

HARRODSBURG NORTHWEST BYPASS

MERCER COUNTY

Item Number: 07-8344.00

FINAL REPORT
EXECUTIVE SUMMARY

JULY 2009

ALTERNATIVES PLANNING STUDY



Prepared For:

Prepared By:

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Harrodsburg

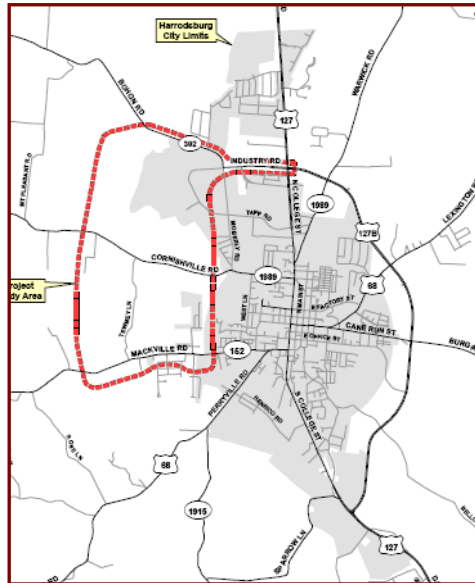
Northwest Bypass Alternatives Study

Final Report

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Mercer County, Kentucky



Prepared for:

Kentucky Transportation Cabinet

Division of Planning

and

District-7, Lexington, Kentucky



Prepared by:



July 2009



Figure ES-1: Study Area Scenes:

- Harrodsburg Water Tower and Mercer County High School.
- Cornishville Road at Norfolk-Southern RR Crossing.
- KY 1989 Westbound.
- US 68/KY 152 Intersection.

EXECUTIVE SUMMARY

Study Background and Purpose

The initial purpose of the *Harrodsburg Northwest Bypass Alternatives Study* was to examine possible corridors for a new northwest Harrodsburg bypass in Mercer County, Kentucky. The potential northwest bypass was to extend from US 127 at its northern junction with the existing eastern Harrodsburg bypass (US 127B) to KY 152 west of the city. During the development of this study, alternatives to the bypass were identified that, unlike the bypass concept, had substantial public support. The options were refined through a comprehensive stakeholder/public involvement effort, and now form the basis for the course of action recommended herein. The evolution of the initial bypass study and the recommendations resulting from the advancement of alternative concepts are the subject of this document.

In 1991, the Kentucky Transportation Cabinet (KYTC) completed a *Harrodsburg Bypass Advanced Planning Study* that recommended constructing a bypass on the east side of the city. In 2001 a bypass was constructed on the east side of Harrodsburg (from US 127 south of Harrodsburg to US 127 north of Harrodsburg). Presently, KYTC is considering the west side, and focusing on the northwest quadrant because of the perceived lack of roadway connectivity in this area of Harrodsburg.

There is a mix of land uses in the area, and several industries and school facilities in the northwest generate and attract large volumes of traffic, including heavy trucks and school busses. The Salt River and a Norfolk-Southern (NS) rail line bisect the area and would be crossed by any proposed alignment. The Mercer County-Harrodsburg 2004 *Comprehensive Plan* designated this portion of the county as a growth area, and the proximity to the railroad could encourage future industrial growth in this designated area.

Figure ES-1 shows examples of land uses in the project area. Figure ES-2 shows the project location and study area boundaries.

A new road in this area could offer several travel benefits, including the following:

- Facilitating travel from the western portion of Mercer County to US 127 north (toward Lawrenceburg and the Martha Layne Collins Bluegrass Parkway) by providing an alternative to the congested US 127 through Harrodsburg.
- Avoiding the at-grade Norfolk-Southern railroad crossing on US 127, where 26 trains per day contribute to congestion and delay.
- Improving access to/from industrial areas and schools in the northern part.

Study Location and Limits

The Northwest Bypass study area, shown in Figure ES-2, includes the northwestern quadrant of Harrodsburg, beginning at KY 152 in the south and extending north and then east to US 127, a distance of about 3.0 miles. The study area ends at the existing northern US 127/US 127 Bypass intersection. The study area is approximately 1.4 miles wide and about 3.6 square miles in size.

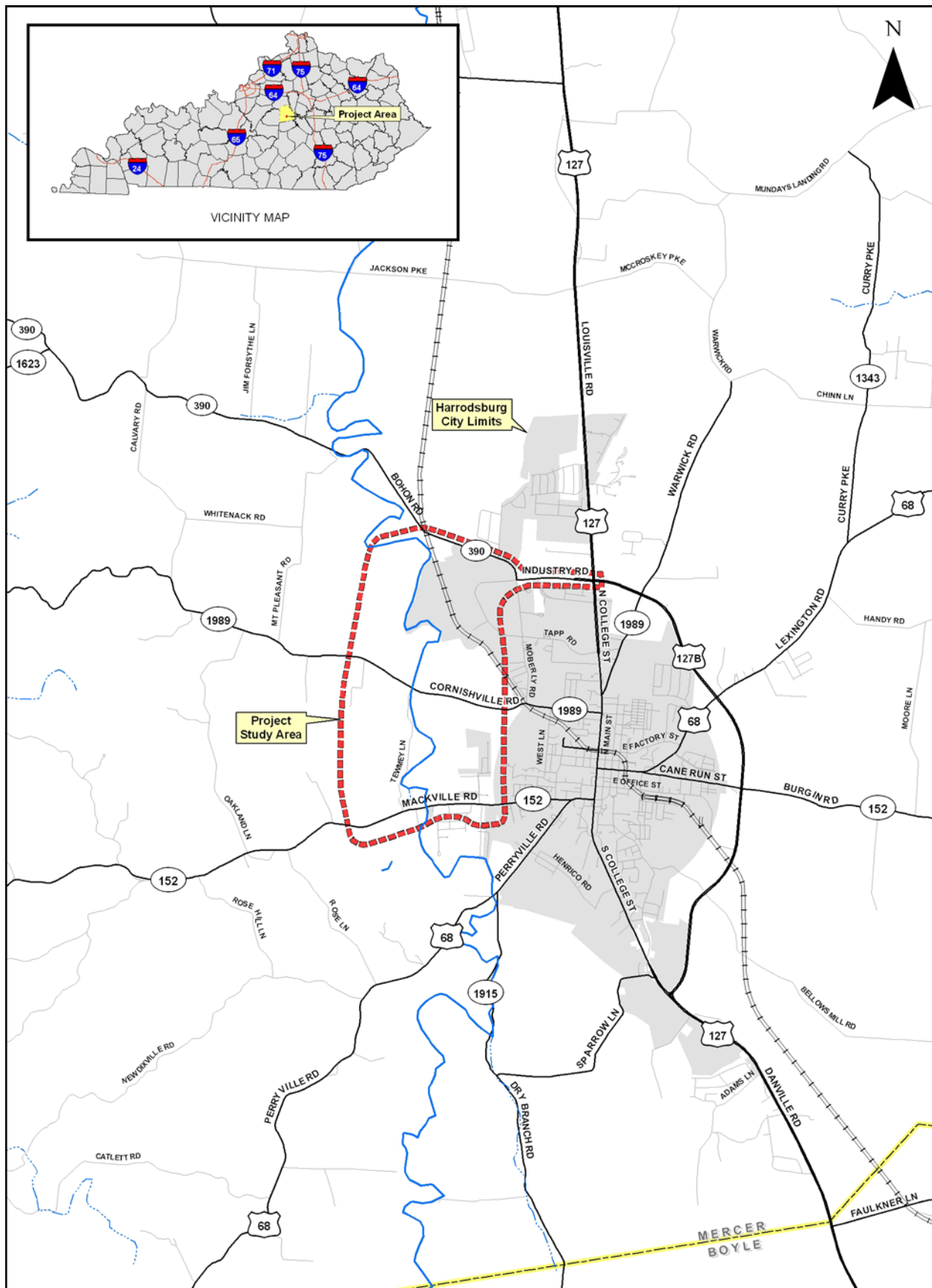


Figure ES-2: Project Location—City of Harrodsburg, Mercer County, Kentucky.

Conditions Analysis¹

Year 2008 traffic data for the study area reveals that College Street is the most heavily travelled of these facilities with a traffic volume of approximately 20,800 vehicles per day (vpd) between Mooreland Avenue and Lexington Street—more than double the average daily traffic volume (ADT) on the existing Eastern Bypass, US 127B (9,700 vpd). On US 127 between KY 1989 and KY 390, the traffic volume was approximately 13,500 vpd, while the section of US 127 between US 68 (Lexington Street) and KY 1989 carried approximately 14,700 vpd. KY 152 carried 5,200 vpd east of Tewmeyer Lane and approximately 2,470 vpd west of that point. KY 390 served nearly 4,660 vpd between Moberly Road and US 127; while west of Moberly Road it carried 1,430 vpd. KY 1989 carried 1,680 vpd from Moberly Road westward and 3,500 vpd from Moberly Road eastward to US 127. KY 152 westward from approximately 0.3 mile west of its intersection with US 68 (see Figure ES-3), KY 1989, and KY 390 west of Moberly Road do not have adequate roadway widths to handle the existing traffic volumes. Exhibit 1 shows the existing traffic counts on these and other sections of roads within the study area.



Figure ES-3: Looking East Toward US 127 at the Junction of US 68 (Perryville Street) and KY 152 (Mooreland Avenue).

KYTC provided crash data for a five-year period from January 1, 2004, through December 31, 2008. US 127 (N. College Street) from US 68 (W. Lexington Street) north to the KY 390 (Industry Road)/US 127B intersection) has a critically high crash rate. The Critical Crash Rate Factors (CCRF) range from 1.10 to 4.72, with the worst section extending from the US 127/US 68 (W. Lexington Street) intersection northward approximately 0.3 mile.

As summarized in Table ES-1, below, two segments and a total of twelve spot locations within the segments analyzed are high crash locations.

¹ Through Harrodsburg, all U.S. and state highways have local names and, among these, several have more than one name/route designation. The following road names are referenced in this study: **US 127** is *South College Street* south of US 68 (Mooreland Avenue) and *North College Street* north of Lexington Street; between Mooreland Avenue and Lexington Street, College Street is officially US 68 for data purposes, not US 127, in accordance with KYTC route numbering conventions; **KY 390** is *Bobon Road* from the intersection of Industry Road and Moberly Road west, and is *Industry Road* from that intersection eastward; **KY 152** is *Mackville Road* from Shewmaker Lane southwestward and *Mooreland Avenue* eastward to US 68. At its juncture with US 68 (see below), Mooreland Avenue becomes US 68. **KY 1989** is *Cornishville Road* west of Moberly Road and *Cornishville Street* east of that road to US 127 (N. College Street); and **US 68** has several names, as follows:

- From the southwest heading northeast: *Perryville Street* from Henrico Road to Mooreland Avenue (KY 152); and *Mooreland Avenue* to US 127 (S. College Street).
- Turning northward: *South College Street* to West Lexington Street.
- Turning eastward: *West Lexington Street* from College Street to North Main Street; *East Lexington Street* beyond.

For ease of reference, U.S. and state highways are identified by their route numbers only, herein, except where use of both route number and local name would provide more precise locational information (*e.g.*, because of its several name and directional changes, US 68 is usually identified by both its route number and a local name).

Table ES-1: High Crash Segments and Spots

Segment & Spot	Route	Begin MP	End MP	Length (Miles)	Number Lanes	Rural / Urban	ACCIDENTS				Critical Crash Rate Factor
							Fatal	Injury	PDO	Total	
Segment	US 127	4.402	6.071	1.669	3-4	U	0	29	125	154	1.76
Spot	US 127	4.400	4.700	0.300	3	U	0	17	68	85	4.21
Spot	US 127	4.500	4.800	0.300	3	U	0	1	22	23	1.10
Spot	US 127	4.600	4.900	0.300	3	U	0	3	19	22	1.05
Spot	US 127	4.700	5.000	0.300	3-4	U	0	5	23	28	1.30
Spot	US 127	4.800	5.100	0.300	3-4	U	0	6	25	31	1.43
Spot	US 68	6.500	6.800	0.300	3	U	0	2	18	20	1.23
Segment	KY 1989	6.837	9.848	3.011	2	R	0	7	11	18	1.14
Spot	KY 1989	6.800	7.100	0.300	2	R	0	5	4	9	3.23
Spot	KY 1989	6.900	7.200	0.300	2	R	0	3	1	4	1.43
Spot	KY 1989	7.000	7.300	0.300	2	R	0	1	2	3	1.08
Spot	KY 1989	7.600	7.900	0.300	2	R	0	0	3	3	1.04
Spot	KY 1989	8.900	9.200	0.300	2	R	0	2	1	3	1.09
Spot	KY 1989	9.000	9.300	0.300	2	R	0	2	1	3	1.09

	High Crash Locations: Segment
	High Crash Locations: Spot

Source: KYTC crash data, 2005-2007

Project Issues and Goals

The following issues and concerns within the study area were identified for consideration in examining the potential purpose of and need for a bypass facility in northwestern Harrodsburg.

- Several schools and industries are located in the northwest quadrant of Harrodsburg. A new Mercer County High School (shown on Figure ES-4) is now open southwest of the KY 390/Moberly Road junction, approximately one-half mile from the former high school campus that is being renovated as a middle school. This concentration of trip origins and destinations at similar times of the day contributes to traffic congestion in the vicinity.



Figure ES-4: New Mercer County High School Seen From Moberly Road.

- Emergency response travel times to the James B. Haggin Memorial Hospital and to other locations are lengthened by congestion along and west of US 127 (S. College Street) in the vicinity of the hospital). The hospital is located on Linden Avenue, which intersects US 68 (KY 152) just west of US 127.
- The Norfolk Southern railroad runs through Harrodsburg from northwest to southeast. At-grade railroad crossings carry up to 26 trains daily. The unique “diagonal” routing of this rail line results in multi-directional street blockages during passage of these trains.
- Location of any northwest bypass in Harrodsburg should be compatible with possible future extension south of KY 152 and connecting with US 127.

Several project goals were identified, including:

- Improve transportation system connectivity
 - Separate school and industry traffic
 - Reduce emergency response travel time
- Provide grade-separated railroad crossings
- Reduce congestion on area roadways
- Facilitate compatibility with future bypass extension to the south

Alternatives Development and Evaluation

A project team approach was used, consisting of representatives from the KYTC Central Office and District 7, the Bluegrass Area Development District (BGADD), and Qk4. Public involvement activities included Project Team meetings, resource agency coordination, meetings with a Project Advisory Committee consisting of local officials and stakeholders, and public information meetings.

At the first public meeting, held on November 19, 2007, attendees were given large maps and invited to draw conceptual corridors for a northwest bypass. This activity produced seventeen alternatives, many of which overlapped or, for various reasons, were not feasible. (Figure ES-5 shows the conceptual corridors and alternatives developed from them.)

Subsequently, the Project Team consolidated these into four northwest bypass corridor options. However, the public expressed little enthusiasm for a northwest bypass option. Therefore, the Project Team produced several “other” options for possible advancement in lieu of a bypass option. At the second public meeting, on May 12, 2008, the final four bypass options as well as the “other” options were presented to the public. Again, all northwest bypass options were exceedingly unpopular with the public, while much enthusiasm was expressed for some of the other, less expansive options.

Recommendations

In consideration of the existing and projected future transportation system conditions in the northwest quadrant of Harrodsburg; the project goals; the preferences of the KYTC Project Team, the Project Advisory Committee, other local project stakeholders, and the general public; and the desire for a set of fiscally responsible recommendations that would result in the greatest chance of implementation, the following projects are recommended in each of three time-periods.

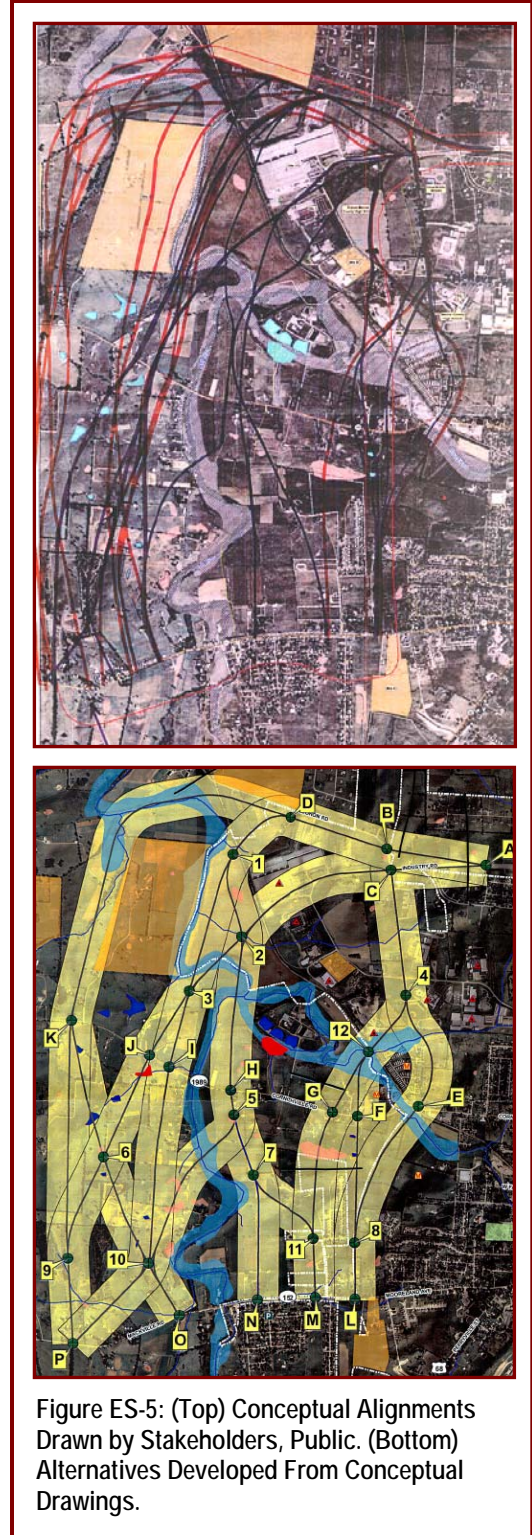


Figure ES-5: (Top) Conceptual Alignments Drawn by Stakeholders, Public. (Bottom) Alternatives Developed From Conceptual Drawings.

SHORT-TERM RECOMMENDATIONS—

Priority 1—Conduct a Small Urban Area (SUA) Study for Harrodsburg.

A SUA study is applicable for municipalities that range in population from 5,000 to 50,000 with the goal of maximizing the current transportation assets on the existing state-controlled route system in and around the municipality.

Priority 2—Intersection Spot Improvements

- Improve Intersections on Moberly Road at KY 390 (Mile Point [MP] 12.844), Tapp Road, and KY 1989 (MP 9.185) to include signal warrant analyses, signage, and striping. If signals are warranted, evaluate synchronization. (See Figure ES-6, Project ID #1)

Cost estimate: \$ 245,000

- Reconstruct the intersection of US 68 (MP 6.550)/KY 152 (MP 10.099), to include signal warrant analyses, signage, and striping. If signals are warranted, evaluate synchronization. (See Figure ES-6, Project ID #2)

Cost estimate: \$ 1,500,000

(Design \$50,000; ROW \$850,000; Utilities \$100,000; Construction \$500,000)

LONG-TERM (NEXT 5-TO-10 YEAR) RECOMMENDATIONS —

Priority 3—Reconstruct and Extend the Moberly Road Corridor:

- Reconstruct the intersection of Moberly Road/ KY 1989 (MP 9.168–9.185) with an overpass of the Norfolk-Southern RR track. (See Figure ES-6, Project ID #3A)

Cost estimate: \$10,600,000

(Design \$700,000; ROW \$2,200,000; Utilities \$400,000; Construction \$7,300,000)

- Widen Moberly Road between KY 1989 (MP 9.168) and KY 390 (MP 12.844). (See Figure ES-6, Project ID #3B)

Cost estimate: \$ 1,500,000

(Design \$200,000; ROW \$0; Utilities \$100,000; Construction \$1,200,000)

- Construct the Moberly Road extension (on new alignment) to the south from KY 1989 (MP 9.110* to KY 152 (MP 9.553*), and include an east-west connector to West Broadway Street. (See Figure ES-6, Project ID #3C)

Cost estimate: \$ 4,800,000

(Design \$300,000; ROW \$1,650,000; Utilities \$150,000; Construction \$2,700,000)

Total Priority 3 project cost estimate: \$ 16,900,000 (*Note: Exact locations await final design.)

OTHER FUTURE RECOMMENDATIONS —

- Upon implementation of the short- and long-term projects, consider conducting a planning study to re-examine the purpose and need for a western Harrodsburg bypass to complete the loop around the city and provide connectivity with the existing eastern bypass.
- Conduct a railroad relocation study that would focus on relocation sites and financing options.

The total estimated cost of recommended construction—Priorities 2 and 3— is approximately \$18.70 million. Figure ES-6 shows the locations of the improvement options.

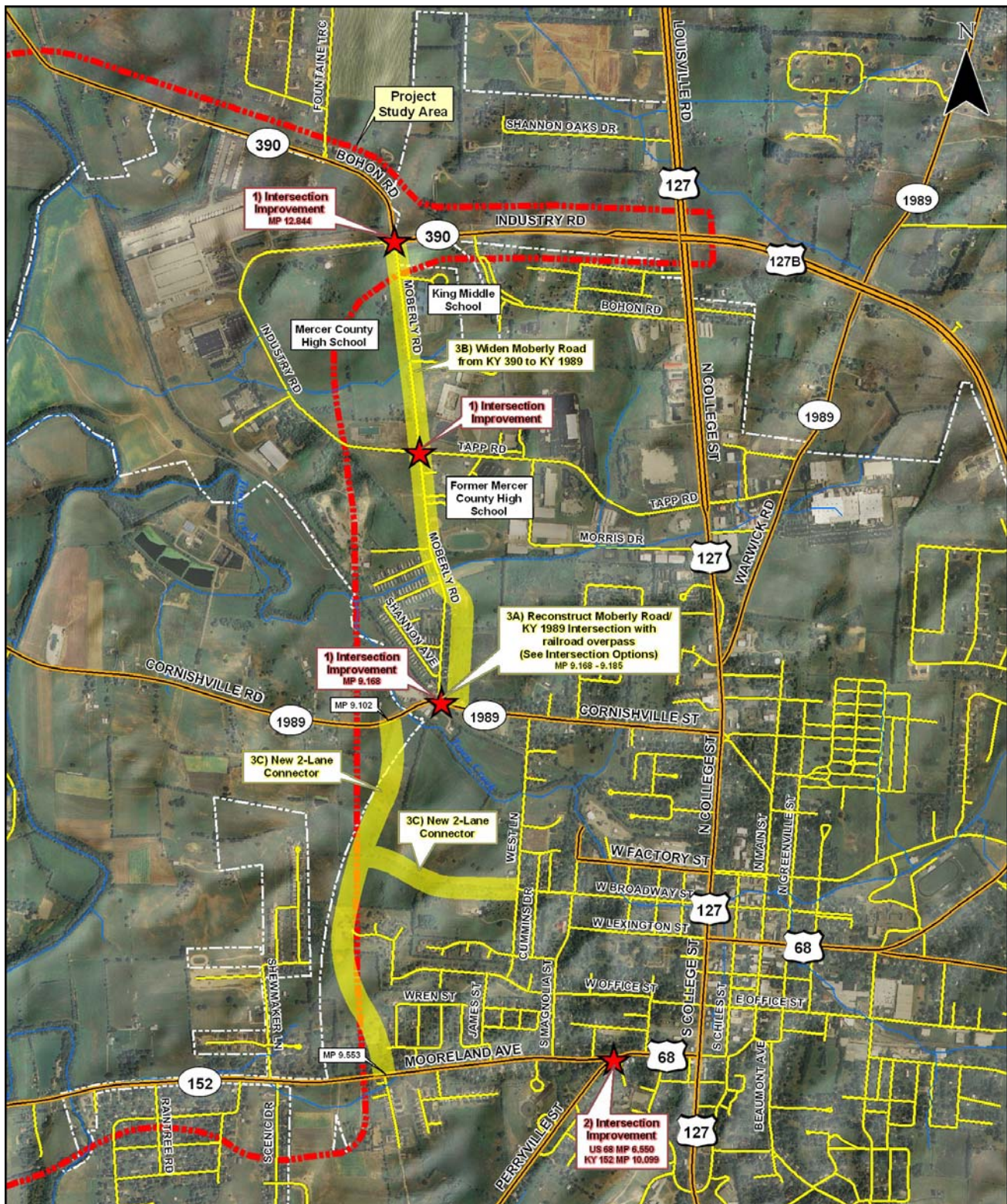


Figure ES-6: Recommended Projects