Appendix E – MEETING SUMMARIES

Meeting Minutes

TO:	Shane McKenzie Co-Project Manager KYTC Central Office 200 Mero Street Frankfort, KY 40622	Nick Hall Co-Project Manager KYTC District Office #2 1840 North Main Street Madisonville, KY 42431
FROM:	Brian Aldridge Project Manager Stantec Consulting Services Inc.	
DATE:	May 20, 2015	
SUBJECT:	US 41 Traffic and Access Management Study Henderson County – From north of US 60 (MP 16.047) to Wolf Hills Road (MP 18.538) Project Team Kick-Off Meeting	

A project team kick-off meeting for the subject project was held at the Audubon State Park theatre in Henderson, Kentucky on May 11, 2015 at 10:30 a.m. CDT. The following individuals were in attendance:

Gina Boaz	Green River Area Development District
Nick Hall	KYTC – District 2
Beth Jones	KYTC – Central Office Planning
Vishu Lingala	Evansville Metropolitan Planning Organization
Kevin McClearn	KYTC – District 2
Shane McKenzie	KYTC – Central Office Planning
Jason Orange	KYTC – District 2
Mikael Pelfrey	KYTC – Central Office Planning
Kenny Potts	KYTC – District 2
John Rudd	KYTC – District 2
Seyed Shokouhzadeh	Evansville Metropolitan Planning Organization
Brian Aldridge	Stantec Consulting Services Inc.
Tom Creasey	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.

Nick Hall welcomed everyone and said the purpose of the meeting was to discuss the progress to date on the US 41 Traffic and Access Management Study. This portion of US 41 carries a heavy mix of local and regional traffic as it connects Henderson with Evansville via the twin bridges over the Ohio River. This study is needed to identify possible projects or strategies to address operational and safety issues that result from the combination of heavy traffic volumes, signalized intersections, and access concerns. Kevin McClearn noted the

completion of the I-69 corridor south of Henderson could affect future demand along US 41 which will be considered. Kevin thanked the Evansville Metropolitan Planning Organization (MPO) for their participation in this study.

Handouts included copies of the presentation, draft environmental footprint maps, an access management brochure, and a summary of the effects of access management techniques. After introductions, Brian Aldridge delivered a brief presentation. The following enumerated items were discussed.

1. The US 41 study area includes the existing US 41 corridor in Henderson County from north of the US 60 interchange to Wolf Hills Road.

2. Brian introduced the draft Environmental Overview Maps. Stantec is waiting on information from the State Historic Preservation Office (SHPO) and will finalize the maps once this data is received. The project team had no additional comments.

3. Gina Boaz briefly discussed the results from the Socioeconomic Study. The study found that there are higher percentages of minorities, persons with limited English proficiency of Hispanic or Latino origin, and persons with a disability in the study area than the Henderson County and statewide percentages. This project will primarily stay within existing right-of-way so there are no major socioeconomic concerns at this time.

4. Some highlights from the existing conditions inventory were discussed. Within the study corridor, US 41 is functionally classified an Urban Principal Arterial with the posted speed limit ranging from 45 mph to 55 mph. US 41 carries a heavy mix of local and regional traffic, is part of the National Highway System, and is a designated Federal Truck Network Route. Traffic volumes range from 38,000 to 40,000 vehicles per day (VPD) with 11 percent trucks. The typical section consists of four 12-foot lanes, curb and gutter, and a 30-foot median with 12-foot left turn lanes and a 6-foot mountable concrete median. There are no bike lanes or sidewalks along US 41.

5. Turning movement traffic counts were collected in March 2015 at six locations along US 41. They show 3,000 to 3,500 vehicles per hour (VPH) along US 41 during the peak hours. Watson Lane suffers the most from congestion. KYTC District 2 implemented some improvements to the signal timings in 2014. As a result, operations have improved along US 41 but Watson Lane continues to suffer from congestion and lengthy queues.

6. US 41 currently operates at capacity and without a new I-69 bridge, congestion will continue to get worse over time. The most congested segment of US 41 has an existing volume-to-capacity (V/C) ratio of 1.05. A capacity analysis was performed at the signals. All signals are operating at acceptable levels of service (LOS) except the signal at Watson Lane, which operates at a LOS E in the AM and LOS F in the PM. This signal fails due to delays from vehicles turning off and onto Watson Lane.

Intersection	AM Existing		PM Existing	
	Delay	LOS	Delay	LOS
US 41 at:				
Marywood Drive/Rettig Road	7.9	A	10.5	B
Audubon Village	2.8	A	4.6	A
Watson Lane	76.5	E	80.2	F

7. Stantec will use the Evansville MPO Regional Travel Demand Model to help develop 2030 traffic forecast volumes for this study. Vishu Lingala and Seyed Shokouhzadeh discussed the preliminary results for model runs depicting the Existing plus Committed (E+C) network and the E+C network without a new I-69 bridge.

8. Seyed Shokouhzadeh noted that UK was working on a Travel Time Study for KYTC. The draft maps do not show an existing travel time issue along US 41 but this will likely change in the future.

9. There were 433 crashes reported for the project area between 2012 and 2014. A map was shown highlighting two segments and five spots with Critical Crash Rate Factors (CRF) greater than 1.0, suggesting that crashes are not occurring randomly within these areas. The crash "spots" were defined by observing 3/10 mile sections where crashes were concentrated. Mikael Pelfrey asked Stantec to look at 1/10 mile spots.

10. Of the 433 reported crashes; 0 resulted in a fatality, 86 resulted in injuries, and 347 were property damage only collisions.

11. The crash data were analyzed by crash type to help determine locations for potential crash countermeasure treatments. Rear end collisions made up 41 percent of the crashes, angle collisions made up 24 percent of the crashes, and opposing left turn collisions made up five percent of the crashes. These collisions total 70 percent of all the crashes along the study area portion of US 41 and are likely related to access management and congestion.

12. Along the 2.2 mile study area portion of US 41 there are approximately 119 access points (55 per mile). Most of those access points are south of Watson Lane (70 access points per mile). Increasing the spacing between access points improves arterial flow and increases safety.

13. Highly access-managed arterials have: physical medians, access limited to ½ mile intervals, most left-turn access prohibited, right-turn access provided at ¼ mile intervals, and about 40% of the crash rate of "regular" arterials.

14. Brian introduced the draft purpose and need statement which is to relieve congestion and improve safety along the US 41 corridor from north of the US 60 interchange to

the intersection with Wolf Hills Road. The project team had no comments on the draft purpose and need statement.

15. Brian explained that the improvement concepts presented in the presentation were for discussion purposes only, intended to jump start the discussion and help the project team determine which alternatives should be developed further as part of this study. The true alternative development phase of this project has not begun. The group had an open discussion about these alternatives as follows:

    a. KYTC District 2 will implement a separate improvement project to add turn lanes at the US 41 intersection with Wolf Hills Road.
    b. Existing right-of-way along US 41 is 90 to 100 feet wide.
    c. Rear end collisions, angle collisions, and opposing left turn collisions total 70 percent of all the crashes along the study area portion of US 41. These types of crashes are indicative of congested roadways with poor access management.
    d. The high crash segments correlate to areas with a high density of access points.
    e. It is likely people from out of town who make most of the left turns onto US 41 from unsignalized intersections. Locals have adapted to US 41 and use alternate routes to minimize the need for making left turns.
    f. Safety appears to be the major concern along US 41 with isolated pockets of congestion such as Watson Lane.
    g. Improvements to Watson Lane will likely be one of the proposed projects. Substantial improvements at this location will be expensive because of utility relocations and right-of-way costs.
    h. Non-traversable medians will be considered with U-turns provided at signalized intersections. A single unit (delivery) truck requires about 85 feet to make a U-turn. Special indirect U-turns may be considered to accommodate semi-trucks. In the southern project limits, semi-trucks can use the US 60 interchange to turn around.
    i. Frontage/Backage roads will be considered to control access on US 41 and provide access to adjoining properties. This will separate local and through traffic and facilitate traffic circulation. It will also provide access for larger delivery trucks
    j. Proper corner clearance at signalized intersection will be examined to improve safety and maintain efficiency of the signal.
    k. Adding additional traffic lanes will be examined along US 41. The completion of the I-69 corridor through Henderson could affect future demand along US 41.
    l. Where a non-traversable median is desired, median openings and median types will be looked at to insure every business has proper access. Additional signals may be needed to accommodate U-turns. Left-In, Right-In/Right-Out median openings could be utilized to allow vehicles to turn left off US 41 but not allow vehicles to turn left onto US 41. Full median openings may also be considered where appropriate.

m. Additional left turn lanes and right turn lanes will be considered based on the traffic analysis. At the Watson Lane signal, dual left turn lanes are currently needed on southbound US 41.
n. Proposed improvement costs will need to be evaluated against future needs, with the anticipated completion of the I-69 corridor through or around Henderson which will lower future traffic volumes along US 41.
o. Stantec will look at $2 to $3 million projects that improve safety and congestion with the fallback alternative being a six-lane widening project in the event that the proposed I-69 corridor is not built.

16. Brian discussed the eight month project schedule. The Stantec team received Notice to Proceed on February 27, 2015. The first Local Officials Meeting will be held later this afternoon. The second round of meetings will be in July. At that time Stantec will present better defined alternatives for the project team and local officials to comment on and prioritize.

The meeting ended at approximately 12:00 p.m. CDT.

Meeting Minutes

TO:	Shane McKenzie Co-Project Manager KYTC Central Office 200 Mero Street Frankfort, KY 40622	Nick Hall Co-Project Manager KYTC District Office #2 1840 North Main Street Madisonville, KY 42431

FROM: Brian Aldridge
Project Manager
Stantec Consulting Services Inc.

DATE: August 20, 2015

SUBJECT: US 41 Traffic and Access Management Study
Henderson County – From north of US 60 (MP 16.047) to Wolf Hills Road (MP 18.538)
Project Team Meeting #2

A project team meeting for the subject project was held at the Audubon State Park theatre in Henderson, Kentucky on August 6, 2015 at 12:00 p.m. CDT. The following individuals were in attendance:

Nick Beasmore	KYTC - Central Office Intern
Gina Boaz	Green River Area Development District
Nick Hall	KYTC – District 2
Beth Jones	KYTC – Central Office Planning
Vishu Lingala	Evansville Metropolitan Planning Organization
Kevin McClearn	KYTC – District 2
Shane McKenzie	KYTC – Central Office Planning
Jason Orange	KYTC – District 2
Mikael Pelfrey	KYTC – Central Office Planning
John Rudd	KYTC – District 2
Seyed Shokouhzadeh	Evansville Metropolitan Planning Organization
James Swanson	KYTC – Central Office Planning
Randy Turner	KYTC – Central Office Location Engineer
Brian Aldridge	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.

Brian Aldridge welcomed everyone and said the purpose of the meeting was to discuss the improvement concepts for the US 41 Traffic and Access Management Study. Handouts included a copy of the evaluation matrix and cost estimates. In addition, exhibit boards were displayed showing the environmental footprint, conceptual safety and mobility plan, and the six-lane widening concept.

Brian delivered a presentation. The following enumerated items were discussed.

1. Some highlights from the existing conditions inventory were reviewed from the first Project Team Meeting. Within the study corridor, US 41 is functionally classified as an Urban Principal Arterial with traffic volumes ranging from 38,000 to 40,000 vehicles per day (VPD) and 11 percent trucks. The typical section consists of four 12-foot lanes, curb and gutter, and a 30-foot median with 12-foot left turn lanes and a 6-foot mountable concrete median.

2. There were 433 crashes reported for the project area between 2012 and 2014. Of the 433 reported crashes, 0 resulted in a fatality, 86 resulted in injuries, and 347 were property damage only collisions. Rear end collisions made up 41 percent of the crashes, angle collisions made up 24 percent of the crashes, and opposing left turn collisions made up five percent of the crashes. These collisions total 70 percent of all the crashes along the study area portion of US 41 and may be related to access management and congestion.

3. Along the 2.2 mile study area portion of US 41 there are approximately 119 access points (55 per mile). Most of those access points are south of Watson Lane (70 access points per mile). Increasing the spacing between access points improves arterial flow and increases safety.

4. Brian reviewed the Draft Purpose and Need statement which is to relieve congestion and improve safety along the US 41 corridor from north of the US 60 interchange to the intersection with Wolf Hills Road.

5. The Evansville MPO provided output from its Regional Travel Demand Model to assist Stantec in developing year 2030 traffic forecast volumes for this study. Based on the model output and investigation of historic traffic volume trends, a one percent annual growth rate was assumed along US 41 for the 2030 No-Build (Existing plus Committed network without a new I-69 bridge). This growth comes from the construction of I-69 north and south of Henderson which currently funnels traffic through the US 41 study area. The model runs for the Existing plus Committed network with a new I-69 bridge south of Henderson show a 15 to 20 percent reduction in traffic compared to the 2030 No-Build volumes. The analyses suggest the six-lane widening concept would not be warranted if a new I-69 bridge is built south of Henderson.

6. Stantec used the annual growth rate to estimate future year AM and PM peak traffic volumes and perform traffic analyses using TransModeler. The Existing, No-Build, Access & Mobility Plan, and the Six Lane Widening concepts were modeled. Brian noted the Existing and No-Build scenarios show heavy delay at Watson Lane during the peak hours.

7. Brian explained the improvement concepts shown in the presentation were preliminary ideas. These concepts are intended to help the project team determine which alternatives should be developed further in future project phases. The project team was provided a handout of the evaluation matrix and construction cost estimates. The table summarized the traffic, safety, community, and environmental impacts of each improvement concept as well as the construction cost. The group had an open discussion about these concepts as follows:

    a. Brian Aldridge: Would it be beneficial if Stantec completed a cost-benefit analysis? This would summarize the overall value for money of the project by comparing the cost of the improvements and the cost savings from the anticipated reduction in crashes and delay.
    Shane McKenzie: Yes. Complete for the Safety and Mobility Plan (not individual projects).
    b. Kevin McClearn: Is there a safety concern with adding a signal at Barrett Boulevard? The US 60 Interchange is 2,000 feet south of this intersection and there are weaving patterns associated with the mainline lane drop and the interchange ramps.
    Brian Aldridge: During peak hours queues along US 41 can exceed 500 to 600 feet long at the signals, which would leave 1,400 feet between the back of queue and the US 60 interchange. This should provide drivers with enough distance to safely stop if needed, but longer queues could be problematic. Stantec will look at two changes to the Barrett Boulevard concept:
        i. Full Signal: Add an outside lane on northbound US 41 for the interchange ramp. Terminate the extra lane at Barrett Boulevard and remove the mainline lane drop on northbound US 41.
        ii. A "3/4 Signal" concept: The new Elm Street Connector will become a left-in, right-in/right-out with a traffic signal and Barrett Boulevard will be converted to a right-in/right-out. This would allow northbound traffic to flow freely through the intersection. This configuration is similar to the "Green T" intersection concept.
    c. Brian Aldridge: Based on the traffic analyses, southbound dual left turn lanes are needed on US 41 at Watson Lane. This will require widening Watson Lane to accommodate dual receiving lanes, and the concept currently extending the eastbound widening to Stonegate Drive. There are also heavy delays during peak hours for westbound vehicles turning right from Watson Lane to US 41. To help with this delay, a right-turn overlap phase can be implemented to increase capacity. Dual right turn lanes can also be considered during future phases of the project.
    Kevin McClearn: This is a priority improvement. Stonegate Drive seems like a good place for the lane drop on Watson Lane.
    d. Gina Boaz: During heavy rain events Stratman Road and Wolf Hills Road are overtopped by flood water. Consider fixing this as part of the Stratman Road improvement.

e. Brian Aldridge: The Eastern Backage Road can be built in segments, and some of the proposed intersection improvements would be recommended for implementation first to better accommodate traffic flow between the backage road and US 41.
f. Gina Boaz: The truck stop will not be happy about losing the ability to have left turns in and out of their property with the raised median concept. Brian Aldridge: The raised median does not have to span the entire corridor. This is a decision that would be made during future phases of the project.

8. Brian discussed the eight month project schedule. The second Local Officials Meeting will be held later this afternoon. During that meeting stakeholders will be asked to prioritize the improvement concepts. The final project team meeting will be August 24, 2015 where priority improvements will be identified for the report.

The meeting ended at approximately 1:00 p.m. CDT.

Meeting Minutes

TO:	Shane McKenzie Co-Project Manager KYTC Central Office 200 Mero Street Frankfort, KY 40622	Nick Hall Co-Project Manager KYTC District Office #2 1840 North Main Street Madisonville, KY 42431
FROM:	Brian Aldridge Project Manager Stantec Consulting Services Inc.	
DATE:	September 8, 2015	
SUBJECT:	US 41 Traffic and Access Management Study Henderson County – From north of US 60 (MP 16.047) to Wolf Hills Road (MP 18.538) Final Project Team Meeting	

The final project team meeting for this project was held at the Kentucky Transportation Cabinet (KYTC) District 2 office in Madisonville, Kentucky on August 24, 2015 at 1:00 p.m. CDT. The following individuals were in attendance:

Gina Boaz	Green River Area Development District
Nick Hall	KYTC – District 2
Beth Jones	KYTC – Central Office Planning
Vishu Lingala	Evansville Metropolitan Planning Organization
Shane McKenzie	KYTC – Central Office Planning
Mikael Pelfrey	KYTC – Central Office Planning
Steve Ross	KYTC – Central Office Planning
Seyed Shokouhzadeh	Evansville Metropolitan Planning Organization
Brian Aldridge	Stantec Consulting Services Inc.
Tom Creasey	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.

Brian Aldridge welcomed everyone and said the purpose of the meeting was to prioritize the improvements, using input from the stakeholders and local officials, and determine which improvements have the greatest benefit and are most economical. Handouts included a copy of the evaluation matrix and cost estimates. Brian delivered a brief presentation. The following enumerated items were discussed.

1. The environmental footprint was expanded to include the Eastern Backage Road alternative. No major environmental concerns were identified.

2. Brian reviewed the results from the 19 completed questionnaires from the second local officials/stakeholders meeting.
    a. The first question asked respondents to rank the importance of seven transportation goals in order from 1 to 7 where 1 is the highest importance. Improving safety (average score 1.5) and reducing congestion (average score 2.0) were the highest ranked goals. Accommodating trucks (5.9), ensuring compatibility with the future I-69 (5.4), and minimizing impacts to residents and businesses (5.0) were the lowest ranked goals.
    b. The second question asked the respondents to rate the importance of the conceptual improvement projects on a scale from 1 to 5, where 1 indicates the project is not important and 5 indicates very important. The improvements to Watson Lane scored the highest (average score 4.6) followed by the Eastern Backage Road (3.9) and Barker Road traffic signal relocation and improvements to Elm Street (both scored 3.7).
    c. Additional comments from the questionnaires included:
        i. Like the ¾ intersection concept at Barret Boulevard.
        ii. The Watson Lane intersection improvements should be the top priority.
        iii. Extend Watson Lane widening to US 60.
        iv. Look at eastbound improvements to the Watson Lane intersection.
        v. The Eastern Backage Road should be the second priority.
        vi. Consider connecting the Eastern Backage Road to a new park entrance off Watson Lane.
        vii. The Eastern Backage Road could be built with sidewalks/bicycle lanes and connect pedestrians and bicyclists from Audubon State Park to Atkins Park and downtown. There are no provisions now for pedestrians on the east side of US 41.
        viii. Limit access to new development along the corridor via Eastern Backage Road.
        ix. Eliminate the 18-foot median and instead consider a concrete barrier wall with three lanes in each direction with signals and U-turns. The cost would be less and could be constructed within existing ROW.
        x. A raised median may not be beneficial to the community.
        xi. Prefer Stratman Road Option 1.
        xii. Concerned about sight lines and signal at the Stratman Road intersection.
        xiii. Six-Lane Widening only if I-69 is not built.
        xiv. Close the entrance into the shopping center beside Applebee's and use the proposed Eastern Backage Road.
        xv. Add better intersection at Marywood Drive and US 60 to ease getting onto US 60 from US 41. Adding a traffic light here would be a great idea for now.

3. Stantec calculated a 15-year benefit-to-cost ratio for the Safety and Mobility Plan. Benefits related the crash reduction and congestion relief were compared to the design, right-of-way, utility, and construction cost. The benefit-to-cost ratio is 1.00,

meaning the project will pay for itself after 15 years based on the parameters shown below.

15-Year Benefit-to Cost Ratio
Safety and Mobility Plan

Benefits	Crash Reduction*	$ 16,602,000	**$29,128,835**	**Benefit-to-Cost (B/C)**
	Congestion Relief**	$ 12,526,835		
Costs* **	Design	$ 1,460,000	**$29,160,000**	**1.00**
	Right-of-Way	$ 8,050,000		
	Utilities	$ 5,050,000		
	Construction	$ 14,600,000		

*Assumes 25% reduction in overall crashes along US 41.
**Based on reduction in average delay for AM and PM peak hours between 2015 and 2030 and average hourly rate of $17.72 per hour (source: Bureau of Labor Statistics)
***Does not include improvements to Elm Street

4. The project team was provided a handout of the evaluation matrix and construction cost estimates. The table summarized the traffic, safety, community, and environmental impacts of each improvement concept as well as the cost estimates. The group had an open discussion about these concepts as follows:

    a. Comment: The raised median should stop at Watson Lane.
    Answer: The raised median does not have to be built along the entire study area. Stantec will show the cost estimate for the entire length but note in the report that the limits of the raised median will be determined during future phases of the project.
    b. Question: Can we construct a barrier wall instead of the 18-foot wide median and stay within the existing right-of-way?
    Answer: No, constructing a barrier wall would still most likely require full outside shoulders which cannot be constructed in the existing right-of-way. It would also introduce less than desirable mainline tapers to accommodate the left-turn lanes on US 41 which is not ideal for the amount of through traffic on the corridor. Ultimately this decision will be made during the design phase of the project.
    c. Question: Can we show the reduction in delay for each concept?
    Answer: No, individual projects were not modeled as part of this study. The Existing, No-Build, Access & Mobility Plan, and the Six Lane Widening concepts were modeled.
    d. Comment: The Eastern Backage Road can be designed all at once but built in segments as funding becomes available.
    e. Question: Can the Eastern Backage Road line up with the Audubon State Park parcel off Watson Lane?

Answer: Constructing the Eastern Backage Road at this location would require right-of-way acquisition at a mobile home park. However, this is something that can be considered in future project phases.

f. Comment: There have been concerns about limiting connections and access to the proposed Eastern Backage Road.
   Answer: The terrain will limit access to development on the east side of the road and there is not much open space for development on the west side of the road.
g. Comment: The six-lane widening concept would not be warranted if a new I-69 bridge is built south of Henderson. As long as I-69 is a regional priority, this improvement should not be recommended.
h. Comment: Two concepts will be listed in the report for Barret Boulevard:
    i. Full Signal: Add an outside lane on northbound US 41 for the interchange ramp. Terminate the extra lane at Barrett Boulevard and remove the mainline lane drop on northbound US 41.
    ii. A "3/4 Intersection" concept: The new Elm Street Connector will become a left-in, right-in/right-out with a traffic signal and Barrett Boulevard will be converted to a right-in/right-out. This would allow northbound traffic to flow freely through the intersection. This configuration is similar to the "Green T" intersection concept.
i. Comment: The improvements at Watson Lane should be the top priority.

5. In light of the technical data, comments from stakeholders, and results of the survey, the project team worked together to prioritize each of the recommended project locations.

    a. High Priority (in order)
        i. Watson Lane Intersection
        ii. Barker Road Intersection
        iii. Eastern Backage Road
    b. Medium Priority (in no particular order)
        i. Barrett Boulevard Intersection
        ii. Marywood Drive Intersection
        iii. Audubon State Park Entrance
        iv. Stratman Road Intersection
        v. N. Elm Street
        vi. Raised Median
    c. No Priority
        i. Six Lane Widening

6. Brian discussed the eight-month project schedule. The draft report will be submitted in September and the final report in October.

The meeting ended at approximately 2:00 p.m. CDT.

Meeting Minutes

TO:	Shane McKenzie Co-Project Manager KYTC Central Office 200 Mero Street Frankfort, KY 40622	Nick Hall Co-Project Manager KYTC District Office #2 1840 North Main Street Madisonville, KY 42431

FROM: Brian Aldridge
Project Manager
Stantec Consulting Services Inc.

DATE: May 20, 2015

SUBJECT: US 41 Traffic and Access Management Study
Henderson County – From north of US 60 (MP 16.047) to Wolf Hills Road (MP 18.538)
Local Official Meeting

A local officials and stakeholders meeting for the subject project was held at the Audubon State Park theatre in Henderson, Kentucky on May 11, 2015 at 1:00 p.m. CDT. The following individuals were in attendance:

Steve Austin	City of Henderson, Mayor
Doug Boom	City of Henderson, Engineering
Ed Brady	Henderson County Sheriff
Gina Boaz	Green River Area Development District
Jeff Coursey	Henderson Co. Schools, Director of Transportation
Pamela Drach	Evansville Metropolitan Planning Organization
Danny Froehlich	Henderson Fire Department, Chief
Nick Hall	KYTC – District 2
William A. Hubiak	Henderson County Engineer
Beth Jones	KYTC – Central Office Planning
Corey King	Kentucky State Police
Larry Koerber	Henderson EMA
Kevin McClearn	KYTC – District 2
Shane McKenzie	KYTC – Central Office Planning
Suzanne Miles	Kentucky State Representative, House District 7
Buzzy Newman	City of Henderson
Jason Orange	KYTC – District 2
Mikael Pelfrey	KYTC – Central Office Planning
David Piller	Henderson Police Department
Dorsey Ridley	Kentucky State Senator, Senate District 4
Steve Smith	Henderson Municipal Power & Light
Seyed Shokouhzadeh	Evansville Metropolitan Planning Organization
Curt Freese	Henderson City-County Planning Commission

David Watkins	Kentucky State Representative, House District 11
Brenda Wethington	Henderson Area Rapid Transit
Brian Williams	City of Henderson, Public Works
Tom Williams	Henderson Water Utility
Brian Aldridge	Stantec Consulting Services Inc.
Tom Creasey	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.

Kevin McClearn welcomed everyone and said the purpose of the meeting was to discuss the progress to date on the US 41 Traffic and Access Management Study. Kevin noted that Senator Ridley reached out to the Kentucky Transportation Cabinet (KYTC) and the Evansville Metropolitan Planning Organization (MPO) over concern about the traffic and safety along the US 41 corridor. As a result, the Evansville MPO provided funding for this study. This portion of US 41 carries a heavy mix of local and regional traffic as it connects Henderson with Evansville via the twin bridges over the Ohio River. This study is needed to identify possible projects or strategies to address operational and safety issues that result from the combination of heavy traffic volumes, signalized intersections, and access concerns. The completion of the I-69 corridor between Kentucky and Indiana could affect future demand along US 41. Therefore, the cost of proposed improvements will be evaluated against future needs.

Handouts included an access management brochure and a summary of the effects of access management techniques. After introductions, Brian Aldridge delivered a presentation. He noted the purpose of the meeting was for participants to become familiar with the project and potential access management concepts. Stakeholders will also be asked to locate potential trouble spots to help the project team identify improvement alternatives. The following enumerated items were discussed.

1. The US 41 study area includes the existing US 41 corridor in Henderson County from north of US 60 to Wolf Hills Road. US 41 serves a large amount of regional traffic as well as lots of access to local businesses.

2. Some highlights from the existing conditions inventory were discussed. Within the study corridor, US 41 is functionally classified an urban principal arterial with a 45 to 55 mph posted speed limit. US 41 carries a heavy mix of local and regional traffic and is part of the National Highway System and is a designated Federal Truck Network Route. Traffic volumes range from 38,000 to 40,000 vehicles per day (VPD) with 11 percent trucks. The typical section consists of four 12 foot lanes, curb and gutter, and a 30 foot median with 12 foot left turn lanes and a 6 foot mountable median. There are no bike lanes or sidewalks along US 41.

3. Turning movement traffic counts were collected in March 2015 at six locations along US 41. They show 3,000 to 3,500 vehicles per hour (VPH) along US 41 during the peak hours. Watson Lane suffers the most from congestion. KYTC District 2

implemented some improvements to the signal timings in 2014. As a result, operations have improved along US 41 but Watson Lane continues to suffer from congestion and lengthy queues.

4. US 41 currently operates at capacity and without a new I-69 bridge, congestion will continue to get worse over time. A capacity analysis was performed at the signals. All signalized intersections are operating at acceptable levels of service (LOS) except Watson Lane. This signal fails due to delays from vehicles turning off and onto Watson Lane. Through traffic on US 41 operates at acceptable levels.

5. Stantec will use the Evansville MPO Regional Travel Demand Model to help develop 2030 traffic forecast volumes for this study. The project team will develop traffic forecasts with and without a new I-69 bridge.

6. There were 433 crashes reported for the project area between 2012 and 2014. A map was shown highlighting two segments and five spots with Critical Crash Rate Factors (CRF) greater than 1.0, suggesting that crashes are not occurring randomly within these areas.

7. Of the 433 reported crashes; 0 resulted in a fatality, 86 resulted in injuries, and 347 were property damage only collisions.

8. The crash data were analyzed by crash type to help determine locations for potential crash countermeasure treatments. Rear end collisions, angle collisions, and opposing left turn collisions total 70 percent of all the crashes along the study area portion of US 41. These types of crashes are indicative of congested roadways with poor access management.

9. Safety appears to be the major concern along US 41 with isolated pockets of congestion such as Watson Lane.

10. Along the 2.2 mile study area portion of US 41 there are approximately 119 access points (55 per mile). Most of those access points are south of Watson Lane (70 access points per mile). Increasing the spacing between access points improves arterial flow and increases safety.

11. Highly access-managed arterials have: physical medians, access limited to ½ mile intervals, most left-turn access prohibited, right-turn access provided at ¼ mile intervals, and about 40% of the crash rate of "regular" arterials.

12. Brian introduced the draft purpose and need statement which is to relieve congestion and improve safety along the US 41 corridor from north of the US 60 interchange to the intersection with Wolf Hills Road. Brian indicated the project team welcomes any comments or suggestions on the draft purpose and need statement.

13. KYTC District 2 will implement a separate improvement project to add turn lanes at the US 41 intersection with Wolf Hills Road.

14. Improvements to Watson Lane will likely be one of the proposed projects. Substantial improvements at this location will be expensive because of utility relocations and right-of-way costs.

15. Non-traversable medians will be considered with U-turns provided at signalized intersections. A single unit (delivery) truck requires about 85 feet to make a U-turn. Special indirect U-turns may be considered to accommodate semi-trucks.

16. Frontage/Backage roads will be considered to control access on US 41 and provide access to adjoining properties. This will separate local and through traffic and facilitate traffic circulation. It will also provide access for larger delivery trucks.

17. Proper corner clearance at signalized intersection will be examined to improve safety and maintain efficiency of the signal.

18. Where a non-traversable median is desired, median openings and median types will be looked at to insure every business has proper access. Additional signals may be needed to accommodate U-turns. Left-In, Right-In/Right-Out median openings could be utilized to allow vehicles to turn left off US 41 but not allow vehicles to turn left onto US 41. Full median openings may also be considered where appropriate.

19. Additional left turn lanes and right turn lanes will be considered based on the traffic analysis. At the Watson Lane intersection, dual left turn lanes are currently needed on southbound US 41.

20. Adding additional traffic lanes will be examined along US 41. The completion of the I-69 corridor through Henderson could affect future demand along US 41.

21. Stantec will look at $2 to $3 million projects that improve safety and congestion with the fall back alternative being a six-lane widening project in case the proposed I-69 corridor is not built.

22. Brian explained that the improvement concepts presented in the presentation were for discussion purposes only, intended to jump start the discussion and help the project team determine which alternatives should be developed further as part of this study. The true alternative development phase of this project has not begun. The group had an open discussion about these alternatives as follows:

    a. Question: Are there similar routes in Kentucky with these types of issues? Answer: Yes. This mix of high density access and high traffic volumes is a common problem on arterials that pass through larger cities. US 231 in Bowling Green, US 31W in Elizabethtown, and US 27 between Nicholasville

and Lexington are examples. Similar studies are being conducted or have already been completed at these locations.

b. Question: The Audubon Village shopping center is practically vacant. Will the study look at removing this signal?
   Answer: Yes. That would help signal spacing but the project team must also consider the potential redevelopment of the property.
c. Question: Can we relocate the Audubon Village signal to align with Baker Road? Elm Street functions as backage road to most of the businesses on the west side of US 41. This would relieve congestion at Watson Lane by providing another signalized location for vehicles to turn left onto US 41.
   Answer: The project team we will examine this concept further.
d. Question: Are the existing signals coordinated?
   Answer: Yes.
e. Question: Will the project team look at constructing a backage road on the east side of US 41, similar to Elm Street?
   Answer: Yes.
f. Question: Will the existing four lanes along US 41 adequately accommodate future traffic if the new I-69 bridge is constructed?
   Answer: It appears so, but the project team won't know for sure until the traffic forecast is complete.
g. Question: Can we make trucks use the right lane on US 41 to improve traffic flow? Maybe add signage similar to what is used on interstates.
   Answer: The project team will look into this.
h. Comment: The US 60 interchange needs better signage to direct trucks and vehicles to the correct lane prior to the interchange.
i. Question: Will improvements to Elm Street be considered as part of this project.
   Answer: If suggested improvements result in additional traffic demand along Elm Street, improvements to Elm Street may be recommended.
j. Question: What is the timeline for the new I-69 bridge?
   Answer: There is no timetable at this time.
k. Question: When I-69 is complete in Indiana, will that increase traffic on US 41?
   Answer: Yes. This is being considered in the traffic forecast.
l. Comment: In urban areas, utility and right-of-way costs can be more expensive than construction costs.
m. Comment: School buses use US 41 twice a day but avoid the corridor otherwise.
n. Comment: Marywood Drive is used as a cut-through to Walmart.
o. Comment: All the businesses along the west side of US 41, south of Watson Lane, have access to Elm Street expect Pizza Hut.
p. Comment: Locals use Elm Street, US 60, and Wolfe Hills Road to avoid US 41.
q. Comment: Northbound US 41 and US 60 vehicles merging at the US 60 interchange is a concern.
r. Comment: Semi-trucks tip over on the northbound exit ramp from US 60.

s. Comment: Need a No Left Turn sign at Barret Blvd.

23. Brian discussed the eight month project schedule. The second round of meetings will be in July. At that time Stantec will present better defined alternatives for the project team and local officials to comment on and prioritize.

The meeting ended at approximately 2:30 p.m. CDT.

Meeting Minutes

TO:	Shane McKenzie Co-Project Manager KYTC Central Office 200 Mero Street Frankfort, KY 40622	Nick Hall Co-Project Manager KYTC District Office #2 1840 North Main Street Madisonville, KY 42431

FROM: Brian Aldridge
Project Manager
Stantec Consulting Services Inc.

DATE: August 20, 2015

SUBJECT: US 41 Traffic and Access Management Study
Henderson County – From north of US 60 (MP 16.047) to Wolf Hills Road (MP 18.538)
Local Officials Meeting #2

A local officials and stakeholders meeting for the subject project was held at the Audubon State Park theatre in Henderson, Kentucky on August 6, 2015 at 1:30 p.m. CDT. The following individuals were in attendance:

Steve Austin	City of Henderson, Mayor
Brian Bishop	Henderson City-County Planning Commission
Doug Boom	City of Henderson, Engineering
Ed Brady	Henderson County Sheriff
Gina Boaz	Green River Area Development District
David Crafton	Henderson County Sheriff Department, Chief Deputy
Pamela Drach	Evansville Metropolitan Planning Organization
Nick Hall	KYTC – District 2
Marvin Hancock	Henderson Fire Department, Assistant Fire Chief
William (Bill) A. Hubiak	Henderson County Engineer
Beth Jones	KYTC – Central Office Planning
Mark Kellen	Audubon State Park, Park Manager
Dawn Kelsey	Henderson City Attorney
Larry Koerber	Henderson EMA
Sam Lamar	Henderson Municipal Power & Light
Vishu Lingala	Evansville Metropolitan Planning Organization
Kevin McClearn	KYTC – District 2
Shane McKenzie	KYTC – Central Office Planning
Buzzy Newman	City of Henderson
Jason Orange	KYTC – District 2
Mikael Pelfrey	KYTC – Central Office Planning
Russell Sights	Henderson City Manager
Seyed Shokouhzadeh	Evansville Metropolitan Planning Organization

James Swanson	KYTC – Central Office Planning
Keith Todd	KYTC – District 2
George Warren	Henderson Fiscal Court
Brenda Wethington	Henderson Area Rapid Transit
Brian Williams	City of Henderson, Public Works
Tom Williams	Henderson Water Utility
Brian Aldridge	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.

Kevin McClearn welcomed everyone and said the goal of the study was to identify small projects that could be implemented quickly and independently as well as a long-term improvement plan that could be implemented if funding becomes available. He noted the completion of the I-69 corridor between Kentucky and Indiana could affect future demand along US 41. Therefore, the cost of proposed improvements will be evaluated against future needs.

Handouts were provided including a copy of the evaluation matrix and cost estimates. In addition, exhibit boards were displayed showing the environmental footprint, safety and mobility plan, and the six-lane widening concept. Brian Aldridge delivered a brief presentation, a copy of which is attached. He noted the purpose of the meeting was to discuss the improvement concepts for the US 41 Traffic and Access Management Study. Stakeholders were asked to complete a survey ranking the importance of each improvement concept. The following enumerated items were discussed.

1. Some highlights from the existing conditions inventory were reviewed from the first local officials and stakeholders meeting. The study area includes the existing US 41 corridor in Henderson County from north of US 60 to Wolf Hills Road. US 41 serves a large amount of regional traffic as well as lots of access to local businesses. Within the study corridor, US 41 is functionally classified as an Urban Principal Arterial with traffic volumes ranging from 38,000 to 40,000 vehicles per day (VPD) and 11 percent trucks. The typical section consists of four 12-foot lanes, curb and gutter, and a 30-foot median with 12-foot left turn lanes and a 6-foot mountable concrete median.

2. There were 433 crashes reported for the project area between 2012 and 2014. Of the 433 reported crashes; 0 resulted in a fatality, 86 resulted in injuries, and 347 were property damage only collisions. Rear end collisions made up 41 percent of the crashes, angle collisions made up 24 percent of the crashes, and opposing left turn collisions made up five percent of the crashes. These collisions total 70 percent of all the crashes along the study area portion of US 41 and are likely related to access management and congestion.

3. Along the 2.2 mile study area portion of US 41 there are approximately 119 access points (55 per mile). Most of those access points are south of Watson Lane (70

access points per mile). Increasing the spacing between access points improves arterial flow and increases safety.

4. Brian reviewed the purpose and need statement which is to relieve congestion and improve safety along the US 41 corridor from north of the US 60 interchange to the intersection with Wolf Hills Road.

5. The Evansville MPO provided output from its Regional Travel Demand Model to assist Stantec in developing year 2030 traffic forecast volumes for this study. Based on the model output and investigation of historic traffic volume trends, a one percent annual growth rate was assumed along US 41 for the 2030 No-Build (Existing plus Committed network without a new I-69 bridge). This growth comes from the construction of I-69 north and south of Henderson which currently funnels traffic through the US 41 study area. The model runs for the Existing plus Committed network with a new I-69 bridge south of Henderson show a 15 to 20 percent reduction in traffic compared to the 2030 No-Build volumes. The analyses suggest the six-lane widening concept would not be warranted if a new I-69 bridge is built south of Henderson.

6. Brian explained the improvement concepts highlighted in the presentation were just ideas and that the project team welcomed input. These concepts are intended to help the project team determine which alternatives should be developed further in future project phases. The group had an open discussion about these concepts as follows:

    a. Brian Aldridge: The completion of the I-69 Bridge between Kentucky and Indiana could affect future demand along US 41. Some alternatives, such as the six lane widening concept, are likely not necessary if the new I-69 bridge is built south of Henderson.
    b. Brian: Some safety concerns have been expressed about adding a traffic signal at Barrett Boulevard because of its proximity to the US 60 interchange. As a result Stantec will look at two changes to the Barrett Boulevard concept:
        i. Full Signal: Add an outside lane on northbound US 41 for the interchange ramp. Terminate the extra lane at Barrett Boulevard. Remove the mainline lane drop on northbound US 41.
        ii. A "3/4 Signal" concept: The new Elm Street Connector will become a left-in, right-in/right-out with a signal and Barrett Boulevard will be converted to a right-in/right-out. This would allow northbound traffic to flow freely through the intersection. This configuration is similar to the "Green T" intersection concept.
    c. Brian Aldridge: Watson Lane is by far the most congested intersection in the study area. Based on the traffic analyses, southbound dual left turn lanes are needed on US 41. This will require widening Watson Lane to accommodate dual receiving lanes. There are also heavy delays during peak hours for westbound vehicles turning right from Watson Lane to US 41. To help with this delay, a right-turn overlap phase can be implemented to increase

capacity. Dual right turn lanes may also be considered during future phases of the project.
Question: Have you looked at a dedicated right acceleration lane on US 41 for westbound traffic turning right off Watson Lane?
Answer: Yes, but there were too many right-of-way and access constraints.

d. Question: Is there enough storage in the median for trucks at the Stratman Road intersection?
Answer: No, this is one reason for the signal. You would not want trucks queueing in the median.

e. Question: Are the sight lines adequate at the Stratman Road intersection?
Answer: This will be looked at in more detail during the design phase of the project should it move forward.

f. Question: Can the Eastern Backage Road connect to a new park entrance off Watson Lane?
Answer: The terrain makes constructing a new park entrance at this location difficult. However, this is something that can be considered in future project phases.

g. Question: If the Eastern Backage Road were built where would the raised median go?
Answer: Currently we show the raised median extending the entire length of the corridor with median openings at signalized intersections and the Audubon State Park entrance. But that is subject to change in future project phases. If you do not think the median should extend the entire length of the corridor, please let us know.

h. Question: What is the benefit of widening US 41 to six lanes along the strip when the adjacent roads (Twin Bridges and Pennyrile Parkway) only have two lanes in each direction?
Answer: The benefit is at the traffic signals. An additional lane increases the capacity at each signal.

i. Comment: Consider constructing a continuous right turn lane along the corridor. With all the access points that would help traffic flow.
Answer: During the design phase right turn lane warrants would be examined. Typically speaking, one business does not warrant a right turn lane. Consolidating entrances could help with traffic flow and may create enough traffic to warrant a right turn lane.

j. Question: Have you considered constructing a barrier wall instead of the 18-foot wide median?
Answer: This could potentially introduce less than desirable mainline tapers to accommodate left-turn lanes on US 41 which is not ideal for the amount of through traffic on the corridor. Ultimately this decision will be made during the design phase of the project.

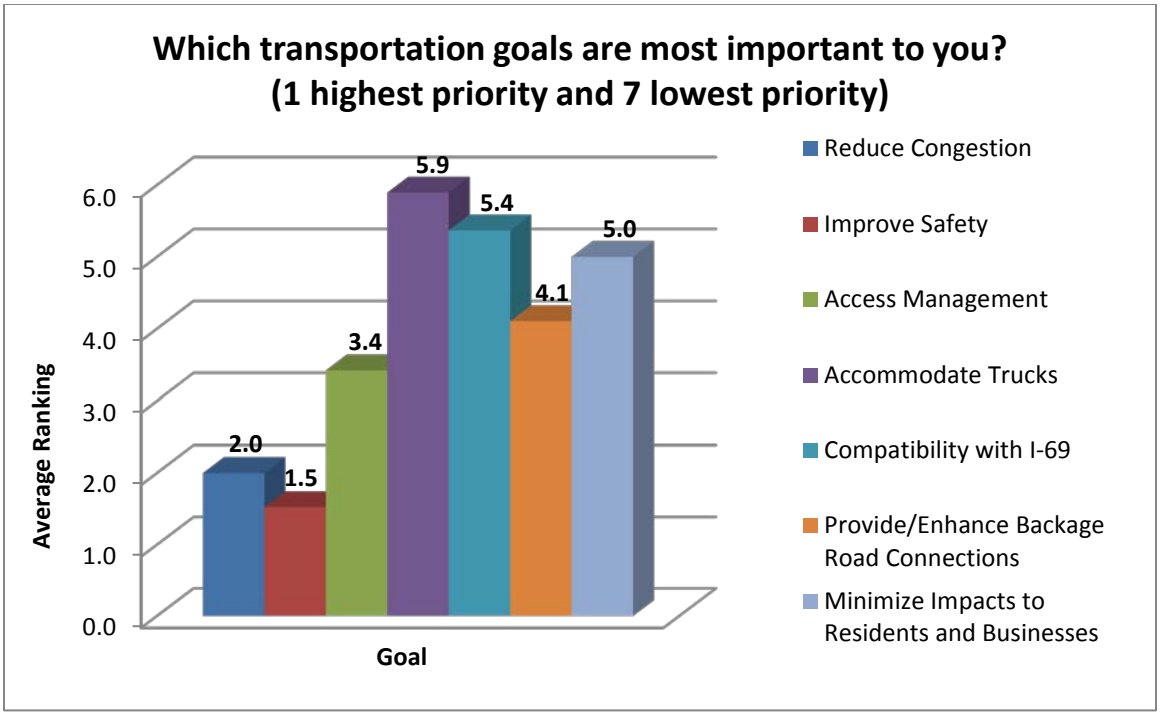
k. Question: Can emergency vehicles cut across the proposed 18 foot wide raised median?
Answer: They can if needed but the raised median would likely be constructed with traditional curb and gutter to restrict other vehicles from

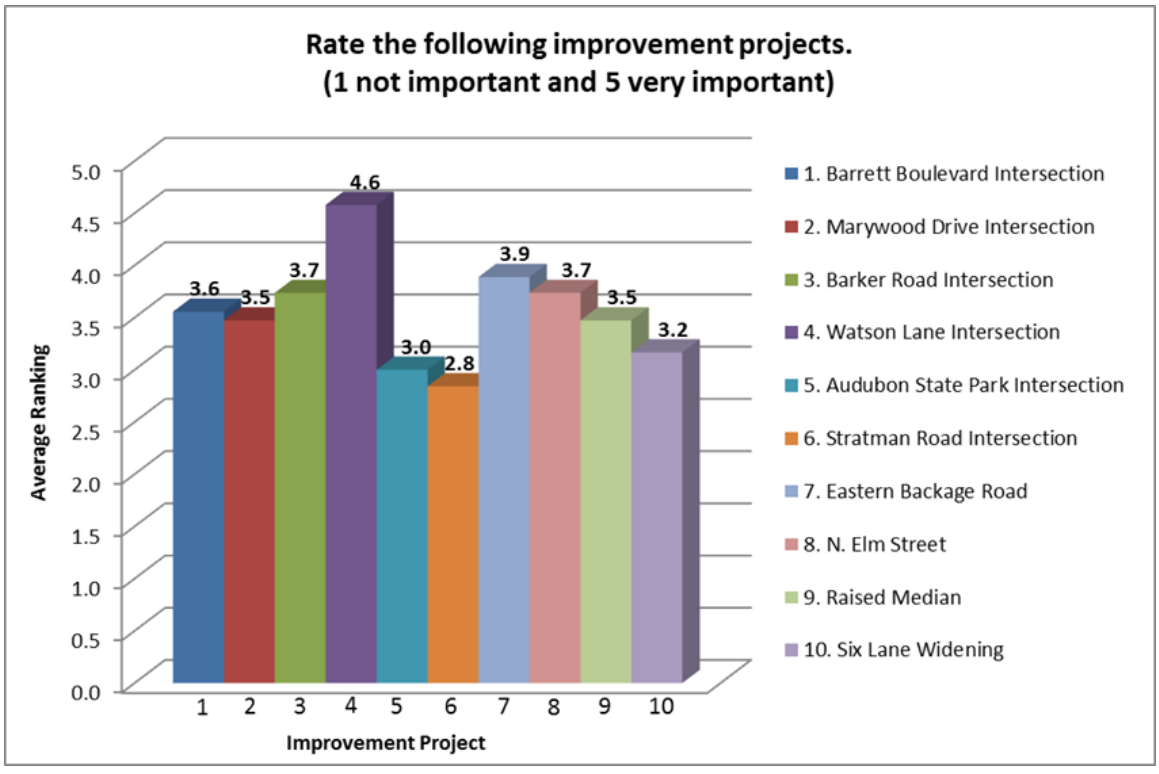
crossing. This would push most emergency vehicles to the signals where they can turn around if needed.

l. Comment: A recommendation for the six-lane widening concept could actually jeopardize funding for improvements to US 41 should a new I-69 Bridge be pursued further.
m. Question: Can we make trucks stay in the right lane?
   Answer: Generally lane restrictions for trucks are only allowed on the interstates, and in those cases there are typically three lanes in each direction with trucks restricted to the right two lanes. Truck restrictions tend to become enforcement issues. Plus, with US 41 being a four-lanes road (two lanes in each direction) trucks need the opportunity to pass other vehicles.
n. Question: When will you have a public meeting?
   Answer: There are no public meetings for this phase of the project. There will be a public release and the final report will be available to the public online.
o. Question: From a community standpoint what can we do to help move this project forward?
   Answer: Senator Ridley is working with the KYTC District 2 office to help get projects into the new Highway Plan. The new Highway Plan will come out next spring and its development is already underway at the KYTC. This is a good time for everyone to talk to their legislators.
p. Question: What happens with the final report of this study?
   Answer: The final report will be available to everyone online. Hard copies will be provided to the City of Henderson, the Evansville Metropolitan Planning Organization, and KYTC.

7. Attendees were asked to complete a questionnaire to help the project team understand priorities from a local perspective. The results from the 19 completed questionnaires are summarized in the charts below.

   a. The first question asked respondents to rank the importance of seven transportation goals in order from 1 to 7 where 1 is the highest importance. Improving safety (1.5) and reducing congestion (2.0) were the highest ranked goals. Accommodating trucks (5.9), ensuring compatibility with the future I-69 (5.4), and minimizing impacts to residents and businesses (5.0) were the lowest ranked goals.
   b. The second question asked the respondents to rate the importance of the conceptual improvement projects on a scale from 1 to 5, where 1 indicates the project is not important and 5 indicates very important. The improvements to Watson Lane scored the highest (4.6) followed by the Eastern Backage Road (3.9) and Barker Road traffic signal relocation and improvements to Elm Street (both scored 3.7).


Which transportation goals are most important to you?
(1 highest priority and 7 lowest priority)
Average Ranking
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2.0
1.5
3.4
5.9
5.4
4.1
5.0
Goal
Reduce Congestion
Improve Safety
Access Management
Accommodate Trucks
Compatibility with I-69
Provide/Enhance Backage Road Connections
Minimize Impacts to Residents and Businesses


Rate the following improvement projects.
(1 not important and 5 very important)
Average Ranking
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
3.6
3.5
3.7
4.6
3.0
2.8
3.9
3.7
3.5
3.2
1
2
3
4
5
6
7
8
9
10
Improvement Project
1. Barrett Boulevard Intersection
2. Marywood Drive Intersection
3. Barker Road Intersection
4. Watson Lane Intersection
5. Audubon State Park Intersection
6. Stratman Road Intersection
7. Eastern Backage Road
8. N. Elm Street
9. Raised Median
10. Six Lane Widening

8. Brian discussed the eight month project schedule. Stantec will refine the improvement concepts and cost estimates based on project team and stakeholder input. Priority improvements will be identified by the project team, using input from the stakeholders and local officials, to determine which improvements have the greatest benefit and are most economical. The final report should be posted online around the end of the year or first of next year.

The meeting ended at approximately 3:00 p.m. CDT.