



TRANSPORTATION CABINET

Frankfort, Kentucky 40622
www.transportation.ky.gov/

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TO: Greg Meredith, P.E.
Chief District Engineer
District 3

ATTN: David Erickson, P.E.

FROM: John W. Moore, P.E.
Director
Division of Planning 

DATE: June 23, 2015

SUBJECT: Allen County Traffic Forecast
Improvements on KY-100
Item No. 03-0320.00

We are providing the following forecasts on the attached report, in response to your June 8, 2015 request:

- 2015 and 2040 Average Daily Traffic
- Truck Percentages and 20-year ESALs
- Bicycle and Pedestrian Accommodation Assessment

We are currently undergoing changes with our Traffic Forecast Report and would appreciate any suggestions/comments/questions that you might have. If you have any questions, please call Justin Harrod of this Division at (502) 782-5059.

JM/JH/BC

Attachments

C/att: Brad Eldridge
Joseph Plunk
Denatra Henderson
Dan Hite
Joseph Tucker



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Executive Summary

Traffic Forecast Report and Bike/Ped Accommodation Assessment for Allen County Improvements on KY-100 Item No. 03-0320.00

Prepared for:



Prepared by:
Justin Harrod
Division of Planning
Kentucky Transportation Cabinet
June 23, 2015

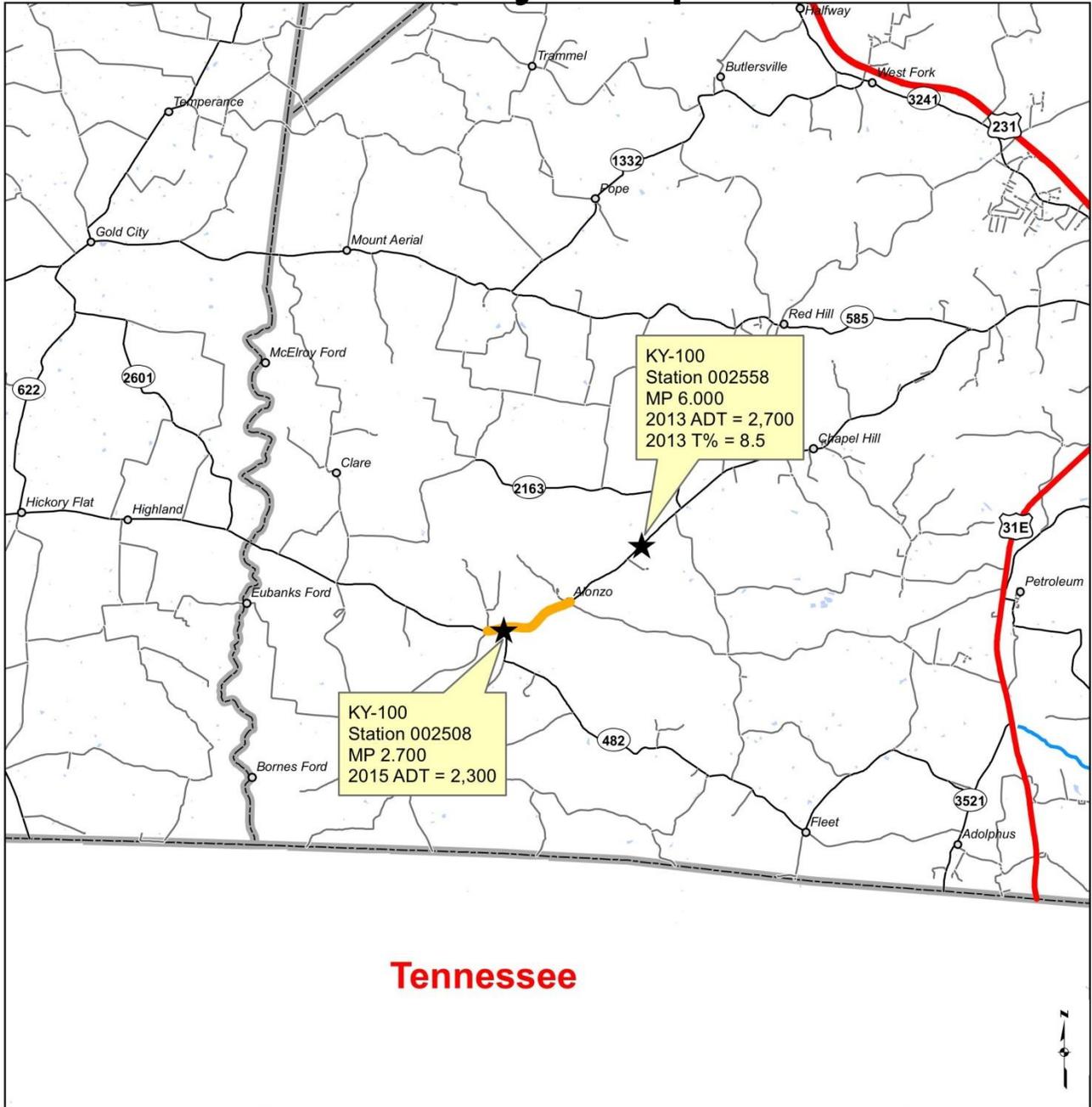
Table of Contents

Figure 1: Vicinity Map.....	Page 2
Executive Summary.....	Page 3
Figure 2: Summary Map.....	Page 4
20 Year ESAL Spreadsheets.....	Page 5
Bicycle and Pedestrian Considerations.....	Page 6

Commonly Used Abbreviations and their Descriptions

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

Vicinity Map



Allen County
 Improvements on KY-100
 Item #03-0320.00



Legend

- Project
- ★ Traffic Count Station

0 1.5 3 Miles

**Traffic Forecast Executive Summary
Allen County: Improvements on KY-100
Item No. 03-0320.00**

FORECAST SUMMARY

This project calls for improvements on KY-100. The purpose of this report is to analyze current and future traffic utilizing KY-100 between MP 3.100 and MP 4.200.

FORECAST TYPE

The following types of forecasts were developed:

- 2015 and 2040 Average Daily and Design Hourly Truck Percent Forecasts
- 2015 and 2040 ADT and DHV values
- 20-year ESALs
- Bicycle and Pedestrian Accommodation Assessment

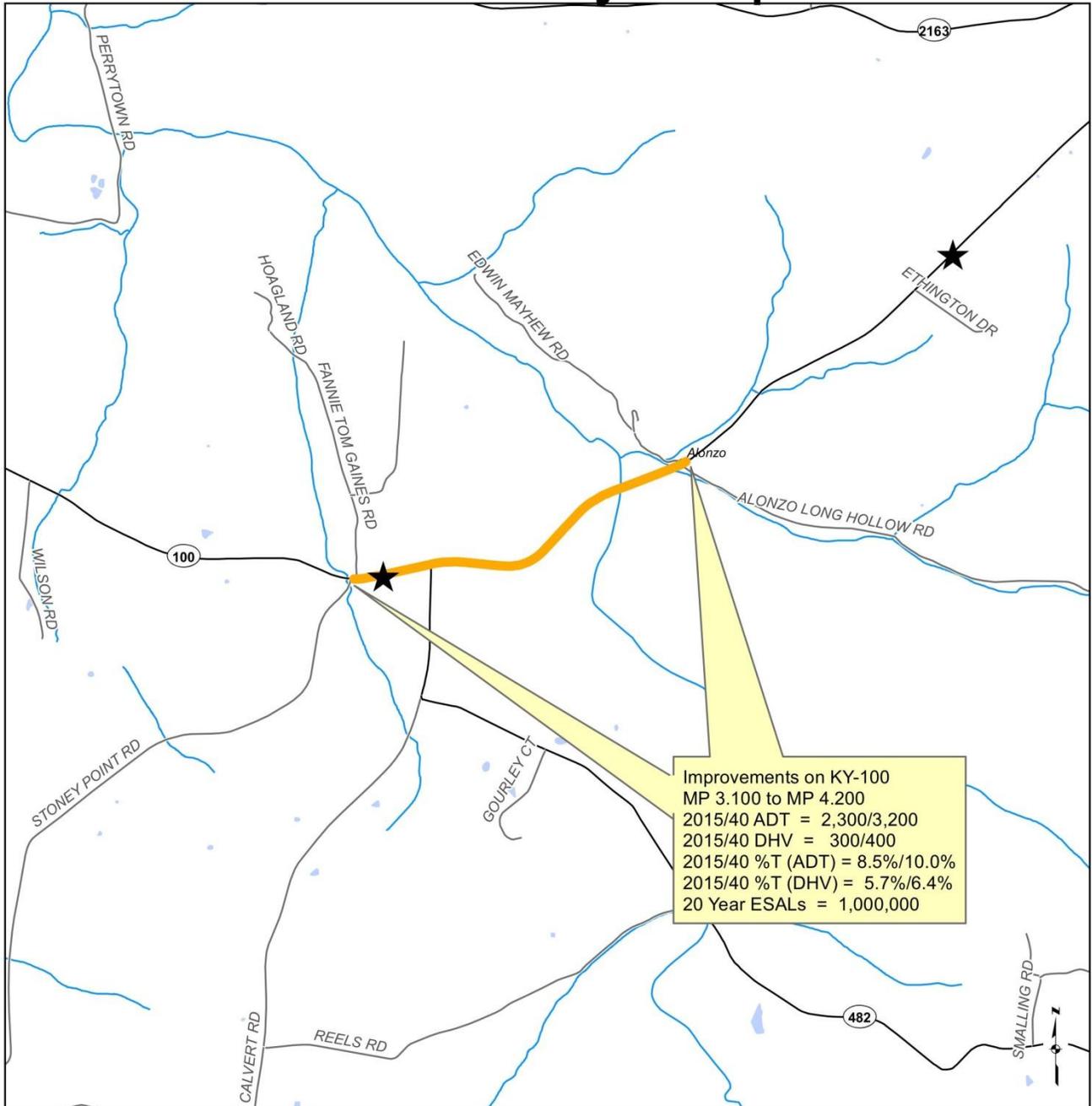
DESIGN-YEAR/GROWTH FACTORS

The Kentucky State Data Center forecasts that Allen County's population will increase 0.76% annually over the next 20 years. Exponential growth analyses performed on historical data at traffic stations 002508(MP 2.700), and 002558(MP 6.000) on KY-100 suggests traffic volumes have been increasing. Therefore, a growth rate of 1.30% was used for the purpose of this forecast.

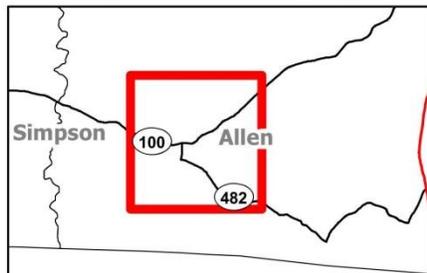
TRUCK PERCENTAGE

The truck percentage was calculated from a classification count taken at station 002558 at MP 6.000. Therefore, a truck percentage of 8.5% and a growth rate of 0.5% were used for the purpose of this forecast.

Summary Map



Improvements on KY-100
 MP 3.100 to MP 4.200
 2015/40 ADT = 2,300/3,200
 2015/40 DHV = 300/400
 2015/40 %T (ADT) = 8.5%/10.0%
 2015/40 %T (DHV) = 5.7%/6.4%
 20 Year ESALs = 1,000,000



Allen County
 Improvements on KY-100
 Item #03-0320.00



Legend

- Project
- ★ Traffic Count Stations

0 0.4 0.8 Miles

*Traffic Forecast Executive Summary
Allen County: Improvements on KY-100
Item No. 03-0320.00*

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

ROUTE ID:

County	Allen
Road Name	Franklin Road
Functional Class	7 - Rural Major Collector
Project Description	Improvements to KY-100
Scenario	Build
Segment Description	Same

Date	06/10/15
Forecaster	Justin Harrod
MARS No.	8962801D
Item No.	03-0320.00
Route No.	KY-100
Beg. MP	3.100
End MP	4.200
T.F. No.	TF15.028
No. of Lanes	2
1 or 2 way	2

REFERENCES:

Previous Forecasts	N/A
Traffic Volume	002508
Milepoint	2.700
Truck Percent	002558
Milepoint	6.000
ESAL Information	2007 Aggregated ESALS
Growth Rate	1.30%

K- Factor Value	12.6%
K-Factor Source	002508
PHF	0.92

Full Route Unique Identifier
002-KY-0100 -000

TRAFFIC PARAMETERS:

		Present Year 2015	Growth Rate	Construction Year 2020	Median Year 2030	Design Year 2040
Volume	(AADT)	2300	1.30%	2500	2800	3200
Percent Trucks	(%T)	8.5%	0.5%	9%	9%	10%
Number of Trucks		200	1.8%	220	250	320
Percent Trucks Hauling Coal	(%CT)	0%	0.0%	0%	0%	0%
<i>Non-Coal Trucks:</i>						
Axles/Truck	(A/T)	3.100	0.70%	3.210	3.442	3.691
ESALs/Axle	(ESAL/A)	0.245	1.60%	0.265	0.311	0.364
<i>Coal Trucks:</i>						
Axles/Truck	(A/CT)	0	0.00%	0.000	0.000	0.000
ESALs/Axle	(ESAL/CA)	0	0.00%	0.000	0.000	0.000

ESAL CALCULATIONS: SEE ATTACHED ESAL CALCULATION SHEET

Design ESALs in Critical Lane

General Comments:

[**eLink to Detailed Traffic Forecast Files in ProjectWise**](#)

Bicycle and Pedestrian Review for Project #03-0320.00

Project Overview:

- This project is for improvements on KY-100, which include curve realignments, bridge work, and intersection work near Stoney Point Road and Alonzo Long Hollow Road.

Local Governments/Regional Bicycle and Pedestrian Plan:

- There are no local pedestrian or bicycling plans for this area.

Existing conditions:

- KY-100 (MP 3.1 to 4.2)
 - ADT range is 2,300-2,700 (Truck % 8.5).
 - Posted speed limit is 55 MPH.
 - Shoulder space 2 feet or less.
 - Bicyclists Comfort Index (BCI) average rating is a D.
 - There is presence of bicyclists in the project area (Figure 1).

The KYTC Bicycle and Pedestrian program team recommendations are:

- **Best:**
 - Construct an 8 foot (or wider) shoulder in both directions. Provide a spacing gap in the rumble strip (Figure 2) to better accommodate bicyclists; this would provide an anticipated BCI rating of C (average for project area).
- **Good:**
 - Construct a 6 foot (or wider) shoulder in both directions. Provide a spacing gap in the rumble strip (Figure 2) to better accommodate bicyclists; this would provide an anticipated BCI rating C (average for project area).
- **Fair:**
 - Construct a 4 foot (or wider) paved shoulder in both directions. The BCI rating remains the same with a rating of D.
- The FHWA and KYTC guidance does not recommend the gap spacing in the rumble strip/stripe for shoulders 4 feet or less (the minimum space to allow for improved bicycle operation beyond the rumble is approximately 4 feet).
- **BCI:**
 - <http://transportation.ky.gov/Bike-Walk/Documents/Bicyclists%20Comfort%20Index.pdf>



Figure 1/ Strava Heat Map (<http://labs.strava.com/heatmap/#14/-86.35332/36.68907/yellow/bike>)

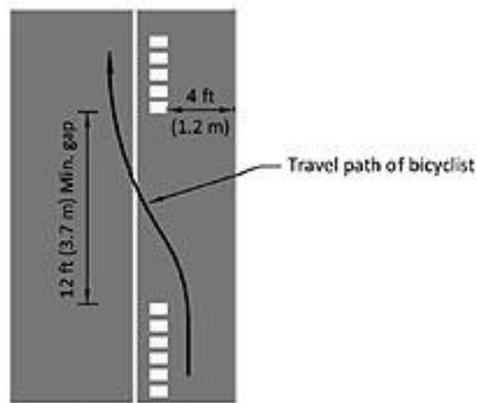


Exhibit 4.8. Rumble Strips

Figure 2 / FHWA Guidance for space pattern within shoulders
(http://safety.fhwa.dot.gov/roadway_dept/pavement/rumble_strips/t504039/)

Prepared by:
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Division of Planning, www.transportation.ky.gov/Bike-Walk
Kentucky Transportation Cabinet
June 23, 2015