

Appendix I:

TRAFFIC FORECAST REPORT AND BIKE / PED ACCOMODATION ASSESSMENT

Executive Summary

Traffic Forecast Report and Bike/Ped Accommodation Assessment for Madison, Clark, & Estill Counties Proposed Bypass Routes Item No. N/A

Prepared for:



Prepared by:
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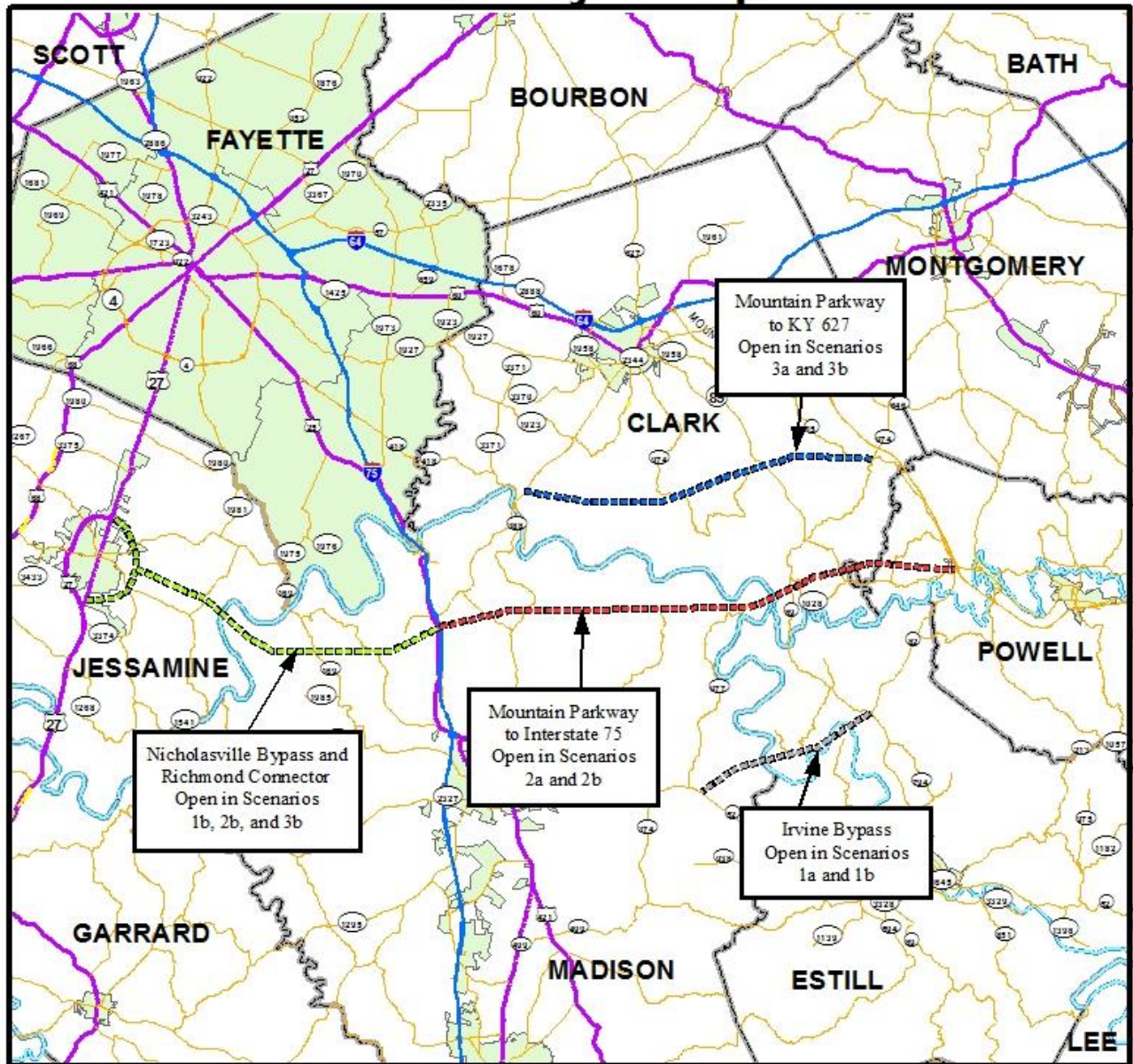
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Commonly Used Abbreviations and their Descriptions

ADT	Average Daily Traffic	Without any adjustment
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
%T	Truck Percentage	The percentage of 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-30 th 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 & continuous recording station
KYSTM	Kentucky Statewide Model	A computerized representation of KY roads

Vicinity Map



	LEGEND	
	<ul style="list-style-type: none"> Nicholasville Bypass & Richmond Connector Mountain Parkway to KY 627 Mountain Parkway to I-75 Irvine Bypass 	<ul style="list-style-type: none"> Incorporated Area Interstate Highway US Highway KY Route
<p>Estill, Madison, and Clark Counties New Bypass scenarios Item # N/A</p>		

Traffic Forecast Executive Summary

Madison, Clark, & Estill Counties: Proposed Bypass Routes

Item No. N/A

FORECAST SUMMARY

This forecast covers three different bypass routes that are proposed for Madison, Clark, and Estill Counties. Each route was considered with the Nicholasville Bypass and Richmond Connector open (Scenarios 1b, 2b, & 3b) as well as closed (Scenarios 1a, 2a, & 3a).

FORECAST TYPE

The following types of forecasts were developed:

- 2014 and 2040 ADT values
- 2014 and 2040 Truck percentages

ADT estimates of the Nicholasville to Richmond Connector were not requested and therefore not included.

CURRENT-YEAR VOLUMES

The current year volumes for each scenario were based upon the Kentucky Statewide Model. The Kentucky statewide model in the vicinity of the proposed routes was found to be assigning an overall flow of 97% of the actual counts.

DESIGN-YEAR/GROWTH FACTORS

The Kentucky Statewide Model and census data were considered when determining the future year volumes of each scenario. The traffic was projected to grow at a rate of under 1% for the future year. See the Scenario Volumes section for growth rates for each scenario.

DESIGN HOUR FACTORS

DHV was not requested and therefore not included in this report.

TRUCK PERCENTAGE

Truck percentages were based upon the functional class average for rural principal arterials. A truck percentage of 14% was used. Trucks were forecasted to increase at a rate of 1% per year.

ESAL VALUES

The ESAL values were not requested and therefore not included.

TURN MOVEMENTS

Turn movements were not requested and therefore not included.

SCENARIO VOLUMES

Route	Year	Scenario 1	
		a	b
Mountain Parkway to KY 627	2014	Closed	Closed
Mountain Parkway to I-75	2014	Closed	Closed
Irvine Bypass	2014	3,400	3,500
Nicholasville to Richmond Connector	2014	Closed	OPEN
Nicholasville Eastern Bypass	2014	Closed	OPEN
Mountain Parkway to KY 627	2040	Closed	Closed
Mountain Parkway to I-75	2040	Closed	Closed
Irvine Bypass	2040	3,600	3,600
Nicholasville to Richmond Connector	2040	Closed	OPEN
Nicholasville Eastern Bypass	2040	Closed	OPEN

Route	Growth Rate	Scenario 1	
		a	b
Mountain Parkway to KY 627	2014-40	Closed	Closed
Mountain Parkway to I-75 #2	2014-40	Closed	Closed
Irvine Bypass	2014-40	0.22%	0.11%

Route	Year	Scenario 2	
		a	b
Mountain Parkway to KY 627	2014	Closed	Closed
Mountain Parkway to I-75	2014	2,000	2,100
Irvine Bypass	2014	Closed	Closed
Nicholasville to Richmond Connector	2014	Closed	OPEN
Nicholasville Eastern Bypass	2014	Closed	OPEN
Mountain Parkway to KY 627	2040	Closed	Closed
Mountain Parkway to I-75	2040	2,200	2,600
Irvine Bypass	2040	Closed	Closed
Nicholasville to Richmond Connector	2040	Closed	OPEN
Nicholasville Eastern Bypass	2040	Closed	OPEN

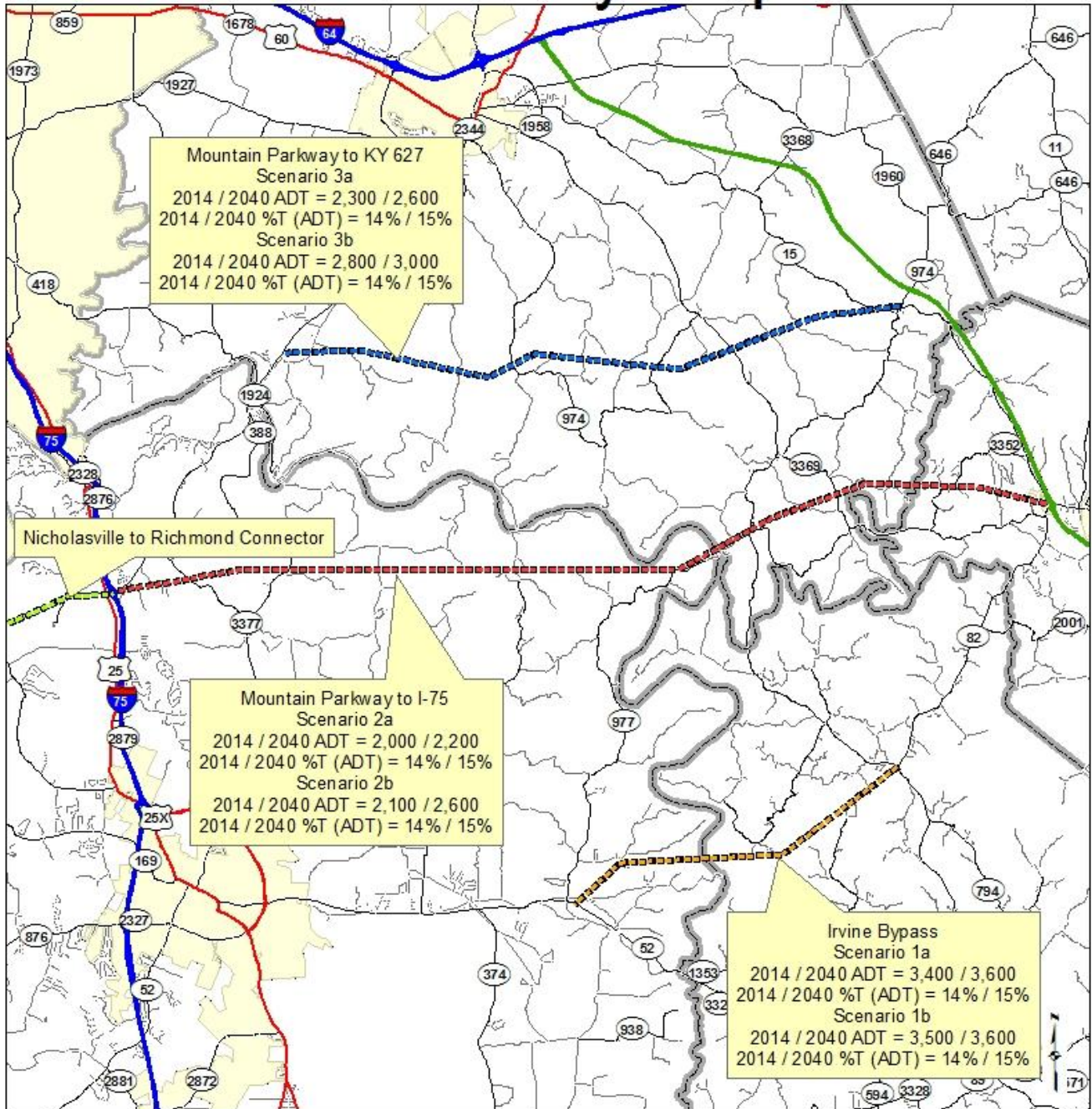
*Traffic Forecast Technical Report
 Madison, Clark, & Estill Counties: Proposed Bypass Routes
 Item No. N/A*

Route	Growth Rate	Scenario 2	
		a	b
Mountain Parkway to KY 627	2014-40	Closed	Closed
Mountain Parkway to I-75 #2	2014-40	0.37%	0.82%
Irvine Bypass	2014-40	Closed	Closed

Route	Year	Scenario 3	
		a	b
Mountain Parkway to KY 627	2014	2,300	2,800
Mountain Parkway to I-75	2014	Closed	Closed
Irvine Bypass	2014	Closed	Closed
Nicholasville to Richmond Connector	2014	Closed	OPEN
Nicholasville Eastern Bypass	2014	Closed	OPEN
Mountain Parkway to KY 627	2040	2,600	3,000
Mountain Parkway to I-75	2040	Closed	Closed
Irvine Bypass	2040	Closed	Closed
Nicholasville to Richmond Connector	2040	Closed	OPEN
Nicholasville Eastern Bypass	2040	Closed	OPEN

Route	Growth Rate	Scenario 3	
		a	b
Mountain Parkway to KY 627	2014-40	0.47%	0.27%
Mountain Parkway to I-75 #2	2014-40	Closed	Closed
Irvine Bypass	2014-40	Closed	Closed

Summary Map



Estill, Madison, and Clark
 Counties
 New Bypass Scenarios
 Item # N/A



Legend

- Nicholasville Connector
- Mnt. Parkway to KY-627
- Mnt. Parkway to I-75
- Irvine Bypass

0 2.25 4.5
 Miles

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HISTORICAL POPULATION SUMMARY

	1960	1970	1980	1990	2000	2010	60 - 70	70 - 80	80 - 90	90 - 00	00 - 10
	Population	Population	Population	Population	Population	Population	Change	Pct	Change	Pct	Change
Kentucky	3,038,156	3,220,711	3,660,334	3,686,892	4,041,769	4,339,367	6.0%	13.6%	0.7%	9.6%	7.4%
Madison Co	-	42,730	53,352	57,508	70,872	82,916	-	24.9%	7.8%	23.2%	17.0%

Sources: US Bureau of the Census; Kentucky State Data Center

FUTURE POPULATION PROJECTIONS SUMMARY

	2010	2015	2020	2025	2030	2035	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35
	Projection	Projection	Projection	Projection	Projection	Projection	Change	Pct	Change	Pct	Change
Kentucky	4,339,367	4,506,569	4,669,801	4,838,370	5,001,748	5,147,274	3.9%	3.6%	3.6%	3.4%	2.9%
Madison Co	82,916	92,602	101,021	110,278	119,242	127,534	11.7%	9.1%	9.2%	8.1%	7.0%

Sources: US Bureau of the Census; Kentucky State Data Center

ANNUAL POPULATION GROWTH RATES FROM HISTORICAL DATA AND PROJECTIONS

	60 - 70	70 - 80	80 - 90	90 - 00	05 - 10	10 - 15	15 - 20	20 - 25	25 - 30	10 - 30
	GR	GR	GR	GR	GR	GR	GR	GR	GR	GR
Kentucky	0.59%	1.29%	0.07%	0.92%	0.76%	0.71%	0.71%	0.67%	0.58%	0.69%
Madison Co	-	2.24%	0.75%	2.11%	2.23%	1.76%	1.77%	1.58%	1.35%	1.74%

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HISTORICAL POPULATION SUMMARY

	1960	1970	1980	1990	2000	2010	60 - 70	70 - 80	80 - 90	90 - 00	00 - 10
	Population	Population	Population	Population	Population	Population	Change	Pct	Change	Pct	Change
Kentucky	3,038,156	3,220,711	3,660,334	3,686,892	4,041,769	4,339,367	6.0%	13.6%	0.7%	9.6%	7.4%
Clark Co	-	24,090	28,322	29,496	33,144	35,613	-	17.6%	4.1%	12.4%	7.4%

Sources: US Bureau of the Census; Kentucky State Data Center

FUTURE POPULATION PROJECTIONS SUMMARY

	2010	2015	2020	2025	2030	2035	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35
	Projection	Projection	Projection	Projection	Projection	Projection	Change	Pct	Change	Pct	Change
Kentucky	4,339,367	4,506,569	4,669,801	4,838,370	5,001,748	5,147,274	3.9%	3.6%	3.6%	3.4%	2.9%
Clark Co	35,613	38,008	39,611	41,151	42,487	43,571	6.7%	4.2%	3.9%	3.2%	2.6%

Sources: US Bureau of the Census; Kentucky State Data Center

ANNUAL POPULATION GROWTH RATES FROM HISTORICAL DATA AND PROJECTIONS

	60 - 70	70 - 80	80 - 90	90 - 00	05 - 10	10 - 15	15 - 20	20 - 25	25 - 30	10 - 30
	GR	GR	GR	GR	GR	GR	GR	GR	GR	GR
Kentucky	0.59%	1.29%	0.07%	0.92%	0.76%	0.71%	0.67%	0.58%	0.55%	0.69%
Clark Co	-	1.63%	0.41%	1.17%	1.31%	0.83%	0.77%	0.64%	0.51%	0.81%

HISTORICAL POPULATION SUMMARY

	1960	1970	1980	1990	2000	2010	60 - 70	70 - 80	80 - 90	90 - 00	00 - 10
Population	3,038,156	3,220,711	3,660,334	3,686,892	4,041,769	4,339,367	Change 6.0%	Change 13.6%	Change 0.7%	Change 9.6%	Change 7.4%
Kentucky	-	12,752	14,495	14,614	15,307	14,672	Pct -	Pct 13.7%	Pct 0.8%	Pct 4.7%	Pct -4.1%
Estill Co	-	-	-	-	-	-	Change -	Change 13.7%	Change 0.8%	Change 4.7%	Change -4.1%

Sources: US Bureau of the Census; Kentucky State Data Center

FUTURE POPULATION PROJECTIONS SUMMARY

	2010	2015	2020	2025	2030	2035	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35
Projection	4,339,367	4,506,569	4,669,801	4,838,370	5,001,748	5,147,274	Change 3.9%	Change 3.6%	Change 3.6%	Change 3.4%	Change 2.9%
Kentucky	14,672	14,826	14,603	14,337	14,068	13,760	Pct 1.0%	Pct -1.5%	Pct -1.8%	Pct -1.9%	Pct -2.2%
Estill Co	-	-	-	-	-	-	Change 1.0%	Change -1.5%	Change -1.8%	Change -1.9%	Change -2.2%

Sources: US Bureau of the Census; Kentucky State Data Center

ANNUAL POPULATION GROWTH RATES FROM HISTORICAL DATA AND PROJECTIONS

	60 - 70	70 - 80	80 - 90	90 - 00	05 - 10	10 - 15	15 - 20	20 - 25	25 - 30	10 - 30
GR	0.59%	1.29%	0.07%	0.92%	0.76%	0.71%	0.67%	0.58%	0.55%	0.69%
Kentucky	-	1.29%	0.08%	0.46%	0.21%	-0.30%	-0.37%	-0.38%	-0.44%	-0.12%
Estill Co	-	-	-	-	-	-	-	-	-	-

Bicycle and Pedestrian Review for Project No.

Project Overview:

This is construction of a new route from Madison, Clark, and Estill Counties. Option 1 would be a 2 lane connector route starting from the Mountain Parkway in Clark County to KY-627 in Clark County. Option 2 would be a 2 lane connector route starting from the Mountain Parkway in Powell County to I-75 in Madison County. Option 3 would be a 2 lane connector route starting from KY-82 in Estill County to KY-52 in Madison County.

Local Government / Regional Bicycle and Pedestrian Planning:

- No known bicycle or pedestrian planning efforts for the suggested corridors.

Existing conditions:

- Option 1
 - a. ADT / estimate for 2014 is 2,300-2,800
 - b. Posted Speed Limit is 55 MPH
 - c. Bicyclists Comfort Index (BCI) estimate is an D
 - d. Shoulder space (design estimate) greater than 6 feet
- Option 2
 - a. ADT / estimate for 2014 2,00-2,100
 - b. Posted Speed Limit is 55 MPH
 - c. Bicyclists Comfort Index (BCI) estimate is an D
 - d. Shoulder space (design estimate) greater than 6 feet
- Option 3
 - a. ADT / estimate for 2014 is 3,400-3,500
 - b. Posted Speed Limit is 55 MPH
 - c. Bicyclists Comfort Index (BCI) estimate is an E (lowest rating)
 - d. Shoulder space (design estimate) greater than 6 feet

The KYTC Bicycle and Pedestrian program team recommendations are:

- For the proposed new routes (Options 1 and 2)

Good: Both of the proposed routes would provide regional connectivity for bicycle travel and supply a more direct route for east/west travel. Construct a paved shoulder of 8 feet (or wider) within the highway. Better accommodate cyclist in the shoulder by providing a gap spacing of 10-14 feet within the rumble strips every 40-60 feet. The BCI rating would be a C.

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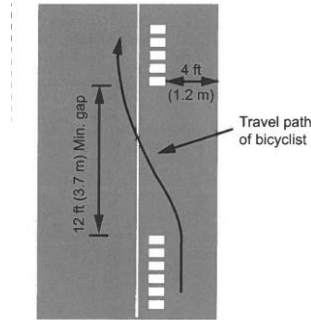


Figure 4-8. Rumble Strips

Fair: Provide a shoulder of 6 feet (or wider) within the highway. The BCI would be an E

➤ For the proposed new route (Option 3)

Good: Construct a paved shoulder of 8 feet or wider within the highway. Better accommodate cyclist in the shoulder by providing a gap spacing of 10-14 feet within the rumble strips every 40-60 feet. The BCI would be a C

Fair: Construct a paved shoulder of 6 feet or wider within the highway. The BCI would be an E.

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