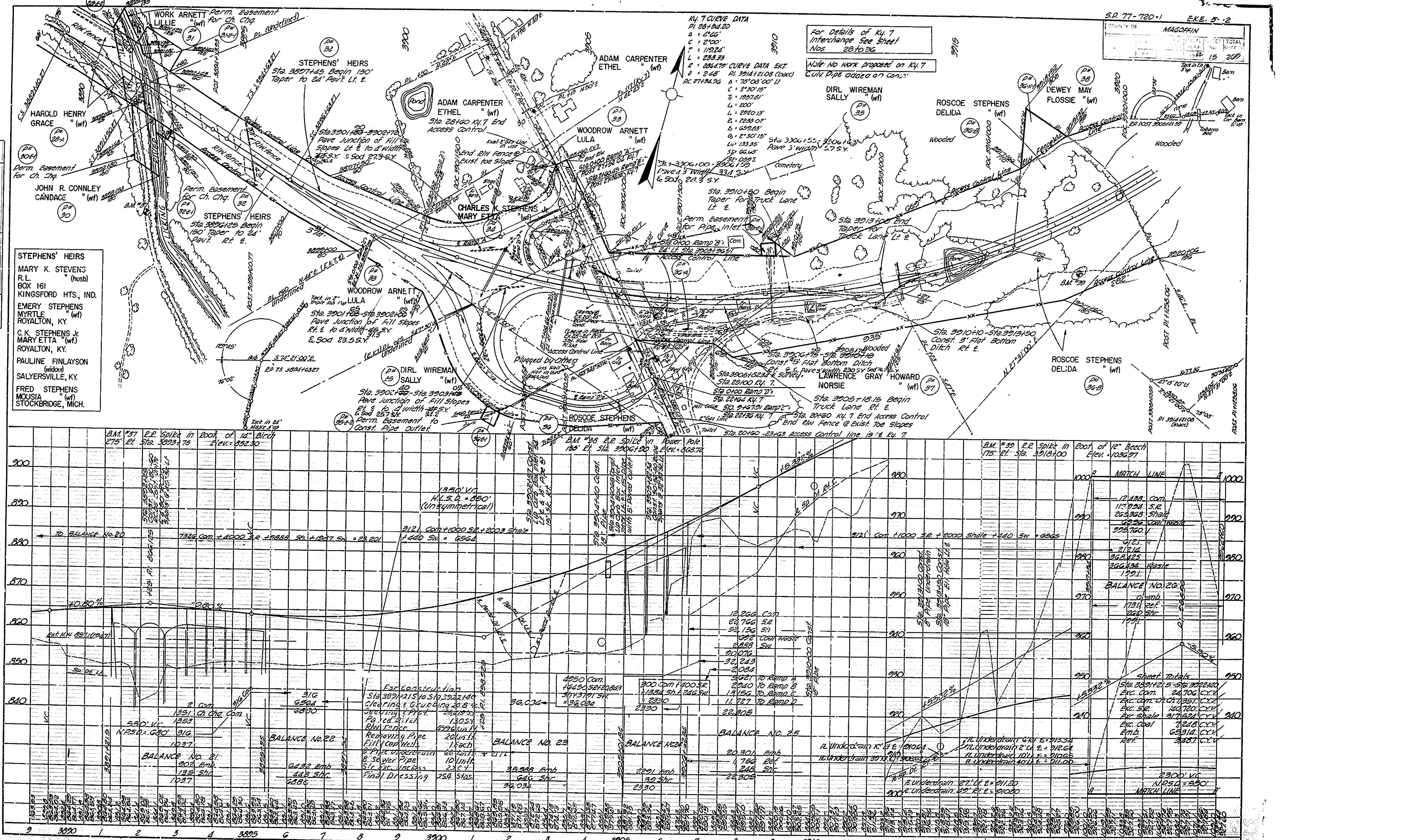
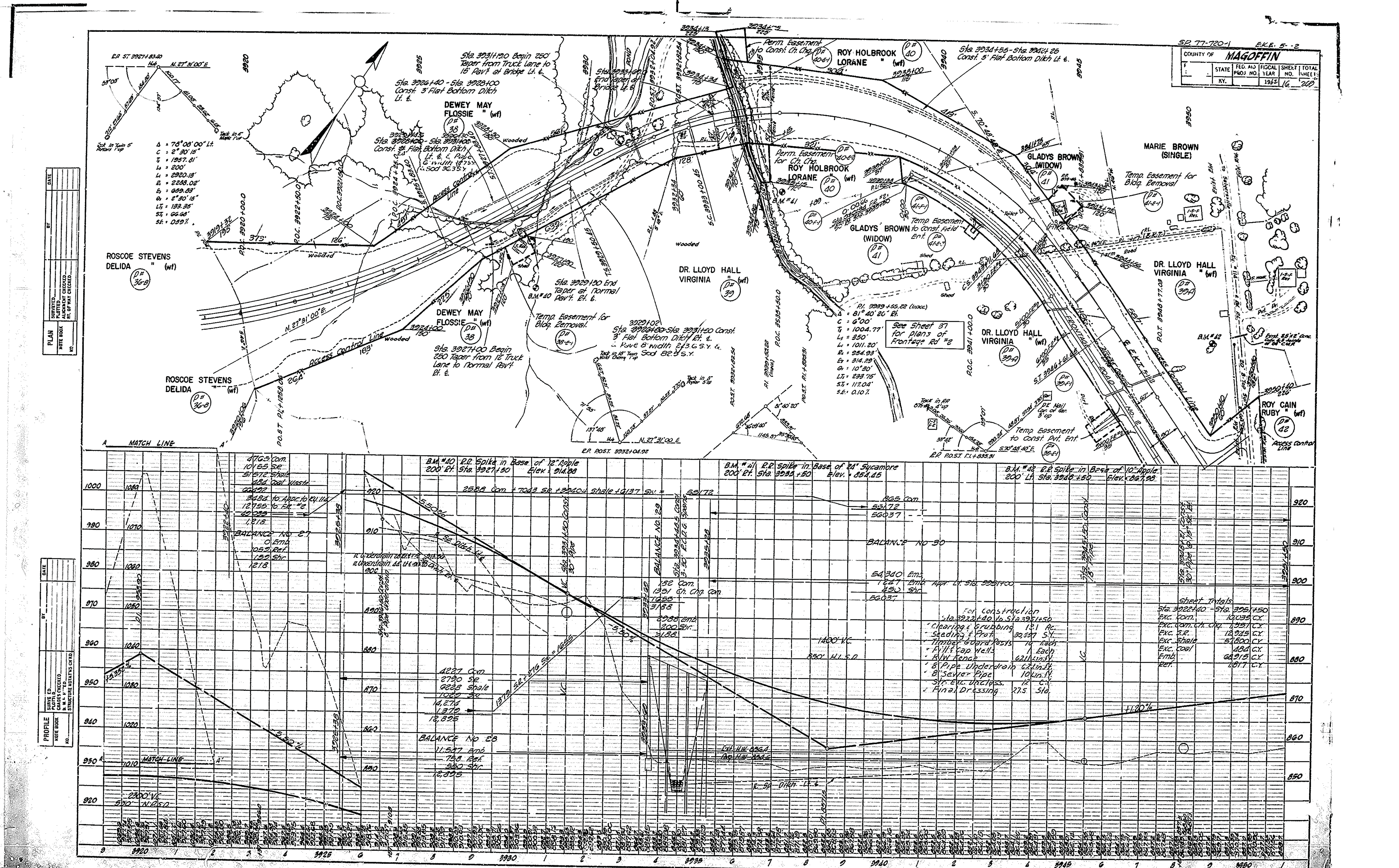


PLATE 1—PLAN-PROFILE, C. P. R. & R. C. STANDARD
EUGENE DIETZGEN CO. CHICAGO

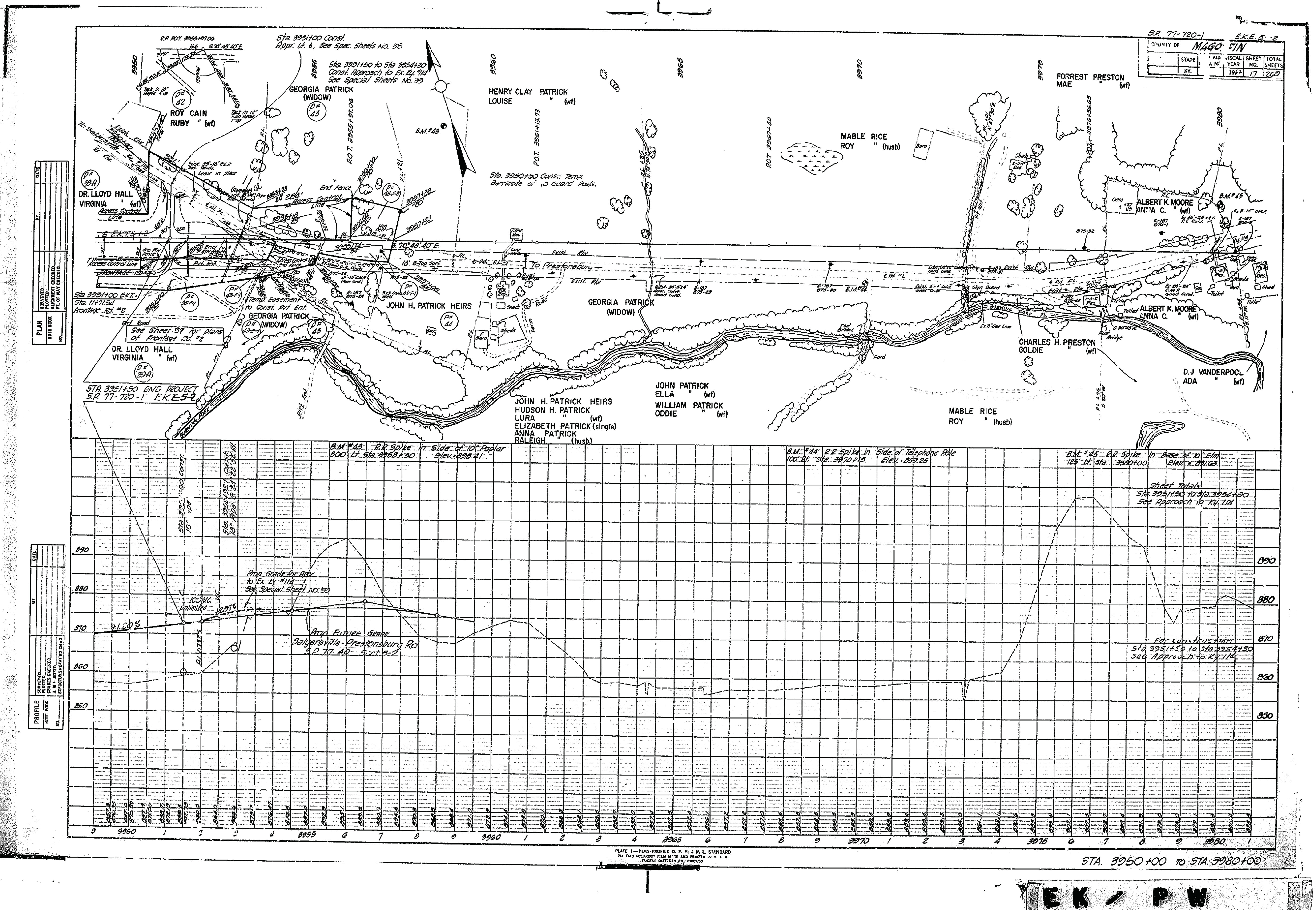
STA 3890 TO STA 3920

EK / PW

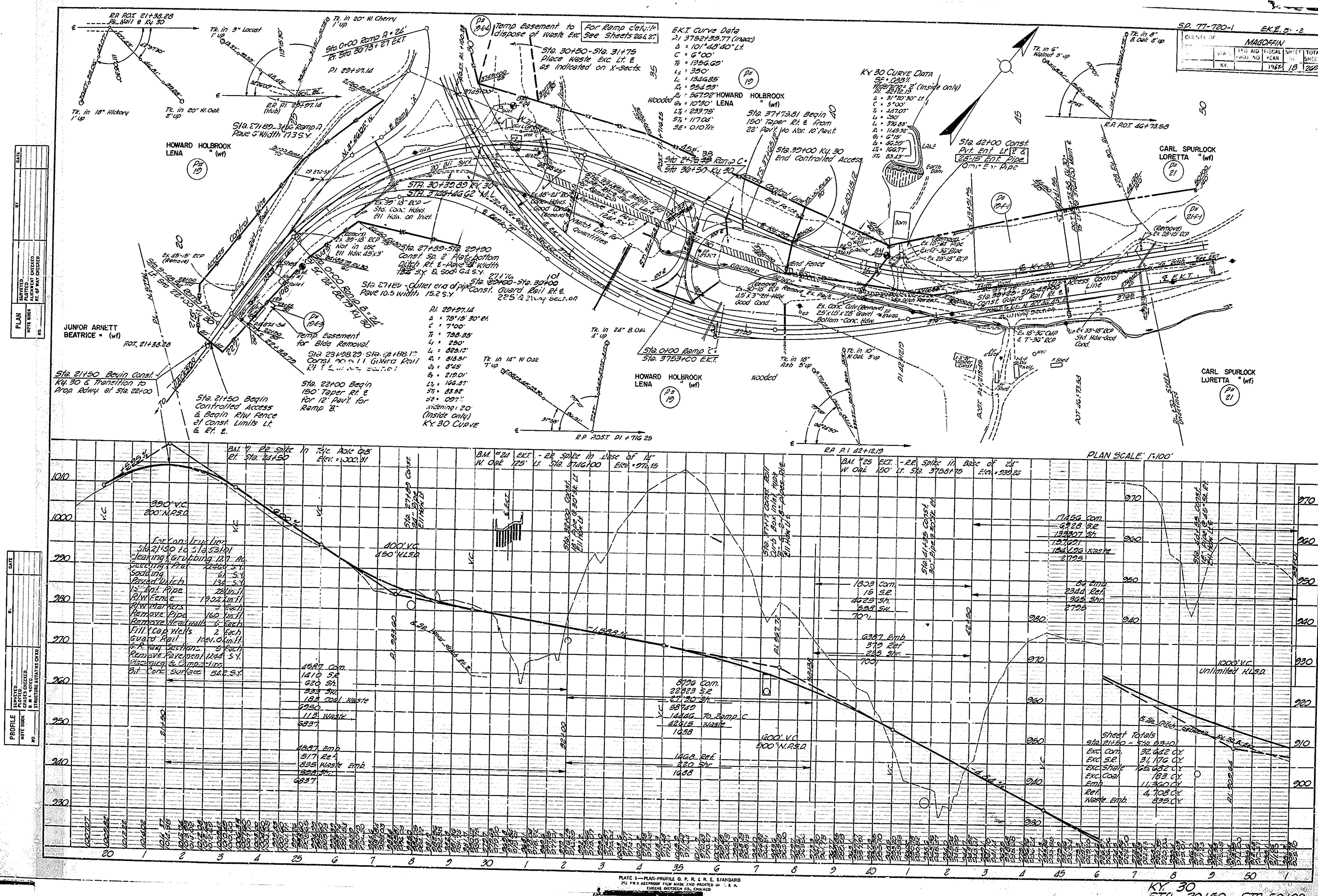


STA. 3920 TO STA. 3950

EK / PW



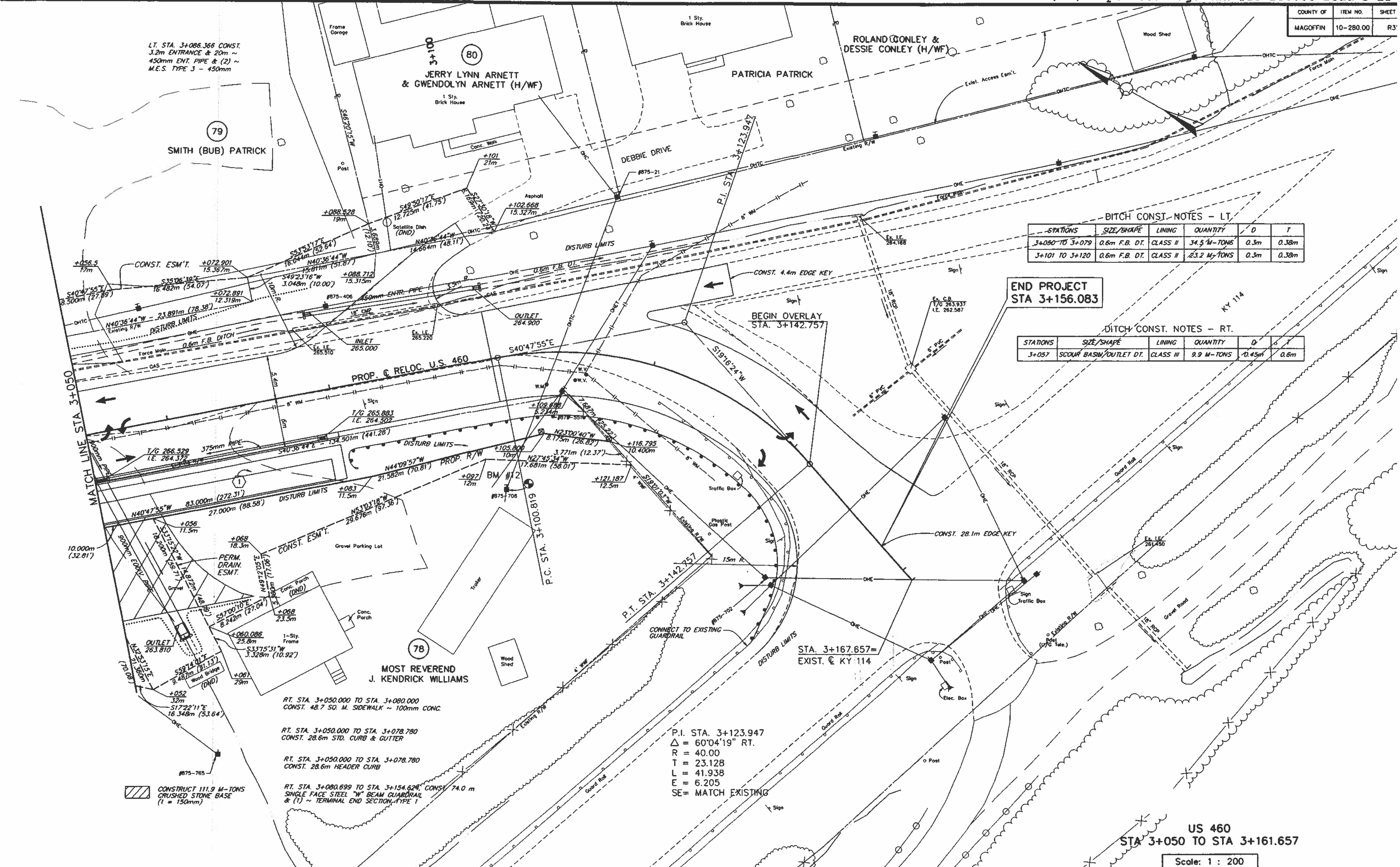
S.P. 77-720-1
E.K.E. 5-2
COUNTY OF MAGOFFIN
STATE KY.
FISCAL YEAR 1964
SHEET NO. 17
TOTAL SHEETS 269
PLAN
PROFILE
Sta. 3951+00 Const. Appr. Lt. 6, See Spec. Sheets No. 38
Sta. 3951+50 to Sta 3954+50 Const. Approach to Ex. Ky. #114 See Special Sheets No. 39
Sta. 3950+50 Const. Temp. Barricade or 10 Guard Posts.
GEORGIA PATRICK (WIDOW)
ROY CAIN
RUBY " (wf)
DR. LLOYD HALL
VIRGINIA " (wf)
HENRY CLAY PATRICK
LOUISE " (wf)
MABLE RICE
ROY " (hush)
FORREST PRESTON
MAE " (wf)
ALBERT K. MOORE
ANNA C. " (wf)
JOHN H. PATRICK HEIRS
JOHN H. PATRICK HEIRS
HUDSON H. PATRICK
LURA " (wf)
ELIZABETH PATRICK (single)
ANNA PATRICK
RALEIGH " (husb)
JOHN PATRICK
ELLA " (wf)
WILLIAM PATRICK
ODDIE " (wf)
CHARLES H PRESTON
GOLDIE " (wf)
D.J. VANDERPOOL
ADA " (wf)
To Prestonsburg
To Salyersville
STA. 3951+50 END PROJECT S.P. 77-720-1 E.K.E.5-2
See Sheet 37 for plans of Frontage Rd #2
B.M. #43 R.R. Spike in Side of 10" Poplar 300 Lt. Sta. 3958+50 Elev. 895.41
B.M. #44 R.R. Spike in Side of Telephone Pole 100 Lt. Sta. 3970+15 Elev. 859.25
B.M. #45 R.R. Spike in Base of 10" Elm 125 Lt. Sta. 3980+00 Elev. 891.63
Sheet Totals Sta. 3951+50 to Sta. 3954+50 See Approach to Ky. 114
For Construction Sta. 3951+50 to Sta. 3954+50 See Approach to Ky. 114
Prop. Grade for Appr. to Ex. Ky. #114 See Special Sheet No. 39
Prop. Future Grade Salyersville-Prestonsburg Rd S.P. 77-40 Sect. 5-2
890
880
870
860
850
3950
3955
3960
3965
3970
3975
3980
STA. 3950+00 TO STA. 3980+00
PLATE 1—PLAN-PROFILE O. P. R. & R. E. STANDARD
EUGENE DIETZGEN CO., CHICAGO
EK / PW



KY. 30
STA. 20+50 - STA. 50+00

EK / PW

COUNTY OF	ITEM NO.	SHEET
MAGOFFIN	10-280.00	R3



LT. STA. 3+086.366 CONST. 3.2m ENTRANCE & 20m ~ 450mm ENT. PIPE & (2) ~ M.E.S. TYPE 3 - 450mm
JERRY LYNN ARNETT & GWENDOLYN ARNETT (H/WF)
ROLAND CONLEY & DESSIE CONLEY (H/WF)
PATRICIA PATRICK
SMITH (BUB) PATRICK
DEBBIE DRIVE
P.I. STA. 3+123.947
END PROJECT STA 3+156.083
BEGIN OVERLAY STA. 3+142.757
PROP. ℄ RELOC. U.S. 460
MATCH LINE STA 3+050
P.C. STA. 3+100.819
P.T. STA. 3+142.757
BM #12
CONST. 4.4m EDGE KEY
CONST. 28.1m EDGE KEY
CONNECT TO EXISTING GUARDRAIL
STA. 3+167.657= EXIST. ℄ KY 114
KY 114
MOST REVEREND J. KENDRICK WILLIAMS
RT. STA. 3+050.000 TO STA. 3+080.000 CONST. 48.7 SQ. M. SIDEWALK ~ 100mm CONC.
RT. STA. 3+050.000 TO STA. 3+078.780 CONST. 28.6m STD. CURB & GUTTER
RT. STA. 3+050.000 TO STA. 3+078.780 CONST. 28.6m HEADER CURB
RT. STA. 3+080.699 TO STA. 3+154.624, CONST. 74.0 m SINGLE FACE STEEL "W" BEAM GUARDRAIL & (1) ~ TERMINAL END SECTION TYPE 1
CONSTRUCT 111.9 M-TONS CRUSHED STONE BASE (t = 150mm)
P.I. STA. 3+123.947
Δ = 60°04'19" RT.
R = 40.00
T = 23.128
L = 41.938
E = 6.205
SE= MATCH EXISTING
US 460
STA 3+050 TO STA 3+161.657
Scale: 1 : 200

DITCH CONST. NOTES - LT.

STATIONS	SIZE/SHAPE	LINING	QUANTITY	D	T
3+050 TO 3+079	0.6m F.B. DT.	CLASS II	34.5 M-TONS	0.3m	0.38m
3+101 TO 3+120	0.6m F.B. DT.	CLASS II	23.2 M-TONS	0.3m	0.38m

DITCH CONST. NOTES - RT.

STATIONS	SIZE/SHAPE	LINING	QUANTITY	D	T
3+057	SCOUR BASIN/OUTLET DT.	CLASS III	9.9 M-TONS	0.45m	0.6m

COUNTY OF	ITEM NO.	SHEET
MAGOFFIN	10-280.00	R2

DITCH CONST. NOTES - LT.

STATIONS	SIZE/SHAPE	LINING	QUANTITY	D	T
2+900 TO 2+926	0.6m F.B. DT.	CLASS II	34.8 M-TONS	0.3m	0.38m
2+942 TO 2+957.5	0.6m F.B. DT.	CLASS II	20.8 M-TONS	0.3m	0.38m
2+970.5 TO 3+023	0.6m F.B. DT.	CLASS II	70.3 M-TONS	0.3m	0.38m
3+045	INLET DT.	CLASS II	4.5 M-TONS	0.6m	0.38m

73 WINFORD CONLEY

74 MICHAEL BAUM & TONNIE BAUM (H/WF)

76 SANDRA CONLEY

77 RAYMOND ARNETT & PEGGY ARNETT (H/WF)

79 SMITH (BUB) PATRICK

71 ELEZENE HOLBROOK

75 JAMES KILGORE & PEGGY KILGORE (H/WF)

78 MOST REVEREND J. KENDRICK WILLIAMS

MATCH LINE STA 2+900

MATCH LINE STA 3+050

PROP. ℄ RELOC. U.S. 460

GULLET ROAD

P.I. STA. 2+876.347
△ = 20°29'33" RT.
R = 510.00
T = 92.189
L = 182.409
E = 8.265
e = 2.70%
Runoff = 40
Runout = 30

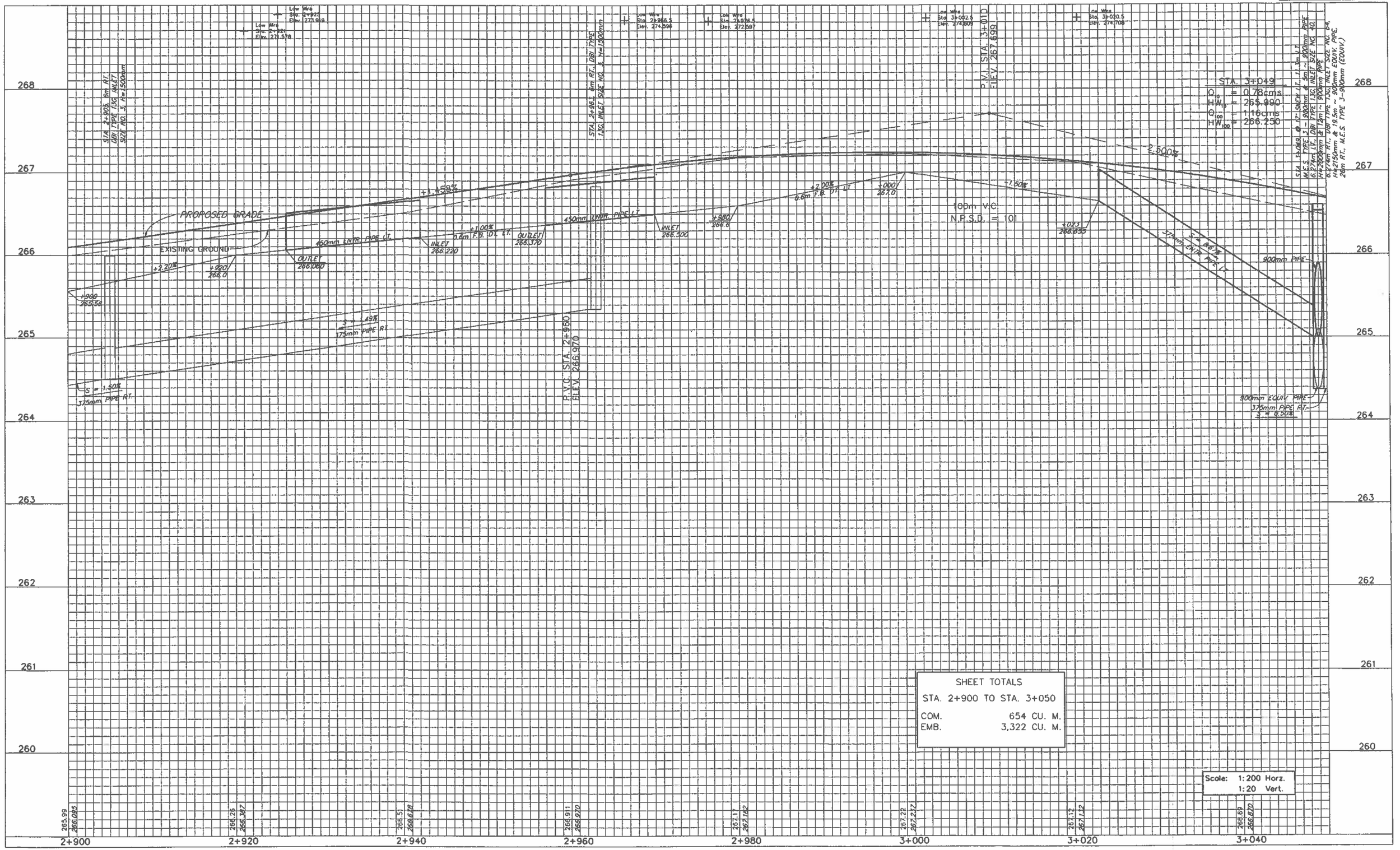
P.T. STA. 2+966.582

CONSTRUCT 111.9 M-TONS CRUSHED STONE BASE (t = 150mm)

US 460
STA 2+900 TO STA 3+050

Scale: 1 : 200

COUNTY OF	ITEM NO.	SHEET NO.
MAGOFFIN	10-280.00	R30



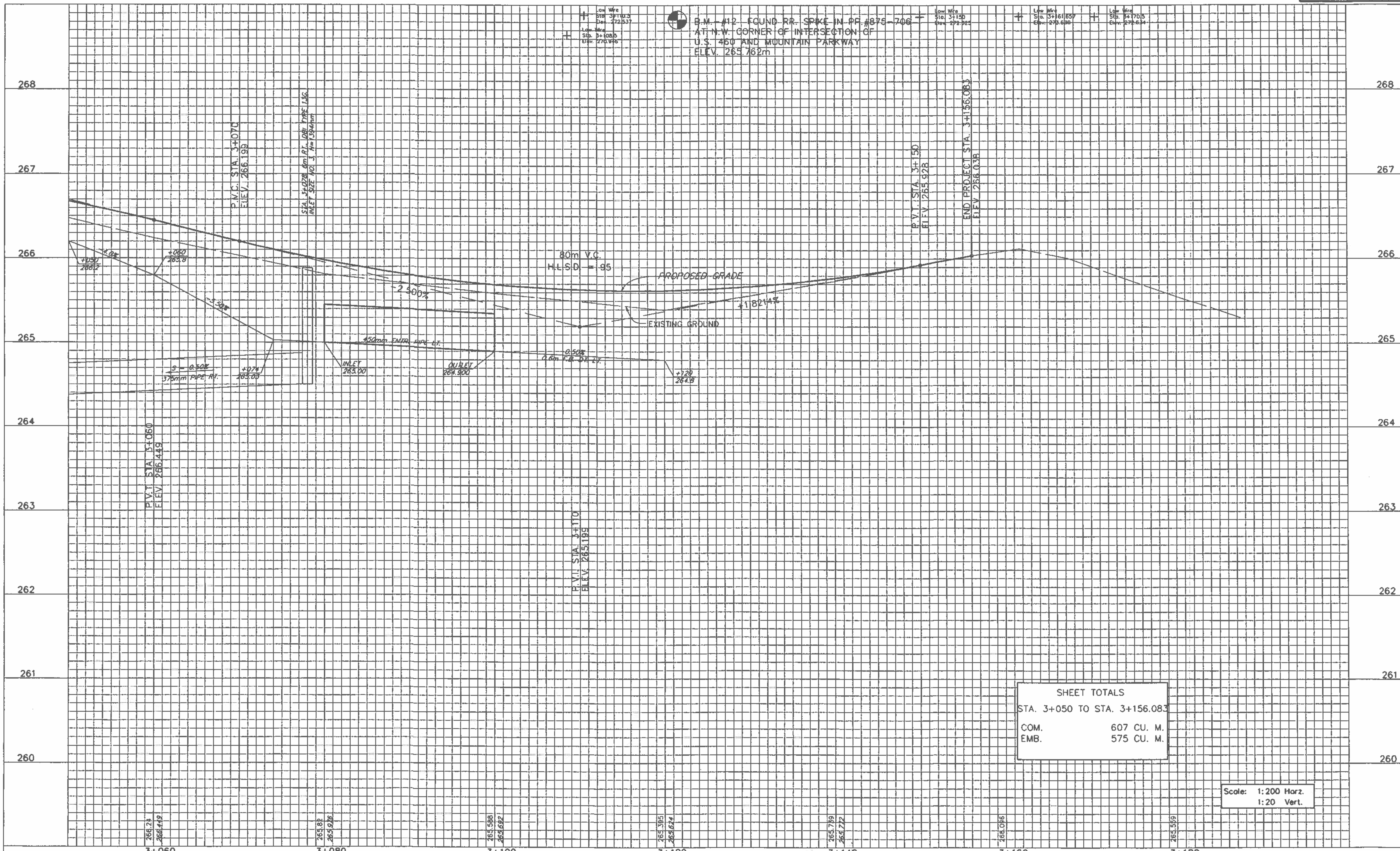
SHEET TOTALS

STA. 2+900 TO STA. 3+050

COM.	654 CU. M.
EMB.	3,322 CU. M.

Scale: 1:200 Horz.
1:20 Vert.

COUNTY OF	ITEM NO.	SHEET NO.
MAGOFFIN	10-280.00	R32



Appendix G – Structure Inventory and Appraisal Sheets

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 9636 Agency ID: 077B00040N SR: 70.8 SD/FO: ND

IDENTIFICATION

State 1:	21 Kentucky	Struc Num 8:	077B00040N
Facility Carried 7:	KY-9009	Location 9:	.20 MI WEST OF KY 7 NTRCH
Rte.(On/Under)5A:	Route On Structure	Rte. Signing Prefix 5B:	3 State Hwy
Level of Service 5C:	1 Mainline	Rte. Number 5D:	09009
Directional Suffix 5E:	0 N/A (NBI)	% Responsibility :	Unknown
SHD District 2:	District 10	County Code 3:	Magoffin (077)
Place Code 4:	FIPS 0000	Mile Post 11:	74.533 mi
Feature Intersected 6:	LICKING RIVER		
Latitude 16:	37d 44' 11"	Longitude 17:	083d 04' 02"
Border Bridge Code 98:	Unknown (P)		
Border Bridge Number 99:			

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 4 Number of Spans Main Unit 45: 3

Main Span Material/Design 43A/B:

2 Concrete Continuous 04 Tee Beam

Approach Span Material/Design 44A/B:

1 Concrete Unknown (P)

Deck Type 107:	1 Concrete-Cast-in-Place
Wearing Surface 108A:	3 Latex Concrete/Similar
Membrane 108B:	0 None
Deck Protection 108C:	1 Epoxy Coated Reinforci

AGE AND SERVICE

Year Built 27: 1963 Year Reconstructed 106: 0

Type of Service on 42A: 1 Highway

Type of Service under 42B: 5 Waterway

Lanes on 28A: 2 Lanes Under 28B: 0 Detour Length 19: 1.9 mi

ADT 29: 5,900 Truck ADT 109: 19 % Year of ADT 30: 2009

GEOMETRIC DATA

Length Max Span 48: 80.1 ft Structure Length 49: 417.0 ft

Curb/Sdwlk Width L 50A: 0.0 ft Curb/Sidewalk Width R 50B: 0.0 ft

Width Curb to Curb 51: 29.9 ft Width Out to Out 52: 33.1 ft

Approach Roadway Width 32: 27.9 ft (w/ shoulders) Median 33: 0 No median

Deck Area: 13,817.7 sq. ft

Skew 34: 45.00 ° Structure Flared 35: 0 No flare

Vertical Clearance 10: 99.99 ft Horiz. Clearance 47: 29.86 ft

Minimum Vertical Clearance Over Bridge 53: 328.1 ft

Minimum Vertical Underclearance Reference 54A: N Feature not hwy or RR

Minimum Vertical Underclearance 54B: 0.0 ft

Minimum Lateral Underclearance Reference R 55A: N Feature not hwy or RR

Minimum Lateral Underclearance R 55: 0.0 ft

Minimum Lateral Underclearance L 56: 0.0 ft

INSPECTION

Frequency 91:	24 months	Inspection Date 90:	1/23/2009	Next Inspection:	01/23/2011
FC Frequency 92A:	NA	FC Inspection Date 93A:	NA	Next FC Inspection:	NA
UW Frequency 92B:	NA	UW Inspection Date 93B:	NA	Next UW Inspection:	NA
SI Frequency 92C:	NA	SI Date 93C:	NA	Next SI:	NA
Element Frequency:	24 months	Element Inspection Date:	01/23/2009	Next Elem. Insp. Due:	01/23/2011

CLASSIFICATION

Defense Highway 100:	0 Not a STRAHNET hwy	Parallel Structure 101:	No || bridge exists
Direction of Traffic 102:	2 2-way traffic	Temporary Structure 103:	Not Applicable (P)
Highway System 104:	1 On the NHS	NBIS Length 112:	Long Enough
Toll Facility 20:	3 On free road	Functional Class 26:	02 Rural Other Princ
Defense Hwy 110:	0	Historical Significance 37:	5 Not eligible for NRHP
Owner 22:	01 State Highway Agency		
Custodian 21:	01 State Highway Agency		

CONDITION

Deck 58: 6 Satisfactory Super 59: 6 Satisfactory Sub 60: 5 Fair

Culvert 62: N N/A (NBI) Channel/Channel Protection 61: 7 Minor Damage

LOAD RATING AND POSTING

Inventory Rating Method 65: 1 LF Load Factor Operating Rating Method 63: 1 LF Load Factor

Inventory Rating 66:	HS22.2	Operating Rating 64:	HS37.2
Design Load 31:	5 MS 18 (HS 20)	Posting 70:	5 At/Above Legal Loads
Posting status 41:	A Open, no restriction		

APPRAISAL

Bridge Rail 36A:	0 Substandard	Approach Rail 36C:	1 Meets Standards
Transition 36B:	1 Meets Standards	Approach Rail Ends 36D:	1 Meets Standards
Str. Evaluation 67:	5	Deck Geometry 68:	4 Tolerable
Underclearance, Vertical and Horizontal 69:	N Not applicable (NBI)		
Waterway Adequacy 71:	9 Above Desirable	Approach Alignment 72:	8 Equal Desirable Crit
Scour Critical 113:	8 Stable Above Footing		

PROPOSED IMPROVEMENTS

Bridge Cost 94:	$ 0	Type of Work 75:	Unknown (P)
Roadway Cost 95:	$ 0	Length of Improvement 76:	0.0 ft
Total Cost 96:	$ 0	Future ADT 114:	9,145
Year of Cost Estimate 97:	2000	Year of Future ADT 115:	2029

NAVIGATION DATA

Navigation Control 38: 0 0

Vertical Clearance 39: 0.0 ft Horizontal Clearance 40: 0.0 ft

Pier Protection 111: 1 Not Required Lift Bridge Vertical Clearance 116:

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	22/1	P Conc Deck/Rigid Ov	(SF)	12,150	0 %	0	100 %	12,150	0 %	0	0 %	0	0 %	0
1	110/1	R/Conc Open Girder	(LF)	1,620	62 %	1,000	38 %	620	0 %	0	0 %	0	0 %	0
1	205/1	R/Conc Column	(EA)	42	50 %	21	50 %	21	0 %	0	0 %	0	0 %	0
1	210/1	R/Conc Pier Wall	(LF)	78	100 %	78	0 %	0	0 %	0	0 %	0	0 %	0
1	215/1	R/Conc Abutment	(LF)	120	50 %	60	50 %	60	0 %	0	0 %	0	0 %	0
1	234/1	R/Conc Cap	(LF)	254	49 %	124	39 %	100	12 %	30	0 %	0	0 %	0

Structure Inventory and Appraisal Sheet (English Units)

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	301/1	Pourable Joint Seal	(LF)	180	89 %	160	11 %	20	0 %	0	0 %	0	0 %	0
1	303/1	Assembly Joint/Seal	(LF)	45	100 %	45	0 %	0	0 %	0	0 %	0	0 %	0
1	311/1	Moveable Bearing	(EA)	16	75 %	12	25 %	4	0 %	0	0 %	0	0 %	0
1	330/1	Metal Rail Uncoated	(LF)	790	100 %	790	0 %	0	0 %	0	0 %	0	0 %	0
1	331/1	Conc Bridge Railing	(LF)	810	100 %	810	0 %	0	0 %	0	0 %	0	0 %	0
1	503/1	RC Curb	(LF)	810	100 %	810	0 %	0	0 %	0	0 %	0	0 %	0
1	606/1	Drains	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
1	612/1	Chan Algn	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
1	613/1	Vegetation	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0

Str Unit	Elm/Env	Description	Element Notes
1	22/1	Concrete Deck - Protected w/ Rigid	
1	110/1	Reinforced Conc Open Girder/Bear	
1	205/1	Reinforced Conc Column or Pile Ex	
1	210/1	Reinforced Conc Pier Wall	
1	215/1	Reinforced Conc Abutment	
1	234/1	Reinforced Conc Cap	
1	301/1	Pourable Joint Seal	
1	303/1	Assembly Joint/Seal (modular)	
1	311/1	Moveable Bearing (roller, sliding, et	
1	330/1	Metal Bridge Railing - Uncoated	
1	331/1	Reinforced Conc Bridge Railing	
1	503/1	Reinforced Concrete Curb	
1	606/1	Drains	
1	612/1	Channel Alignment	
1	613/1	Vegetation	

BRIDGE NOTES

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PAST INSPECTION

Inspection Date: 01/23/2009 Type: 2 Standard (24 months)

Inspector: DWATTS Pontis User Key: DWATTS - Doug W

Scope:

NBI: ☑ Other: ☐ Element: ☑

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

–

Structure Inventory and Appraisal Sheet (English Units)

PAST INSPECTION

Inspection Date: 01/01/2007 Type: 2 Standard (24 months)

Inspector: RWELLS Pontis User Key: RWELLS - Rod W

Scope:

NBI: ☑ Other: ☐ Element: ☐

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

–

INSPECTOR WORK CANDIDATES

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 9637 Agency ID: 077B00041N SR: 87.1 SD/FO: ND

IDENTIFICATION

State 1:	21 Kentucky	Struc Num 8:	077B00041N
Facility Carried 7:	KY-9009	Location 9:	3 MI E OF KY 30 NTRCH
Rte.(On/Under)5A:	Route On Structure	Rte. Signing Prefix 5B:	3 State Hwy
Level of Service 5C:	1 Mainline	Rte. Number 5D:	09009
Directional Suffix 5E:	0 N/A (NBI)	% Responsibility :	Unknown
SHD District 2:	District 10	County Code 3:	Magoffin (077)
Place Code 4:	FIPS 0000	Mile Post 11:	74.763 mi
Feature Intersected 6:	KY 7		
Latitude 16:	37d 44' 10"	Longitude 17:	083d 03' 47"
Border Bridge Code 98:	Unknown (P)		
Border Bridge Number 99:			

INSPECTION

Frequency 91:	24 months	Inspection Date 90:	1/5/2009	Next Inspection:	01/05/2011
FC Frequency 92A:	NA	FC Inspection Date 93A:	NA	Next FC Inspection:	NA
UW Frequency 92B:	NA	UW Inspection Date 93B:	NA	Next UW Inspection:	NA
SI Frequency 92C:	NA	SI Date 93C:	NA	Next SI:	NA
Element Frequency:	24 months	Element Inspection Date:	01/05/2009	Next Elem. Insp. Due:	01/05/2011

CLASSIFICATION

Defense Highway 100:	0 Not a STRAHNET hwy	Parallel Structure 101:	No || bridge exists
Direction of Traffic 102:	2 2-way traffic	Temporary Structure 103:	Not Applicable (P)
Highway System 104:	1 On the NHS	NBIS Length 112:	Long Enough
Toll Facility 20:	3 On free road	Functional Class 26:	02 Rural Other Princ
Defense Hwy 110:	0	Historical Significance 37:	5 Not eligible for NRHP
Owner 22:	01 State Highway Agency		
Custodian 21:	01 State Highway Agency		

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 Number of Spans Main Unit 45: 3

Main Span Material/Design 43A/B:

1 Concrete 04 Tee Beam

Deck Type 107:	1 Concrete-Cast-in-Place
Wearing Surface 108A:	3 Latex Concrete/Similar
Membrane 108B:	0 None
Deck Protection 108C:	1 Epoxy Coated Reinforci

CONDITION

Deck 58: 6 Satisfactory Super 59: 5 Fair Sub 60: 5 Fair

Culvert 62: N N/A (NBI) Channel/Channel Protection 61: N N/A (NBI)

LOAD RATING AND POSTING

Inventory Rating Method 65:	1 LF Load Factor	Operating Rating Method 63:	1 LF Load Factor
Inventory Rating 66:	HS35.1	Operating Rating 64:	HS58.5
Design Load 31:	5 MS 18 (HS 20)	Posting 70:	5 At/Above Legal Loads
Posting status 41:	A Open, no restriction		

AGE AND SERVICE

Year Built 27:	1963	Year Reconstructed 106:	0		
Type of Service on 42A:	1 Highway				
Type of Service under 42B:	1 Highway				
Lanes on 28A:	2	Lanes Under 28B:	2	Detour Length 19:	1.2 mi
ADT 29:	8,020	Truck ADT 109:	19 %	Year of ADT 30:	2009

APPRAISAL

Bridge Rail 36A:	0 Substandard	Approach Rail 36C:	1 Meets Standards
Transition 36B:	1 Meets Standards	Approach Rail Ends 36D:	1 Meets Standards
Str. Evaluation 67:	5	Deck Geometry 68:	5 Above Tolerable
Underclearance, Vertical and Horizontal 69:	6 Equal Minimum		
Waterway Adequacy 71:	N Not applicable	Approach Alignment 72:	8 Equal Desirable Crit
Scour Critical 113:	N Not Over Waterway		

GEOMETRIC DATA

Length Max Span 48:	51.8 ft	Structure Length 49:	161.1 ft
Curb/Sdwlk Width L 50A:	0.0 ft	Curb/Sidewalk Width R 50B:	0.0 ft
Width Curb to Curb 51:	42.0 ft	Width Out to Out 52:	45.3 ft
Approach Roadway Width 32: (w/ shoulders)	44.0 ft	Median 33:	0 No median
Deck Area:	7,293.4 sq. ft		
Skew 34:	32.00 °	Structure Flared 35:	0 No flare
Vertical Clearance 10:	99.99 ft	Horiz. Clearance 47:	41.99 ft

Minimum Vertical Clearance Over Bridge 53: 328.1 ft

Minimum Vertical Underclearance Reference 54A: H Hwy beneath struct

Minimum Vertical Underclearance 54B: 328.1 ft

Minimum Lateral Underclearance Reference R 55A: H Hwy beneath struct

Minimum Lateral Underclearance R 55: 10.2 ft

Minimum Lateral Underclearance L 56: 0.0 ft

PROPOSED IMPROVEMENTS

Bridge Cost 94:	$ 0	Type of Work 75:	Unknown (P)
Roadway Cost 95:	$ 0	Length of Improvement 76:	0.0 ft
Total Cost 96:	$ 0	Future ADT 114:	12,431
Year of Cost Estimate 97:	2000	Year of Future ADT 115:	2029

NAVIGATION DATA

Navigation Control 38:	0 0		
Vertical Clearance 39:	0.0 ft	Horizontal Clearance 40:	0.0 ft
Pier Protection 111:	1 Not Required	Lift Bridge Vertical Clearance 116:	

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	22/1	P Conc Deck/Rigid Ov	(SF)	6,560	0 %	0	100 %	6,560	0 %	0	0 %	0	0 %	0
1	110/1	R/Conc Open Girder	(LF)	1,120	87 %	970	9 %	100	4 %	50	0 %	0	0 %	0
1	205/1	R/Conc Column	(EA)	6	50 %	3	50 %	3	0 %	0	0 %	0	0 %	0
1	215/1	R/Conc Abutment	(LF)	132	24 %	32	76 %	100	0 %	0	0 %	0	0 %	0
1	234/1	R/Conc Cap	(LF)	107	72 %	77	28 %	30	0 %	0	0 %	0	0 %	0
1	301/1	Pourable Joint Seal	(LF)	112	82 %	92	18 %	20	0 %	0	0 %	0	0 %	0

Structure Inventory and Appraisal Sheet (English Units)

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	330/1	Metal Rail Uncoated	(LF)	300	100 %	300	0 %	0	0 %	0	0 %	0	0 %	0
1	331/1	Conc Bridge Railing	(LF)	320	100 %	320	0 %	0	0 %	0	0 %	0	0 %	0
1	362/1	Traf Impact SmFlag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
1	503/1	RC Curb	(LF)	320	100 %	320	0 %	0	0 %	0	0 %	0	0 %	0

Str Unit	Elm/Env	Description	Element Notes
1	22/1	Concrete Deck - Protected w/ Rigid	
1	110/1	Reinforced Conc Open Girder/Bear	
1	205/1	Reinforced Conc Column or Pile Ex	
1	215/1	Reinforced Conc Abutment	
1	234/1	Reinforced Conc Cap	
1	301/1	Pourable Joint Seal	
1	330/1	Metal Bridge Railing - Uncoated	
1	331/1	Reinforced Conc Bridge Railing	
1	362/1	Traffic Impact	
1	503/1	Reinforced Concrete Curb	

BRIDGE NOTES

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PAST INSPECTION

Inspection Date: 01/05/2009 Type: 2 Standard (24 months)

Inspector: DWATTS Pontis User Key: DWATTS - Doug W

Scope:

NBI: ☑ Other: ☐ Element: ☑

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

–

Structure Inventory and Appraisal Sheet (English Units)

PAST INSPECTION

Inspection Date: 01/01/2007 Type: 2 Standard (24 months)

Inspector: RWELLS Pontis User Key: RWELLS - Rod W

Scope:

NBI: ☑ Other: ☐ Element: ☐

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

–

INSPECTOR WORK CANDIDATES

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 9638 Agency ID: 077B00042N SR: 80 SD/FO: FO

IDENTIFICATION

State 1:	21 Kentucky	Struc Num 8:	077B00042N
Facility Carried 7:	KY-9009	Location 9:	.40 MI WEST OF JCT US 460
Rte.(On/Under)5A:	Route On Structure	Rte. Signing Prefix 5B:	3 State Hwy
Level of Service 5C:	1 Mainline	Rte. Number 5D:	09009
Directional Suffix 5E:	0 N/A (NBI)	% Responsibility :	Unknown
SHD District 2:	District 10	County Code 3:	Magoffin (077)
Place Code 4:	FIPS 0000	Mile Post 11:	75.310 mi
Feature Intersected 6:	BURNING FORK		
Latitude 16:	37d 44' 28"	Longitude 17:	083d 03' 23"
Border Bridge Code 98:	Unknown (P)		
Border Bridge Number 99:			

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 Number of Spans Main Unit 45: 3

Main Span Material/Design 43A/B:

1 Concrete 04 Tee Beam

Deck Type 107:	1 Concrete-Cast-in-Place
Wearing Surface 108A:	3 Latex Concrete/Similar
Membrane 108B:	0 None
Deck Protection 108C:	1 Epoxy Coated Reinforci

AGE AND SERVICE

Year Built 27: 1962 Year Reconstructed 106: 0

Type of Service on 42A: 1 Highway

Type of Service under 42B: 5 Waterway

Lanes on 28A: 2 Lanes Under 28B: 0 Detour Length 19: 1.2 mi

ADT 29: 8,020 Truck ADT 109: 19 % Year of ADT 30: 2009

GEOMETRIC DATA

Length Max Span 48: 49.9 ft Structure Length 49: 159.1 ft

Curb/Sdwlk Width L 50A: 0.0 ft Curb/Sidewalk Width R 50B: 0.0 ft

Width Curb to Curb 51: 29.9 ft Width Out to Out 52: 33.1 ft

Approach Roadway Width 32: 44.0 ft (w/ shoulders) Median 33: 0 No median

Deck Area: 5,272.7 sq. ft

Skew 34: 0.00 ° Structure Flared 35: 0 No flare

Vertical Clearance 10: 99.99 ft Horiz. Clearance 47: 29.86 ft

Minimum Vertical Clearance Over Bridge 53: 328.1 ft

Minimum Vertical Underclearance Reference 54A: N Feature not hwy or RR

Minimum Vertical Underclearance 54B: 0.0 ft

Minimum Lateral Underclearance Reference R 55A: N Feature not hwy or RR

Minimum Lateral Underclearance R 55: 0.0 ft

Minimum Lateral Underclearance L 56: 0.0 ft

INSPECTION

Frequency 91:	24 months	Inspection Date 90:	1/5/2009	Next Inspection:	01/05/2011
FC Frequency 92A:	NA	FC Inspection Date 93A:	NA	Next FC Inspection:	NA
UW Frequency 92B:	NA	UW Inspection Date 93B:	NA	Next UW Inspection:	NA
SI Frequency 92C:	NA	SI Date 93C:	NA	Next SI:	NA
Element Frequency:	24 months	Element Inspection Date:	01/05/2009	Next Elem. Insp. Due:	01/05/2011

CLASSIFICATION

Defense Highway 100:	0 Not a STRAHNET hwy	Parallel Structure 101:	No || bridge exists
Direction of Traffic 102:	2 2-way traffic	Temporary Structure 103:	Not Applicable (P)
Highway System 104:	1 On the NHS	NBIS Length 112:	Long Enough
Toll Facility 20:	3 On free road	Functional Class 26:	02 Rural Other Princ
Defense Hwy 110:	0	Historical Significance 37:	5 Not eligible for NRHP
Owner 22:	01 State Highway Agency		
Custodian 21:	01 State Highway Agency		

CONDITION

Deck 58: 7 Good Super 59: 7 Good Sub 60: 6 Satisfactory

Culvert 62: N N/A (NBI) Channel/Channel Protection 61: 8 Protected

LOAD RATING AND POSTING

Inventory Rating Method 65:	1 LF Load Factor	Operating Rating Method 63:	1 LF Load Factor
Inventory Rating 66:	HS34.4	Operating Rating 64:	HS61.1
Design Load 31:	5 MS 18 (HS 20)	Posting 70:	5 At/Above Legal Loads
Posting status 41:	A Open, no restriction		

APPRAISAL

Bridge Rail 36A:	0 Substandard	Approach Rail 36C:	1 Meets Standards
Transition 36B:	1 Meets Standards	Approach Rail Ends 36D:	1 Meets Standards
Str. Evaluation 67:	6	Deck Geometry 68:	3 Intolerable - Correct
Underclearance, Vertical and Horizontal 69:	N Not applicable (NBI)		
Waterway Adequacy 71:	9 Above Desirable	Approach Alignment 72:	8 Equal Desirable Crit
Scour Critical 113:	8 Stable Above Footing		

PROPOSED IMPROVEMENTS

Bridge Cost 94:	$ 658,000	Type of Work 75:	34 Widen w/ Deck Reha
Roadway Cost 95:	$ 0	Length of Improvement 76:	15.7 ft
Total Cost 96:	$ 657,000	Future ADT 114:	12,431
Year of Cost Estimate 97:	2000	Year of Future ADT 115:	2029

NAVIGATION DATA

Navigation Control 38: 0 0

Vertical Clearance 39: 0.0 ft Horizontal Clearance 40: 0.0 ft

Pier Protection 111: 1 Not Required Lift Bridge Vertical Clearance 116:

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	22/1	P Conc Deck/Rigid Ov	(SF)	4,860	100 %	4,860	0 %	0	0 %	0	0 %	0	0 %	0
1	110/1	R/Conc Open Girder	(LF)	810	100 %	810	0 %	0	0 %	0	0 %	0	0 %	0
1	205/1	R/Conc Column	(EA)	4	100 %	4	0 %	0	0 %	0	0 %	0	0 %	0
1	210/1	R/Conc Pier Wall	(LF)	33	100 %	33	0 %	0	0 %	0	0 %	0	0 %	0
1	215/1	R/Conc Abutment	(LF)	114	47 %	54	53 %	60	0 %	0	0 %	0	0 %	0
1	234/1	R/Conc Cap	(LF)	64	53 %	34	47 %	30	0 %	0	0 %	0	0 %	0

Structure Inventory and Appraisal Sheet (English Units)

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	330/1	Metal Rail Uncoated	(LF)	304	100 %	304	0 %	0	0 %	0	0 %	0	0 %	0
1	331/1	Conc Bridge Railing	(LF)	324	100 %	324	0 %	0	0 %	0	0 %	0	0 %	0
1	503/1	RC Curb	(LF)	324	100 %	324	0 %	0	0 %	0	0 %	0	0 %	0
1	605/1	Transitions	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
1	606/1	Drains	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
1	612/1	Chan Algn	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
1	613/1	Vegetation	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0

Str Unit	Elm/Env	Description	Element Notes
1	22/1	Concrete Deck - Protected w/ Rigid	new overlay
1	110/1	Reinforced Conc Open Girder/Bear	
1	205/1	Reinforced Conc Column or Pile Ex	
1	210/1	Reinforced Conc Pier Wall	
1	215/1	Reinforced Conc Abutment	
1	234/1	Reinforced Conc Cap	
1	330/1	Metal Bridge Railing - Uncoated	
1	331/1	Reinforced Conc Bridge Railing	
1	503/1	Reinforced Concrete Curb	
1	605/1	Transitions (Approach/Deck)	
1	606/1	Drains	
1	612/1	Channel Alignment	
1	613/1	Vegetation	

BRIDGE NOTES

58: New overlay

PAST INSPECTION

Inspection Date: 01/05/2009 Type: 2 Standard (24 months)

Inspector: DWATTS Pontis User Key: DWATTS - Doug W

Scope:

NBI: ☑ Other: ☐ Element: ☑

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

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Structure Inventory and Appraisal Sheet (English Units)

PAST INSPECTION

Inspection Date: 01/01/2007 Type: 2 Standard (24 months)

Inspector: RWELLS Pontis User Key: RWELLS - Rod W

Scope:

NBI: ☑ Other: ☐ Element: ☐

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

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INSPECTOR WORK CANDIDATES

Appendix H – FIRM Maps of the Study Area

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevation determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance of greater flood event.

ZONE A99 Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

surance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0239D

FIRM

FLOOD INSURANCE RATE MAP

BELL COUNTY, KENTUCKY

AND INCORPORATED AREAS

PANEL 239 OF 360

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BELL COUNTY	210010	0239	D
MIDDLESBORO, CITY OF	215190	0239	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 21013C0239D

EFFECTIVE DATE SPETEMBER 29, 2006

Federal Emergency Management Agency

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513 — Base Flood Elevation line and value; elevation in feet*

(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A — Cross section line

23 — 23 — Transect line

97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

4275000 M
6000000 FT — 1000-meter Universal Transverse Mercator grid ticks, zone 17
5000-foot grid values: Kentucky State Plane coordinate system, South Zone (FIPSZONE = 1602), Lambert projection

DX5510 × — Bench mark (see explanation in Notes to Users section of this FIRM panel)

● M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
SEPTEMBER 29, 2006

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

surance Program at 1-800-638-6620.

N

MAP SCALE 1" = 500'

250 0 250 500 750 1,000
FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0239D

FIRM

FLOOD INSURANCE RATE MAP

BELL COUNTY, KENTUCKY

AND INCORPORATED AREAS

PANEL 239 OF 360

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

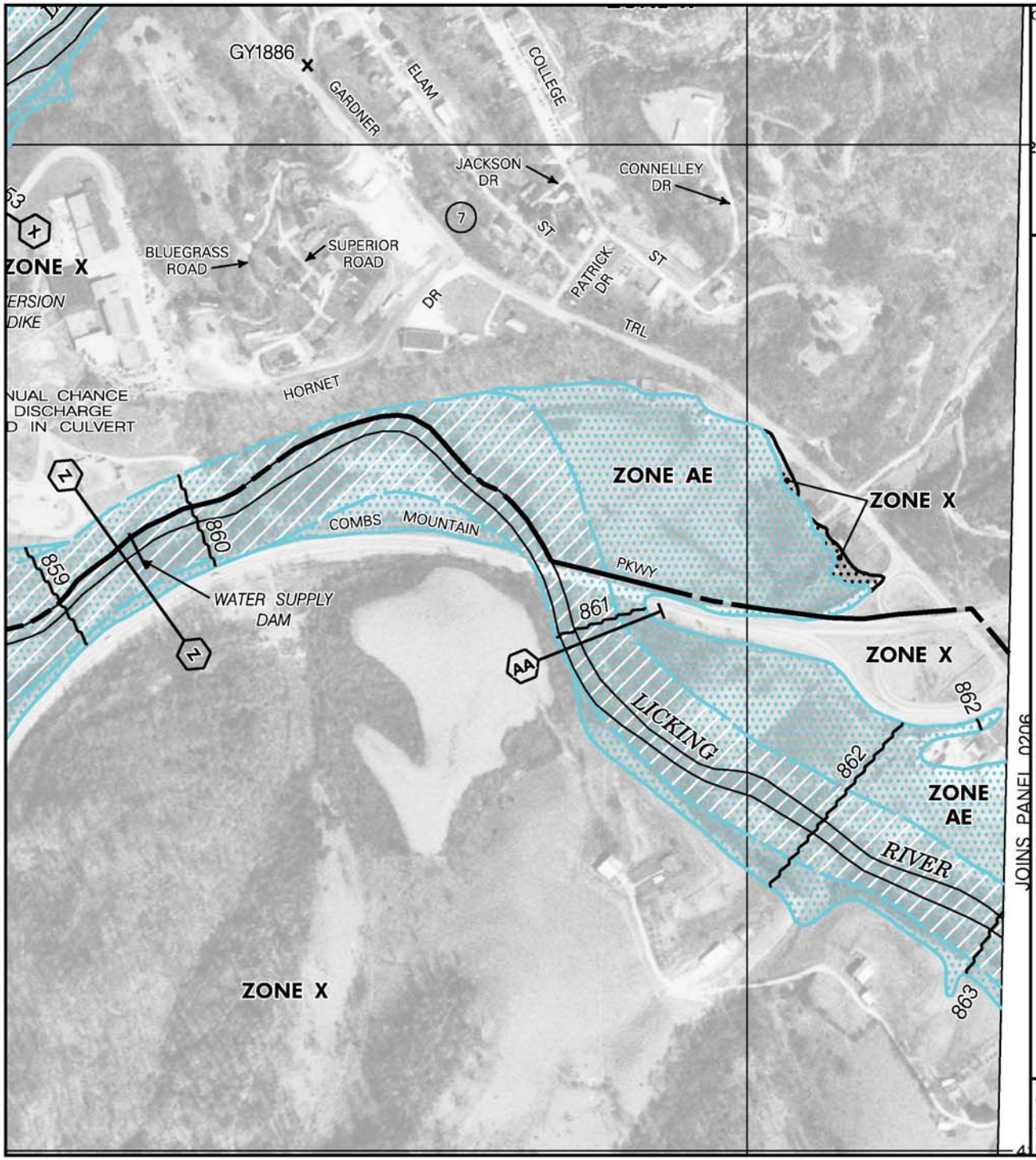
COMMUNITY	NUMBER	PANEL	SUFFIX
BELL COUNTY	210010	0239	D
MIDDLESBORO, CITY OF	215190	0239	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
21013C0239D

EFFECTIVE DATE
SPETEMBER 29, 2006

Federal Emergency Management Agency



onal Flood Insurance Program at 1–800–638–6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0202C

FIRM

FLOOD INSURANCE RATE MAP

MAGOFFIN COUNTY, KENTUCKY AND INCORPORATED AREAS

PANEL 202 OF 335

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

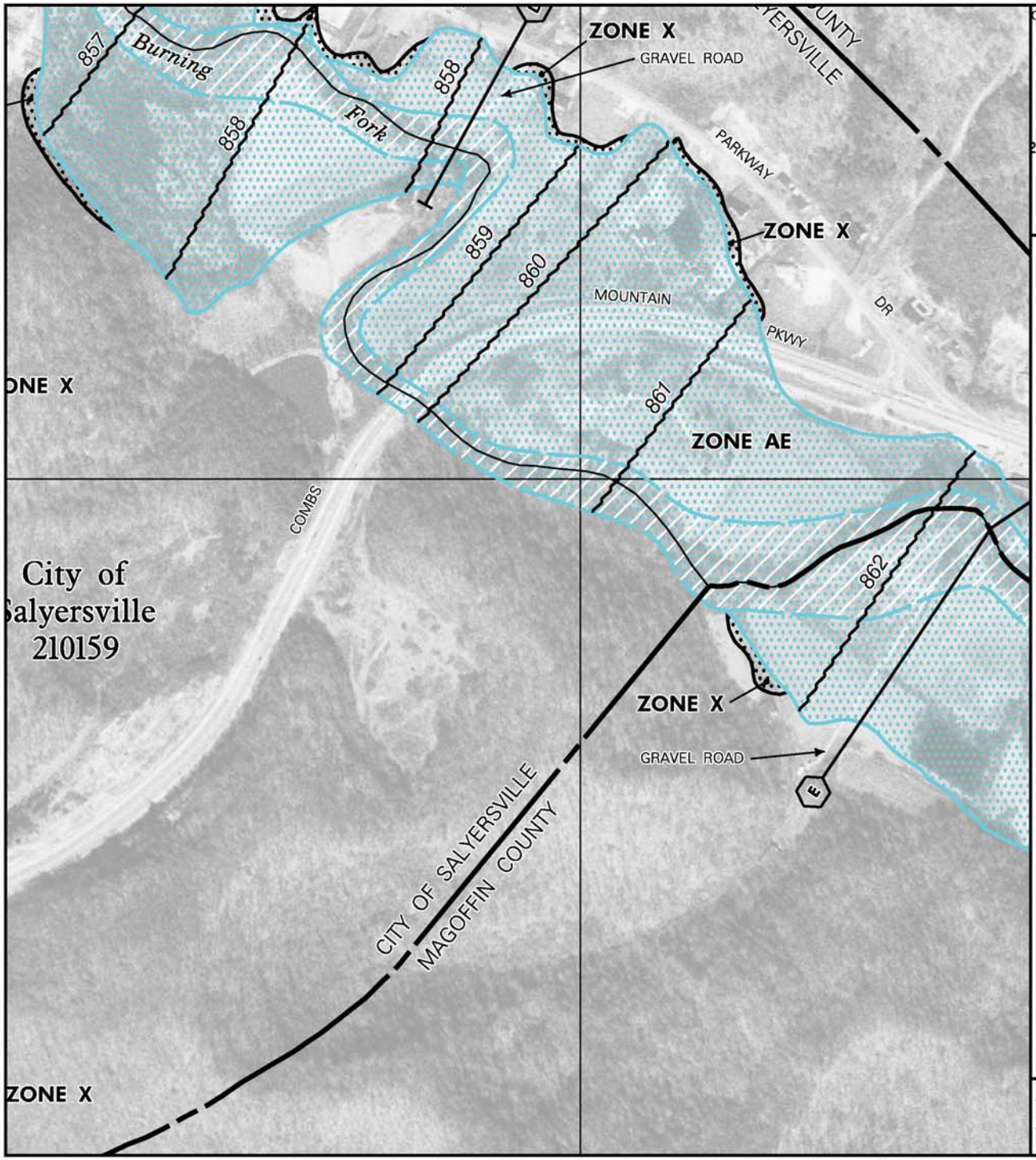
COMMUNITY	NUMBER	PANEL	SUFFIX
MAGOFFIN COUNTY	210158	0202	C
SALYERSVILLE, CITY OF	210159	0202	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 21153C0202C

EFFECTIVE DATE MARCH 16, 2005

Federal Emergency Management Agency



onal Flood Insurance Program at 1–800–638–6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0206C

FIRM

FLOOD INSURANCE RATE MAP

MAGOFFIN COUNTY,
KENTUCKY
AND INCORPORATED AREAS

PANEL 206 OF 335

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MAGOFFIN COUNTY	210158	0206	C
SALYERSVILLE, CITY OF	210159	0206	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
21153C0206C

EFFECTIVE DATE
MARCH 16, 2005

Federal Emergency Management Agency

Appendix I – Photographs

KY 9009 Overpass @ KY 7

End of KY 9009

US 460 Intersection Looking East

US 460 Looking at Entrance to KY 9009

US 460 Intersection

KY 9009

KY 9009 Passing Lane

KY 9009

Overpass Bridge

Looking NW from Exit Ramp on KY 7

KY 7 Looking SE

US 460 Intersection

US 460 Looking Toward Intersection

US 460 Looking away from Intersection

KY 9009 Westbound Exit Ramp

US 460 Looking away from Intersection

Appendix J – Project Team Meeting Minutes

MEETING MINUTES

Project:	Pre-Design Scoping Study for 10-140.00	
Purpose:	Project Team Meeting	
Place:	Kentucky Transportation Cabinet (KYTC), District 10 Conference Room, Jackson, Ky.	
Meeting Date:	July 23, 2010, 10:30 am EST	
In Attendance:	Jason Blackburn	KYTC-D10 Planning
	Bruce Napier	KYTC-D10 R/W
	Crystal Mapel	KYTC-D10 PD&P
	Jarrod Morgan	KYTC-D10 Utilities
	Jeff Allen	KYTC-D10 Environmental
	Corbett Caudill	KYTC-D10 Project Development
	Keith Damron	KYTC-CO Planning
	Shane Tucker	KYTC-CO Planning
	Jill Asher	KYTC-CO Planning

INTRODUCTIONS: Jill opened the Project Team Meeting by discussing the purpose of the Pre-Design Scoping Studies. Similar studies to these, formerly known as First Look Studies, have been done in the past by some of the districts. It is anticipated that a study of this type will be done for every project preceding the design phase if there is no planning study associated with the project. The nine elements of Purpose and Need as defined by NEPA will be addressed and used to create a purpose and need statement for each project. Pre-Design Scoping Studies will also provide more defined project scopes, cost estimates for possible alternatives, potential environmental impacts, and other information that will be of assistance in the Phase I Design process. This study was done for Item Number 10-140.00 on KY 9009, Mountain Parkway Extension, in Magoffin County. A handout of the meeting presentation was given to all meeting attendees. A sign-in sheet was also passed around.

Corbett gave a brief history of some of the studies and design projects that have occurred on this section or roadway. There has been public opposition to every alternative. Alternatives include going through Salyersville or bypassing the heavily developed section on US460 with a new route.

NINE ELEMENTS OF A PURPOSE AND NEED STATEMENT: A checklist of the nine elements was displayed and the importance of each of the elements as they relate to the subject project was discussed:

Legislation – The Right-of-Way and Utility phases are scheduled for 2010 with SPB funding in the current Highway Plan. Construction is scheduled for 2013 with SB2 funding. The description in the Highway Plan states that this project is for widening and safety improvements from MP 74.5 to 75.6. No one in the meeting knew which legislator

is promoting this project. Jill is checking to see if Program Management has any information.

Project Status – Design funds are authorized. Preliminary Design plans were completed in 1999 and 2004 for a bypass of this section. The project didn't proceed due to public opposition.
A planning study, now in draft form, including this section of roadway was done to provide programming information for widening of Mountain Parkway. This section was rated 1st priority of the sections in the study by Districts 10 and 12.

System Linkage – Mountain Parkway is a major, two-lane regional connector of I-64, soon to be 6-lane, to US 23, a 4-lane roadway. US 23 is a N-S connection that goes from the Great Lakes to Florida. The Mountain Parkway provides a connection from Central KY to the many communities and rural areas of Southeastern KY. The project team also stated that with the recent completion of widening US 119 to four lanes in W.Va., this roadway is becoming a greater link to Virginia and W.Va. The classifications of the roadway were discussed.

Modal Interrelationships – There is no public transit on this route. CSX removed its rail line from the area a few years ago. It is used as a major coal haul route to the power plant in Clark County.

Social Demands & Economic Development – This route is used to access shopping centers, higher education facilities, and hospitals in Central KY and W.Va. It is also used locally as a route to the schools in Salyersville. There is development potential in communities located east of the project site, such as Paintsville and Pikeville.

Transportation Demand – Forecasts were requested, and traffic counts have been completed. The current ADT is approximately 8,100, with a preliminary forecasted ADT of 11,900 in 2032. ADTs are expected to be much higher on the adjacent section of US 460. It was also noted that the traffic counts were obtained during the summer; they do not include school traffic.

Capacity – According to the Division of Planning's data, the current V/SF is 0.33. Based on the preliminary forecast, the current capacity of the existing roadway will be adequate for the near future. However, future economic and social development demands may lead to an increase in ADT that would require additional capacity.

Safety – Collision data was obtained from the KY State Police database of collisions for a three year period of time from June 1, 2007 to May 31, 2010. There were 21 reported collisions in the project area during this three year period. Fourteen of the collisions were located at the intersection with US 460 and were rear end collisions. Two were located on the ramp with KY 7. There was no night/day or weather pattern that could be determined. The manner and location of other collisions were discussed. While there were only a couple of collisions that occurred on the ramps during the analysis period, the district has received several complaints about the safety of the ramps.

Roadway Deficiencies – The roadway currently has 12 ft. lanes, 10 ft. shoulders with guardrail on both sides of the road due to steep side slopes, a maximum grade of 5.5%, a posted speed limit of 55 MPH, and an Adequacy Rating Percentile of 56.19. KYTC's Common Geometric Practices for this type of road recommends 12 ft. lanes for a 60 MPH Design Speed and 8 ft. shoulders. There are three bridges located on this project. None are rated structurally deficient, but they are functionally obsolete with substandard bridge rails. The bridges over the Licking River and over Burning Fork are not wide enough (29.9 ft. curb to curb) to accommodate the recommended 8 ft. shoulders. The curve at the end of the project has a minimum radius of 954.83 ft. which is less than the recommended radius in the Geometric Practices for Rural Arterials. The radii of the ramps could not be determined from the As-Builts available to Central Office, but it is likely that one, if not both, of the cloverleaf ramps do not meet minimum radius of curvature as defined by AASHTO's A Policy on Geometric Design of Highways and Streets. No one on the project team was aware of any flooding in the project area.

ENVIRONMENTAL CONSIDERATIONS: One of the bridges crosses over Licking River. It was noted that the project area may include Indiana bat habitat. There are no designated waters. Keith asked that the Environmental Coordinators in the districts prepare a brief overview of the environmental concerns in the project area for each Pre-Design Scoping Study. He will send out an example to all the coordinators.

UTILITIES: A list of utility providers and contact information was given to Jill by Jason Blackburn. The project team asked that we also include Interstate Gas. Oil well locations also need to be added to the map. Jason will provide a sketch of the utility locations in the area to Jill.

OTHER ISSUES: There is an old waste area site adjacent to the project. It may be necessary to buy this land for corridor preservation. Waste area sites for this project will need to be determined early.

POSSIBLE OPTIONS: The following are some of the alternatives that were discussed:

- **No Build** – wait and see if a new bypass is constructed around Salyersville that would move the Parkway and much of the traffic off of this segment of roadway
- **Improve Ramp(s) @ KY 7**
    - Construct an Off-Ramp in the NE quadrant to eliminate the sharp radius of the partial clover leaf in the NW quadrant. Eliminate the clover leaf ramp.
        - End the ramp across from the intersection with existing westbound on-ramp.
        - Reconstruct both ramps in the northern quadrants into a tight urban interchange arrangement requiring less R/W.
    - Eliminate both cloverleaf ramps and make it a diamond interchange (new westbound off-ramp and eastbound on-ramp).
    - Increase the radius of the ramp in the NW quadrant. Widen the overpass bridge to accommodate the extra lane (extending the climbing lane), and drop the lane at the ramp allowing for adequate deceleration. This would

also require the reconstruction of the westbound on-ramp in that quadrant and the widening of the bridge over the Licking River to accommodate an acceleration lane for this ramp.

- **Widen the roadway to four lanes** –A planning level cost estimate will be provided. There isn't enough money allocated for this project currently to do widen this segment of roadway. Consideration should be given to the possibility that the Parkway may be moved from this section of roadway onto a bypass around Salyersville.
- **Improve the Intersection @ US 460** – At a site visit following this meeting it was determined that there is not adequate storage for vehicles on US 460 turning left. This segment of US 460 has a TWLTL and the turn lane at the intersection can be extended by changing the striping on the roadway. There is also a vertical curve prior to the intersection. It was observed that the queue of cars waiting to turn left at the intersection was long enough that someone approaching this intersection and traveling over the vertical curve may not have an ideal amount of stopping sight distance which can contribute to rear end collisions. Lowering the crest of the vertical curve is another recommendation. Turning lane lengths and tapers will also be considered on the Mountain Parkway leg of this intersection.

There were two other alternates that the Project Team decided not to carry forward. One alternate was closing the ramps at KY 7 and routing the traffic through town. The project team did not think this would be supported by the public and did not want to route additional traffic, including coal trucks, through town. Another alternate was a roundabout at the Mountain Parkway/US 460 intersection. The project team stated that the R/W foot print would probably be too large for this area.

PURPOSE & NEED: After some discussion the project team agreed that the purpose and need statement should read similar to the following:
Needs:

- The ramp(s) at the Mountain Parkway interchange with KY 7 provide access to the parkway for residents, coal trucks, school buses and other traffic in the Salyersville area. The geometry of the ramps at the KY 7 interchange does not meet recommended 30 MPH Design Speed standards for loop ramps.
- The intersection of Mountain Parkway and US 460 has a history of rear-end collisions.
- The Mountain Parkway provides a vital connection between Central Kentucky and many communities and rural areas of Southeastern Kentucky.

Purpose:

- The purpose of this project is to improve the safety, the geometrics, and the connectivity between Central Kentucky and many communities and rural areas of Southeastern Kentucky, and to improve highway performance along this corridor to facilitate Economic Development.

NEXT STEPS: The district agreed to provide planning level, phased cost estimates for the alternates they would like to see move forward.

The meeting was followed by a visit to the site by Central Office Planning staff.

END OF MINUTES