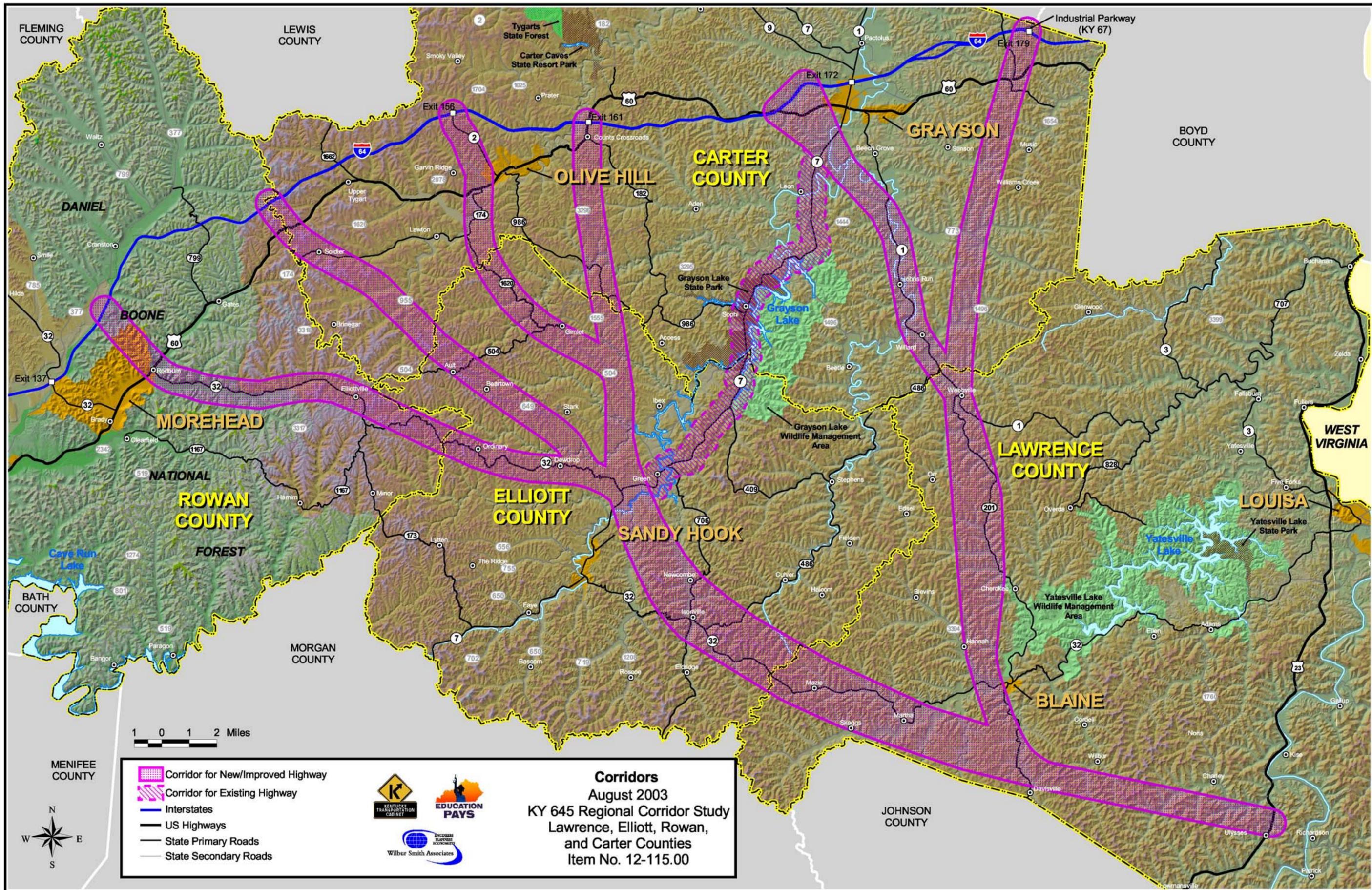
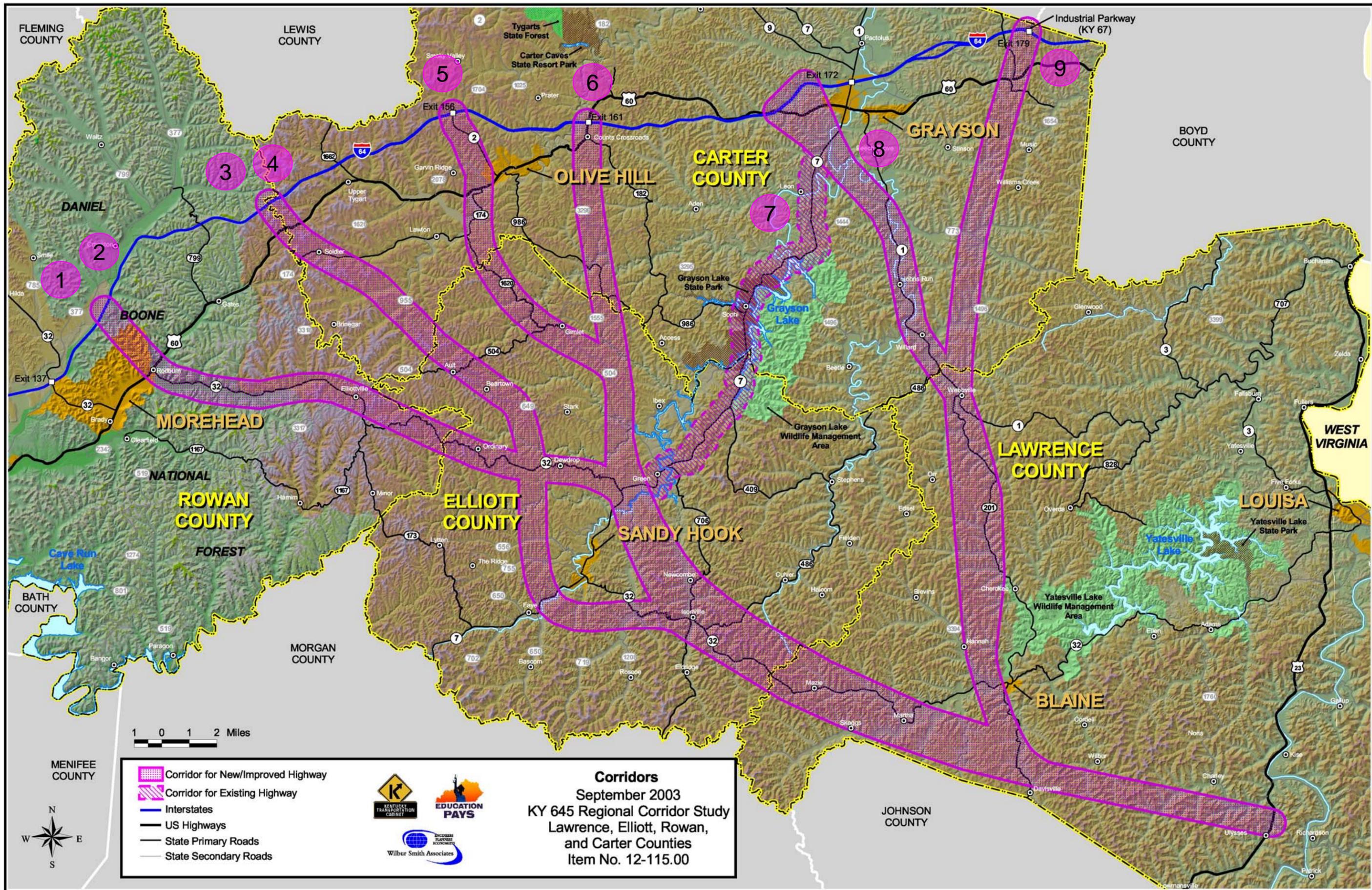


APPENDIX F.
ALTERNATIVES DEVELOPMENT



-  Corridor for New/Improved Highway
-  Corridor for Existing Highway
-  Interstates
-  US Highways
-  State Primary Roads
-  State Secondary Roads





FLEMING COUNTY

LEWIS COUNTY

BOYD COUNTY

GRAYSON

OLIVE HILL

CARTER COUNTY

DANIEL

BOONE

MOREHEAD

NATIONAL FOREST

ROWAN COUNTY

ELLIOTT COUNTY

SANDY HOOK

LAWRENCE COUNTY

LOUISA

WEST VIRGINIA

BATH COUNTY

MORGAN COUNTY

BLAINE

JOHNSON COUNTY

MENIFEE COUNTY



- Corridor for New/Improved Highway
- Corridor for Existing Highway
- Interstates
- US Highways
- State Primary Roads
- State Secondary Roads



Corridors
 September 2003
 KY 645 Regional Corridor Study
 Lawrence, Elliott, Rowan,
 and Carter Counties
 Item No. 12-115.00

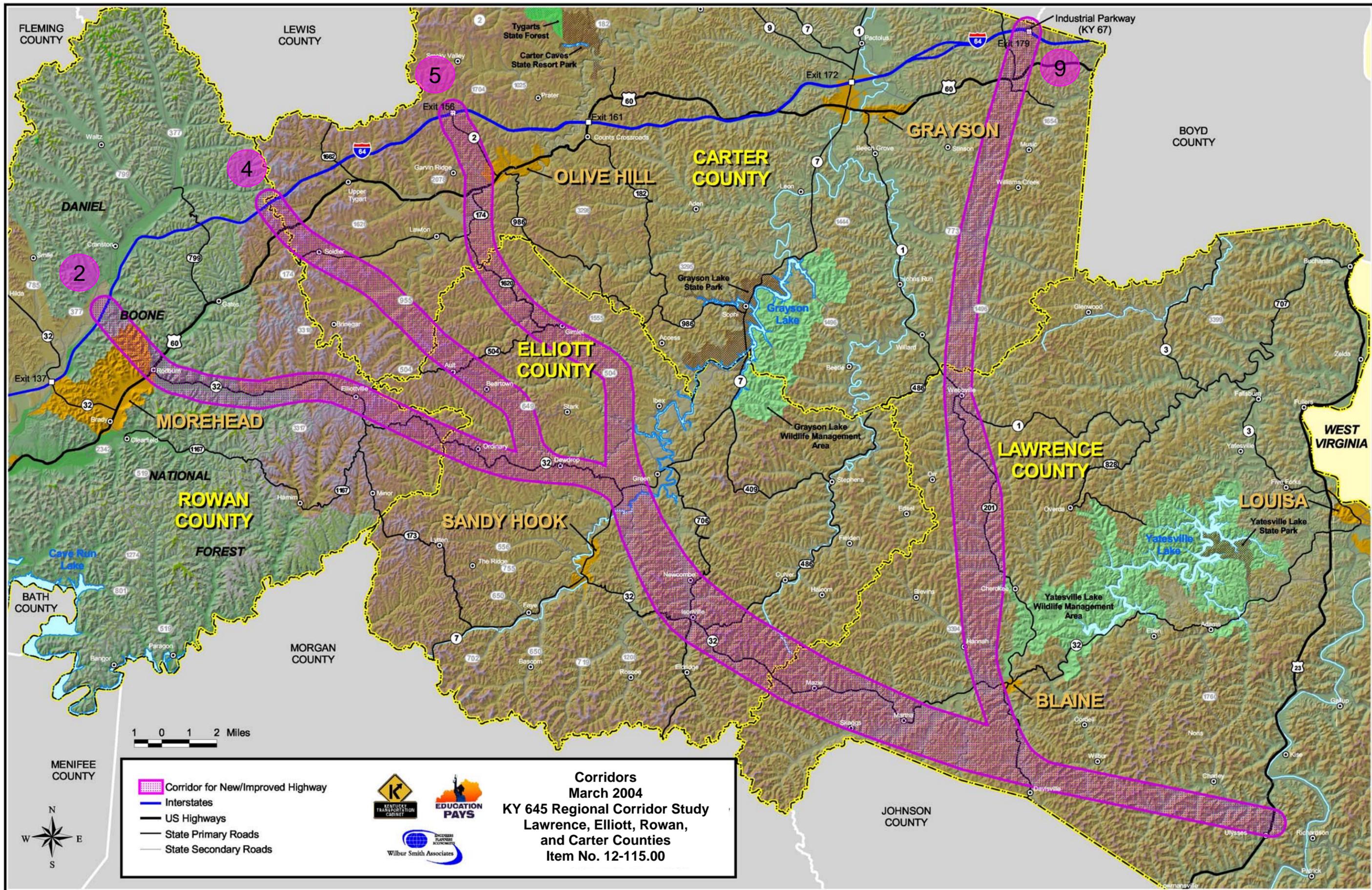
Screening of Identified Alternates

KY 645 Regional Corridor Study

LEVEL 1 SCREENING

	Alternate									Methodology
	1	2	3	4	5	6	7	8	9	
Constructability										
Corridor Length (miles)	50.1	48.2	46.9	45	43.8	41	30.4	35.8	36.5	Length of the corridor as estimated in ArcView.
Number of Major Intersections	7-8	7	10	9	8	8	10	5-8	6-7	Number of possible crossings with other major roads.
Constructable in Independent Sections	7	6	9	8	7	8	9	4-7	5-6	Number of independent sections the road could possibly be constructed in.
Traffic Considerations										
2030 Volume at Southern Terminus (vpd)*	11440	14000	8600	8800	8600	8600	7400	8600	8600	Volume as estimated by KYSTM.
2030 Volume at Northern Terminus (vpd)*	7580	10320	2760	3060	1800	2600	3200	4300	16680	Volume as estimated by KYSTM.
2030 Average Volume along Corridor (vpd)	7670	10826	3360	3530	2600	2500	2140	5780	8000	Volume as estimated by KYSTM.
Potential Benefits/Impacts										
Diverts traffic from US 23 (vpd)	0	0	0	0	0	0	0	1110	2360	Vehicles per day diverted from US 23 as estimated by KYSTM.
Provides improved access to key tourist destinations, including:										
Yatesville Lake State Park/Yatesville Lake/WMA	1	1	1	1	1	1	1	3	3	Estimated using the following scale: 0 - Does Not Improve Access To 1 - Slightly Improves Access To 2 - Improves Access To 3 - Greatly Improves Access To
Grayson Lake State Park/Grayson Lake/WMA	1	1	1	1	1	2	3	2	1	
Carter Caves State Resort Park/Tygarts State Forest	0	0	0	0	2	3	1	1	0	
Daniel Boone National Forest	3	3	2	2	1	1	1	0	0	
Eagle Trace Golf Course, Morehead	3	3	2	2	1	1	1	0	0	
Carter Caves State Resort Park New Golf Course (Carter County)	0	0	0	0	2	3	1	1	0	
SUM	8	8	6	6	8	11	8	7	4	
Provides access to existing employment centers, including:										
Carter County Employment (All Industries)	0	0	2	2	3	3	3	3	2	Estimated using the following scale: 0 - Does Not Serve 1 - Slightly Improves Service 2 - Improves Service 3 - Greatly Improves
Elliot County Employment (All Industries)	3	3	3	3	3	3	3	0	0	
Lawrence County Employment (All Industries)	2	2	2	2	2	2	2	3	3	
Rowan County Employment (All Industries)	3	3	2	2	1	1	1	0	0	
Martin County Employment (All Industries)	1	1	1	1	1	1	1	1	1	
SUM	9	9	10	10	10	10	10	7	6	
Gives consideration to areas with high unemployment	3	3	2	2	2	2	2	2	2	Number of high-unemployment counties that each alternative serves.
Gives consideration to areas with low-income populations	3	3	2	2	2	2	2	2	2	Number of low-income counties that each alternative serves.
Expands access to social services such as education and health care, including:										
Morehead State University	3	3	2	2	1	1	1	0	0	Estimated using the following scale: 0 - Does Not Improve Access To 1 - Slightly Improves Access To 2 - Improves Access To 3 - Greatly Improves Access To
Rowan Technical College (KCTCS)	3	3	2	2	1	1	1	0	0	
Ashland Community & Technical College, East Campus (Grayson)	0	1	0	1	1	1	3	3	3	
Kentucky Christian College (Grayson)	0	1	0	1	1	1	3	3	3	
Carter County Vocational School (Olive Hill)	1	1	1	1	3	3	1	0	0	
Martin County ATC (Inez)	1	1	1	1	1	1	1	1	1	
St. Claire Medical Center, Morehead	3	3	2	2	1	1	1	0	0	
Carter Nursing Home and Rehab Center (Grayson)	0	0	0	0	0	0	3	3	3	
Elliott Nursing and Rehab Center (Sandy Hook)	3	3	3	3	3	3	3	0	0	
JJ Jordan Geriatric Center (Louisa)	1	1	1	1	1	1	1	1	1	
Life Care Center of Morehead (Morehead)	3	3	2	2	1	1	1	0	0	
Martin County Health Care Facility (Inez)	1	1	1	1	1	1	1	1	1	
SUM	19	21	15	17	15	15	20	12	12	
Improves access to isolated communities and populations	9	7	10	8	8	8	6	7	8	
Avoids or minimizes impacts to environmentally sensitive areas, including:										
Yatesville Lake Wildlife Management Area	0	0	0	0	0	0	0	1	1	Estimated using the following scale: 0 - No Impact 1 - Very Little Impact Possible 2 - Impact Possible 3 - Impact Unavoidable
Yatesville Lake	0	0	0	0	0	0	0	0	0	
Grayson Lake Wildlife Management Area	0	0	0	0	0	0	2	0	0	
Grayson Lake	0	0	0	0	0	0	2	0	0	
Laurel Creek	3	1	3	1	1	1	0	0	0	
Big Caney Creek	1	1	3	3	3	3	0	0	0	
Daniel Boone National Forest	3	3	1	1	0	0	0	0	0	
Little Sandy River/Little Fork	3	3	3	3	3	3	3	3	0	
SUM	10	8	10	8	7	7	7	4	1	
Public Opinion										
Public Opinion	42%	42%	8%	8%	28%	13%	6%	6%	4%	Percentage of 531 public survey respondents in favor of project terminus proposed by each alternative.
Citizen's Advisory Team Input	17%	30%	15%	15%	19%	9%	0%	11%	0%	Percentage of 47 CAT votes for each alternative as presented at the August 28, 2003 CAT meeting.
How well does the Corridor meet the Project Goals and Objectives?										
Develop a new or improved highway that provides an improved connection to I-64	1	2	1	2	2	2	3	3	2	Estimate of how well each corridor meets the project goals and objectives, based on items listed above.
Develop a highway corridor that will serve the most traffic	2	1	3	3	3	2	3	1	1	
Develop a corridor that considers all study area interests, including socioeconomic, education, tourism, and the environment	1	1	2	2	2	1	2	3	3	

* Volumes shown in original Screening 1 were directional and have been doubled to represent bidirectional traffic.



-  Corridor for New/Improved Highway
-  Interstates
-  US Highways
-  State Primary Roads
-  State Secondary Roads



KY 645 Corridors Screening Summary

Summary of Issues	Alternate				
	No-Build	2	4	5	9
Cost and Constructability					
Traffic and Travel Savings					
Environmental Issues					
Geotechnical Issues					
Public Opinion					
Project Goals and Objectives					

Most favorable alternate in addressing the given criterion
 Least favorable alternate in addressing the given criterion

LEVEL 2 SCREENING

	Alternate				
	No-Build	2	4	5	9

Cost Estimates					
Total Cost (millions)	0	\$413.1	\$384.3	\$363.5	\$309.5
Per Mile Cost (millions)	0	\$8.6	\$8.5	\$8.3	\$8.5
Travel Savings					
Vehicle Hours of Travel (VHT) Savings per Year (thousands)	0	276.6	142.7	38.7	318.6
Vehicle Miles of Travel (VMT) Savings per Year (millions)	0	19.7	15.3	10.7	-2.3
Cultural/Historic (occurrences within 2000' centerline)					
Historic/Archaeological Sites	0	5	4	9	2
National Register Sites	0	0	0	0	0
Environmental (occurrences within corridor boundaries)					
Water Resources					
Number of Blue-line Streams	0	16	14	18	22
Cold Water Aquatic Habitats	0	1	1	1	0
Reference Research Waters	0	2	3	4	0
Exceptional Waters	0	1	1	2	0
Trout Streams	0	3	2	1	1
Wild Rivers	0	0	0	0	0
Watersheds	0	3	3	3	3
Wellhead Protection Areas	0	1	1	1	0
Natural or Forested Areas					
Big Trees	0	0	0	0	1
Large Forest Blocks	0	yes	yes	yes	no
Daniel Boone National Forest	0	yes	no	no	no
Wetland Areas					
Lacustrine Wetlands	0	1	0	1	0
Forested Wetlands	0	4	0	0	0
Scrub-shrub Wetlands	0	7	2	2	2
Emergent Wetlands	0	7	9	6	15
Ponds	0	175	115	114	114
Floodplains					
100-year Flood Areas	0	8	7	6	11
100-year to 500-year Flood Areas	0	0	1	1	0
500-year Flood Areas	0	4	3	3	3
Sensitive Habitats					
Endangered Species within 1 mile	0	1	1	1	0
Endangered Species within 5 miles	0	1	1	1	0
Special Concern Species within 1 mile	0	1	1	1	0
Special Concern Species within 5 miles	0	1	1	1	1
Monitored Sites					
Underground Storage Tanks	0	3	1	3	2
EPA Monitored Sites	0	3	4	3	2
Soil Types					
Hydric Soils	0	yes	yes	yes	no
Potentially Hydric Soils	0	no	yes	yes	yes
Highly Erodible Soils	0	yes	yes	yes	yes
Other					
Underground Clay Mines	0	2	5	3	6
Cemeteries	0	49	39	45	21
Dams	0	2	1	1	2
Geotechnical (occurrences within corridor boundaries)					
Ranking by Sub-Consultant		2	3	1	4
Faults (miles)	0	2.2	2.2	2.2	0.6
Excavations					
Quarries	0	1	1	1	0
Coal Exploration Sites	0	12	12	12	1
Known Coal Mine Areas (acres)	0	108	108	108	220
Wells					
Dry & Abandoned	0	58	53	61	20
Gas	0	54	54	54	42
Oil	0	558	562	581	8
Secondary Recovery Input (Injection Well)	0	177	177	179	0
Stratigraphic Core Test	0	2	2	2	0
Undetermined Wells	0	198	198	207	13

LEVEL 1 SCREENING

Most favorable alternate in addressing the given criterion
 Least favorable alternate in addressing the given criterion

Constructability					
Corridor Length (miles)	0	48.2	45	43.8	36.5
Number of Major Intersections	0	7	9	8	6-7
Constructable in Independent Sections	0	6	8	8	5-6
Traffic Considerations					
2030 Volume at Southern Terminus (vpd)*	0	14000	8800	8600	8600
2030 Volume at Northern Terminus (vpd)*	0	10320	3060	1800	16680
2030 Average Volume along Corridor (vpd)	0	10826	3530	2600	8000
Diverts traffic from US 23 (vpd)	0	0	0	0	2360
Potential Benefits/Impacts					
Provides improved access to key tourist destinations, including:					
Yatesville Lake State Park/Yatesville Lake/WMA	0	1	1	1	3
Grayson Lake State Park/Grayson Lake/WMA	0	1	1	1	1
Carter Caves State Resort Park/Tygarts State Forest	0	0	0	2	0
Daniel Boone National Forest	0	3	2	1	0
Eagle Trace Golf Course, Morehead	0	3	2	1	0
Carter Caves State Resort Park New Golf Course (Carter County)	0	0	0	2	0
SUM	0	8	6	8	4
Provides access to existing employment centers, including:					
Carter County Employment (All Industries)	0	0	2	3	2
Elliot County Employment (All Industries)	0	3	3	3	0
Lawrence County Employment (All Industries)	0	2	2	2	3
Rowan County Employment (All Industries)	0	3	2	1	0
Martin County Employment (All Industries)	0	1	1	1	1
SUM	0	9	10	10	6
Gives consideraton to areas with high unemployment	0	3	2	2	2
Gives consideraton to areas with low-income populations	0	3	2	2	2
Expands access to social services such as education and health care, including:					
Morehead State University	0	3	2	1	0
Rowan Technical College (KCTCS)	0	3	2	1	0
Ashland Community & Technical College, East Campus (Grayson)	0	1	1	1	3
Kentucky Christian College (Grayson)	0	1	1	1	3
Carter County Vocational School (Olive Hill)	0	1	1	3	0
Martin County ATC (Inez)	0	1	1	1	1
St. Claire Medical Center, Morehead	0	3	2	1	0
Carter Nursing Home and Rehab Center (Grayson)	0	0	0	0	3
Elliott Nursing and Rehab Center (Sandy Hook)	0	3	3	3	0
JJ Jordan Geriatric Center (Louisa)	0	1	1	1	1
Life Care Center of Morehead (Morehead)	0	3	2	1	0
Martin County Health Care Facility (Inez)	0	1	1	1	1
SUM	0	21	17	15	12
Improves access to isolated communities and populations	0	7	8	8	8
Avoids or minimizes impacts to environmentally sensitive areas, including:					
Yatesville Lake Wildlife Management Area	0	0	0	0	1
Yatesville Lake	0	0	0	0	0
Grayson Lake Wildlife Management Area	0	0	0	0	0
Grayson Lake	0	0	0	0	0
Laurel Creek	0	1	1	1	0
Big Caney Creek	0	1	3	3	0
Daniel Boone National Forest	0	3	1	0	0
Little Sandy River/Little Fork	0	3	3	3	0
SUM	0	8	8	7	1
Public Opinion					
Public Opinion	5% said it would not be helpful to the region	42%	8%	28%	4%
Citizen's Advisory Team Input	0%	30%	15%	19%	0%
How well does the Corridor meet the Project Goals and Objectives?					
Develop a new or improved highway that provides an improved connection to I-64	0	2	2	2	2
Develop a highway corridor that will serve the most traffic	0	1	3	3	1
Develop a corridor that considers all study area interests, including socioeconomic, education, tourism, and the environment	0	1	2	2	3

* Volumes shown in original Screening 1 were directional and have been doubled to represent bidirectional traffic.

