

Data

Needs

Analysis

Begin MP 1.32
KY 2268

End MP 1.41
KY 55X

Begin MP 0.06
KY 43

Begin MP 1.05
KY 55X

Scoping Study



KY 55X, Shelby County

Turn Lane Construction at
the Intersection of KY 55x ,
KY 43 & KY 2268
Item No. 5-80004.00

Prepared by KYTC District 5

June 2018



| I. PRELIMINARY PROJECT INFORMATION | | | |
|--|---|------------------|---|
| County: | Shelby | Item No.: | 5-80004.00 |
| Route Number(s):* | KY 55X & KY 43 | Road Name: | Boone Sta. Rd. and Cropper Rd. |
| Program No.: | N/A | UPN: | (Function) 106 055X 001-002 |
| Federal Project No.: | N/A | Type of Work: | Turn Lane Construction |
| 2018 Highway Plan Project Description: | | | |
| Four right turning lanes at the intersection of KY 55X and KY 43 and two left turning lanes from KY 55X onto KY 43 | | | |
| Beginning MP: | 1.05 | Ending MP: | 1.41 |
| Project Length: | 0.36 | | |
| In TIP: | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Reconcile Project Information in Clearview | | |
| State Class.: | <input checked="" type="checkbox"/> Primary <input type="checkbox"/> Secondary | Route is on: | <input type="checkbox"/> NHS <input type="checkbox"/> NN <input checked="" type="checkbox"/> Ext Wt |
| Functional Class.: | <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural Arterial ▼ | Truck Class.: | AAA ▼ % Trucks: 9.123 |
| MPO Area: | Not Applicable ▼ | Terrain: | Rolling ▼ |
| ADT (current): | 13,374 2015 | | |
| Access Control: | <input type="checkbox"/> None <input checked="" type="checkbox"/> Permit <input type="checkbox"/> Fully Controlled <input type="checkbox"/> Partial | Spacing: | ▼ |
| Median Type: | <input checked="" type="checkbox"/> Undivided <input type="checkbox"/> Divided (Type): | | |
| Existing Bike Accommodations: | Shoulder ▼ | Ped: | <input type="checkbox"/> Sidewalk |
| Posted Speed: | <input type="checkbox"/> 35 mph <input type="checkbox"/> 45 mph <input checked="" type="checkbox"/> 55 mph | Other (Specify): | |
| KYTC Guidelines Preliminarily Based on : 60 MPH Proposed Design Speed | | | |
| COMMON GEOMETRIC | | | |
| Roadway Data: | EXISTING | PRACTICES** | |
| No. of Lanes | 2 | 2 | Existing Rdwy. Plans available? |
| Lane Width | 12' | 12' | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Shoulder Width | 10' | 8' | Year of Plans: 1990 & 1996 |
| Max. Superelevation*** | Normal Crown | 6% | <input type="checkbox"/> Traffic Forecast Requested |
| Minimum Radius*** | N/A | 1,330' | Date Requested: |
| Maximum Grade | Unknown | 4% | <input type="checkbox"/> Mapping/Survey Requested |
| Minimum Sight Dist. | On Tangent | 570' | Date Requested: |
| Sidewalk Width(urban) | N/A | 5' | Type: ▼ |
| Clear-zone [†] | 30' Min | 36'-44' | |
| Project Notes/Design Exceptions? | | | |
| Bridge No.: | 106B00087N | (Bridge #2) | |
| Sufficiency Rating | 96.9 | | Existing Geotech Data Available? |
| Total Length | 308.6' | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Width, curb to curb | 44' | | |
| Span Lengths | 4 Span, 90' Max Span | | |
| Year Built | 1991 | | |
| Posted Weight Limit | | | Detour Length(s): 7.87 Miles |
| Structurally Deficient? | No | | *** NOTE: Bridge specs are |
| Functionally Obsolete? | No | | provided for info only. No mods |
| Existing Bridge Type | Multi-Beam or Girder | | to the structure are anticipated. |
| *If more than one road is included in the project, include additional sheets. **Based on proposed Design Speed ***AASHTO's A Policy on Geometric Design of Highways and Streets +AASHTO's Roadside Design Guide †If more than two bridges are located on the project, include additional sheets. | | | |

II. PROJECT PURPOSE AND NEED

A. Legislation

The adjacent phases shown were approved as part of the 2018 General Assembly's Enacted Highway Plan. The project was requested by Shelby County Kentucky Representative in District 58, Rob Rothenburger.

| <i>Funding</i> | <i>Phase</i> | <i>Year</i> | <i>Amount</i> |
|----------------|--------------|-------------|---------------|
| SPP | D | 2019 | \$150,000 |
| SPP | R | 2019 | \$22,000 |
| SPP | U | 2019 | \$22,000 |
| SPP | C | 2020 | \$500,000 |

B. Project Status

It is District 5's intent to begin Design work in calendar year 2018 and perform this work in-house. The current intersection is signalized. Design funds have not been authorized as of May 2018. There is a active nearby project (Item # 5-8511) to widen KY 53 from the I-64 interchange to US 60 to 4 lanes with a divided median as well as provide bicycle/pedestrian facilities. That project is currently in the right-of-way phase with construction anticipated in 2020. There are also two projects on the Unscheduled Projects List (UPL) in the project area to widen KY 55X from US 60 to KY 43 to 5 lanes and then provide access management from KY 43 to the KY 55 Bypass.

C. System Linkage

KY 55X is a rural minor arterial off the National Highway System in Shelby County. It is a primary state maintained route between Shelbyville and Henry County. The route begins at the KY 55 and KY 55X intersection and proceeds approximately 10 miles to the Henry/Shelby County line. The other legs of the intersection include KY 43 and KY 2268, both major collector roadways. KY 43 is a common rural route to a farmers market in Shelby County, Gallrein Farms, as well as other residential and agricultural farmland. KY 2268 is a urban roadway that connects KY 55X to 7th Street and provides access to residential properties as well as some businesses and a church.

D. Modal Interrelationships

As a primary north/south route in Shelby County, KY 55X is located in the heart of the largest city in Shelby County and see's a good amount of commerce traffic in the retail, food, agriculture and manufacturing industries among others. This intersection is also near a a railroad underpass approximately 900' to the south, owned and operated by CSX and RJ Corman/Central Kentucky Lines (RJCC). Also in the area is Norfolk Southern tracks to the south of Shelbyville as well as I-64 approximately 3 miles south of the intersection. The project area is also located within the 2017 Shelby County Bike and Pedestrian Master Plan. The proposal is to provide a 6' sidewalk from KY 43 to US 60 on the west side of KY 55X.

E. Social Demands & Economic Development

The intersection of KY 55X at KY 43 is a changing point between urban and rural areas in Shelby County. KY 55X sees a mixture of residential, commercial and light industrial traffic. A local church, First Christian Church, is near the project area off of KY 2268 (Eminence Pike). KY 55X also accommodates traffic from the Shelbyville Bypass, KY 55 (Freedom's Way). The Shelbyville City limits are just outside the intersection, approximately 700' to the south, where the majority of the dining, manufacturing and retail establishments are located. Some of the establishments along KY 55X south include the Shelbyville Social Service Department, Shelby County Fire Department, Kroger, Sonoco Corporation and Nifco America among others.

II. PROJECT PURPOSE AND NEED (cont.)

F. Transportation Demand

The intersection is currently signalized, which means it met at least one warrant for the signal to be approved back in 2003. It was converted from a flashing beacon to a traffic signal at that time. There are currently no turn lanes on any of the 4 legs of the intersection. The addition of turn lanes would help improve safety and mobility of vehicles currently experienced at this intersection.

G. Capacity

KY 55X sees an AADT to the north of 7,875 (2012) and 13,374 (2015) to the south as you head towards Shelbyville. KY 43 has an AADT of 4,614 (2017) and KY 2268 has an AADT of 2,769 (2017) near the intersection. No known capacity issues exist with the current two lane roadways. It's widely accepted that 2-lane facilities can handle up to 1,700 vphpl or 3,200 vphpl in both directions and a theoretical maximum saturation flow of 1,900 vphpl at intersections. The DHV on KY 55X is 1,137 vph, with a DDHV of 626 vph based on AADT and K and D Factors obtained from HIVEi. Improvements to the intersection by adding turn lanes would help increase the directional capacity for each signal cycle. The provision of right-turn lanes reduces impedances between lower speed right-turning vehicles and higher speed left-turning vehicles. Based on estimated turning counts at the intersection, left and right turn lanes should be considered on KY 55X.

H. Safety

3 year crash data from mid 2015-2018 shows 8 injury crashes as well as 12 property damage only crashes related to the intersection which includes approaches on KY 55X, KY 43 and KY 2268. Of these 20 total collisions, 12 were rear end while the other 8 were angle/opposing left turn movements. Turn lanes should help reduce rear end collisions by providing turning movements dedicated lanes and through movements unobstructed flow. If traffic counts meet requirements for left turn phasing, safety would be enhanced for both through and opposing left turn movements. The addition of turning lanes at this intersection is an appropriate countermeasure to reduce crashes at this location as most of the crash history data points to issues related to turning maneuvers. Existing geometrics at the intersection meet or exceed ASHTO standards and sight distance does not seem to be an issue. The intersection is appropriately signed and is not difficult to navigate. All 4 legs of the intersection have advanced signal warning signs on the approaches. Most collisions occurred during daylight, however the intersection is not lighted and 4 crashes did occur at night, with 3 involving injuries. All crash data was obtained from KY OPS, which is maintained by KSP.

I. Roadway Deficiencies

No known geometric deficiencies seem to exist at this intersection. All four legs are on a tangent when they approach the intersection and intersect at near 90 degree angles. Grades, cross slopes, lane and shoulder widths all seem to meet or exceed ASHTO standards. This intersection was constructed in the early 1990's when improvements were made to the KY 53/KY 55 Connector.

| III. PRELIMINARY ENVIRONMENTAL OVERVIEW | |
|---|--|
| A. Air Quality Project is in: <input checked="" type="checkbox"/> Attainment area <input type="checkbox"/> Nonattainment or Maintenance Area <input type="checkbox"/> PM 2.5 County STIP Pg.#: Not found TIP Pg.#: Not found | |
| If bridge demolition/renovation is required 10 day eNOI must be submitted to Division of Air Quality (DAQ). | |
| B. Archeology/Historic Resources <input type="checkbox"/> Known Archeological or Historic Resources are present No known resources present. Bridge was constructed in 1991. Since state funded, if permits required, Section 106 review/clearance required. | |
| C. Threatened and Endangered Species Potential species according to IPAC list generated 05/21/2018 include: Gray Bat, Indiana Bat, Northern Long-eared Bat, and Running Buffalo Clover. | |
| D. Hazardous Materials <input type="checkbox"/> Potentially Contaminated Sites are present <input checked="" type="checkbox"/> Potential Bridge or Structure Demolition Bridge 106B00087N is over CSX RR and Mulberry Creek may require Asbestos Containing Materials (ACM) Inspection if bridge demolition/renovation is required. No other potential sites identified. | |
| E. Permitting Check all that may apply: <input checked="" type="checkbox"/> Waters of the US <input type="checkbox"/> MS4 area <input type="checkbox"/> Floodplain Impacts <input type="checkbox"/> Navigable Waters of the US Impacts Are 401/404 Permits likely to be required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Impacts to: <input type="checkbox"/> Wetlands <input checked="" type="checkbox"/> Stream/Lake/Pond <input type="checkbox"/> ACE LON <input checked="" type="checkbox"/> ACE NW <input type="checkbox"/> ACE IP <input type="checkbox"/> DOW IWQC <input type="checkbox"/> Special Use Waters If permits are required, anticipate can be covered under NW14 and General WQC, both anticipated to be BNR. | |
| F. Noise Are existing or planned noise sensitive receptors adjacent to the proposed project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is this considered a "Type I Project" according to KYTC Noise Analysis and Abatement Policy? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No N/A | |
| G. Socioeconomic Check all that may apply: <input type="checkbox"/> Low Income/Minority Populations <input type="checkbox"/> Relocations <input checked="" type="checkbox"/> Local Land Use Plan available N/A | |
| H. Section 4(f) or 6(f) Resources The following are present on the project: <input type="checkbox"/> Section 4(f) Resources <input type="checkbox"/> Section 6(f) Resources N/A | |
| Anticipated Environmental Document: None (Completely State funded) ▼ | |

| IV. PROJECT NEED, PURPOSE & SCOPE | |
|---|--|
| A. Need: | |
| <p>The following Needs have been identified: 1. Improve traffic flow and mobility at the existing intersection. It is estimated that left-turn lane volume exceeds 100 vph on one or more movements at the intersection and exclusive left turn lanes should be investigated. 2. Improve roadway safety. Even though the CRF value is 0.58 for this section of KY 55X based on data obtained from HIVEi, the high number of turning movement and rear end crashes compared to other types of crashes suggests the intersection cannot accomodate turn movements safely and improvements can be made.</p> | |
| B. Purpose: | |
| <p>The purpose of this project is to improve the operation at the existing signalized intersection by adding turning movement capacity while improving roadway safety.</p> | |
| C. Scope: | |
| <p>There are multiple options for adding turn lanes at the existing intersection (split widen, widen left or widen right). While no one option may be the best for all 4 legs, each leg should be looked at individually to try and minimize right-of-way, utility, environmental and construction costs while addressing the project's purpose and need and improving or maintaining the intersections level of service and geometrics. Exhibit 1 presents options that would satisfy the project's purpose and need as well as seek to minimize construction costs. Some areas of concern/avoidance include existing drainage structures (30" culverts under KY 55X and KY 2268), foreslopes due to widening including additional guardrail placement, and avoidance of impacts to the bridge over the railroad/creek, 700' to the south as you look at approach taper, bay taper and storage lane lengths. Consideration should also be given to offset left turn lanes, if the budget allows, for improved safety. Overall, the scope of the project is to fulfill the project's purpose and need and do this within the established project timeframe and budget set forth in the 2018 Highway Plan.</p> | |
| | |

| V. PROJECT ESTIMATE & METHODOLOGY | | |
|---|---|------------------|
| Estimate Methodology: | Current Estimate | |
| <p>Estimates are based on similar past projects within the District and may change due to unknown factors. Storage lane lengths and widening was approximated and sought to minimize R, U and C costs. Pavement design was obtained from old KY 55X plans from 1996. Minimal impacts, if any, to right-of-way or utilities are expected. No modifications to the existing bridge over the Railroad/Mulberry Creek are anticipated. Estimates to the right are based on Exhibit 1.</p> <p>Exhibit 2 takes into account the Shelby County Master Bike and Ped Plan created in 2017. In the Master Plan this section of KY 55X is proposed to have 6' sidewalk from US 60 to KY 43 on the west side of the road. This additional work would increase construction costs by approximately \$100,000 and push the project outside the current construction budget. It is recommended that since this project is a spot improvement and not an improvement along the entire KY 55X corridor from US 60 to KY 43 that the sidewalk be built separately.</p> | <u>Phase</u> | <u>Estimate</u> |
| | Planning | |
| | Design | \$150,000 |
| | R/W | \$22,000 |
| | Utilities | \$22,000 |
| | Const | \$500,000 |
| | Total | \$694,000 |
| VI. UTILITIES POTENTIALLY AFFECTED - CONTACT INFORMATION | | |
| Company Name - | Shelbyville Water & Sewer Commission | |
| Contact - | Tom Doyle | |
| Address - | 1059 Washington Street, Shelbyville, KY 40065 | |
| Phone No. - | 502-633-2840 | |
| Company Name - | North Shelby Water Company District | |
| Contact - | Pete Hedges | |
| Address - | P.O. Box 97, 4596 Bagdad Road, Bagdad, KY 40003 | |
| Phone No. - | 502-747-8942 | |
| Company Name - | R.J. Corman Railroad Corp. | |
| Contact - | Mike Lamar | |
| Address - | One Jay Street, Nicholasville, KY 40356 | |
| Phone No. - | 859-881-2502 | |
| Company Name - | LG&E KU | |
| Contact - | Greg Geiser | |
| Address - | 820 West Broadway, Louisville, KY 40202 | |
| Phone No. - | 502-627-3708 | |
| Company Name - | AT&T KY | |
| Contact - | Scott Roche | |
| Address - | 1340 E. John Rowan Blvd, Bardstown, KY 40004 | |
| Phone No. - | 502-348-4528 | |
| Company Name - | Shelby Energy Cooperative | |
| Contact - | Jason Ginn | |
| Address - | P.O. Box 309, 620 Old Finchville Rd, Shelbyville, KY 40 | |
| Phone No. - | 502-643-2778 | |

VII. TABLES AND EXHIBITS

Crash Data was provided by the D5 Traffic Department and obtained from KY OPS, which is maintained by KSP.

(blue text) Injury
(red text) Fatality
(black text) Property Damage Only

KY 55X

| Date | County | Roadway Name | Rdwy Number | Milepoint | Weather | Rdwy Condition | Manner of Collision | Light Condition |
|------------|--------|---------------|-------------|-----------|---------|----------------|---------------------|----------------------|
| 4/6/2018 | SHELBY | BOONE STATION | KY0055X | 1.232 | CLEAR | DRY | ANGLE | DAYLIGHT |
| 1/4/2018 | SHELBY | BOONE STATION | KY0055X | 1.223 | CLEAR | DRY | REAR END | DAYLIGHT |
| 12/5/2017 | SHELBY | BOONE STATION | KY0055X | 1.232 | RAINING | WET | REAR END | DARK-HWY NOT LIGHTED |
| 11/27/2017 | SHELBY | EMINENCE | KY0055X | 1.235 | CLEAR | DRY | ANGLE | DARK-HWY NOT LIGHTED |
| 11/22/2017 | SHELBY | EMINENCE | KY0055X | 1.245 | CLEAR | DRY | REAR END | DAYLIGHT |
| 10/21/2017 | SHELBY | EMINENCE | KY0055X | 1.238 | CLEAR | DRY | OPPOSING LEFT TURN | DAYLIGHT |
| 10/5/2017 | SHELBY | EMINENCE | KY0055X | 1.254 | CLEAR | DRY | REAR END | DAYLIGHT |
| 8/24/2017 | SHELBY | BOONE STATION | KY0055X | 1.197 | CLEAR | DRY | REAR END | DAYLIGHT |
| 4/21/2017 | SHELBY | BOONE STATION | KY0055X | 1.155 | CLOUDY | DRY | REAR END | DAYLIGHT |
| 6/22/2016 | SHELBY | BOONE STATION | KY0055X | 1.233 | CLOUDY | DRY | ANGLE | DAYLIGHT |
| 5/23/2016 | SHELBY | EMINENCE | KY0055X | 1.236 | CLEAR | DRY | REAR END | DAYLIGHT |
| 11/16/2015 | SHELBY | EMINENCE | KY0055X | 1.241 | CLOUDY | DRY | ANGLE | DAYLIGHT |
| 8/28/2015 | SHELBY | BOONE STATION | KY0055X | 1.233 | CLEAR | DRY | REAR END | DAYLIGHT |
| 6/14/2015 | SHELBY | BOONE STATION | KY0055X | 1.219 | CLEAR | DRY | OPPOSING LEFT TURN | DAYLIGHT |
| 6/4/2015 | SHELBY | BOONE STATION | KY0055X | 1.213 | CLEAR | DRY | REAR END | DAYLIGHT |

Not Related to Intersection

| Date | County | Roadway Name | Rdwy Number | Milepoint | Weather | Rdwy Condition | Manner of Collision | Light Condition |
|-----------|--------|---------------|-------------|-----------|---------|----------------|---------------------|----------------------|
| 6/10/2017 | SHELBY | EMINENCE | KY0055X | 1.378 | CLEAR | DRY | SINGLE VEHICLE | DARK-HWY NOT LIGHTED |
| 9/9/2016 | SHELBY | BOONE STATION | KY0055X | 1.1 | CLEAR | DRY | SINGLE VEHICLE | DAYLIGHT |
| 3/18/2016 | SHELBY | EMINENCE | KY0055X | 1.233 | CLEAR | DRY | SINGLE VEHICLE | DAYLIGHT |
| 12/3/2015 | SHELBY | EMINENCE | KY0055X | 1.38 | CLEAR | DRY | REAR END | DAYLIGHT |

(blue text) Injury
(red text) Fatality
(black text) Property Damage Only

KY 43

| Date | County | Roadway Name | Rdwy Number | Milepoint | Weather | Rdwy Condition | Manner of Collision | Light Condition |
|-----------|--------|--------------|-------------|-----------|---------|----------------|---------------------|-----------------|
| 7/24/2017 | SHELBY | CROPPER | KY0043 | 0.036 | CLEAR | DRY | REAR END | DAYLIGHT |

Not Related to Intersection

| Date | County | Roadway Name | Rdwy Number | Milepoint | Weather | Rdwy Condition | Manner of Collision | Light Condition |
|----------|--------|--------------|-------------|-----------|---------|----------------|------------------------|-----------------|
| 8/4/2017 | SHELBY | CROPPER | KY0043 | 0.062 | CLEAR | DRY | SIDESWIPE-OPPOSITE DII | DAYLIGHT |

(blue text) Injury
(red text) Fatality
(black text) Property Damage Only

KY 2268

| Date | County | Roadway Name | Rdwy Number | Milepoint | Weather | Rdwy Condition | Manner of Collision | Light Condition |
|-----------|--------|--------------|-------------|-----------|---------|----------------|---------------------|----------------------|
| 5/26/2017 | SHELBY | EMINENCE | KY2268 | 1.387 | CLEAR | DRY | OPPOSING LEFT TURN | DARK-HWY LIGHTED/ON |
| 3/13/2017 | SHELBY | EMINENCE | KY2268 | 1.387 | RAINING | WET | OPPOSING LEFT TURN | DAYLIGHT |
| 3/28/2016 | SHELBY | EMINENCE | KY2268 | 1.348 | CLEAR | DRY | REAR END | DAYLIGHT |
| 2/19/2016 | SHELBY | EMINENCE | KY2268 | 1.349 | CLEAR | DRY | REAR END | DARK-HWY NOT LIGHTED |

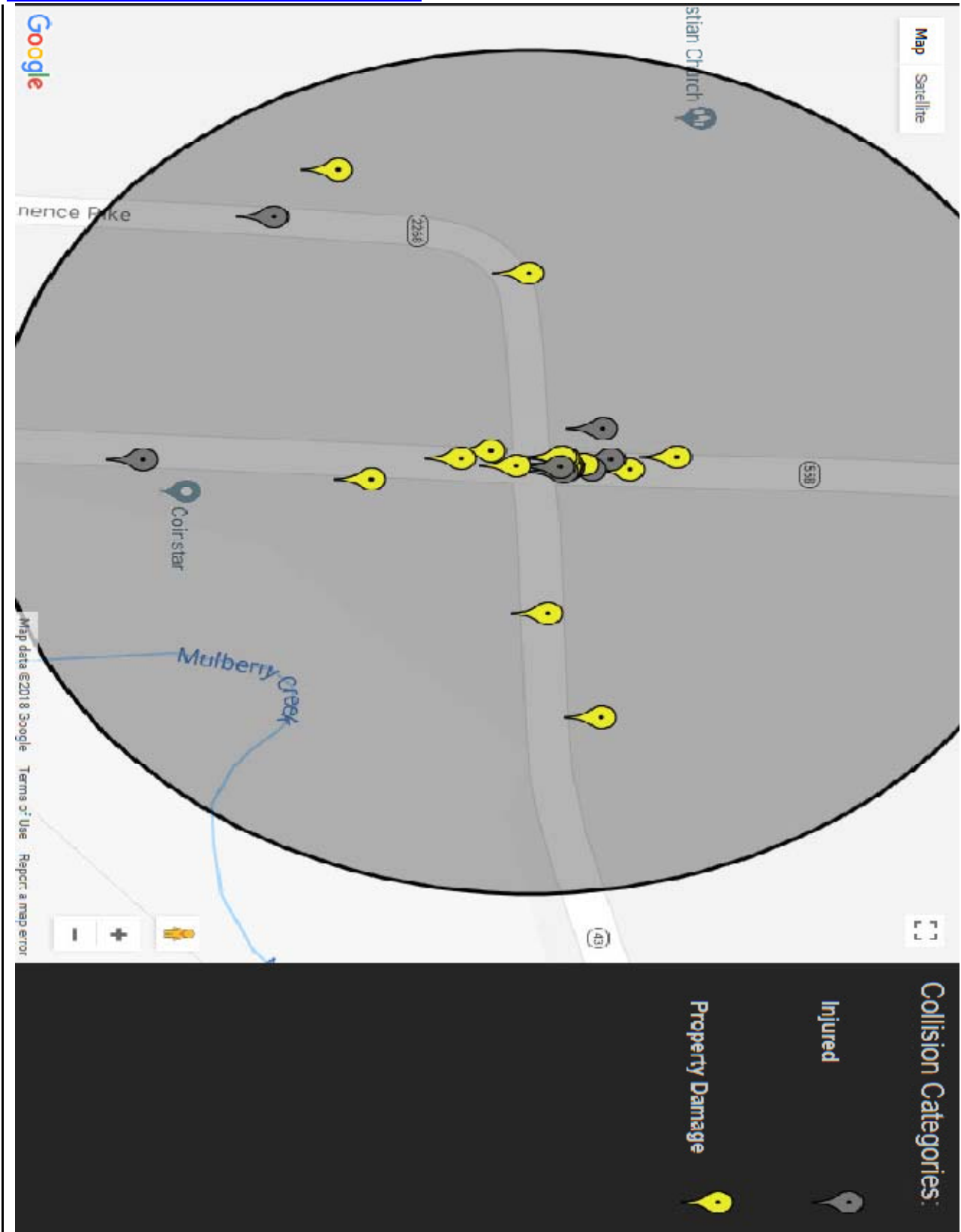
Not Related to Intersection

| Date | County | Roadway Name | Rdwy Number | Milepoint | Weather | Rdwy Condition | Manner of Collision | Light Condition |
|-----------|--------|--------------|-------------|-----------|---------|----------------|---------------------|-----------------|
| 6/1/2017 | SHELBY | EMINENCE | KY2268 | 1.304 | CLEAR | DRY | HEAD ON | DAYLIGHT |
| 5/17/2016 | SHELBY | EMINENCE | KY2268 | 1.317 | RAINING | WET | ANGLE | DAYLIGHT |

VII. TABLES AND EXHIBITS (cont.)

Collision Map was obtained using the following link:

<http://crashinformationky.org/LocationSearch>



VII. TABLES AND EXHIBITS (cont.)

KY 55X Northbound Approach



KY 55X Southbound Approach



VII. TABLES AND EXHIBITS (cont.)

KY 43 Approach (Cropper Road)



KY 2268 Approach (Eminence Pike)

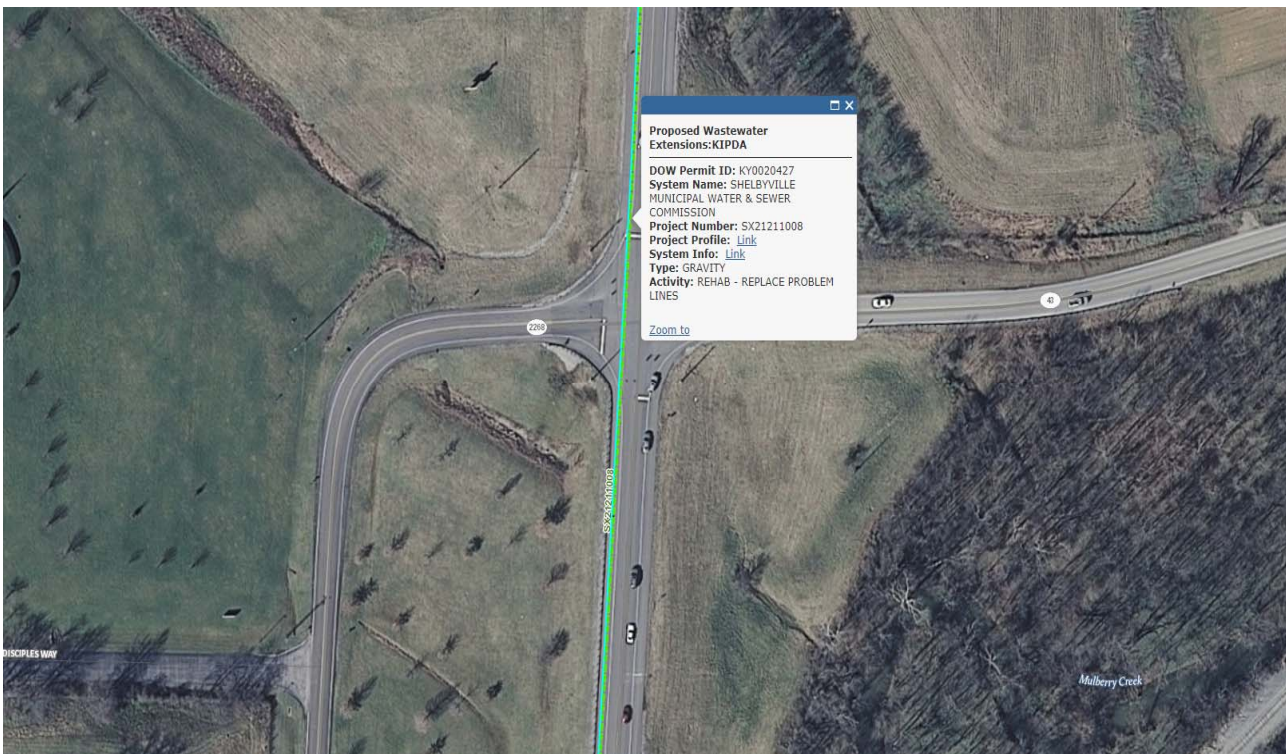
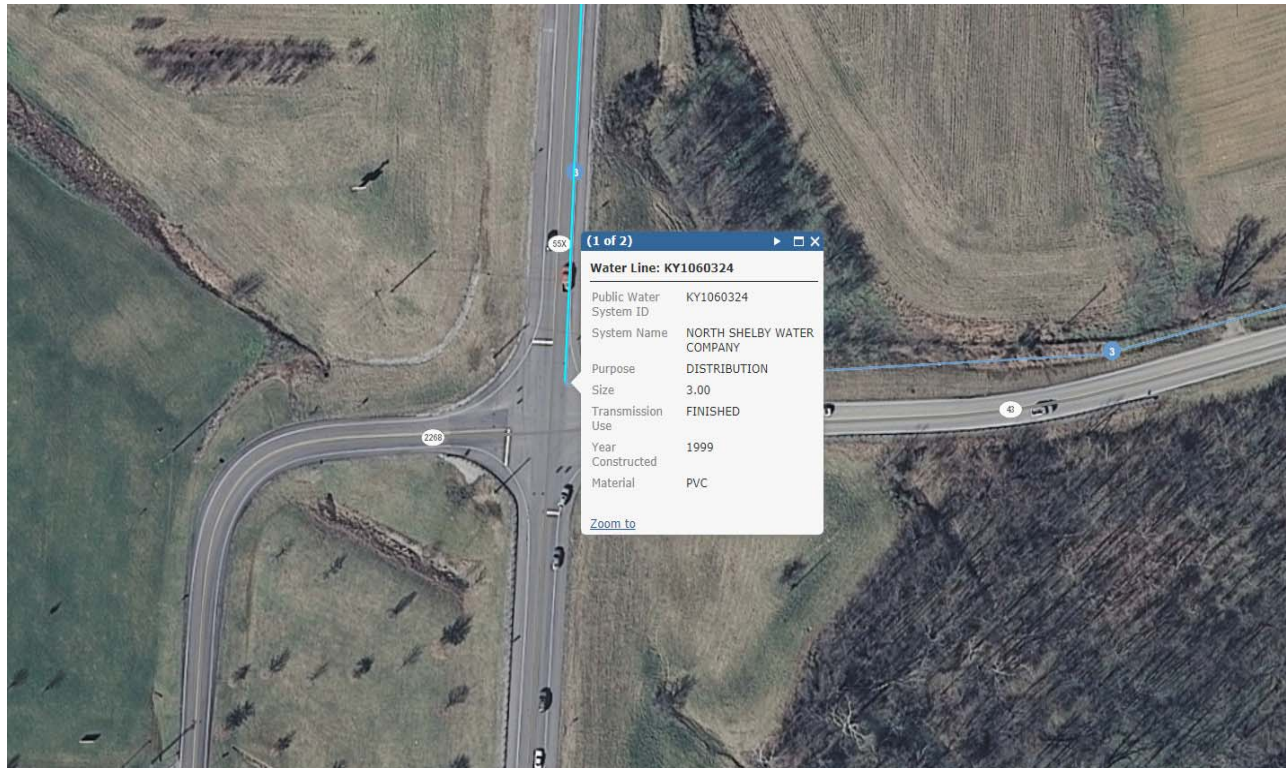


VII. TABLES AND EXHIBITS (cont.)

Water and Wastewater Information shown below was obtained at the following links:

<http://kygeonet.ky.gov/kia/dw/index.html>

<http://kygeonet.ky.gov/kia/cw/index.html>



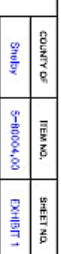
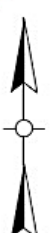
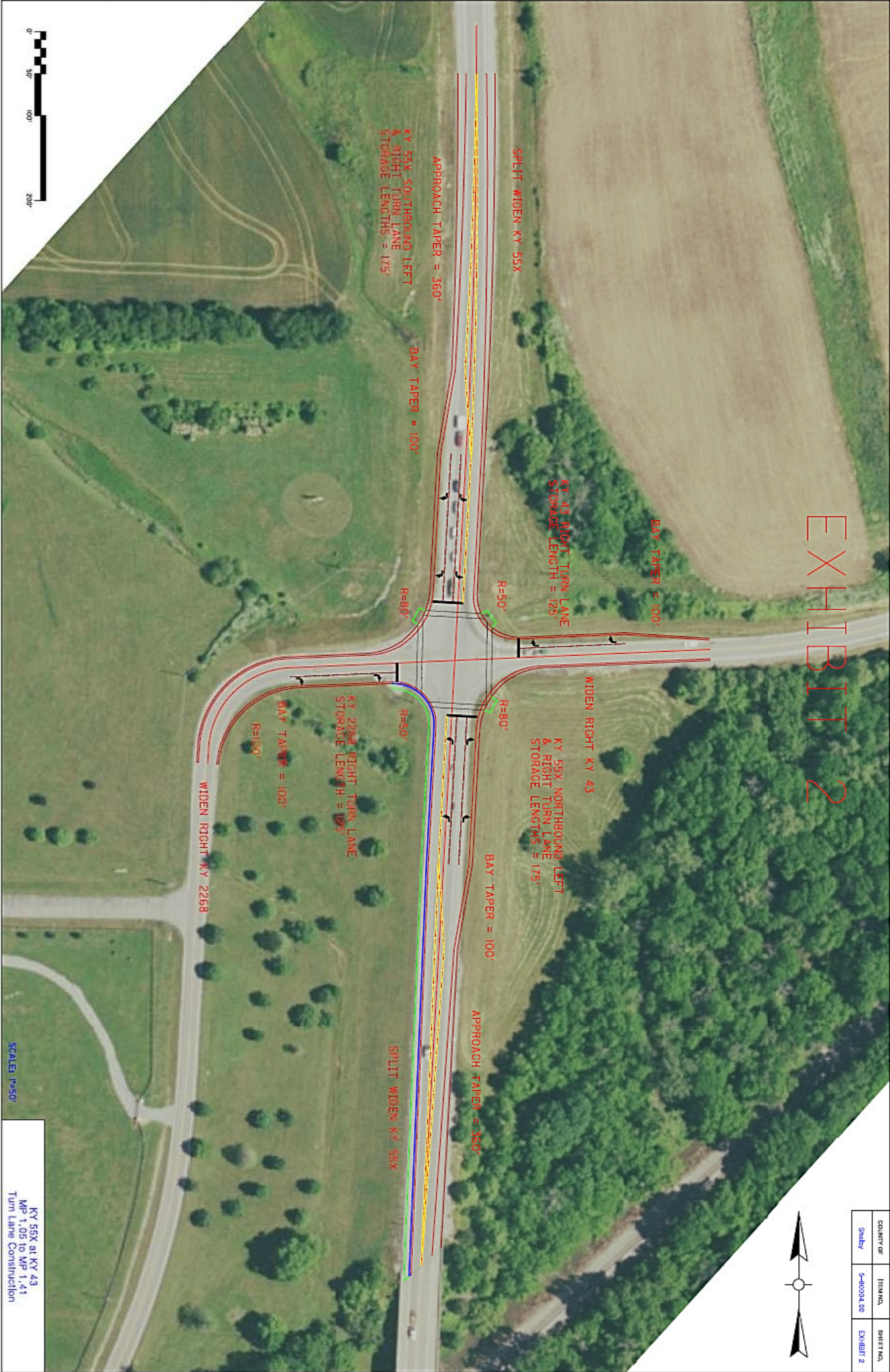


EXHIBIT 1



SCALE: 1"=50'

KY 55X at KY 43
MP 1.05 to MP 1.41
Turn Lane Construction



KY 55X at KY 43
MP 1.05 to MP 1.41
Turn Lane Construction

Estimate Exhibit 1

Estimated Cost:\$453,283.76

Contingency: 10.00%

Estimated Total: \$498,612.14

Base Date: 05/17/18

Spec Year: 08

Unit System: E

Work Type: GRADE & DRAIN WITH ASPHALT SURFACE

Highway Type: PRIMARY F, DSB, DE

Urban/Rural Type: RURAL

Season: SUMMER

County: SHELBY

Latitude of Midpoint: 0

Longitude of Midpoint: 0

District: 05

Federal Project Number:

State Project Number:

| <u>Line #</u> | <u>Item Number</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Extension</u> |
|---------------------------------|--------------------|-----------------|--------------|-------------------|------------------|
| <u>Description</u> | | | | | |
| <u>Supplemental Description</u> | | | | | |

Group 0001: PAVING

| | | | | | |
|--------------------------------------|-------|----------|-----|------------|--------------|
| 0005 | 00003 | 1,621.00 | TON | \$31.72 | \$51,418.12 |
| CRUSHED STONE BASE 4" | | | | | |
| 0006 | 00388 | 723.00 | TON | \$70.17 | \$50,732.91 |
| CL3 ASPH SURF 0.38B PG64-22 1.25" | | | | | |
| 0007 | 00214 | 2,150.00 | TON | \$66.19 | \$142,308.50 |
| CL3 ASPH BASE 1.00D PG64-22 10" | | | | | |
| 0008 | 00103 | 1.44 | TON | \$1,198.35 | \$1,725.62 |
| ASPHALT SEAL COAT | | | | | |
| 0009 | 00100 | 12.00 | TON | \$334.26 | \$4,011.12 |
| ASPHALT SEAL AGGREGATE | | | | | |
| 0037 | | 5.00 | TON | \$800.00 | \$4,000.00 |
| ASPHALT TACK COAT | | | | | |

Total for Group 0001:\$254,196.27

Group 0002: ROADWAY

| | | | | | |
|-----------------------------------|---------|-----------|------|-------------|-------------|
| 0010 | 02650 | 1.00 | LS | \$25,000.00 | \$25,000.00 |
| MAINTAIN & CONTROL TRAFFIC | | | | | |
| 0011 | 02726 | 1.00 | LS | \$4,000.00 | \$4,000.00 |
| STAKING | | | | | |
| 0012 | 02545 | 1.00 | LS | \$5,000.00 | \$5,000.00 |
| CLEARING AND GRUBBING | | | | | |
| 0013 | 02200 | 2,100.00 | CUYD | \$20.76 | \$43,596.00 |
| ROADWAY EXCAVATION | | | | | |
| 0014 | 02381 | 1,050.00 | LF | \$1.50 | \$1,575.00 |
| REMOVE GUARDRAIL | | | | | |
| 0015 | 02351 | 1,800.00 | LF | \$15.07 | \$27,126.00 |
| GUARDRAIL-STEEL W BEAM-S FACE | | | | | |
| 0016 | 02396 | 2.00 | EACH | \$99.32 | \$198.64 |
| REMOVE GUARDRAIL END TREATMENT | | | | | |
| 0017 | 02391 | 1.00 | EACH | \$1,862.18 | \$1,862.18 |
| GUARDRAIL END TREATMENT TYPE 4A | | | | | |
| 0018 | 20550ND | 3,400.00 | LF | \$1.86 | \$6,324.00 |
| SAWCUT PAVEMENT | | | | | |
| 0019 | 02585 | 153.00 | LF | \$23.60 | \$3,610.80 |
| EDGE KEY | | | | | |
| 0020 | 06514 | 10,000.00 | LF | \$0.26 | \$2,600.00 |
| PAVE STRIPING-PERM PAINT-4 IN | | | | | |
| 0021 | 06510 | 10,000.00 | LF | \$0.10 | \$1,000.00 |
| PAVE STRIPING-TEMP PAINT-4 IN | | | | | |
| 0022 | 06568 | 116.00 | LF | \$9.60 | \$1,113.60 |
| PAVE MARKING-THERMO STOP BAR-24IN | | | | | |
| 0023 | 06574 | 12.00 | EACH | \$77.44 | \$929.28 |

| <u>Line #</u> | <u>Item Number</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Extension</u> |
|----------------------------------|--------------------|-----------------|--------------|-------------------|------------------|
| <u>Description</u> | | | | | |
| <u>Supplemental Description</u> | | | | | |
| PAVE MARKING-THERMO CURV ARROW | | | | | |
| 0024 | 02701 | 3,100.00 | LF | \$1.96 | \$6,076.00 |
| TEMP SILT FENCE | | | | | |
| 0025 | 05985 | 5,000.00 | SQYD | \$0.38 | \$1,900.00 |
| SEEDING AND PROTECTION | | | | | |
| 0026 | 05963 | 0.05 | TON | \$727.72 | \$36.39 |
| INITIAL FERTILIZER | | | | | |
| 0027 | 05964 | 0.25 | TON | \$744.51 | \$186.13 |
| 20-10-10 FERTILIZER | | | | | |
| 0028 | 05992 | 3.00 | TON | \$148.59 | \$445.77 |
| AGRICULTURAL LIMESTONE | | | | | |
| 0031 | 02367 | 3.00 | EACH | \$2,721.95 | \$8,165.85 |
| GUARDRAIL END TREATMENT TYPE 1 | | | | | |
| 0032 | 02562 | 152.00 | SQFT | \$7.23 | \$1,098.96 |
| TEMPORARY SIGNS | | | | | |
| 0033 | 02775 | 1.00 | EACH | \$730.72 | \$730.72 |
| ARROW PANEL | | | | | |
| 0034 | 02671 | 2.00 | EACH | \$3,370.10 | \$6,740.20 |
| PORTABLE CHANGEABLE MESSAGE SIGN | | | | | |
| 0035 | 20418ED | 20.00 | EACH | \$356.41 | \$7,128.20 |
| REMOVE & RELOCATE SIGNS | | | | | |
| 0036 | 02599 | 5,500.00 | SQYD | \$1.99 | \$10,945.00 |
| FABRIC-GEOTEXTILE TYPE IV | | | | | |

Total for Group 0002:\$167,388.72

Group 0008: SIGNALIZATION

| | | | | | |
|------|---------------------|------|--|-------------|-------------|
| 0030 | SIGNAL MODIFICATION | 1.00 | | \$25,000.00 | \$25,000.00 |
|------|---------------------|------|--|-------------|-------------|

Total for Group 0008:\$25,000.00

Group 0019: DEMOBILIZATION &/OR MOBILIZATION

| | | | | | |
|------|-------------------------|------|----|------------|------------|
| 0029 | 02569 DEMOBILIZATION | 1.00 | LS | \$6,698.77 | \$6,698.77 |
|------|-------------------------|------|----|------------|------------|

Total for Group 0019:\$6,698.77

Estimate Exhibit 2

Estimated Cost:\$549,267.85

Contingency: 10.00%

Estimated Total: \$604,194.64

Base Date: 05/17/18

Spec Year: 08

Unit System: E

Work Type: GRADE & DRAIN WITH ASPHALT SURFACE

Highway Type: PRIMARY F, DSB, DE

Urban/Rural Type: RURAL

Season: SUMMER

County: SHELBY

Latitude of Midpoint: 0

Longitude of Midpoint: 0

District: 05

Federal Project Number:

State Project Number:

| <u>Line #</u> | <u>Item Number</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Extension</u> |
|---------------------------------|--------------------|-----------------|--------------|-------------------|------------------|
| <u>Description</u> | | | | | |
| <u>Supplemental Description</u> | | | | | |

Group 0001: PAVING

| | | | | | |
|--------------------------------------|-------|----------|-----|------------|--------------|
| 0005 | 00003 | 1,621.00 | TON | \$31.72 | \$51,418.12 |
| CRUSHED STONE BASE 4" | | | | | |
| 0006 | 00388 | 723.00 | TON | \$70.17 | \$50,732.91 |
| CL3 ASPH SURF 0.38B PG64-22 1.25" | | | | | |
| 0007 | 00214 | 2,150.00 | TON | \$66.19 | \$142,308.50 |
| CL3 ASPH BASE 1.00D PG64-22 10" | | | | | |
| 0008 | 00103 | 1.44 | TON | \$1,198.35 | \$1,725.62 |
| ASPHALT SEAL COAT | | | | | |
| 0009 | 00100 | 12.00 | TON | \$334.26 | \$4,011.12 |
| ASPHALT SEAL AGGREGATE | | | | | |
| 0037 | | 5.00 | TON | \$800.00 | \$4,000.00 |
| ASPHALT TACK COAT | | | | | |
| 0041 | 02483 | 80.00 | TON | \$36.33 | \$2,906.40 |
| CHANNEL LINING CLASS II | | | | | |

Total for Group 0001:\$257,102.67

Group 0002: ROADWAY

| | | | | | |
|---------------------------------|---------|-----------|------|-------------|-------------|
| 0010 | 02650 | 1.00 | LS | \$25,000.00 | \$25,000.00 |
| MAINTAIN & CONTROL TRAFFIC | | | | | |
| 0011 | 02726 | 1.00 | LS | \$4,000.00 | \$4,000.00 |
| STAKING | | | | | |
| 0012 | 02545 | 1.00 | LS | \$5,000.00 | \$5,000.00 |
| CLEARING AND GRUBBING | | | | | |
| 0013 | 02200 | 2,100.00 | CUYD | \$20.76 | \$43,596.00 |
| ROADWAY EXCAVATION | | | | | |
| 0014 | 02381 | 1,050.00 | LF | \$1.50 | \$1,575.00 |
| REMOVE GUARDRAIL | | | | | |
| 0015 | 02351 | 1,800.00 | LF | \$15.07 | \$27,126.00 |
| GUARDRAIL-STEEL W BEAM-S FACE | | | | | |
| 0016 | 02396 | 2.00 | EACH | \$99.32 | \$198.64 |
| REMOVE GUARDRAIL END TREATMENT | | | | | |
| 0017 | 02391 | 1.00 | EACH | \$1,862.18 | \$1,862.18 |
| GUARDRAIL END TREATMENT TYPE 4A | | | | | |
| 0018 | 20550ND | 3,400.00 | LF | \$1.86 | \$6,324.00 |
| SAWCUT PAVEMENT | | | | | |
| 0019 | 02585 | 153.00 | LF | \$23.60 | \$3,610.80 |
| EDGE KEY | | | | | |
| 0020 | 06514 | 10,000.00 | LF | \$0.26 | \$2,600.00 |
| PAVE STRIPING-PERM PAINT-4 IN | | | | | |
| 0021 | 06510 | 10,000.00 | LF | \$0.10 | \$1,000.00 |
| PAVE STRIPING-TEMP PAINT-4 IN | | | | | |
| 0022 | 06568 | 116.00 | LF | \$9.60 | \$1,113.60 |

| <u>Line #</u> | <u>Item Number</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Extension</u> |
|-----------------------------------|--------------------|-----------------|--------------|-------------------|------------------|
| <u>Description</u> | | | | | |
| <u>Supplemental Description</u> | | | | | |
| PAVE MARKING-THERMO STOP BAR-24IN | | | | | |
| 0023 | 06574 | 12.00 | EACH | \$77.44 | \$929.28 |
| PAVE MARKING-THERMO CURV ARROW | | | | | |
| 0024 | 02701 | 3,100.00 | LF | \$1.96 | \$6,076.00 |
| TEMP SILT FENCE | | | | | |
| 0025 | 05985 | 5,000.00 | SQYD | \$0.38 | \$1,900.00 |
| SEEDING AND PROTECTION | | | | | |
| 0026 | 05963 | 0.05 | TON | \$727.72 | \$36.39 |
| INITIAL FERTILIZER | | | | | |
| 0027 | 05964 | 0.25 | TON | \$744.51 | \$186.13 |
| 20-10-10 FERTILIZER | | | | | |
| 0028 | 05992 | 3.00 | TON | \$148.59 | \$445.77 |
| AGRICULTURAL LIMESTONE | | | | | |
| 0031 | 02367 | 3.00 | EACH | \$2,721.95 | \$8,165.85 |
| GUARDRAIL END TREATMENT TYPE 1 | | | | | |
| 0032 | 02562 | 152.00 | SQFT | \$7.23 | \$1,098.96 |
| TEMPORARY SIGNS | | | | | |
| 0033 | 02775 | 1.00 | EACH | \$730.72 | \$730.72 |
| ARROW PANEL | | | | | |
| 0034 | 02671 | 2.00 | EACH | \$3,370.10 | \$6,740.20 |
| PORTABLE CHANGEABLE MESSAGE SIGN | | | | | |
| 0035 | 20418ED | 20.00 | EACH | \$356.41 | \$7,128.20 |
| REMOVE & RELOCATE SIGNS | | | | | |
| 0036 | 02599 | 5,500.00 | SQYD | \$1.99 | \$10,945.00 |
| FABRIC-GEOTEXTILE TYPE IV | | | | | |
| 0038 | 02720 | 535.00 | SQYD | \$70.00 | \$37,450.00 |
| SIDEWALK-4 IN CONCRETE | | | | | |
| 0039 | 01810 | 730.00 | LF | \$26.52 | \$19,359.60 |
| STANDARD CURB AND GUTTER | | | | | |
| 0040 | 24799ED | 2.00 | LS | \$4,000.00 | \$8,000.00 |
| CHANNEL THROUGH SIDEWALK | | | | | |
| 0042 | 06565 | 640.00 | LF | \$2.89 | \$1,849.60 |
| PAVE MARKING-THERMO X-WALK-6 IN | | | | | |

Total for Group 0002:\$234,047.92

Group 0008: SIGNALIZATION

| | | | | | |
|---------------------|--|------|--|-------------|-------------|
| 0030 | | 1.00 | | \$50,000.00 | \$50,000.00 |
| SIGNAL MODIFICATION | | | | | |

Total for Group 0008:\$50,000.00

Group 0019: DEMOBILIZATION &/OR MOBILIZATION

| | | | | | |
|----------------|-------|------|----|------------|------------|
| 0029 | 02569 | 1.00 | LS | \$8,117.26 | \$8,117.26 |
| DEMOBILIZATION | | | | | |

| <u>Line #</u> | <u>Item Number</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Extension</u> |
|---------------------------------|--------------------|-----------------|--------------|-------------------|------------------|
| <u>Description</u> | | | | | |
| <u>Supplemental Description</u> | | | | | |

Total for Group 0019:\$8,117.26