



Appendix A

Traffic Forecast Report and Bike/Ped Accommodation Assessment for Perry County Airport Access Road Planning Study (February 16, 2018)



Matthew G. Bevin
Governor

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET


Frankfort, Kentucky 40622
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Greg Thomas
Secretary

MEMORANDUM

TO: Corbett Caudill, P.E.
Chief District Engineer
District 10

ATTN: Jason Blackburn, P.E.

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

DATE: February 19, 2018

SUBJECT: Perry County Traffic Forecast
New access road to Wendell H. Ford Airport
Planning Study

We are providing the following forecasts on the attached report, in response to your December 11, 2017 request:

- 2020 and 2040 No Build and Build
- 2020 and 2040 Average Daily and Design Hourly Volume Forecasts
- 2020 and 2040 AADTT Forecasts
- Turning Movement
- Bicycle and Pedestrian Accommodation Assessment

If you have any questions, please contact Justin Harrod of this Division at (502) 782-5059.

JM/JH/BC

Attachments

C/att: Wendy Southworth
Aric Skaggs
Andre Johannes
Joseph Tucker
Mikael Pelfrey
Ashley McLain – Palmer Eng.
Stephen Sewell – Palmer Eng.



Executive Summary

Traffic Forecast Report and Bike/Ped Accommodation Assessment for Perry County Airport Access Road Planning Study

Prepared for:



Prepared by:
Justin Harrod
Division of Planning
Kentucky Transportation Cabinet
February 16, 2018

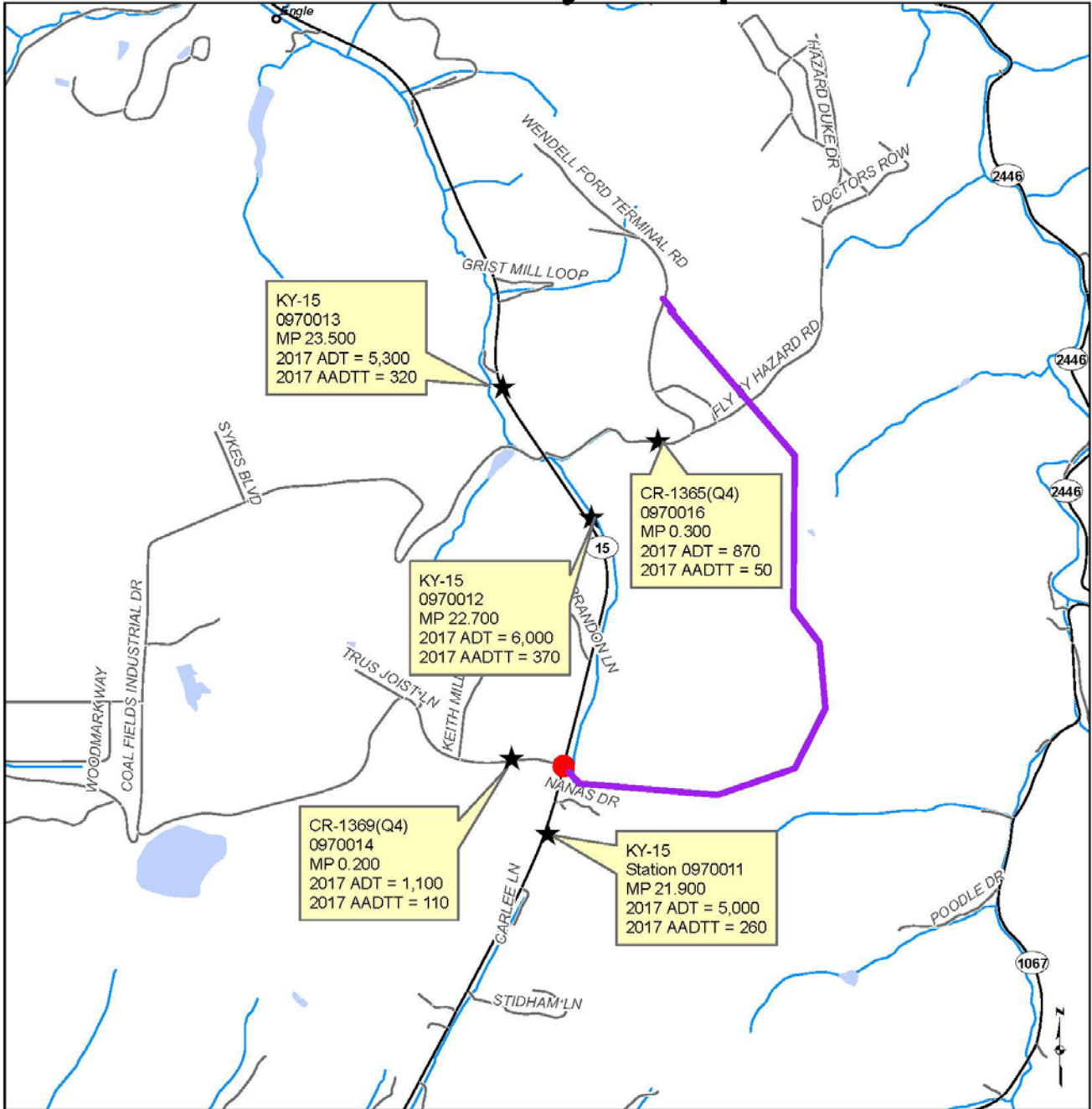
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Commonly Used Abbreviations and their Descriptions

AADT	Average Annual Daily Traffic	Without any adjustment
AADTT	Average Annual Daily Truck Traffic	With some 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 travel cost to users
T%	Truck Percentage	The number of trucks divided by total volume

Vicinity Map



Perry County
 Planning Study - Airport Access



Legend

- ★ Traffic Count Stations
- Turning Movements
- New Route Access to Airport

0 0.25 0.5 Miles

Traffic Forecast Executive Summary

Perry County: Airport Access Road Planning Study

FORECAST SUMMARY

This project calls for a new access road to the Wendell H. Ford Airport. The new access road will extend from the Airport down to the intersection of KY-15 and CR-1369Q4 (Trus Joist Lane). The purpose of this report is to analyze current and future traffic accessing the airport in a No Build and Build Scenario.

FORECAST TYPE

The following types of forecasts were developed:

- 2020 and 2040 No Build and Build
- 2020 and 2040 Average Daily and Design Hourly Volume Forecasts
- 2020 and 2040 AADTT Forecasts
- Turning Movement
- Bicycle and Pedestrian Accommodation Assessment

DESIGN-YEAR/GROWTH FACTORS

The Kentucky State Data Center forecasts that Perry County's population will decrease 1.00% annually over the next 20 years. Exponential growth analyses performed on historical data at traffic station 097768(MP 20.900) on KY-15 suggests traffic volumes have been increasing. Therefore, an annual growth rate of 1.00% was used for the purpose of this forecast.

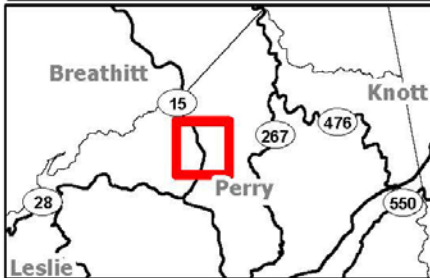
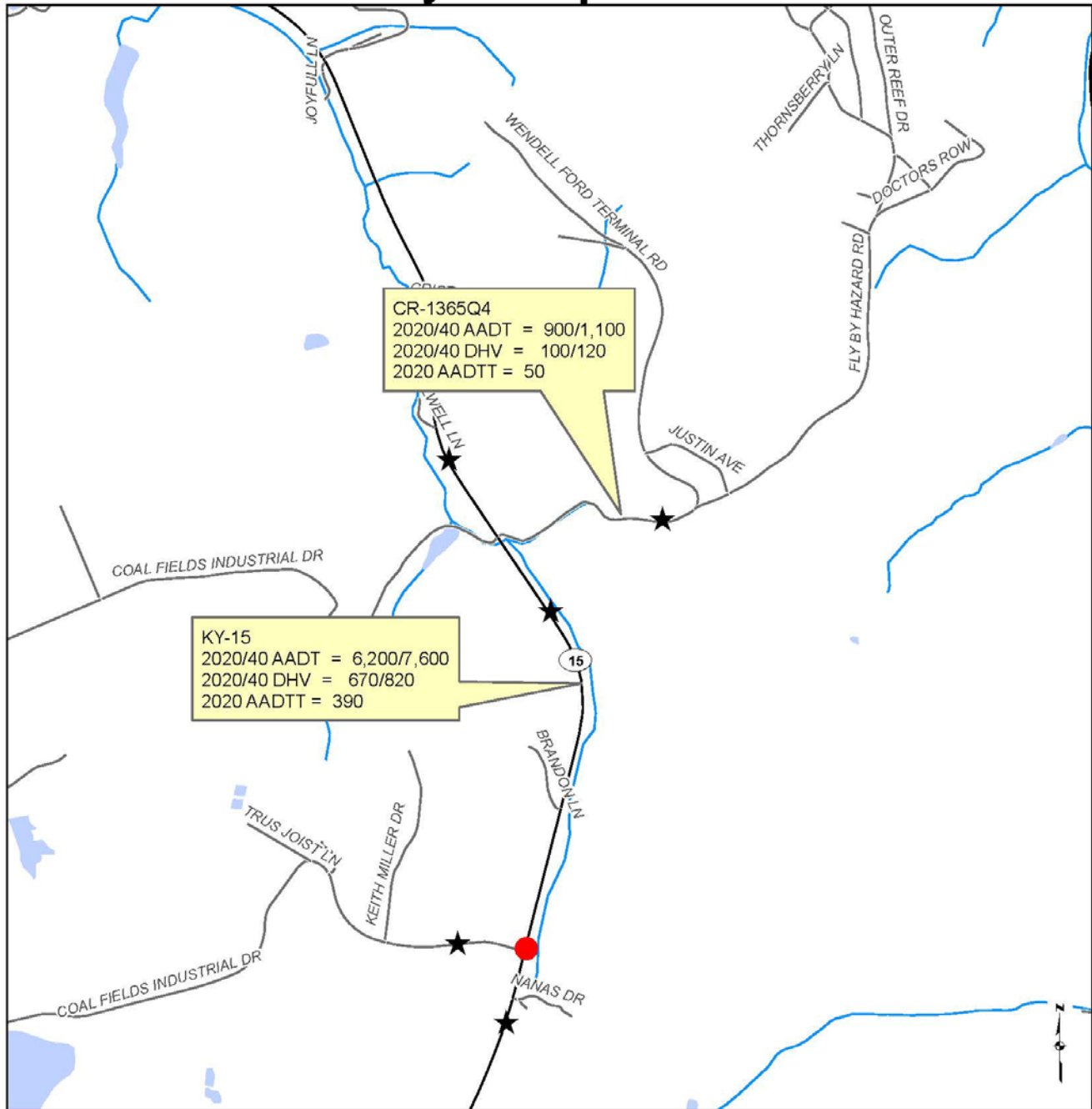
TRUCK VOLUME

The truck volumes were calculated using a 2017 classification special count on KY-15 at milepoint 22.700 and CR-1365Q4 at milepoint 0.300 for the No Build and Build Scenarios. A truck growth rate of 1.00% was used to estimate future truck volumes due to the freight movement in the area for each scenario. KY-15 and CR-1369Q4 are also coal haul routes.

TURNING MOVEMENTS

A turning movement was requested at the intersection of KY-15 and Trus Joist Lane. This will include the new access route to Wendell H. Ford Airport. It was assumed all truck traffic to the airport will take the new access road. Other local traffic on Fly by Hazard Road was divided as appropriate.

Summary Map - No Build



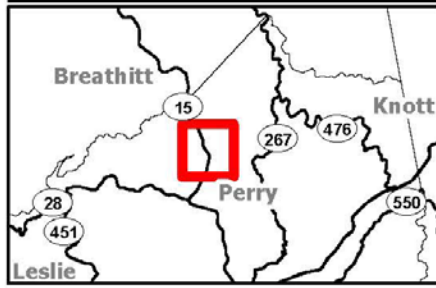
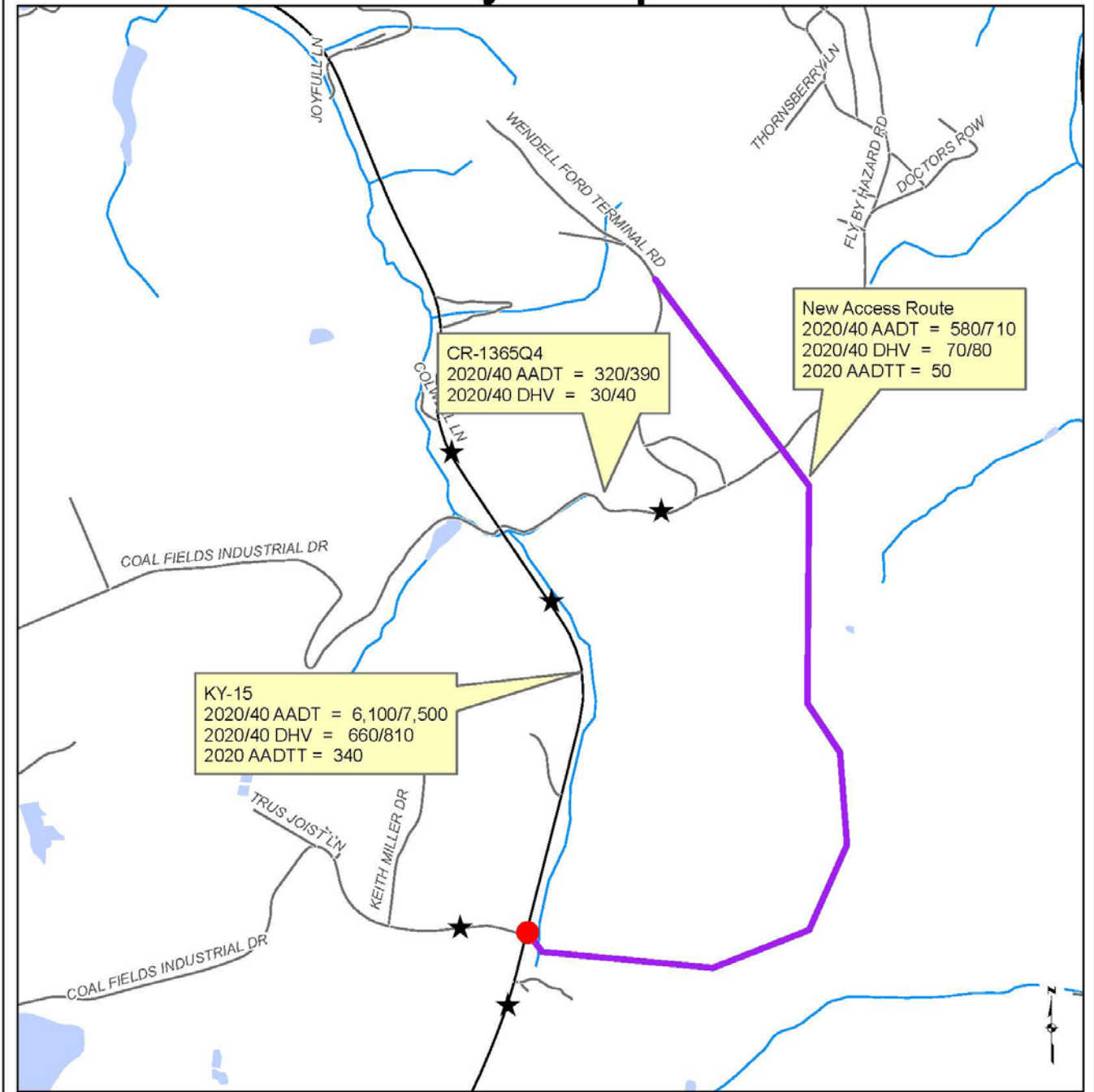
Perry County
 Planning Study - Airport Access

Legend

- ★ Traffic Count Stations
- Turning Movements

0 0.25 0.5 Miles

Summary Map - Build



Perry County
 Planning Study - Airport Access



Legend

- ★ Traffic Count Stations
- Turning Movements
- New Route Access to Airport

0 0.25 0.5 Miles

Pavement Design Factors

Project information:

Date of Forecast	12/11/2017
Name of Forecaster	Justin Harrod
Item Number	N/A
County name	Perry
County Number	97
District	10
Emars Number	9288907P
Function	FH02
Fund	12F0
Project Type	New Route
Current Year	2018
Letting Year	N/A
Construction Year	2020

Project Description: The project looks at revised access to the Wendell H. Ford Airport.

Route information:

Route ID	097-CR-1365Q4-000
Road Name	N/A
BMP	N/A
EMP	N/A
Functional Class	9 - Rural Local
Total Lanes (both ways)	2
1 or 2 way	Two way
Pavement Type	Asphalt
Are Trucks Prohibited in a lane?	NO

Volume Information:

Volume ADT station	0970016
Current year Volume	570

Truck Count and Truck Volume Information:

Truck Count Station	970016
Truck Count Volume	49
Truck Count year	2017
Truck Volume in Design Direction	30
Truck Volume in Lane of Design Direction	30
AADTT	50

Truck % of ADT	8.6%
FC Average Truck %	7.9%
% of Trucks in Design Direction	57.5%
% of Trucks in Design Lane of Design Direction	100.0%
Truck Volume Growth Rate	1.0%

Distribution Factors for Functional Class:

Daily Volume Distribution Factors by vehicle Class			
	Vehicle Class	Truck Volume	Truck Percent
	Bus 4	7	13.45%
	2 axle, 6 tire single unit 5	11	22.55%
	3 axles single unit 6	29	58.18%
	4 or more axles, single unit 7	0	0.18%
	3-4 axles, single trailer 8	1	1.82%
	5 axles single trailer 9	1	1.82%
	6 or more axles, single trailer 10	1	2.00%
	5 or less axles, multi-trailer 11	0	0.00%
	6 axles, multi trailer 12	0	0.00%
	7 or more axles, multi-trailer 13	0	0.00%
	All Vehicle Classes	50	100.00%

9 - Rural Local

Hourly Volume Distribution Factors			
Hour	Volume	Percent	
0	12 AM to 1 AM	0	0.19%
1	1 AM to 2 AM	0	0.00%
2	2 AM to 3 AM	0	0.19%
3	3 AM to 4 AM	0	0.00%
4	4 AM to 5 AM	0	0.75%
5	5 AM to 6 AM	1	1.13%
6	6 AM to 7 AM	3	6.94%
7	7 AM to 8 AM	7	13.88%
8	8 AM to 9 AM	3	5.25%
9	9 AM to 10 AM	3	5.44%
10	10 AM to 11 AM	3	5.63%
11	11 AM to 12 PM	3	5.44%
12	12 PM to 1 PM	2	4.50%
13	1 PM to 2 PM	4	8.44%
14	2 PM to 3 PM	3	6.38%
15	3 PM to 4 PM	4	8.07%
16	4 PM to 5 PM	5	9.57%
17	5 PM to 6 PM	2	4.13%
18	6 PM to 7 PM	3	5.63%
19	7 PM to 8 PM	1	2.25%
20	8 PM to 9 PM	1	2.44%
21	9 PM to 10 PM	1	1.31%
22	10 PM to 11 PM	1	1.69%
23	11 PM to 12 AM	0	0.75%
	ALL Hours	50	100.00%



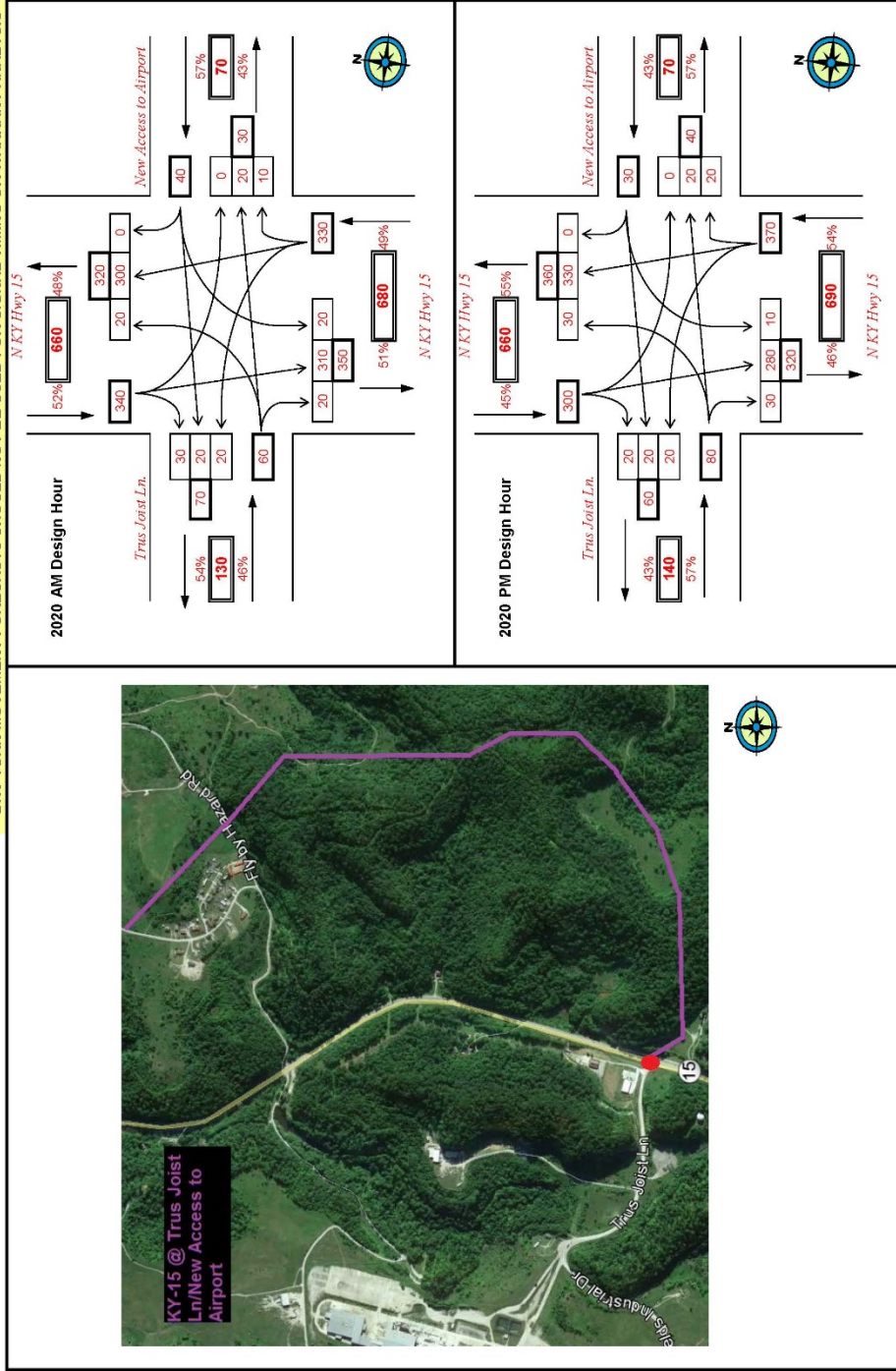
Traffic Forecast Executive Summary
 Perry County: Airport Access Road Planning Study

PROJECT: Perry County Airport Access Road Planning Study
 ITEM NUMBER: N/A
 MARS NUMBER: 9288907P
 REQUEST DATE: 43080
 ANALYST: Justin Harrod
 YEAR: 2020
 INTERSECTION: KY-15 @ CR-1369

TURN MOVEMENT (2020)

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2020 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**

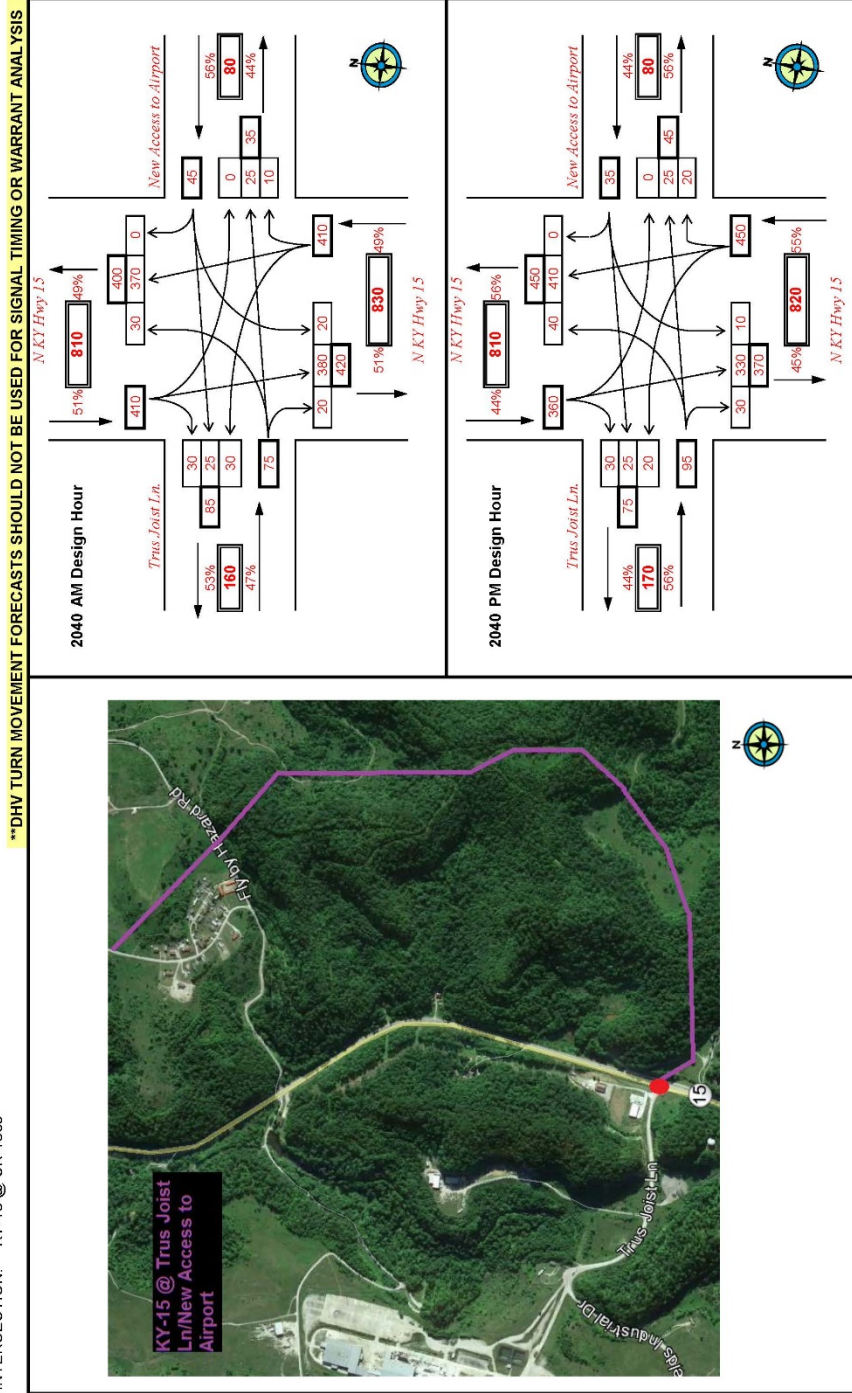


Traffic Forecast Executive Summary
 Perry County: Airport Access Road Planning Study

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2040 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

PROJECT: Perry County Airport Access Road Planning Study
 ITEM NUMBER: N/A
 MARS NUMBER: 9288907P
 REQUEST DATE: 4/30/80
 ANALYST: Justin Harrod
 YEAR: 2040
 DESIGN HOUR VOLUMES
 INTERSECTION: KY-15 @ CR-1369

TURN MOVEMENT (2040)



Bicycle and Pedestrian Review for KY-15 in Perry County

Project Overview:

Access management improvements on KY-15 to the Perry County airport.

Local/regional Planning:

- The local government does not have plans for specific pedestrian or bicycle accommodations or facilities.

Existing conditions:

- Ky-15 / MP 22.8-23
 - a. ADT is 8000
 - b. Heavy truck ADT is 12% (960)
 - c. Posted speed limit is 55 MPH
 - d. Paved shoulders 5' (or wider) along both sides of the roadway.
 - e. Low activity estimates for bicycle and pedestrian travel volumes (*Figure 2*)
 - f. The Bicycle Comfort Index (BCI) average rating is a level B

The KYTC Bicycle and Pedestrian program team recommendations are:

Best:

Construct a paved shoulder (8' or wider) on both sides of the roadway. Place a 10' gap every 40-50' in the rumble strips (if installed)/see Figure 3.

Good:

Construct a paved shoulder (6' or wider) on both sides of the roadway. Place a 10' gap every 40-50' in the rumble strips (if installed)/see Figure 3.



Figure 1 / Project area for Perry County

Traffic Forecast Executive Summary
Perry County: Airport Access Road Planning Study



Figure 2 / Strava Heat Map for Bicycle & Pedestrian travel shows very little activity / <https://labs.strava.com/heatmap/#13.55/-83.26716/37.39421/bluered/ride>

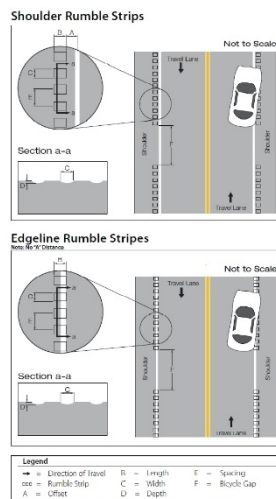


Figure 3/ https://safety.fhwa.dot.gov/roadway_dept/pavement/rumble_strips/t504039/

- 1 BCI: <http://transportation.ky.gov/Bike-Walk/Documents/Bicycle%20Comfort%20Index%20Rating%20%202014.pdf>
- 2 KYTC Pedestrian and Bicycle Travel Policy: <http://transportation.ky.gov/Bike-Walk/Documents/KYTC%20Pedestrian%20and%20Bicycle%20Travel%20Policy%20%202002.pdf>

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Kentucky Transportation Cabinet
February 16, 2018