

KY 86 SCOPING STUDY
BRECKINRIDGE AND HARDIN COUNTIES
KYTC ITEM NO. 4-8901.00

APPENDIX B – TRAFFIC FORECAST MEMORANDUM

TRAFFIC FORECAST MEMORANDUM

KY 86 Scoping Study
 Breckinridge and Hardin Counties
 Item No. 4-8901.00

PROJECT DESCRIPTION

Preliminary traffic forecasts have been developed to assist in the evaluation of improvement concepts for the KY 86 Scoping Study. The KY 86 study area is 26.325 miles in length between the US 60 intersection in Breckinridge County and the US 62 intersection in Hardin County. Within the study corridor, KY 86 is functionally classified as a Rural Minor Arterial from US 60 in Breckinridge County to Cecilia in Hardin County and an Urban Minor Arterial from Cecilia to US 62. The general study area for the project, including KYTC's most recent average daily traffic (ADT) volumes, is shown on **Figure 1**.

The purpose of the KY 86 Scoping Study is to enhance regional mobility and to provide a safer east/west corridor across Breckinridge and Hardin Counties. This portion of KY 86 carries a mix of both local and regional traffic as it connects the communities of Hardinsburg and Cecilia while also providing regional access to Elizabethtown, the Western Kentucky Parkway, and I-65. I-65 is a major north-south interstate highway that travels through western Kentucky from Nashville, Tennessee in the south to Louisville, Kentucky in the north.

This memorandum summarizes the methodology and findings for the KY 86 traffic forecasts.

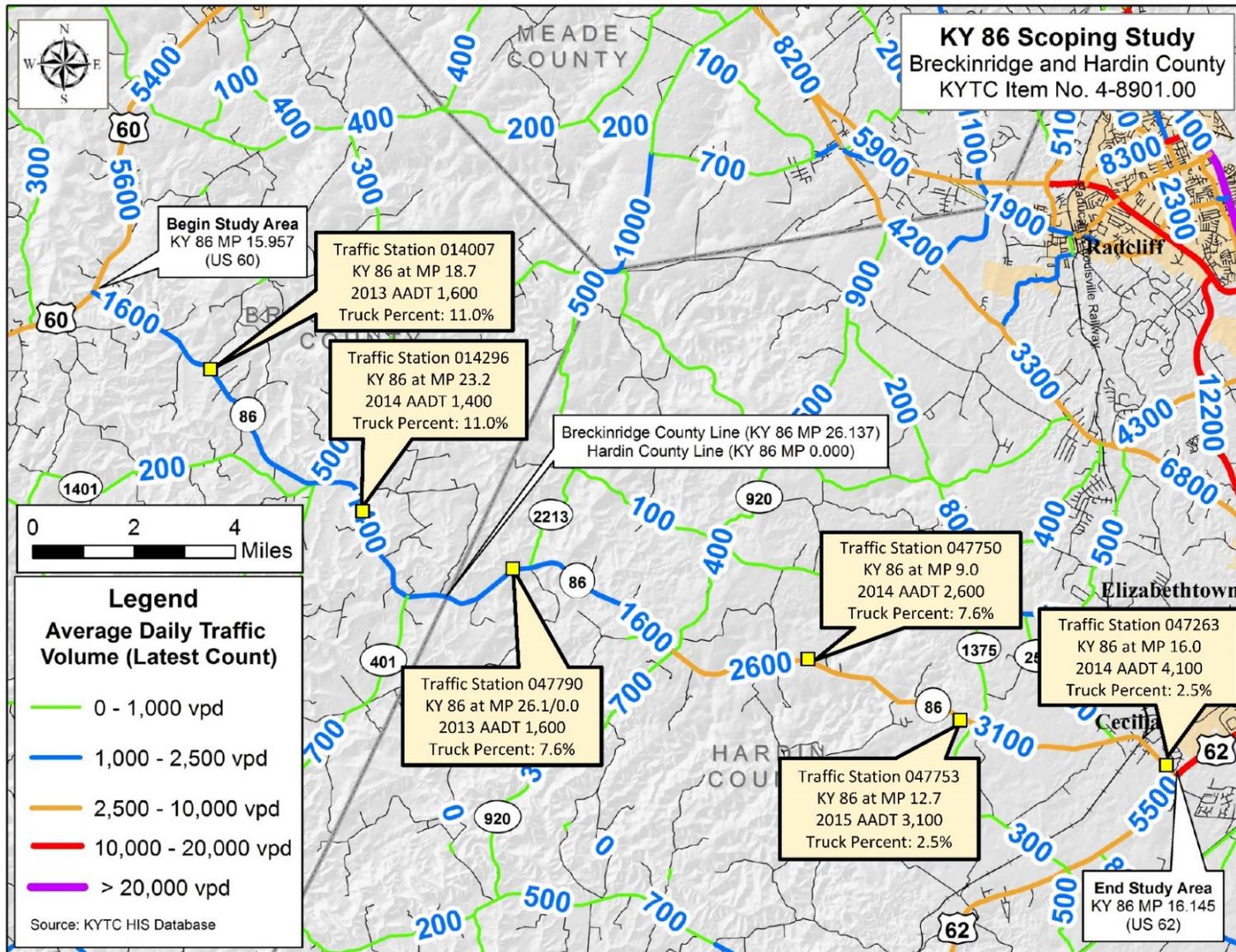
TRAFFIC VOLUMES

Average annual daily traffic (AADT) volumes for KY 86 were obtained from the KYTC Count Reporting System (CTS) traffic count database and are summarized in **Table 1**.

Table 1: KYTC Traffic Counts

Route	County	Station ID	Begin MP	From	End MP	To	AADT	Year	K Factor	D Factor
KY 86	Breckinridge	014007	15.957	US 60	21.994	KY 690	1,600	2013	8.7	53
		014296	21.994	KY 690	24.344	Lyons-Daugherty Rd	1,400	2014	8.6	58
	Breckinridge/ Hardin	047790	24.344	Lyons-Daugherty Rd	5.287	KY 920 (Salt River Rd)	1,600	2013	8.3	55
	Hardin	047750	5.287	KY 920 (Salt River Rd)	11.790	KY 1375 (Blueball Church Rd)	2,600	2014	8.6	66
		047753	11.790	KY 1375 (Blueball Church Rd)	14.601	KY 253 (Bethlehem Academy Rd)	3,100	2015	8.7	64
		047263	14.601	KY 253 (Bethlehem Academy Rd)	16.145	US 62	4,100	2014	9.5	58

Source: KYTC CTS database



POPULATION

Census population estimates and projections for Breckinridge and Hardin Counties are summarized in **Table 2** and **Figures 2 and 3**. Breckinridge County's population is expected to decrease 0.3 percent per year through 2040. Hardin County's population is expected to increase 1.0 percent per year through 2040.

Table 2: Breckinridge County, Hardin County, and Statewide Population Projections

Area	2010 Census Estimate	2015 Estimate	Annual Growth 2010-2015	2020 Projection	2040 Projection	Annual Growth 2020-2040
Kentucky	4,339,367	4,425,092	0.4%	4,533,464	4,886,381	0.4%
Breckinridge County	20,059	20,018	-0.04%	19,973	18,805	-0.3%
Hardin County	105,543	106,439	0.17%	112,494	134,901	1.0%

Source: Kentucky State Data Center, October 2016

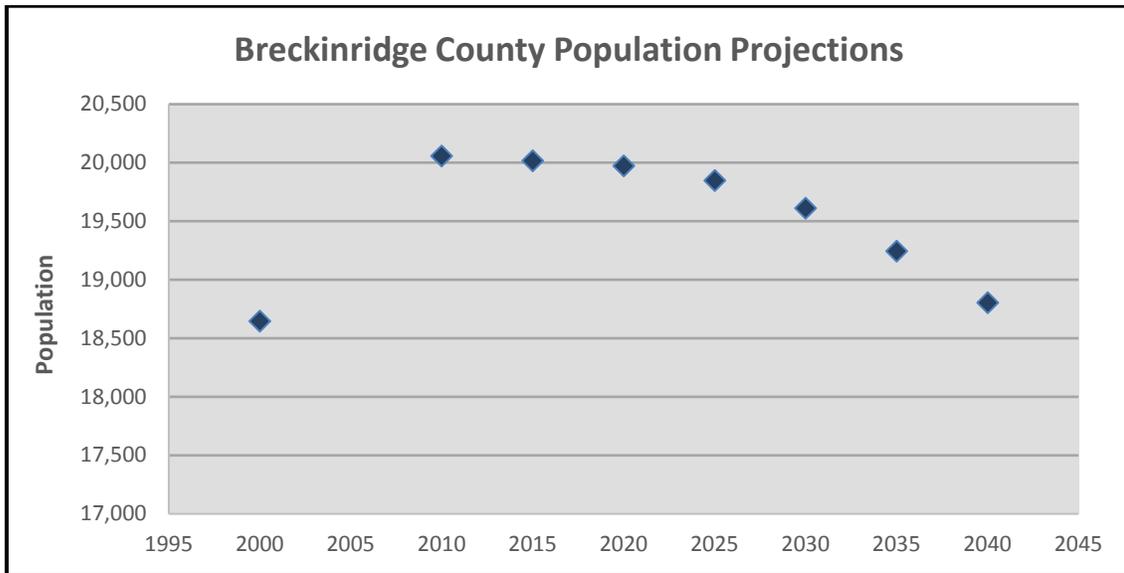


Figure 2: Breckinridge County Population Projections

Source: Kentucky State Data Center, October 2016

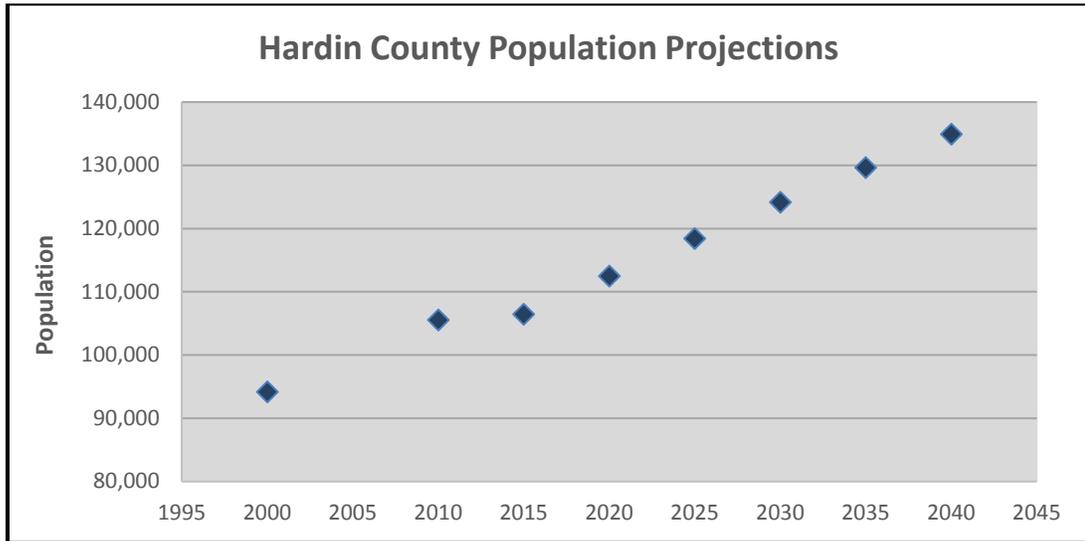


Figure 3: Hardin County Population Projections
Source: Kentucky State Data Center, October 2016

ESTIMATING FUTURE TRAFFIC

There are six count stations located on KY 86 within the project area. Historical traffic counts from the KYTC indicate traffic along KY 86 between US 60 and US 62 has generally been flat or slightly declining since the mid-1990's. The historical daily traffic volumes for these count stations are summarized in **Figure 4**.

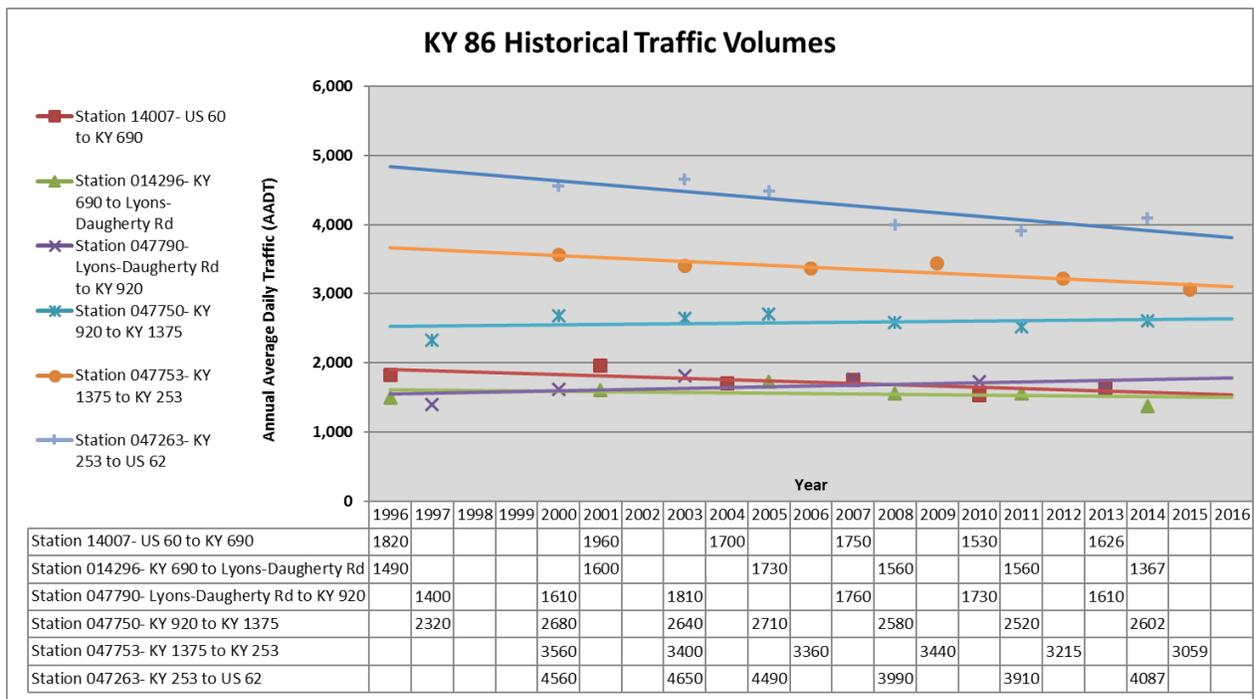


Figure 4: Historical Traffic Volumes on KY 86
Source: KYTC CTS database

The Hardin-Meade Travel Demand Model was also used to help estimate the likely growth in traffic demand along KY 86. The model uses socioeconomic data, namely households and employment, to estimate current and future travel demand, and the estimated traffic is assigned to the model network based on estimated travel times. The Hardin-Meade Travel Demand Model estimates a small amount of growth along KY 86 in the study area.

Based on the investigation of historical traffic volume trends, population trends, and the Hardin-Mead Travel Demand Model a 0.5 percent annual growth was assumed along KY 86 for the 2040 No-Build. The forecast volumes are summarized in **Table 3** and **Figure 5**.

TRUCK PERCENTAGES

Vehicle classification data were collected at the six count stations on KY 86. From these count data, 2016 truck percentages on KY 86 ranged from 2.5 to 11 percent, as shown in **Table 3** and **Figure 5**.

KY 86 is not on the Kentucky or National Highway Freight Network and truck ADT is at most 180 vehicles per day (vpd) along the study area. Of that, 59 percent are single unit trucks and school buses rather than long-haul freight. Aside from Howe Valley Elementary School and Custer Elementary School there are no large employers or manufacturing along the study portion of KY 86. There is a large industrial park at the eastern end of the corridor, at the intersection of KY 86 and US 62 in Hardin County. However, trucks originating from this area are more likely to use US 62 because it is a more efficient and reliable highway for freight transport. Based on this information, a 0.25 percent annual truck growth rate was assumed along KY 86, as shown in **Table 3** and **Figure 5**.

Table 3: KY 86 Traffic Forecast Summary

Route	Segment	Begin MP	End MP	Existing (2016) AADT	Annual Growth Rate	Design Year (2040) AADT	2016 Truck %	Annual Truck % Growth Rate	2040 Truck %
KY 86	#1: US 60 to Hardin County Line	15.957	26.137	1,700	0.5%	1,900	11.0%	0.25%	11.7%
	#2: Hardin County Line to KY 920	0	5.287	1,700	0.5%	1,900	7.6%	0.25%	8.1%
	#3: KY 920 to KY 1375	5.287	11.790	2,600	0.5%	3,000	7.6%	0.25%	8.1%
	#4: KY 1375 to KY 253	11.790	14.601	3,100	0.5%	3,500	2.5%	0.25%	2.7%
	#5: KY 253 to US 62	14.601	16.145	4,100	0.5%	4,700	2.5%	0.25%	2.7%

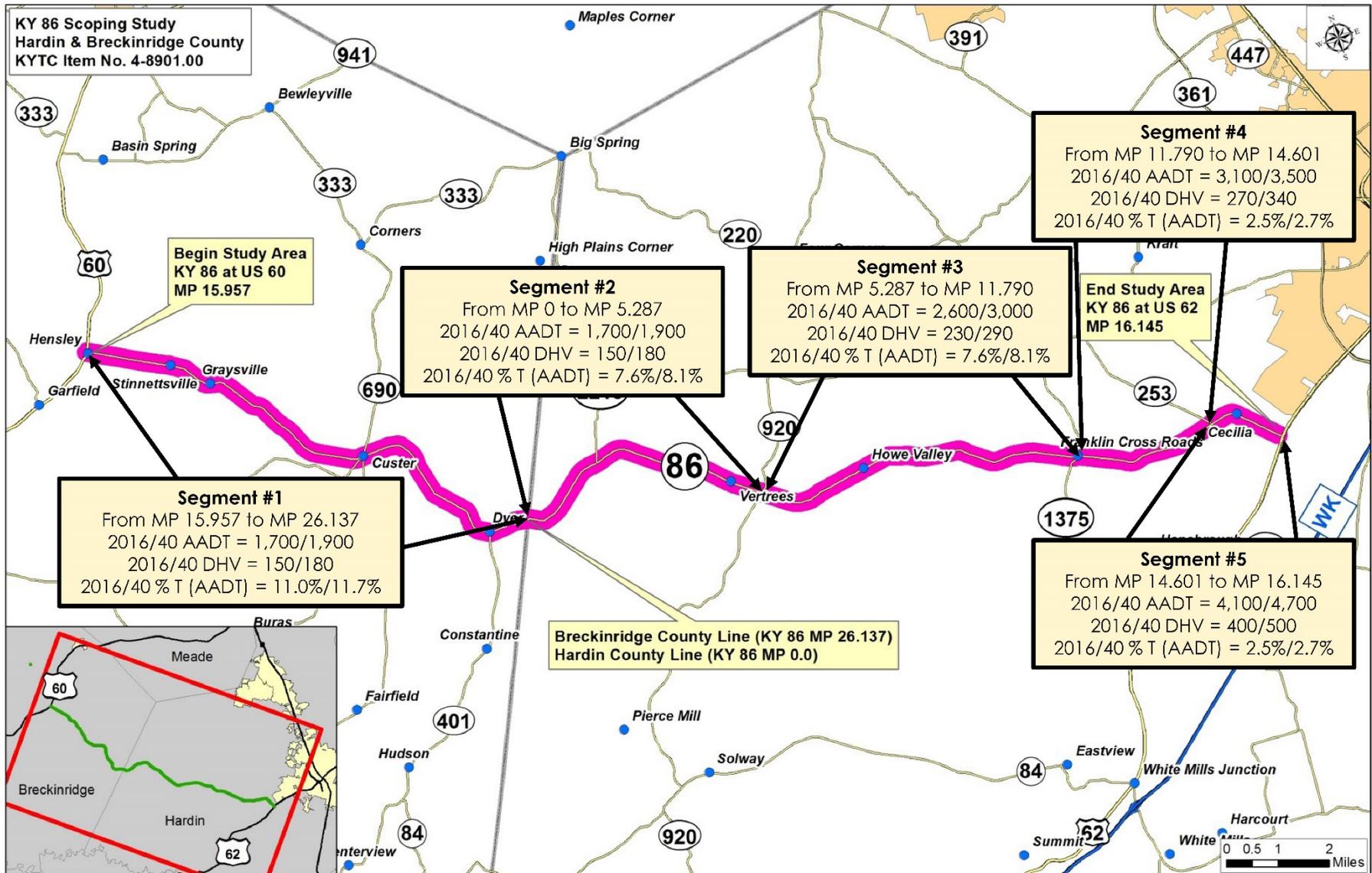


Figure 5: KY 86 Traffic Forecast

Pedestrian & Bicycle Consideration Review

**Breckinridge County
Project # 04-8901.00
Spot improvements on KY-86**

Prepared for:



Prepared by:
Troy Hearn
Division of Planning
Kentucky Transportation Cabinet
December 7, 2017

Bicycle and Pedestrian Review for Project #04-8901.00

Project Overview:

This project study will provide recommended spot improvements to the KY-86 corridor beginning at the US-60 intersection in Breckinridge County to the US-62 intersection in Hardin County. Breckinridge MP 15.95-26.13 & Hardin County MP 0.00-16.14

Local/regional Planning:

- Breckinridge County and Hardin County do not have a bicycle or pedestrian master plan. There are no specific plans for bicycle or pedestrian travel from the local government within the project area.

Existing conditions:

- KY-86 (Breckinridge County) / MP 15.95-26.13
 - a. ADT range is 1550-1600
 - b. Heavy truck ADT is 10-11% (170-180)
 - c. The posted speed limit is 55 MPH (with some locations at 35 MPH: MP 21.71-22.1 & MP 25.12-25.51)
 - d. Paved shoulder width is 2 feet or less
 - e. Rural cross section design
 - f. The Bicyclists Comfort Index (BCI) average rating is a level C
- KY-86 (Hardin County) / MP 0.00-16.14
 - a. ADT range is 1600-3900
 - b. Heavy truck ADT is 7.5-8.9% (180-350)
 - b. The posted speed limit is 55 MPH (with some locations at 35 MPH: MP 7.3-7.84 & 11.62-12.02 & 15.12-16.14)
 - c. Paved shoulder width is 2 feet or less
 - d. Rural cross section design (primarily)
 - e. The Bicyclists Comfort Index (BCI) average rating is a level D

The KYTC Bicycle and Pedestrian program team recommendations are:

Breckinridge County Portion:

Best: For mile points in Breckinridge County / MP 21.71-22.1 & MP 25.12-25.51 along the roadway within the project area: construct a paved shoulder on both sides of the roadway, 6 feet wide (or wider), and provide a gap of 10 feet every 50 feet within the rumble strip to better accommodate for pedestrian and bicycling travel (Figure 1). These mile points are within small city areas and contain a mix residential and commercial properties (posted speed limits of 35 MPH). The BCI average rating would remain a level C.

Good: For mile points in Breckinridge County / MP 21.71-22.1 & MP 25.12-25.51 along the roadway within the project area: construct a paved shoulder on both sides of the roadway, 4 feet wide (or wider), and provide a gap of 10 feet every 50 feet within the rumble strip to better accommodate for pedestrian and bicycling travel (Figure 1). These

mile points are within small city areas and contain a mix residential and commercial properties (posted speed limits of 35 MPH). The BCI average rating would remain a level C.

Hardin County Portion:

Best: For mile points in Hardin County / MP 7.3-7.84 & 11.62-12.02 & 15.12-16.14 along the roadway within the project area: construct a paved shoulder on both sides of the roadway, 6 feet wide (or wider), and provide a gap of 10 feet every 50 feet within the rumble strip to better accommodate for pedestrian and bicycling travel (Figure 1). These mile points are within small city areas and contain a mix residential, schools, and commercial properties (posted speed limits of 35 MPH). The BCI average rating would improve to a level C.

Good: For mile points in Hardin County / MP 7.3-7.84 & 11.62-12.02 & 15.12-16.14 along the roadway within the project area: construct a paved shoulder on both sides of the roadway, 4 feet wide (or wider), and provide a gap of 10 feet every 50 feet within the rumble strip to better accommodate for pedestrian and bicycling travel (Figure 1). These mile points are within small city areas and contain a mix residential, schools, and commercial properties (posted speed limits of 35 MPH). The BCI average rating would improve to a level C.

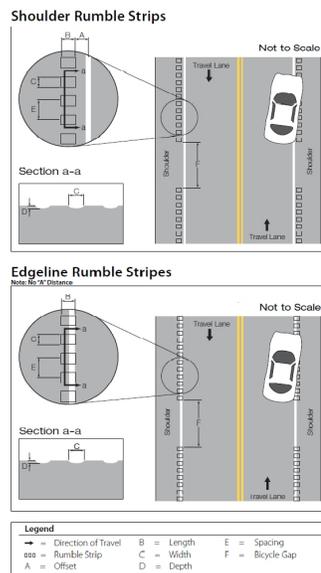


Figure 1

Bicycle gaps within the rumbles /
http://safety.fhwa.dot.gov/roadway_dept/pavement/rumble_strips/t504039/

1 [BCI:http://transportation.ky.gov/Bike-Walk/Documents/Bicyclists%20Comfort%20Index.pdf](http://transportation.ky.gov/Bike-Walk/Documents/Bicyclists%20Comfort%20Index.pdf)

Prepared by:
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 Division of Planning, www.transportation.ky.gov/Bike-Walk

Traffic Forecast Technical Report
COUNTY NAME County: PROJECT DESCRIPTION
Item No. ITEM NUMBER

Kentucky Transportation Cabinet
December 7, 2017