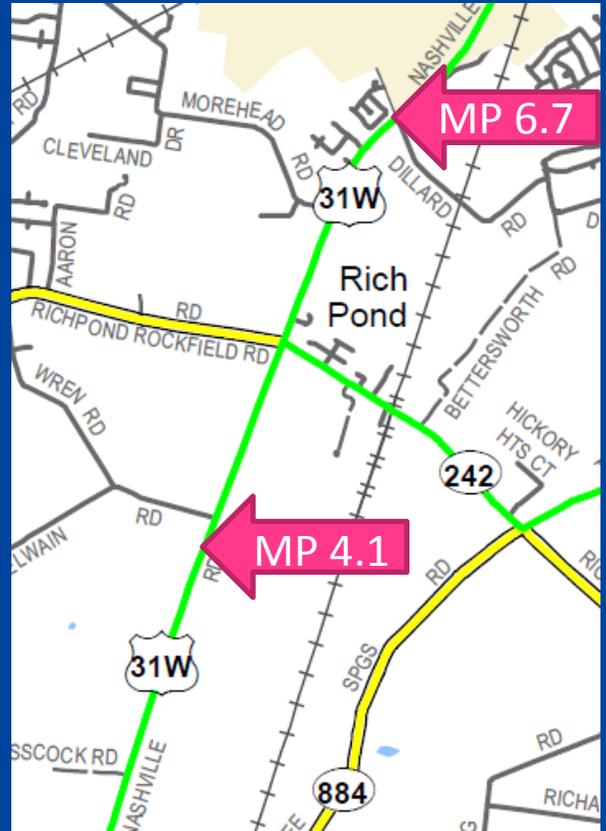


**D**ata

**N**eeds

**A**nalysis

# Scoping Study



3-199.00 (Warren County)

Widen to 5 lanes from 0.3 mile south of KY 242 to Dillard Road.

Prepared by  
KYTC District 3

June 29, 2012





**II. PROJECT PURPOSE AND NEED**

**A. Legislation**

The following funding was listed in the 2012 General Assembly's Enacted Highway Plan.	<i>Funding</i>	<i>Phase</i>	<i>Year</i>	<i>Amount</i>
	SPP	DESIGN	2013	\$1,000,000
	SPP	R/W	2014	\$1,750,000
	SPP	UTILITIES	2014	\$2,000,000
	SPP	CONST	2017	\$10,450,000
		TOTAL		\$15,200,000

**B. Project Status**

Design funds will be authorized in the FY 2013 and this project will be included in the BG/WC MPO TIP. Currently a project to widen US 31W to 5 lanes from the Dillard Road intersection to the Natcher Parkway is under construction. This project was identified as the number one priority transportation need on the District 3 Transportation Plan and in the 2011 BG/WC MPO prioritization.

**C. System Linkage**

US31W is a Urban Arterial and Rural Major Collector that connects the cities of Franklin, Woodburn, and Bowling Green along with the growing community of Richpond. The site of the newly opened campus of the combined South Warren Middle and High Schools is located along this corridor and specifically within the project limits. The roadway provides access to the large industrial park properties in both Simpson and Warren Counties and also serves as major commuting route. Within proximity to the existing project limits, a major tourist attraction, Chaney's Dairy Barn is located in addition to the recreational facilities of the Buchanon Park.

**D. Modal Interrelationships**

Because the large percentage of industrial uses along the US 31W corridor, the movement of large trucks (freight) needs to be considered. There is the potential greenway connection that in the vicinity of this project. The route of the proposed shared use path begins on the Richpond Elementary School property, crossing Richpond Road (KY Hwy 242), going around South Warren School and ending the traffic signal on Nashville Road (US 31W) at the entrance of South Warren School. The path will be a 10' wide asphalt path around the school with about 200' of concrete sidewalk on the elementary school property; the path will total approximately 3000' in length.

**E. Social Demands & Economic Development**

Southern Warren County has experienced a rapid rate of residential growth which will possibly accelerate because of the new High/Middle School campus. The industrial recruitment continues for both properties in Simpson and Warren County along the US 31W corridor. The tourism operations of the Chaney's Dairy Barn and the Buchanon Park are continuing to expand along with the Octagon Historic Home (a Civil War Site) which is located to the south of the project in Simpson County.

**F. Transportation Demand**

The last actual traffic counts (2011) for the sections of US 31W within this project are Segment 1: from 1.464 to 5.283 = 6,600; Segment 2: from 5.283 to 6.910 = 10,342. These counts have historically been on a moderate increase in the past decade, but with the anticipated growth as noted in Section E to continue in the area adjacent to the corridor, these volumes will experience a corresponding increase.

**II. PROJECT PURPOSE AND NEED (cont.)**

**G. Capacity**

During the peak travel periods in the morning and afternoon, congestion is experienced along this section as school traffic for the South Warren HS and MS campus as well as the nearby Richpond Elementary School competes with commuter traffic (employment as well as WKU commuter students). The potential for development in the Richpond area has the potential to impact the capacity of this section of US 31W.

**H. Safety**

This proposed improvement is located along the US 31W Safety Corridor which was identified as a corridor of concern because of its high incidence of traffic crashes. This section of roadway has an identified CRF (Critical Rate Factor) that is greater than 1.0. See Crash Diagrams which are included for more information. A high percentage of the total crashes are noted as being rear-end crashes, especially near the intersections with Morehead Road, KY 242, and also near the entrance to the South Warren HS & MS Campus. This indicates a need for turning movement storage along US 31W. One fatality was noted in the analysis which involved a run-off-the roadway crash. See Appendix A (Crash Data) for more information.

**I. Roadway Deficiencies**

Currently, US 31W in this area has two 10 foot lanes but accommodations for turning lanes have been made at the Buchanon Park entrance, South Warren School Campus entrances, and also the intersection of US 31W at KY 242. Presently, this section of US 31W is classified as a Rural Major Collector, but given the urban nature of this area, the anticipated classification for this segment will be as a Urban Arterial as part of the urban boundary re-classification based upon the 2010 Census data. Significant drainage problems do not presently appear along this section of roadway. KYTC common geometric practices for Urban Arterial Streets recommends 12 foot lanes with curb, gutter, and sidewalks.

**Draft Purpose and Need Statement:**

**Need:** US 31W is a vital and heavily traveled connection between Bowling Green and Franklin and passes through an area that is experiencing a high rate of industrial, commercial, and residential development along with the largest middle and high school campus in Kentucky. This increasing traffic is creating safety and mobility issues for motorists and commercial vehicles along the corridor.

**Purpose:** The purpose of this improvement is to address the existing and future safety and congestion issues along US 31W and to provide a safe and reliable connection from Franklin to Bowling Green.

**III. PRELIMINARY ENVIRONMENTAL OVERVIEW**

**A. Air Quality**

Project is in:  Attainment area  Nonattainment or Maintenance Area  PM 2.5 County

STIP Pg.#: TIP Pg.#:

**B. Archeology/Historic Resources**

Known Archeological or Historic Resources are present

This project could have potential for archeological and historic sites along this US 31W corridor.

**C. Threatened and Endangered Species**

Species Listed for Warren County: gray bat, Indiana Bat, purple catspaw, pearlymussel, clubshell, fanshell, Northern riffleshell, orangefoot pimpleback, pink mucket, ring pink, rough pigtoe, sheepnose, Eggert's Sunflower, Price's potato bean and Kentucky cave shrimp. This project would be "No Effect" for all mussel species and Kentucky Cave Shrimp. There is potential impact to gray bat and Indiana bat habitat.

**D. Hazardous Materials**

Potentially Contaminated Sites are present  Potential Bridge or Structure Demolition

There was an old junk yard/Larry Harper Auto sales located at 7324 Nashville Road just south of Morehead Road. All farms sites potentially contain hazardous materials. There is potential for soil contamination at the KY242 intersection in Richpond from old gas pumps.

**E. Permitting**

Check all that may apply:  Waters of the US  MS4 area  Floodplain Impacts  Navigable Waters of the US Impacts  
Are 401/404 Permits likely to be required?  Yes  No Impacts to:  Wetlands  Stream/Lake/Pond  
 ACE LON  ACE NW  ACE IP  DOW IWQC  Special Use Waters

**F. Noise**

Are existing or planned noise sensitive receptors adjacent to the proposed project?  Yes  No  
 Is this considered a "Type I Project" according to the [KYTC Noise Analysis and Abatement Policy?](#)  Yes  No

**G. Socioeconomic**

Check all that may apply:  Low Income/Minority Populations affected  Relocations  Local Land Use Plan available

**H. Section 4(f) or 6(f) Resources**

The following are present on the project:  Section 4(f) Resources  Section 6(f) Resources

The Buchanan Park could be considered a 4(f) resource.

Anticipated Environmental Document:

None (Completely State funded)

**IV. POSSIBLE ALTERNATIVES**

**A. Alternative 1: No Build**

A. Alternative 1: "No Build" – This alternative should be carried forward, but does not address the needs identified.

**B. Alternative 2**

**"Widen US 31W Equally On Each Side"** – This alternative would widen US 31W equally on each side from two (2) lanes to five (5) lanes beginning south of the entrance to Buchanan Park (M.P. 4.1) to just south of the Dillard Road intersection (M.P. 6.61) (where five lanes will soon be constructed). A rural typical section with four (4) through lanes and a middle turn lane is proposed. Two to three box small box culverts will need to be replaced or extended within the project limits. Widening equally on each side would maximize usage of the 100' existing right of way and would also provide a slightly smoother horizontal alignment. Conversely, widening on both sides of the road would likely require relocation of all utilities and would increase construction time and cost since the widening would require an extra phase of construction. It would also likely affect all of the property owners on both sides of the highway. All "Build" Alternatives would need to carefully consider the right of way impacts in the commercially developed Richpond area. Also, there are several existing residences located near the roadway throughout the northern portion of the project that could be impacted, depending upon which alternative is selected. It may be desirable to select an alternative that combines portions of two or more of the "Build" alternatives in order to minimize right of way impacts, utility impacts, and construction costs.

Another consideration that will need to be addressed is to extend the project (using a five lane rural typical section) beyond South Warren High School's entrance to the entrance to Buchanan Park (M.P. 4.16). Buchanan Park is a county park that contains several ball fields and as a result, generates increased traffic volumes before and after ballgames. US 31W has been already been widened for a southbound left turn lane into the park.

Planning Level Cost Estimate:	<u>Phase</u>	<u>Estimate</u>
	Design	\$1,500,000
	R/W	\$700,000
	Utilities	\$3,530,000
	Const	\$12,300,000
	<b>Total</b>	<b>\$18,030,000</b>

**IV. POSSIBLE ALTERNATIVES (cont.)**

**B. Alternative #3**

Alternatives 3 & 4: **“Widen US 31W On Either Side”** – These alternatives would widen US 31W entirely on either the left or right side using the same typical section and project limits as Alternative 2. Two to three box small box culverts will need to be replaced or extended within the project limits. These two alternatives would likely avoid at least a portion of the existing utilities on either side of the roadway and would also affect a fewer number of property owners. These alternatives would also likely have a lower construction cost since widening would only be required on one side of the roadway. Conversely, the right of way impacts would be more severe on the widened side. All “Build” Alternatives would need to carefully consider the right of way impacts in the commercially developed Richpond area. Also, there are several existing residences located near the roadway throughout the northern portion of the project that could be impacted, depending upon which alternative is selected. It may be desirable to select an alternative that combines portions of two or more of the “Build” alternatives in order to minimize right of way impacts, utility impacts, and construction costs.

Another consideration that will need to be addressed is to extend the project (using a five lane rural typical section) beyond South Warren High School’s entrance to the entrance to Buchanan Park (M.P. 4.16). Buchanan Park is a county park that contains several ball fields and as a result, generates increased traffic volumes before and after ballgames. US 31W has been already been widened for a southbound left turn lane into the park.

Planning Level Cost Estimate:

<u>Phase</u>	<u>Estimate</u>
Design	\$1,500,000
R/W	\$700,000
Utilities	< \$3,530,000
Const	< \$12,300,000
<b>Total</b>	<b>&lt; \$18,030,000</b>

**These costs indicate the assumption that Utilities & Construction Costs may be less due to the singular impacts of going to one side or another.**

**V. Summary**

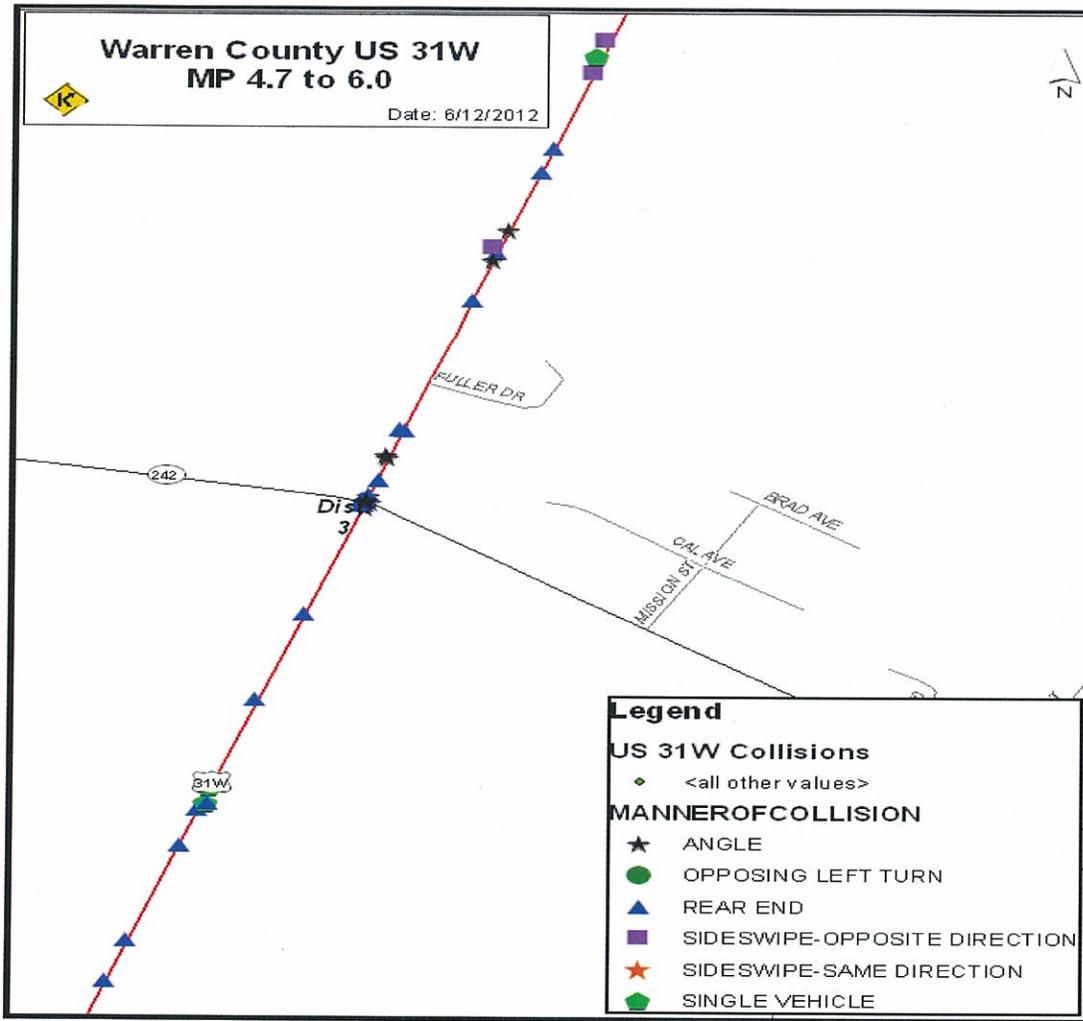
This Study is a Data Needs Analysis (DNA) of a roadway project for the US 31W corridor in southern Warren County, Item No. 3-199. Through the analysis of the existing roadway geometrics, crash data, site visits, and discussion with the project team, several needs were identified within the project limits. Traffic growth along the corridor is expected to continue as the land in the vicinity is being developed as spurred on by the new HS & MS Campus. There are collision patterns at intersections along this corridor which indicate the need for turning movement accommodation as well as additional capacity to handle the anticipated traffic increases. The study team recommended that the project limits of the widening to 5 lanes be pushed to the south of the Buchanan Park entrance to accommodate this growth--the resulting description would be **to widen US 31W to 5 lanes from 1 mile south of KY 242 to Dillard Rd**. The established development at the intersection with KY 242 lends itself to an urban typical section while the remaining typical section of the improvement would be rural with shoulders and ditches. The study team agreed upon the projected costs for this redefined project and though two specific alternatives (as described below) were developed at this point, it was agreed that the final project may actually include elements of widening equally in places and widening to one side or another in other spots along the corridor. The increase in the funds needed to

Alt #	Description	D (\$)(SPP)	R (\$)(SPP)	U (\$)(SPP)	C (\$)(SPP)	Total (\$mil)
1	Widen Equally on Both Sides (5 Lanes)	1,500,000	700,000	3,530,000	12,300,000	18,030,000
2	Wided to Only One Side (5 Lanes)	1,500,000	700,000	<3,350,000	<12,300,000	<18,030,000
3						
-	Current Hwy Plan Estimated Cost	1,000,000	1,750,000	2,000,000	10,450,000	15,200,000
-	Current Pre-Con Estimated Cost					

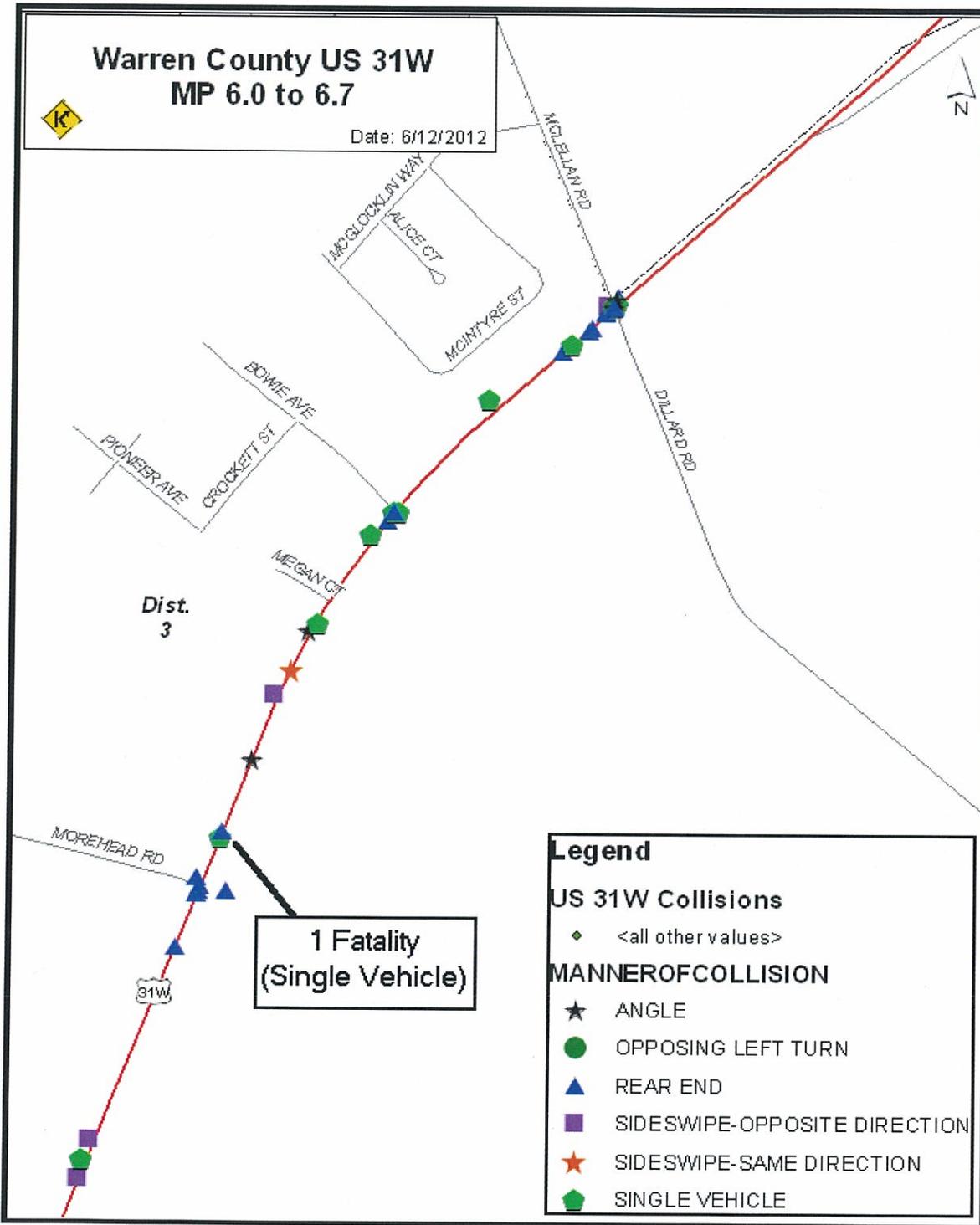
**VI. Tables and Exhibits**

**Crashes by Type from 6/1/09 to 6/01/12  
US 31W Nashville Rd**

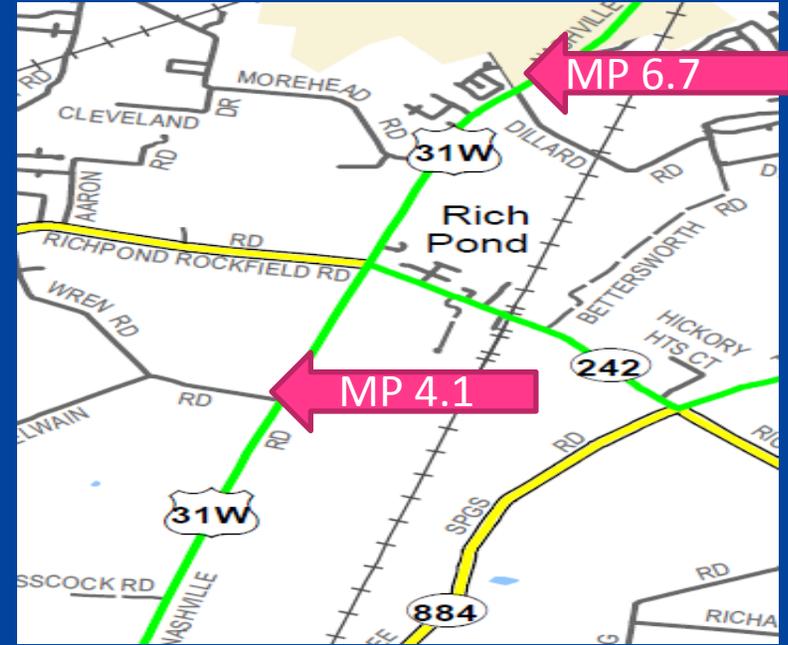
	<b>MP 4 to MP 6</b>	<b>MP 6 TO 6.7</b>
REAR END	19	20
ANGLE	10	5
SIDESWIPE OPPOSITE DIRECTION	3	2
OPPOSING LEFT TURN	0	1
SIDESWIPE SAME DIRECTION	0	1
SINGLE VEHICLE	3	9
FATAL	0	1



\* Crash Data from 6/1/09 to 6/01/12



\* Crash Data from 6/1/09 to 6/01/12



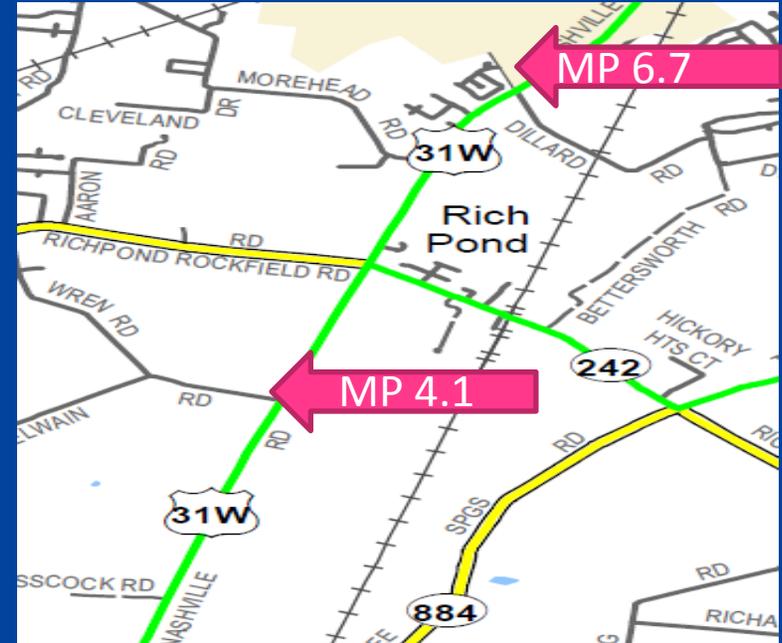
3-199.00 (Warren County)

Widen to 5 lanes from 1.0 mile south of KY 242 to Dillard Road.

Photo 1: Looking south on Nashville Road near Chaney's Dairy Barn.

Photo 2: Looking south on Nashville Road near Chaney's Dairy Barn.





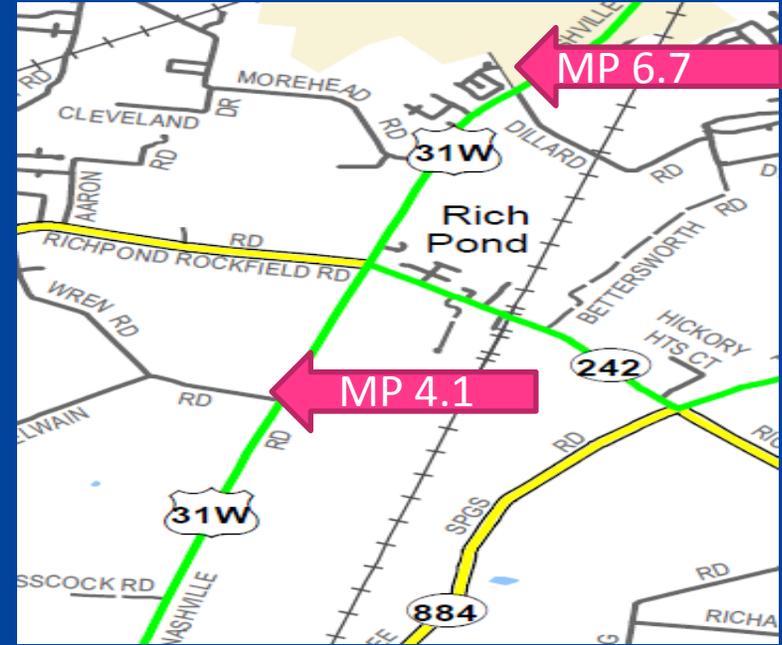
3-199.00 (Warren County)

Widen to 5 lanes from 1.0 mile south of KY 242 to Dillard Road.

Photo 1: Looking north on Nashville Road after Chaney's.

Photo 2: Looking north on Nashville Road approaching intersection at South Warren High School.





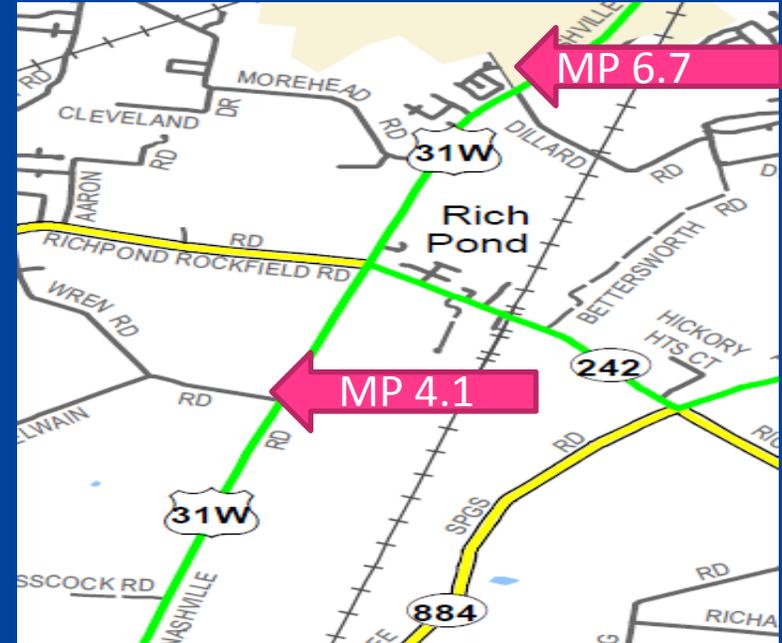
3-199.00 (Warren County)

Widen to 5 lanes from 1.0 mile south of KY 242 to Dillard Road.

Photo 1: Looking north on Nashville Road approaching intersection at South Warren High School

Photo 2: Looking north at intersection at South Warren High School





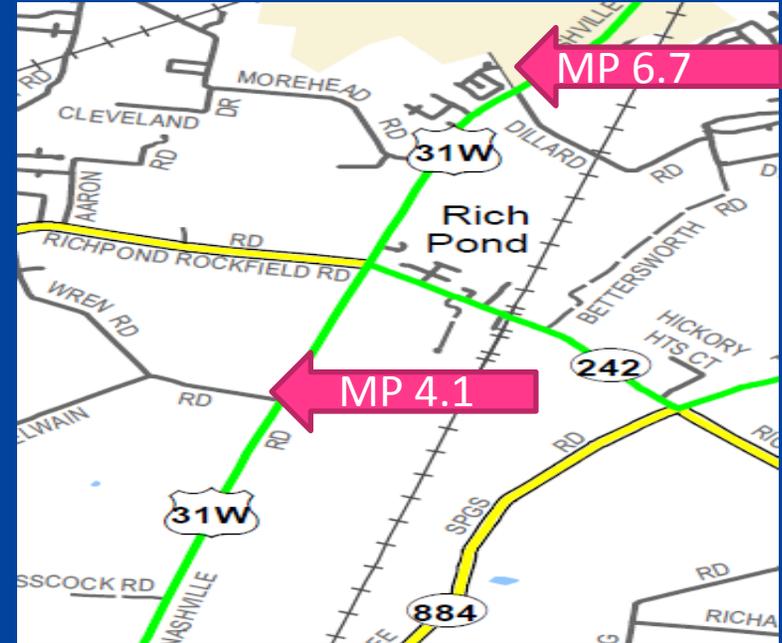
3-199.00 (Warren County)

Widen to 5 lanes from 1.0 mile south of KY 242 to Dillard Road.

Photo 1: Intersection at South Warren High School

Photo 2: Looking





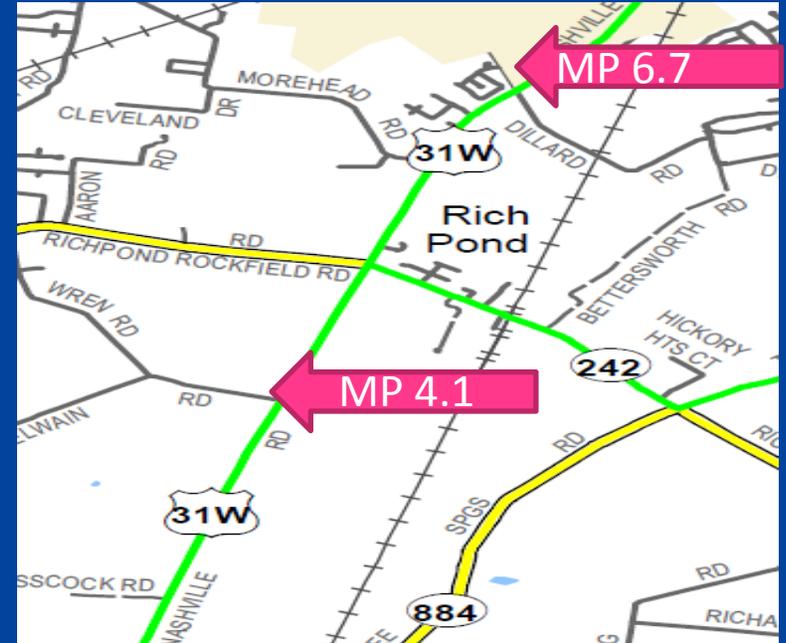
3-199.00 (Warren County)

Widen to 5 lanes from 1.0 mile south of KY 242 to Dillard Road.

Photo 1: Looking north on Nashville Road at intersection of Richpond Road.

Photo 2: Gas station at Nashville Road/Richpond Road intersection.





3-199.00 (Warren County)

Widen to 5 lanes from 1.0 mile south of KY 242 to Dillard Road.

Photo 1: Looking north on Nashville Road towards end of study area.

Photo 2: Looking north on Nashville Road at the end of the study area.

