



# US 41A

## KINGDOM HALL

### ROAD TO KY 670

Hopkins & Webster  
Counties, KY

## EXECUTIVE SUMMARY

## SCOPING STUDY



## FINAL REPORT

MAY 2012

PREPARED BY:



# US 41A KINGDOM HALL ROAD TO KY 670

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Item Number 2-8303.00



## Scoping Study EXECUTIVE SUMMARY

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## Executive Summary

The defined limits for this **US 41A** study extend from Kingdom Hall Road (MP 3.426) just west of Madisonville in Hopkins County to KY 670 (MP 1.324) in Webster County, a distance of 11.176 miles (Figure ES-1). For practical reasons detailed in the full report, this study also included the 800-foot section from Kingdom Hall Road east to Industrial Road. KYTC's **purpose of this project** was to:

- Provide an improved connector for Webster County to Madisonville
- Improve access to the Pennyryle / Breathitt Parkway
- Provide access to Future I-69

US 41A between Madisonville and Providence is a two-lane Rural Minor Arterial roadway; it is included on the National Truck Network but not on the National Highway System. **Work, shopping, freight shipments, higher education, and recreation trips** constitute much of the travel on this route.

**Issues** along the study corridor include **sight distance restrictions; narrow lanes and shoulders;** curve and grade deficiencies; the communities of Manitou, Nebo, and Providence where **development is close to the road**; the CSX railroad which closely parallels US 41A in the east end of the study area, limiting roadway improvement options in that portion of the study area; abandoned and active coal mines, resulting in large and fully loaded **coal trucks in the traffic stream**; potential historic structures and archaeology sites; several large substations; overhead utilities, businesses with active or inactive underground storage tanks; a golf course; numerous residences and scattered churches and businesses.

Current and future year **Levels-of-Service** (LOS) and **volume-to-capacity ratios** (v/c) were calculated from HIS data supplemented with additional turning movement counts as shown in Table ES-1. Current and future year AM and PM peak hour **intersection delays** were also estimated and are shown in Table ES-2.

East of KY 630 South in Manitou, **nearly one million tons of coal are shipped annually**. Between KY 630 South and Providence, approximately 200,000 tons of coal are shipped annually.

There are **five high crash locations**:

- 0.1-mile spot in Nebo - Vehicles turning left from US 41A onto KY 502 are the predominant crash type at this location.

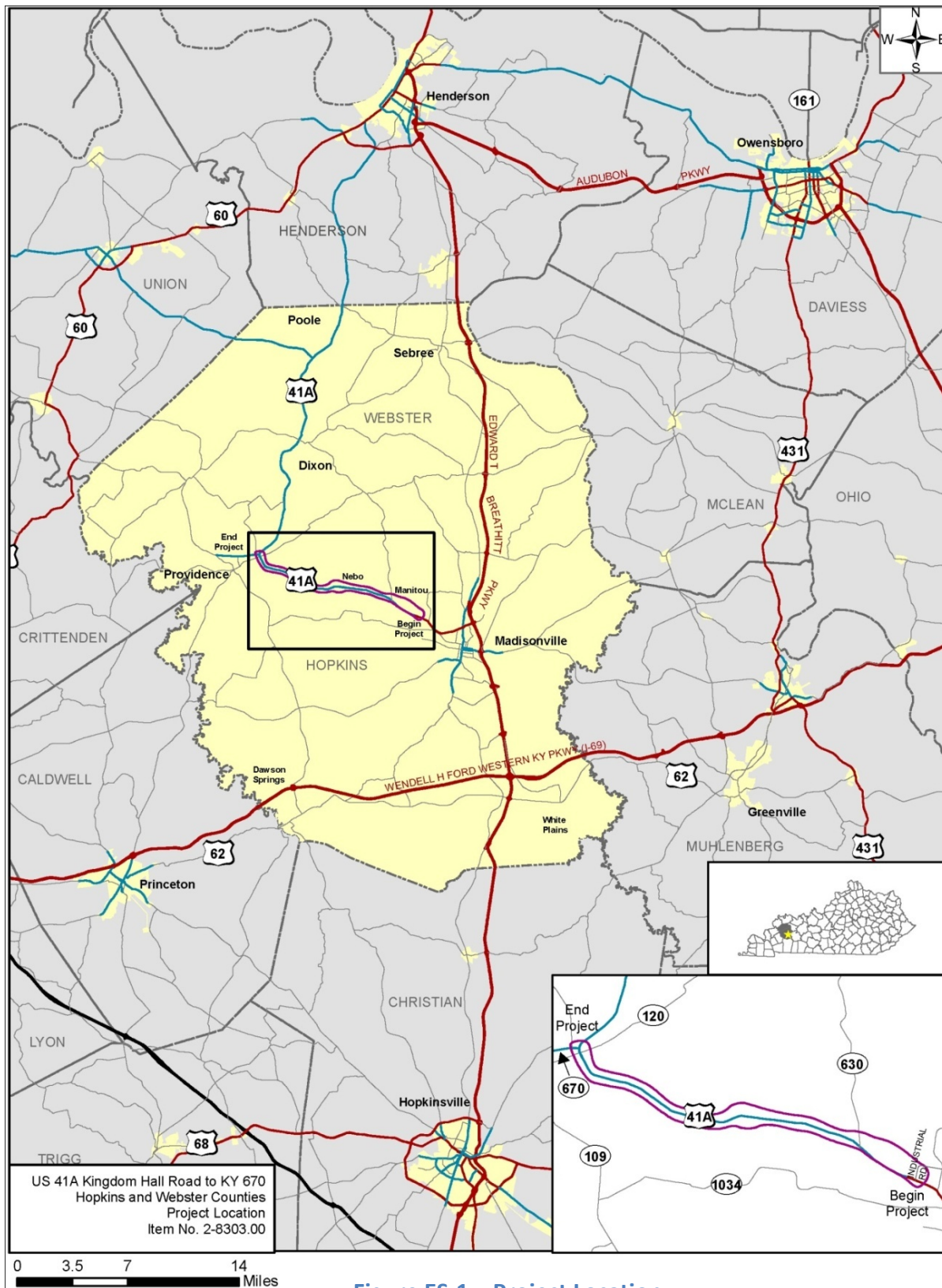


Figure ES-1 – Project Location



Table ES-1- Traffic Characteristics

Traffic Characteristics																
County and Segment Length (miles)	Beg Mpt Description	End Mpt Description	2011 ADT	2035 ADT	Truck %	# of Lanes	Lane Width	Shoulder Width	POPSD	Functional Class	K Factor	Speed Limit (mph)	2011 LOS	2011 V/C Ratio	2035 LOS	2035 V/C Ratio
Hopkins (1.735)	Industrial Road	KY 630	12300	15600	10.0	2	10	2	35%	RMA	9.0%	55	E	0.44	E	0.55
Hopkins (4.675)	KY 630	KY 1089	6400	8100	4.4	2	10	2	45%	RMA	9.0%	55	D	0.23	D	0.29
Hopkins (4.063)	KY 1089	KY 814	5100	6500	8.9	2	9	2	45%	RMA	9.0%	55	C	0.19	D	0.24
Webster (0.724)	KY 814	KY 120	5500	7000	8.9	2	10	3	25%	RMA	9.0%	45	C	0.20	C	0.25
Webster (0.130)	KY 120	KY 670	7500	9500	8.9	2	13	3	15%	RMA	9.0%	35	C	0.27	D	0.34

- 0.1-mile spot, just west of Nebo – Eighty percent of crashes are single vehicle, run-off-the-road crashes.
- 0.1-mile and 0.3-mile spots, between KY 120 and KY 670 in Providence - Rear-end and angle crashes are the predominant type.
- 0.3-mile spot in Hopkins County between Manitou and Nebo – Crashes involving deer characterize crashes at this location.

A KYTC Project Team provided guidance and a Stakeholders' Group provided input in the conduct of this study. Prior to the development of specific alternative improvement concepts, the Project Team directed that any individual critical projects that **address concerns such as high crash locations and vertical and horizontal deficiencies** should fit into **overall corridor improvements** while being sensitive to community cohesion in Manitou and Nebo, and to historic properties along the corridor. Project Stakeholders stressed the **economic dependence**

Table ES-2 Intersection Delay

	2011		2035	
	AM PEAK	PM PEAK	AM PEAK	PM PEAK
Industrial Road	47.4	50.6	48.4	53.8
KY 630 North	11.4	14.6	18.1	19.0
KY 502	11.9	12.7	13.6	14.2
KY 120	11.1	11.4	11.6	12.0
KY 670	10.6	11.0	11.2	11.8

of **Providence on Madisonville**, and expressed a strong preference for a four-lane route, preferably on new alignment including bypasses of Manitou and Nebo, but not Providence.

Alternative improvement concepts were developed and presented to the Project Team:

- **“Do-Nothing” Alternative** This alternative would have no construction disruption or cost except for routine maintenance.
- **Alternative 1A - “Super 2”** (two 12-foot lanes, 12-foot shoulders {10 feet of which are paved}) essentially along the existing alignment
- **Alternative 2 - Four lanes** with a 40-foot wide depressed median along the existing alignment
- **Alternative 3 - Four lanes** with a 40-foot wide depressed median principally along the existing alignment, except for bypasses around Manitou and Nebo and a new alignment approaching Providence
- **Alternative 4 - “Super 2”** that further provides two sets of passing lanes: one near Manitou and the other between Nebo and Providence, and includes a bypass to the north of Manitou
- **Alternative 5 - Spot improvements** at six locations - Spots A, B, C and 1, 2, and 3 address sight distance issues resulting from horizontal and vertical deficiencies.
  - **Spot A** Improved 2-lane alignment near MP 11.2 just west of the US 41A/KY 2280 intersection.
  - **Spot B** Improved 2-lane alignment between KY 630 north at Manitou and the intersection with KY 2320
  - **Spot C** Improved 2-lane alignment near the intersection with KY 814 just east of Providence
  - **Spots 1, 2, and 3** were grouped together as the deficiencies were so close together, it seemed logical to provide an improved 2-lane alignment for the section as a whole. These spots are located between Nebo and the intersection with KY 2280
- **Alternative 6 - Shared 4-lane** cross-section essentially along existing alignment, which consists of an additional lane, alternating between sides of a conventional two-lane



highway, to provide motorists a chance to pass without having to find gaps in the oncoming traffic

- Alternative 7 - **“Super 2”** principally along the existing alignment, except for bypasses around Manitou and Nebo, and approaching Providence
- Alternative 7A - **“Super 2”** from Industrial Road to a point west of a Manitou Bypass: This alternative is a subset of Alternative 7 focusing on a priority section
- Alternative 8 - **Shared 4-lanes** principally along the existing alignment, except for bypasses around Manitou and Nebo, and approaching Providence

Based on Project Team Guidance, these additional alternative improvement concepts were also presented to the Project Stakeholders.

- Alternative 1B - **“Super 2”** along existing alignment from Industrial Road to KY 630 North in Manitou: This alternative is a subset of Alternative 1A focusing on a priority section.
- Alternative 3A - **Four lanes** with a 40-foot wide depressed median from Industrial Road to a point west of a Manitou Bypass: This alternative is a subset of Alternative 3 focusing on a priority section.
- Alternative 8A - **Shared 4-lanes** from Industrial Road to a point west of a Manitou Bypass: This alternative is a subset of Alternative 8 focusing on a priority section.
- Alternative 9 - **Acceleration lane** eastbound from KY 630 South in Manitou a distance of 1500 feet

Based on these discussions and additional analysis, two additional alternative improvement concepts were developed for discussion with the Project Team:

- Spot D - **access management** between KY 120 and KY 670 in Webster County.
- Alternative 10 - Slight realignment of US 41A in Nebo to provide for **left-turn lanes** onto KY 502 north and south

At its final meeting, the Project Team recommended the following program of projects (Figure ES-2):

- **Short-Term (1-2 years): Do Nothing**
- **Medium-Term (5-10 years): Alternatives 5D, 9, and 10**
- **Long-Term (20 years): Alternative 5 (spot improvements A, B, C, 1, 2, and 3)**



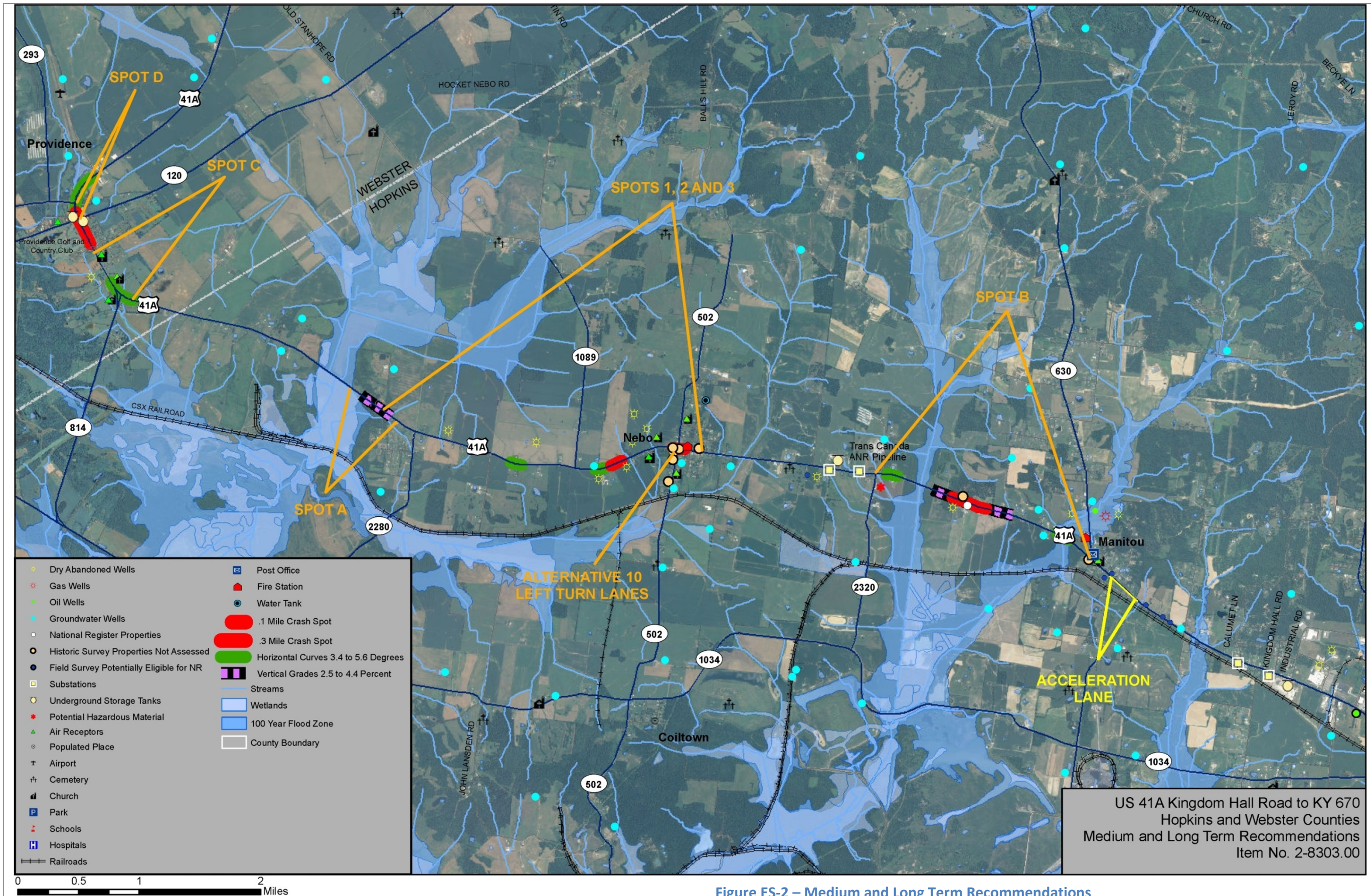


Figure ES-2 – Medium and Long Term Recommendations





KENTUCKY  
2225 LAWRENCEBURG ROAD  
BUILDING C, SUITES 3 & 4  
FRANKFORT, KENTUCKY 40601  
PH. 502-352-2197

KENTUCKY – CORPORATE HEADQUARTERS  
815 WEST MARKET STREET, SUITE 300  
LOUISVILLE, KENTUCKY 40202  
PH. 502-585-2222  
FX. 502-581-0406  
WWW.QK4.COM



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