TO: Paul Looney
Executive Director of Project Development

FROM: Bill Gulick
Director, Division of Highway Design

DATE: March 10, 2017

SUBJECT: Lexington, Kentucky, Interstate 64/75 Lane Addition Study,
7-8909.00 and 7-9810.00

General Information

Two projects have been proposed to alleviate congestion by means of adding a fourth lane along the I-64 and/or I-75 corridor. The current proposal is to widen the existing corridor to accommodate the desired new to increase capacity. The corridor widening, in turn, would require the purchase of adjacent property, replacement of current signage and bridges and utilities in order to maintain full interstate system design standards. The current estimate of this lane addition is $43 million including right of way and utility relocation. This office has been asked to review and offer a feasible and cost effective alternative to the corridor widening.

7-8910.00

This project is along the I-75 corridor in Lexington, Kentucky and begins at an abandoned C&O railroad bridge which is now a multi-use path at mile point 107.42 and merges into the I-75/I-64 corridor to end at the Bryan Station overpass at mile point 112.01. (Refer to Exhibit 1) However, the adding of a lane along this section of the corridor will not be considered at this time due to the significantly increased cost per length of project due to required re-grading of inside shoulders as well as possible removal of median drainage and having to raise the median barrier in order to accommodate the a grade change.

7-8909.00

This project is along the I-75/I-64 corridor in Lexington, Kentucky and begins at the aforementioned Bryan Station bridge and ends at the northern split of the corridor located at mile point 117.67. (Refer to exhibit 1) Typical lane dimensions for this part of the I-75/I-64 corridor are 12 foot lanes with a 14 foot inside shoulder and a 10 foot outside shoulder for a total lane width of 60 feet. (Refer to exhibit 3) The posted speed limit for the corridor is 70 mph. There are three bridges overpassing the corridor at Bryan Station Road, Russell Cave Road and Georgetown Road. (Refer to exhibit 2, 5-8) Both the Bryan Station Road and Russell Cave Road bridges are reinforced concrete deck girder (RCDG) whereas the Georgetown Road bridge is a steel girder bridge. Based on survey data, the typical lane width is reduced to no less than 60 feet at both Bryan Station Road and Russell Cave Road. At Georgetown Road the Northern Split occurs and the eastbound lane of I-64 is also 60 feet wide with two, twelve foot lanes. The

westbound lane is 77 feet wide and accommodates 4 lanes. After the bridge the lanes split into 2 lanes for I-64 and I-75 respectively (Refer to exhibit 12). Furthermore, all overpassing bridges exceed by one foot or more, the federally mandated height of 16 feet from the surface of the road to the lowest part of the bridge. It should be noted that bridges overpassing at Bryan Station Road and Russell Cave Road have haunches curving down to the bearings at the bridge piers and will be discussed as a design consideration below. Also, there are four bridges along the corridor which overpass other roadways. All of these bridges are the same typical width or is larger than the existing corridor.

Design Consideration

The proposed project limits incorporate portions of both 7-8909.00 and 7-8910.00. The proposed design would be from the southern split at mile point 111.20 to the northern split at mile point 117.30. (Please refer to exhibits 1 & 9 through 12) These project limits were established due to the aforementioned cost per length of project increasing significantly due to changing geometries beyond these limits. Within these limits, one solution to increase capacity and keep the associated costs comparatively low would be to maintain the existing typical lane dimensions, resurface the existing corridor and add a fourth lane by restriping. The restriping would incorporate keeping the existing outside shoulder location, maintaining the existing 10 foot shoulder and striping four 11 foot lanes, allowing for a 6 foot inside shoulder. (Refer to exhibits 3 & 4) The proposed lane dimensions and/or existing geometry may have to be altered at the bridges as well as the project beginning and ending to accommodate the corridor at these points. (Refer to exhibits 5 through 12) Based on survey data, with this modification of lane and shoulder widths all bridges will still surpass the needed height to be within the required 16 feet over the corridor surface regardless of the existing haunches. It should be noted, the proposed reduction in lane and shoulder width will require a design exception. Furthermore, any areas where the shoulders will repurposed as functional roadway may require the removal of the shoulder pavement to be replaced with full depth pavement to safely support full flow traffic. However, it has been suggested that the shoulder may currently be able to support full flow traffic. Though it is unknown if any shoulder work is needed, full depth shoulder work is presumed and is included in the estimate below. The current shoulder should be evaluated and reflected in any future estimate.

Estimate and Conclusion

The estimated the cost of the proposed resurfacing, restriping and replacing the shoulders with full depth pavement would be less than $11 million. The proposed design would have added benefit of avoiding the costs and time needed to purchase new right of way or replace and or relocate bridges, signage or utilities. This proposed solution is not the only solution to increased

capacity along the I-75/I-64 corridor. However, this solution is feasible and is significantly cost effective which might avoid a no-build scenario due to possible prohibitive construction costs. Though the proposed construction would require design exceptions, the acceptance of similar exceptions is not unprecedented. These exceptions have been applied in many areas and are exemplified by the interstate system in Louisville, Kentucky and would appear to be effective.

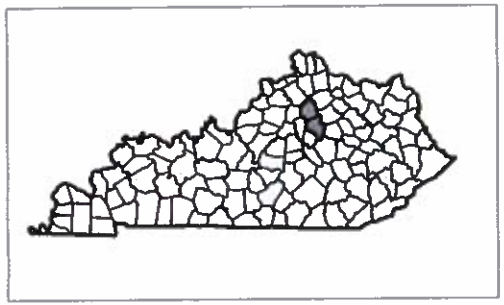
If you have any questions, or comments, please feel free to contact me

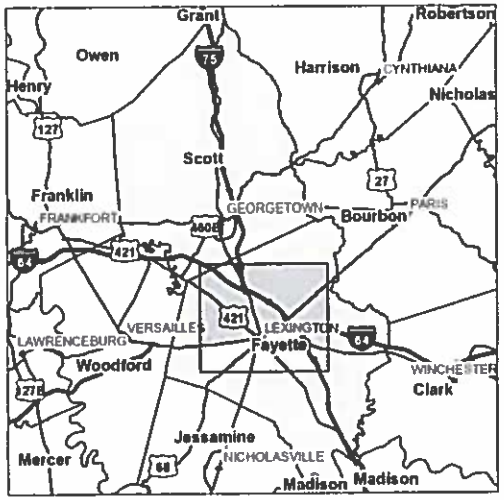
Thank you and best regards,

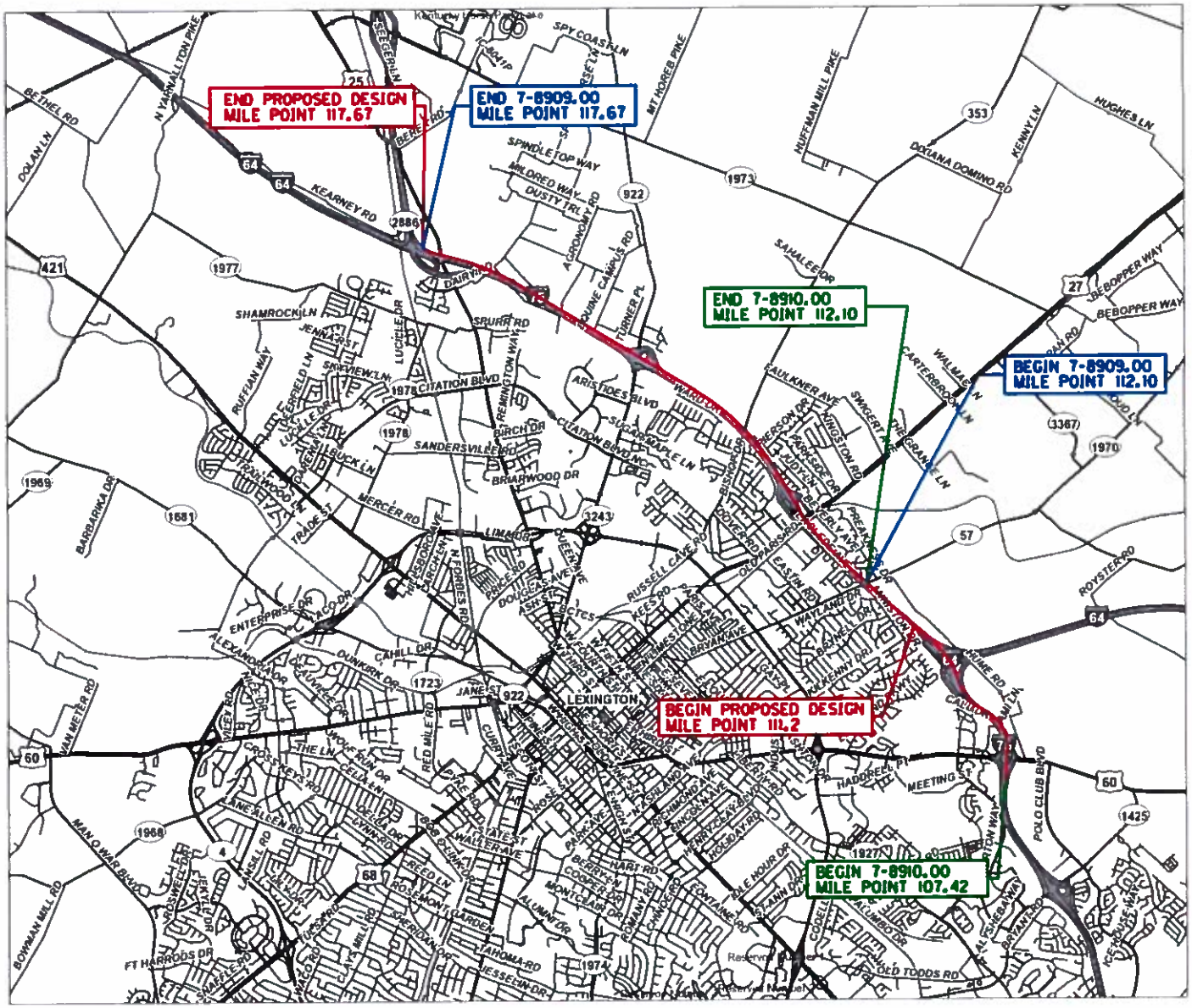
Bill Gulick, P.E.
Director of Design
Kentucky Transportation Cabinet

EXIBIT 1

I-64/I-75 LANE ADDITION



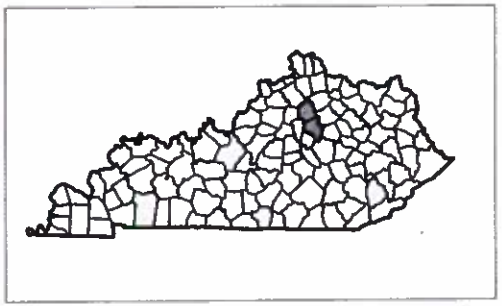


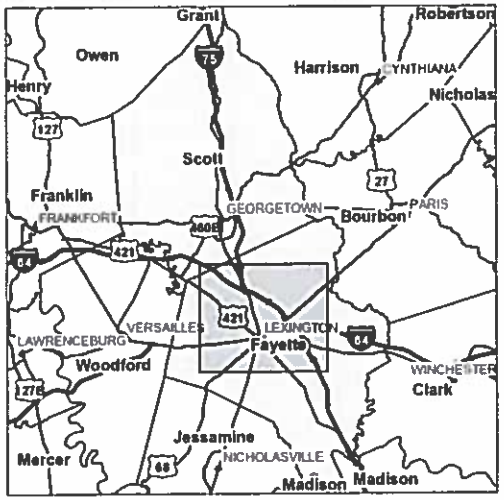


LAYOUT SHEET

EXIBIT 2

I-64/I-75 LANE ADDITION





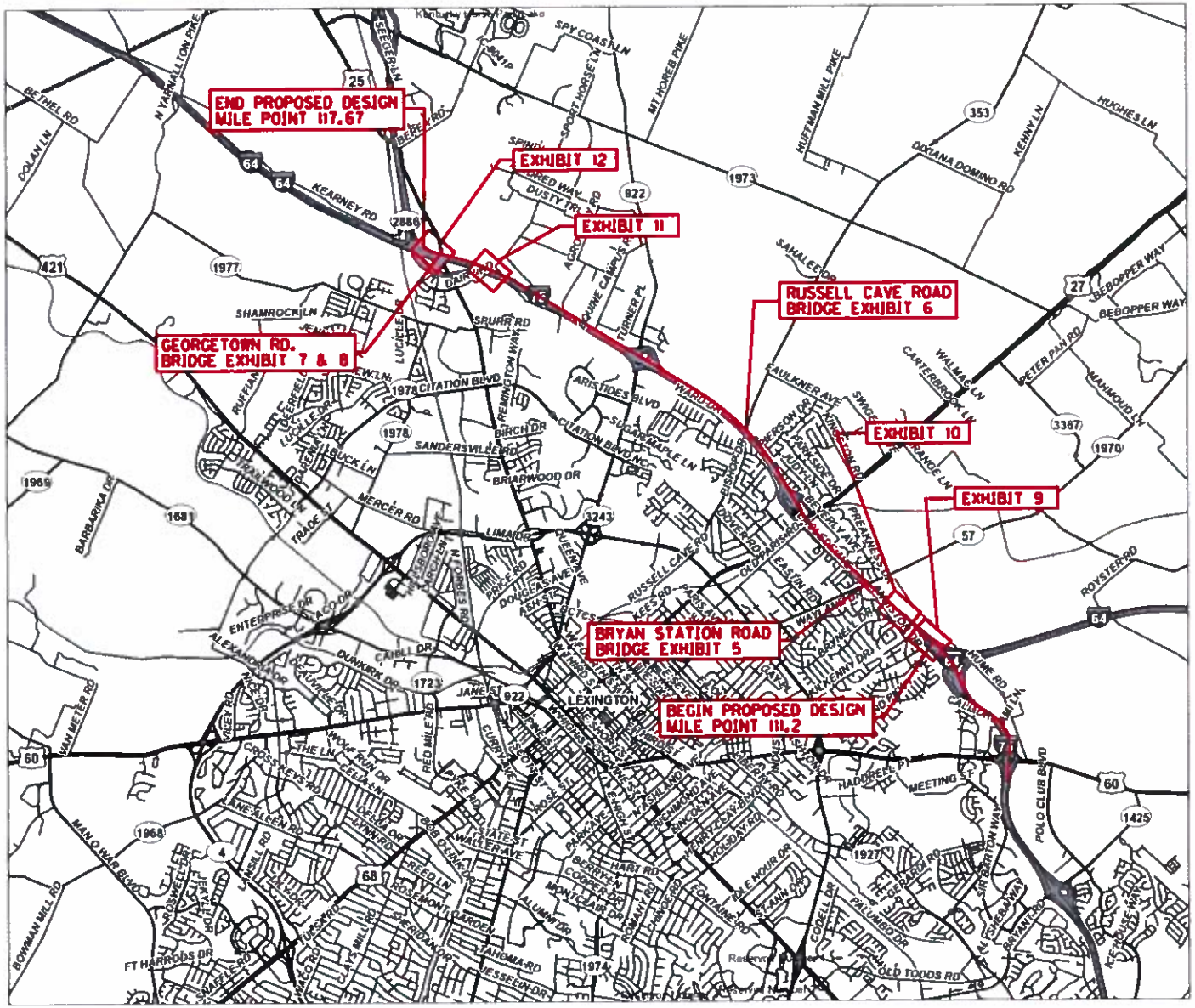
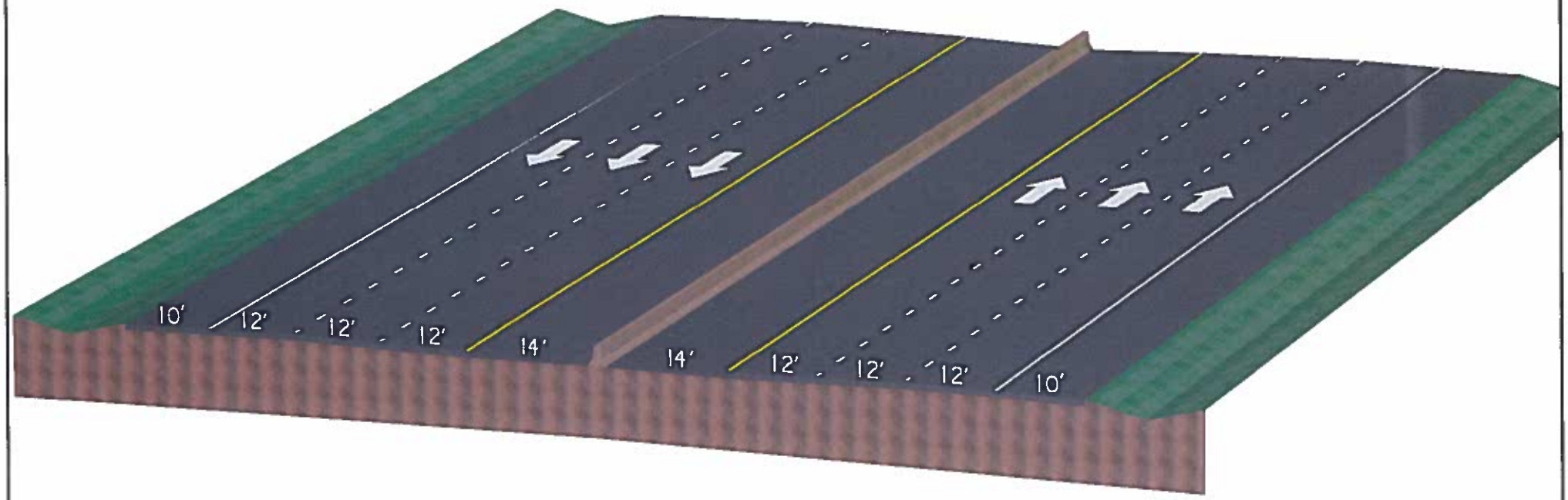


EXHIBIT LOCATION

EXIBIT 3

I-64/I-75 LANE ADDITION

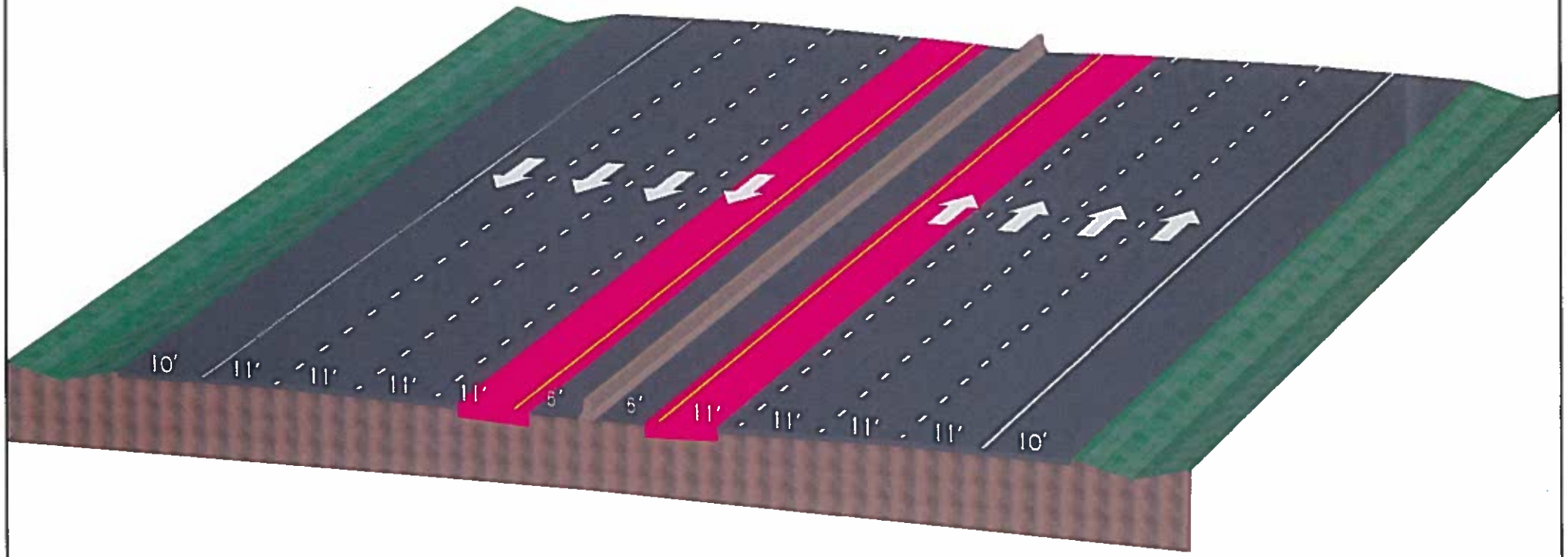


EXISTING TYPICAL SECTION

EXISTING TYPICAL SECTION

EXIBIT 4

I-64/I-75 LANE ADDITION

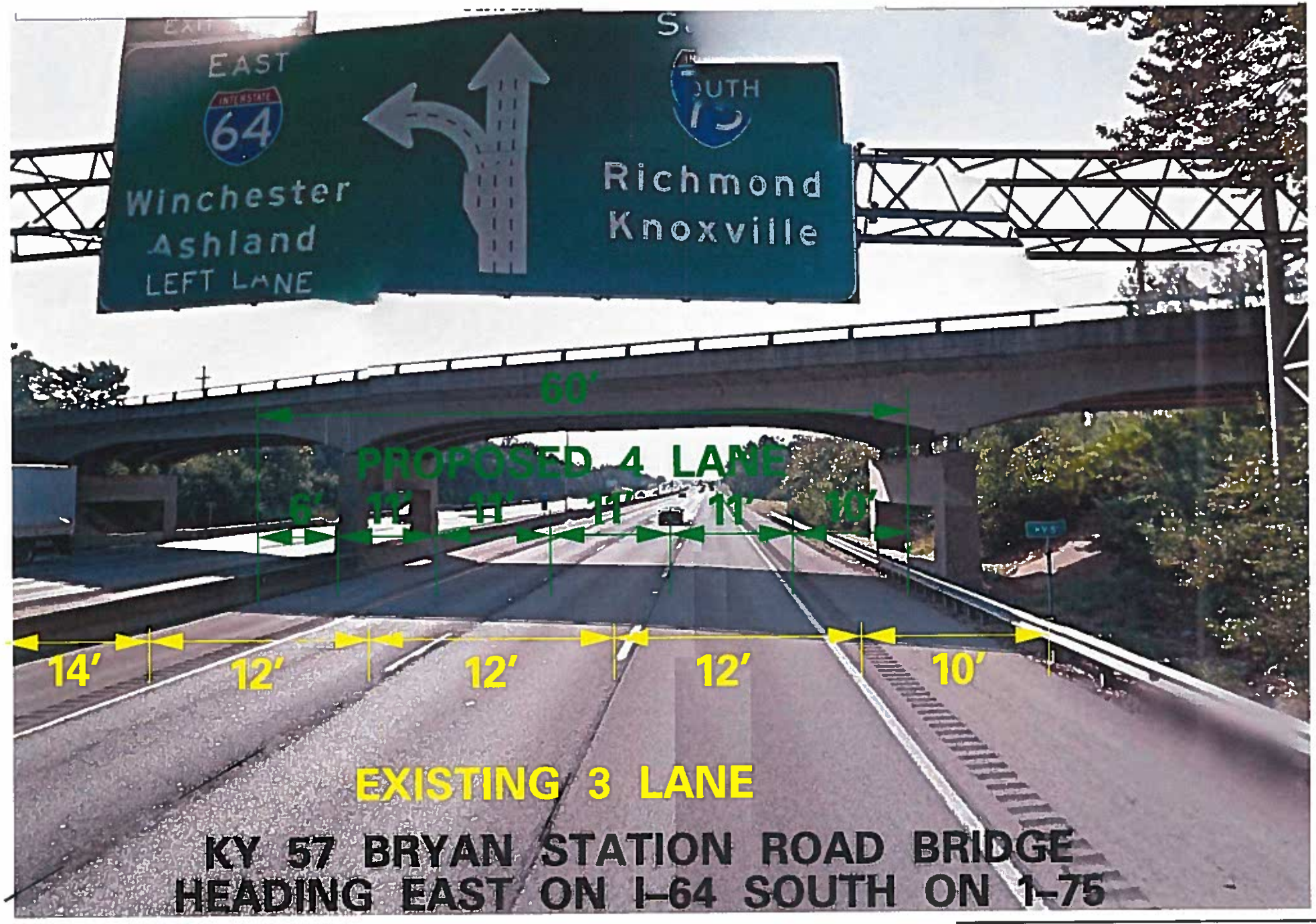


PROPOSED TYPICAL SECTION

PROPOSED TYPICAL SECTION

EXIBIT 5

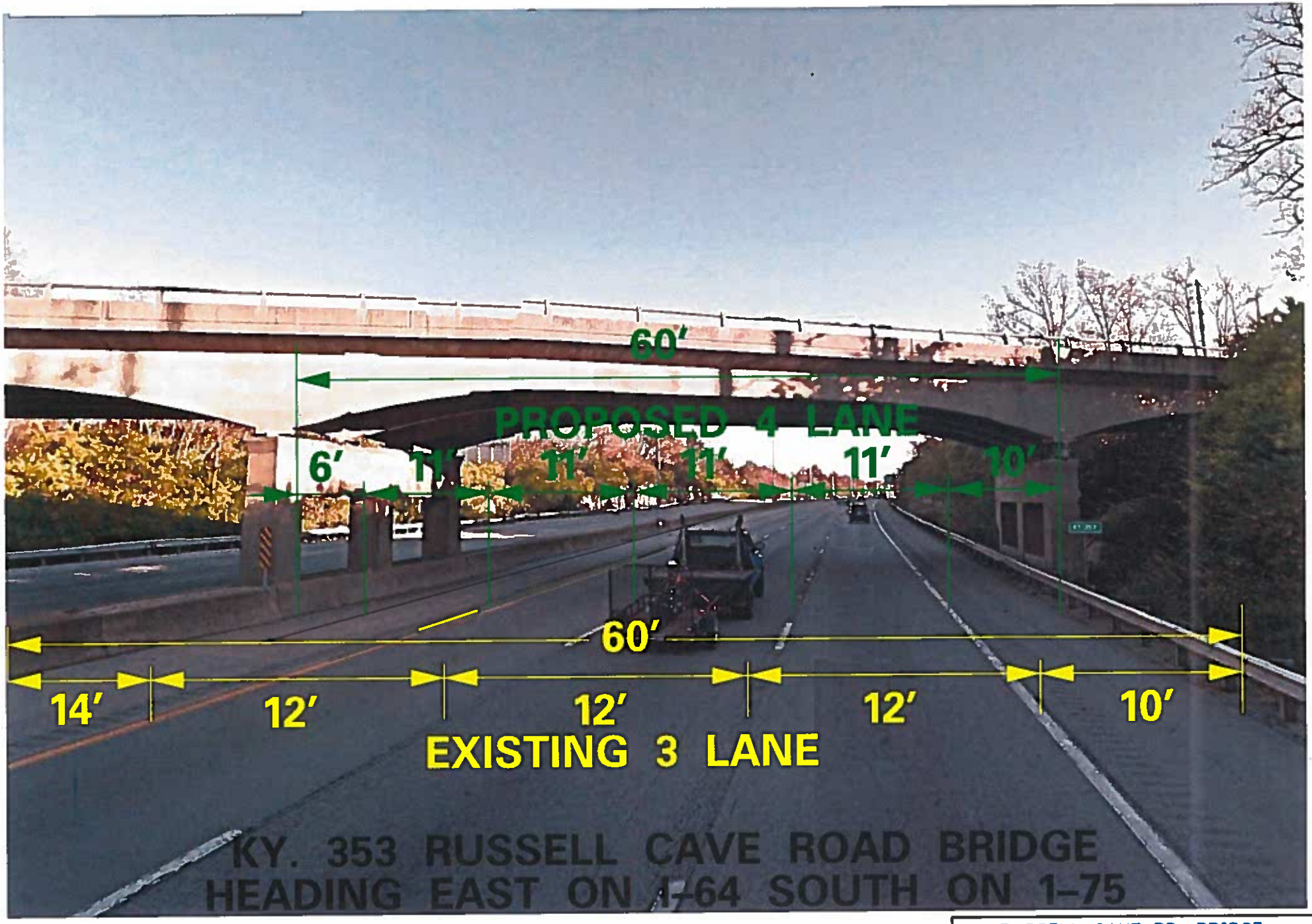
I-64/I-75 LANE ADDITION



BRYAN STATION RD. BRIDGE

EXIBIT 6

I-64/I-75 LANE ADDITION



RUSSELL CAVE RD. BRIDGE

EXIBIT 7

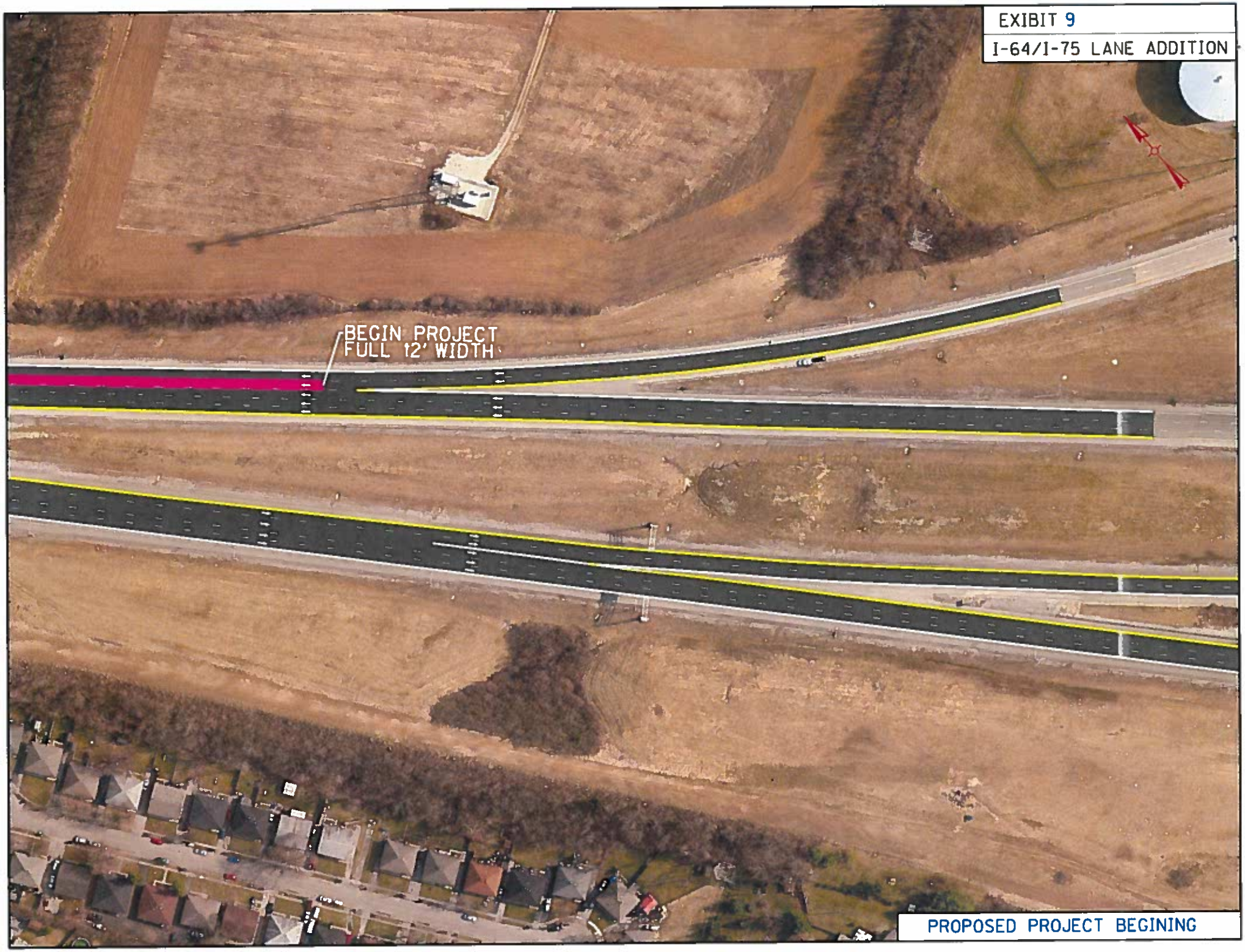
I-64/I-75 LANE ADDITION

GEORGETOWN RD. BRIDGE

EXIBIT 8

I-64/I-75 LANE ADDITION

GEORGETOWN RD. BRIDGE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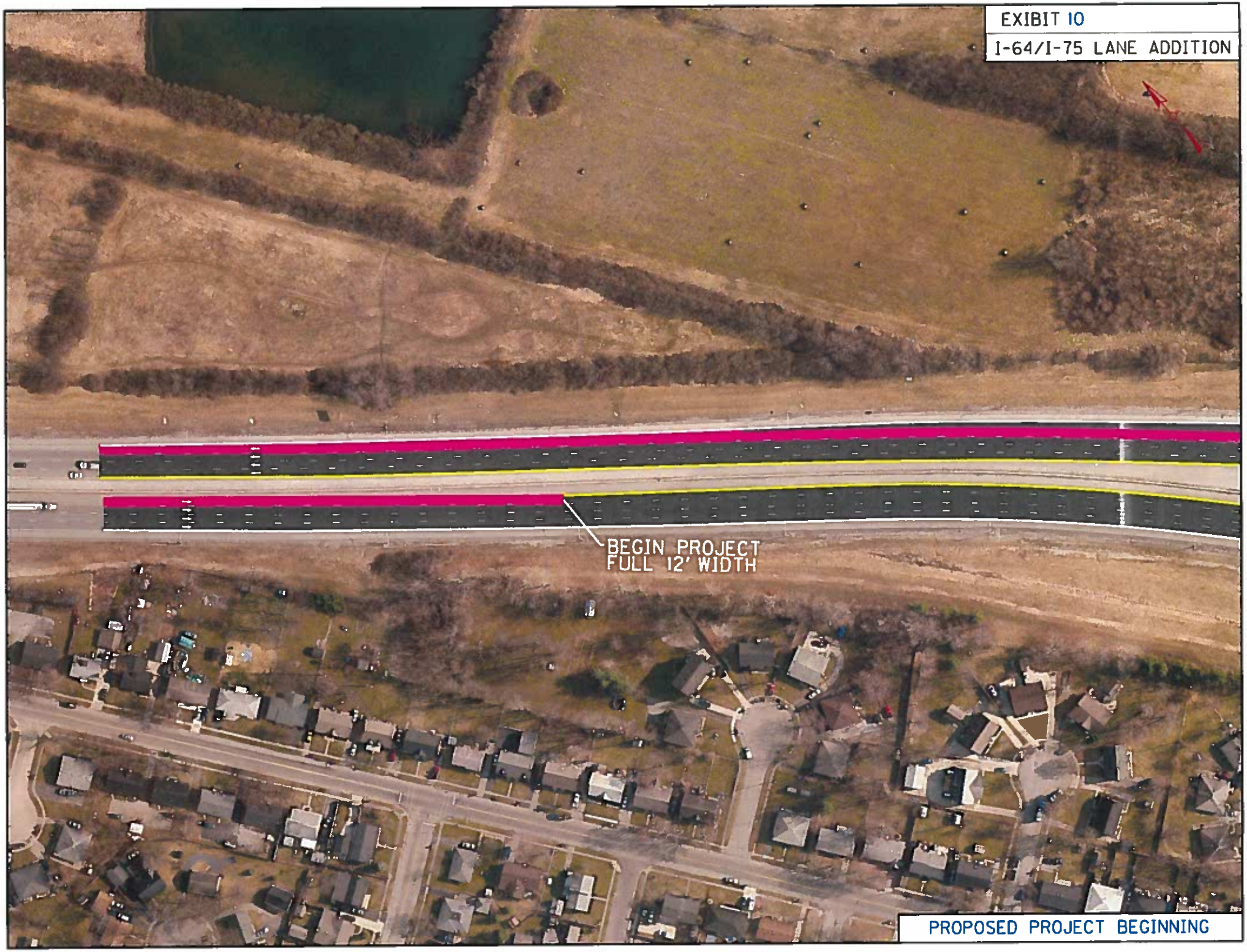
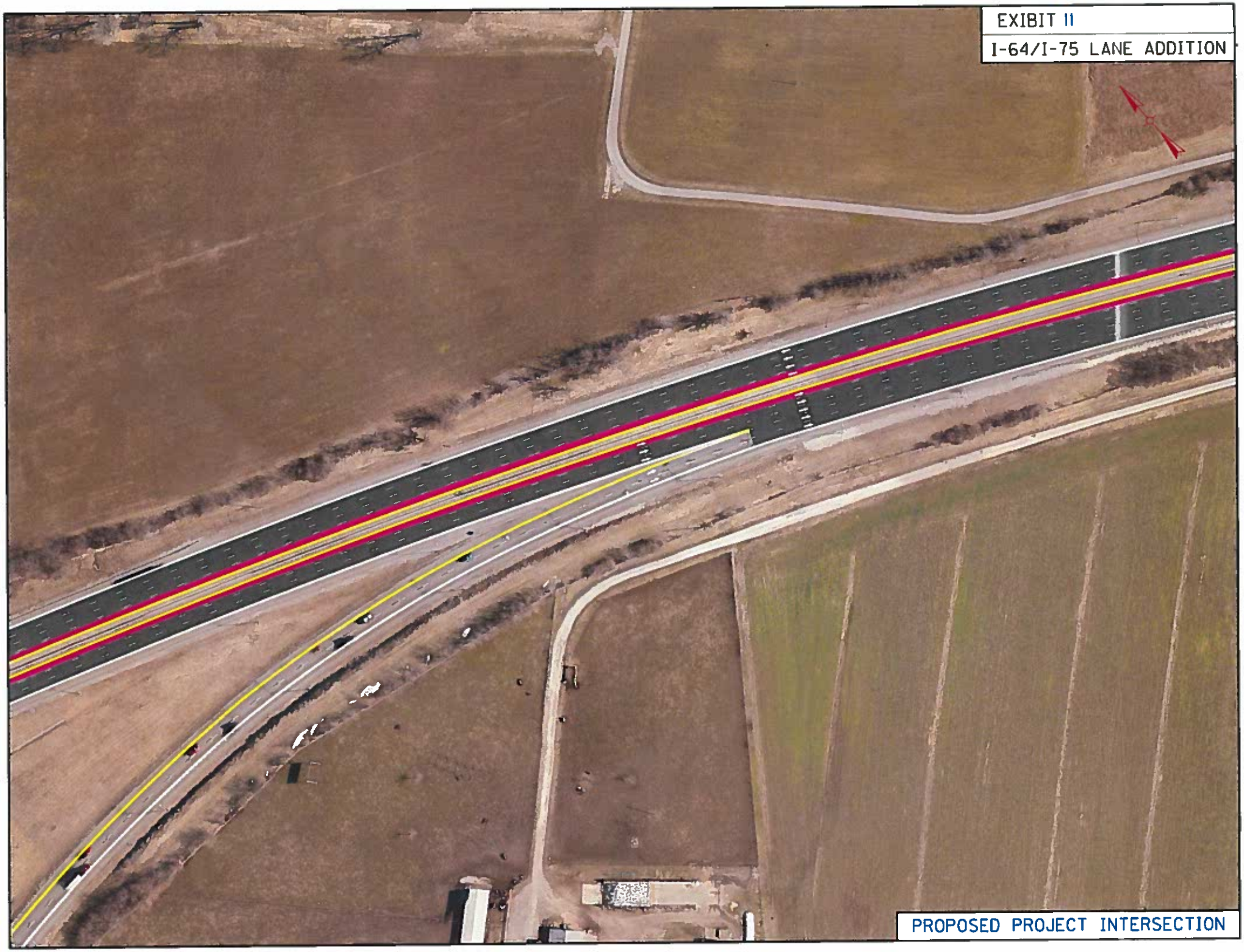
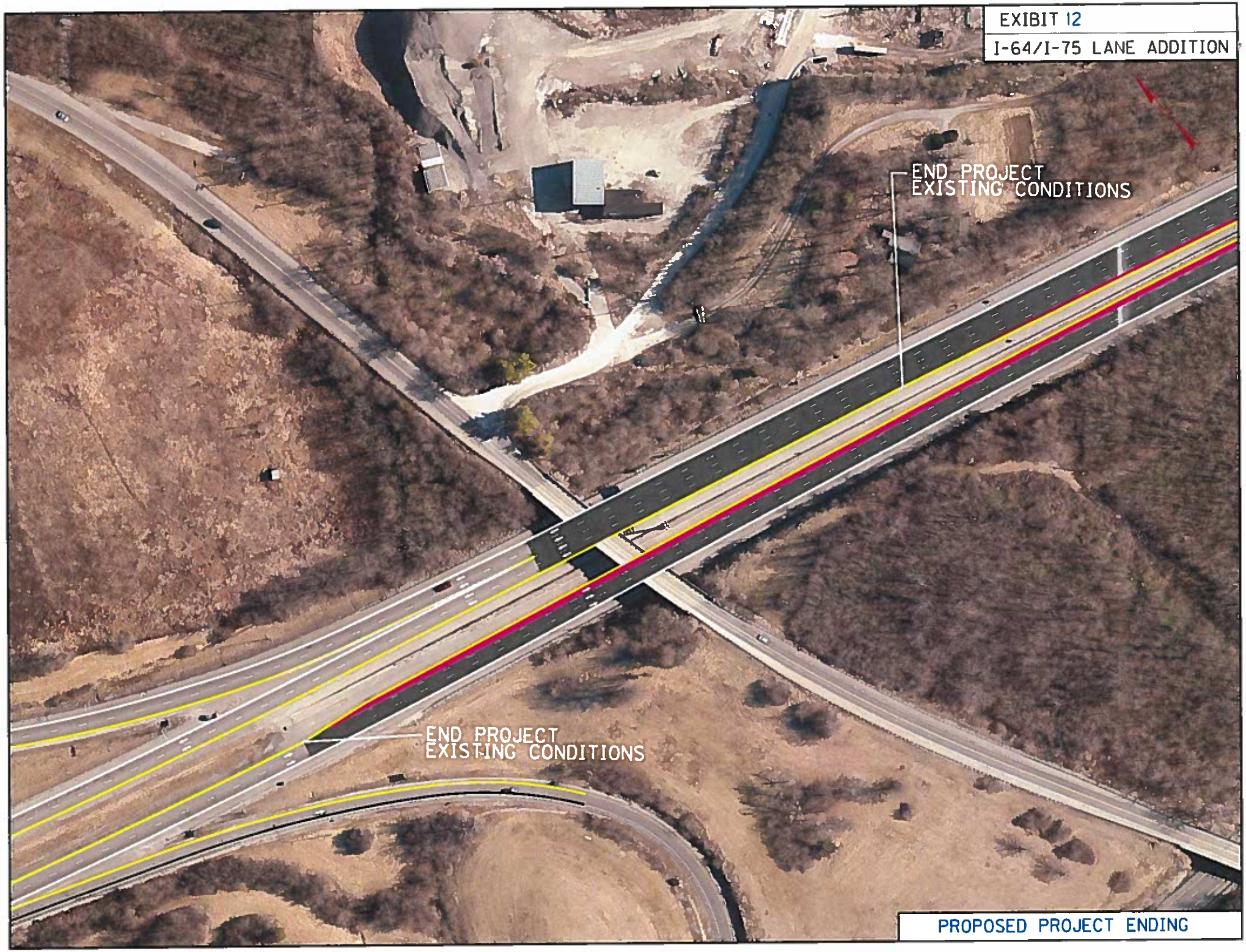
I-64/I-75 LANE ADDITION
BEGIN PROJECT
FULL 12' WIDTH
PROPOSED PROJECT BEGINING


EXIBIT 10
I-64/I-75 LANE ADDITION
BEGIN PROJECT
FULL 12' WIDTH
PROPOSED PROJECT BEGINNING


EXIBIT 11
I-64/I-75 LANE ADDITION
PROPOSED PROJECT INTERSECTION


EXIBIT 12
I-64/I-75 LANE ADDITION
END PROJECT
EXISTING CONDITIONS
END PROJECT
EXISTING CONDITIONS
PROPOSED PROJECT ENDING