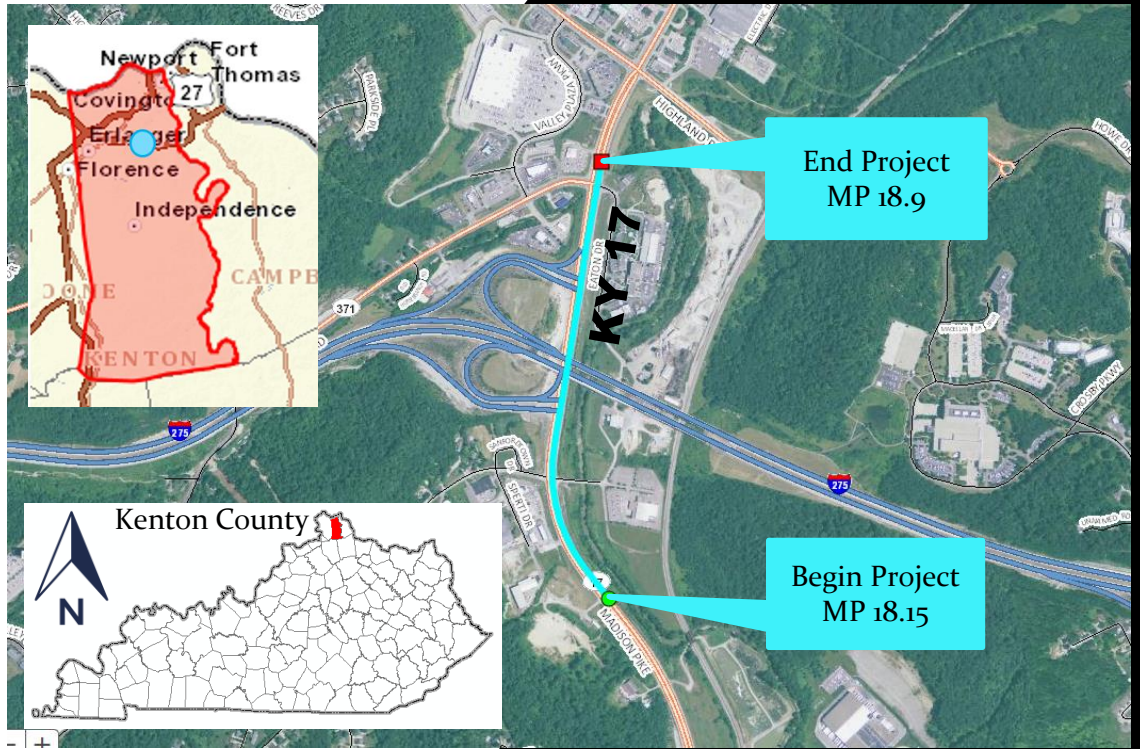


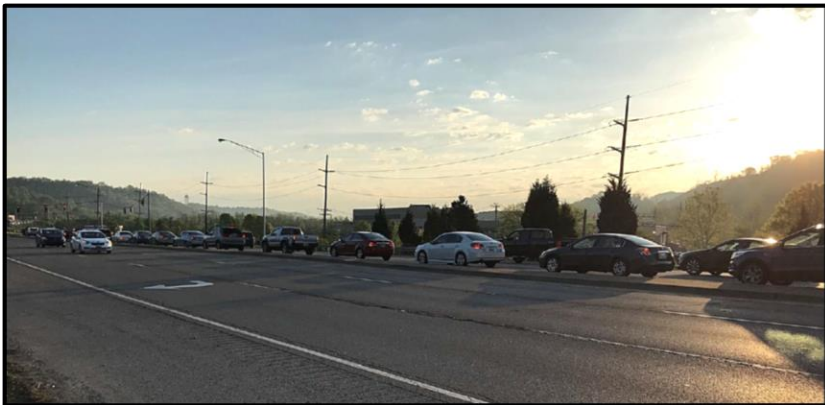
Data

Needs

Analysis



Scoping Study



KY 17 (Madison Pike)
Kenton County

Congestion mitigation
from Dudley Road
to Orphanage Road
Item No. 6-449.00

Prepared by KYTC District 6



September 2018

| I. PRELIMINARY PROJECT INFORMATION | | | |
|--|--|--|---|
| County: | Kenton | Item No.: | 6-449 |
| Route Number(s):* | KY 17 | Road Name: | Madison Pike |
| Program No.: | 94415 | UPN: | FD52 059 KY 17 018-019 |
| Federal Project No.: | STP 8156(012) | Type of Work: | Congestion Mitigation |
| 2018 Highway Plan Project Description: PIF: 06 059 D0017 138.00 | | | |
| Improve safety and reduce congestion on KY 17 at the I-275 interchange | | | |
| Beginning MP: | 18.15 | Ending MP: | 18.9 |
| | | Project Length: | 0.75 |
| In TIP: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Reconcile Project Information in Clearview | |
| State Class.: | <input checked="" type="checkbox"/> Primary <input type="checkbox"/> Secondary | Route is on: | <input checked="" type="checkbox"/> NHS <input type="checkbox"/> NN <input type="checkbox"/> Ext Wt |
| Functional Class.: | <input checked="" type="checkbox"/> Urban <input type="checkbox"/> Rural Arterial | Truck Class.: | AAA % Trucks: 9.975 |
| MPO Area: | Cincinnati/Northern Kentucky (OKI) | Terrain: | Rolling |
| ADT (current): | 37,637 (2017) | | |
| Access Control: | <input type="checkbox"/> None <input checked="" type="checkbox"/> Permit <input type="checkbox"/> Fully Controlled <input checked="" type="checkbox"/> Partial | Spacing: <input type="text"/> | |
| Median Type: | <input type="checkbox"/> Undivided <input checked="" type="checkbox"/> Divided (Type): | Raised/non mountable | |
| Existing Bike Accommodations: | Shared Lane | Ped: <input type="checkbox"/> Sidewalk | |
| Posted Speed: | <input type="checkbox"/> 35 mph <input checked="" type="checkbox"/> 45 mph <input type="checkbox"/> 55 mph <input type="checkbox"/> Other (Specify): | | |
| KYTC Guidelines Preliminarily Based on : 45 MPH Proposed Design Speed | | | |
| COMMON GEOMETRIC | | | |
| Roadway Data: | EXISTING | PRACTICES** | |
| No. of Lanes | 4 | 4 | Existing Rdwy. Plans available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Year of Plans: 2002 |
| Lane Width | 12 | 11 | |
| Shoulder Width | 10 | 10 | <input type="checkbox"/> Traffic Forecast Requested Date Requested: <input type="text"/> |
| Max. Superelevation*** | | 4-6% | |
| Minimum Radius*** | | 660-730 | <input type="checkbox"/> Mapping/Survey Requested Date Requested: <input type="text"/> |
| Maximum Grade | | 7 | |
| Minimum Sight Dist. | | 360 | Type: <input type="text"/> |
| Sidewalk Width(urban) | | 4-8' | |
| Clear-zone [†] | | 20-22 | |
| Project Notes/Design Exceptions? | | | |
| Bridge No.:# | 059B00063L | 059B00063R | |
| Sufficiency Rating | 88 | 88 | Existing Geotech Data Available? <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Total Length | 1695' | 1695' | |
| Width, curb to curb | NA | NA | Detour Length(s): <input type="text"/> |
| Span Lengths | 228' | 228' | |
| Year Built | 1977 | 1977 | |
| Posted Weight Limit | NA | NA | |
| Structurally Deficient? | NA | NA | |
| Functionally Obsolete? | yes | yes | |
| Existing Bridge Type | steel continuous | steel continuous | |
| *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

Improve safety and reduce congestion on KY 17 at the I-275 Interchange. This project is strongly supported by the local governments impacted by the congestion and delays. This includes Kenton County Fiscal Court, the City of Independence, the City of Ft. Wright, and the City of Edgewood.

| <i>Funding</i> | <i>Phase</i> | <i>Year</i> | <i>Amount</i> |
|----------------|--------------|-------------|---------------|
| STP | D | 2019 | \$450,000 |
| STP | R | 2020 | \$200,000 |
| STP | U | 2020 | \$350,000 |
| | C | | |

B. Project Status

There has been a tremendous amount of growth in the area that has resulted in an increase in traffic and congestion. Improvements have been made through signal timing, but there is too much traffic heading in opposing directions to adequately keep up with the demand. Improvements are needed.

C. System Linkage

KY 17 is a primary north-south connector in Kenton County. This route is used by many of the residents in southern Kenton County to access the interstate system in Northern Kentucky.

D. Modal Interrelationships

The Transit Authority of Northern Kentucky's (TANK) main operational hub is located on KY 17 approximately 0.6 mile north of the subject project. TANK has specific routes (18X - on Dudley & 30X on KY 17 - servicing the city of Independence) that use the corridor daily. An 18X stop is located within the footprint of the proposed project. TANK also provides local service to the commercial development immediately north of the subject project (Walmart development). There is a large number of TANK busses that utilize the I-275 interchange to go to/from the hub.

Within the subject project limits, along KY 17, the corridor does not accommodate pedestrians or bicyclists. Pedestrians/bicyclists are frequently seen utilizing the existing shoulders, day and night. Some cross directly in front of the interstate ramps. There are commercial enterprises within and beyond the limits of the current project and industry beyond the south end of the project.

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| |
|--|
| <p>E. Social Demands & Economic Development</p> <p>Extensive development is planned in southern Kenton County and KY 17 will continue to be a primary connection between the interstate system and the new development. KY 17 is also an important link that is utilized by the Kenton County School buses that get students to and from school. Reducing the congestion will provide a huge benefit for the residents, the businesses (especially the commercial business hub just north of the interchange), and the schools.</p> |
| <p style="text-align: center;">II. PROJECT PURPOSE AND NEED (cont.)</p> |
| <p>F. Transportation Demand</p> <p>This project is included in the Kenton County Transportation Plan and is listed as a priority. The 2017 ADT for this section of KY 17 is 37,367 vehicles per day (vpd). In 1989 the ADT was 14,800 vpd, in 2001 it was 28,800 vpd, and in 2011 it was 30,500 vpd.</p> |
| <p>G. Capacity</p> <p>The current capacity on KY 17 between Dudley and Orphanage is insufficient to safely meet current needs and is inadequate to meet future traffic demand. The result is congestion, delays, and increasing crashes. See the attached photos reflecting typical backups during the peak periods.</p> |
| <p>H. Safety</p> <p>There have been 226 reported crashes over the past 3 years on this stretch of KY 17. One hundred forty-six (146) of the 226 crashes were rear-end collisions. The majority of the collisions occurred during either the AM or PM peak when the congestion is at its highest. The CRF for this roadway segment varies between 0.452 and 1.783. Pedestrians are observed walking along the shoulders; frequently in pre-dawn hours. Pedestrians cross the interstate entrance and exit ramps. A fatality occurred at the Thorton's/Waffle House drive access at KY 17 and this full access point remains problematic.</p> |
| <p>I. Roadway Deficiencies</p> <p>The physical condition of the road is adequate. The biggest concerns/issues are the limited capacity and the delay that is caused by needing to make left turns from northbound KY 17 to access both I-275 eastbound and I-275 westbound and also needing to make a left turn from both directions of I-275 exit ramp to access KY 17 northbound. There is a large amount of traffic that make these movements and this conflicts with the heavy traffic moving north and south on KY 17. This creates significant delays and congestion. The left turn lane onto I-275 eastbound is too short to address need and results in unmet queue backing into the Dudley intersection. This queue results in the vehicles backing into one of the two through lanes; reducing through capacity and preventing Dudley traffic from accessing KY 17. In both the AM/PM peaks, traffic on Dudley daily queues to approximately .25 mile and requires two or more signal cycle-lengths to turn on KY 17. The majority of traffic exiting Dudley seeks to go north on KY 17 and the queue prevents those seeking to go south to wait.</p> |

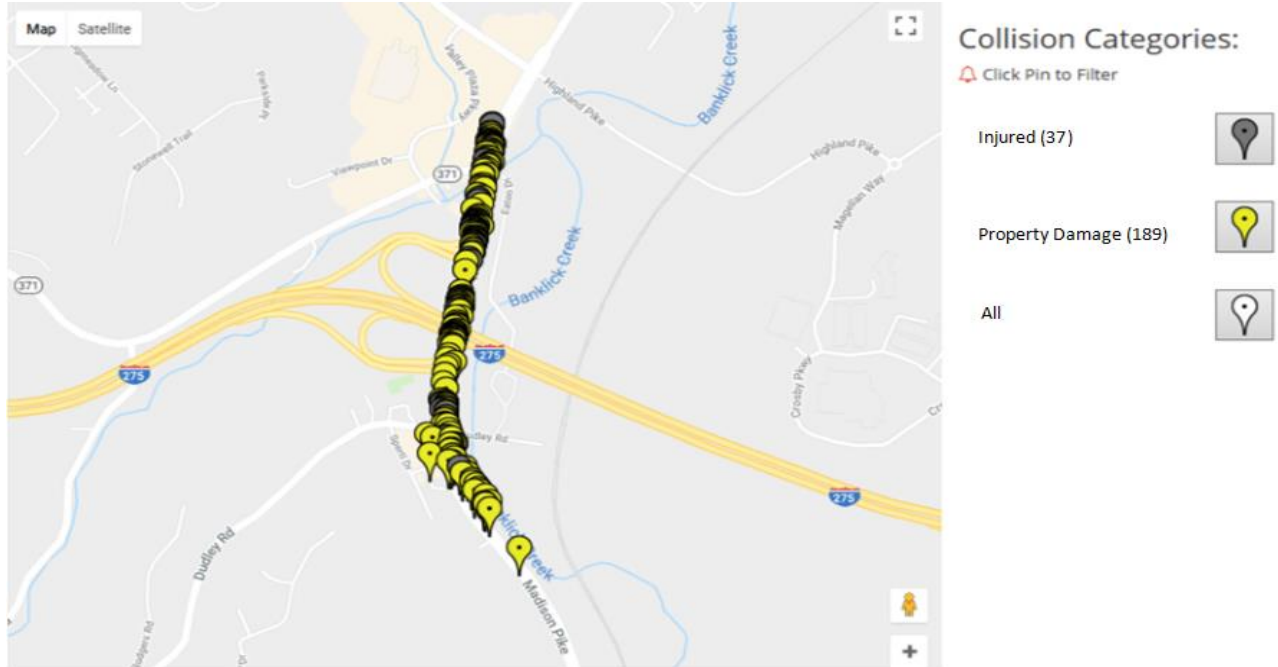
| III. PRELIMINARY ENVIRONMENTAL OVERVIEW | |
|---|--|
| A. Air Quality | Project is in: <input type="checkbox"/> Attainment area <input checked="" type="checkbox"/> Nonattainment or Maintenance Area <input type="checkbox"/> PM 2.5 County STIP Pg.#: _____ TIP Pg.#: _____ |
| Kenton is non-attainment for Ozone in 2015 8-hr std. OKI TIP must meet transportation conformity. | |
| B. Archeology/Historic Resources | <input checked="" type="checkbox"/> Known Archeological or Historic Resources are present No known archaeological or cultural historic sites. A cemetery is present in the project area near the I-275 eastbound exit ramp to KY17. |
| C. Threatened and Endangered Species | 3 species of bats, multiple species of mussels, and running buffalo clover are listed in the project area. RBC habitat determination to be made in project design, but not anticipated to occur. Any impacts to bat habitat (trees) to be handled through IBPCMOA. No known mussel habitat exists at this location, but all work should stay out of Banklick Creek, as it is an impaired stream. |
| D. Hazardous Materials | <input checked="" type="checkbox"/> Potentially Contaminated Sites are present <input checked="" type="checkbox"/> Potential Bridge or Structure Demolition This is in a heavily industrialized area, therefore there is potential for contamination within the project area. A Phase I survey of the project area is recommended during project design. |
| 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 type="checkbox"/> ACE NW <input type="checkbox"/> ACE IP <input type="checkbox"/> DOW IWQC <input checked="" type="checkbox"/> Special Use Waters It is unknown if any permitting is required. Banklick Creek is designated as impaired and there is a sensitive water area designation for the creek at this location. All efforts to avoid this resource is required. |
| 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 the KYTC Noise Analysis and Abatement Policy? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No As capacity will be added to the facility, a noise study may be required. Unknown if there are receptors. |
| G. Socioeconomic | Check all that may apply: <input type="checkbox"/> Low Income/Minority Populations affected <input type="checkbox"/> Relocations <input type="checkbox"/> Local Land Use Plan available There are no socioeconomic impacts anticipated. No relocations. |
| 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 No known 4(f) or 6(f) resources are present within project area. |
| Anticipated Environmental Document: | <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">CE Level 1 ▼</div> |

| IV. PROJECT NEED, PURPOSE & SCOPE | | |
|---|------------------------------|--------------------|
| A. Need: | | |
| <p>Topography dictated the current I-275/KY 17 interchange be constructed as a parclo (folded diamond). All ramps are located on the west side of KY 17. The result is that NB KY 17 approaches to the entrance ramps are left hand turn movements. Simply, there is inadequate left storage lane capacity on the two approaches to I-275. This results in spill over to the NB thru lanes. Congestion then ensues. The NB approach to EB I-275 can overflow to the extent that traffic exiting Dudley, with the intent of going NB on KY 17 cannot enter on to KY 17. Traffic on Dudley daily queues upwards of approximately 0.25 mile.</p> <p>In the SB direction the weave movements/lane drops within the interchange have insufficient space to maneuver; resulting in congestion. The SB KY 17 lane drop prior to the EB I-275 exit ramp constrains traffic to merge with the thru SB lanes.</p> | | |
| B. Purpose: | | |
| <p>The purpose of the project is to improve safety and reduce congestion on KY 17 from the Thorton's/Waffle House entrance to Orphanage Road with a focus of increasing safety and reducing congestion at the KY 17/I-275 ramps and the KY 17 and Dudley intersection.</p> | | |
| C. Scope: | | |
| <p>The project, as budgeted (Alternate 1), would provide an additional lane on the east side of existing NB KY 17 so that the westernmost existing through lane can be converted to left turn lanes. This would increase the stacking areas at both I-275 entrance ramps and help prevent queues from backing into the through lane. Alternate 2, potentially a higher cost alternate, would be to extend a new NB KY 17 lane with separation from the existing lanes/shoulder so that a 4-leg intersection can be developed to enter the I-275 ramps.</p> <p>Other scope includes:</p> <ul style="list-style-type: none"> • Extend SB KY 17 through lane to beyond Dudley or possibly the Thorton's/Waffle House entrance. • On Dudley: increase capacity for turning on a respective signal cycle • Provide a double left to NB KY 17. • Create Right-in/right-out at Thorton's/Waffle House entrance by closing in the KY 17 median. • Design efforts shall include microsimulation modeling of the traffic. • Scope assumes minimal impacts on the bridge across from Dudley, leading to Gateway Community College. <p>The project assumes that while improving access to the entrance ramps of I-275 it does not include re-constructing the ramps to provide additional capacity. In other words, the project scope does not include the work nor costs for doing an Interchange Modification Report.</p> | | |
| V. PROJECT ESTIMATE & METHODOLOGY | | |
| Estimate Methodology: | Current Estimate | |
| District 6 staff put together an SNK application recently and this included a detailed construction estimate. | <u>Phase</u> <u>Estimate</u> | |
| | Planning | |
| | Design | \$450,000 |
| | R/W | \$200,000 |
| | Utilities | \$350,000 |
| | Const | \$4,500,000 |
| | Total | \$5,500,000 |

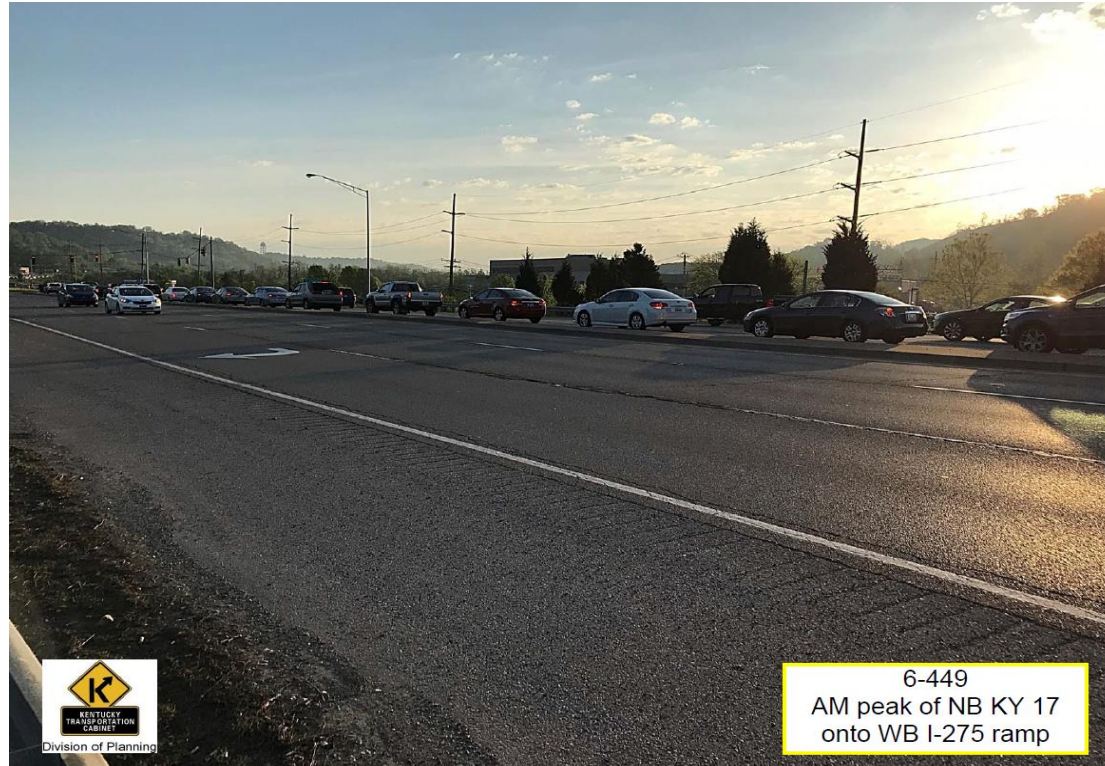
| VI. UTILITIES POTENTIALLY AFFECTED - CONTACT INFORMATION | |
|--|---|
| Company Name - | Duke (Electric) and Duke (Gas) |
| Contact - | Brian Minshal (Electric) Gerry Helm (Gas) |
| Address - | Midwest Delivery Ops E&CP-Major Projects 2010 Dana Ave EF 324 Cincinnati, Ohio 45207 |
| Phone No. - | 513 479 3276 |
| Company Name - | Cincinnati Bell |
| Contact - | Tony Niehaus |
| Address - | 221 East Fourth Street Ste 700 Building 121-900 |
| Phone No. - | 513 566 8059 |
| Company Name - | Fiber: Zayo Bandwith, CenturyLink; Windstream Communications, Sprint, MCI |
| Contact - | Contact D6 office for contact information |
| Address - | |
| Phone No. - | |
| Company Name - | Northern Kentucky Water District |
| Contact - | Kyle Ryan |
| Address - | 2835 Crescent Springs Road P.O. Box 18640 Erlanger, Kentucky 41018-0640 |
| Phone No. - | 859 426 2713 |
| Company Name - | Spectrum (cable tv) |
| Contact - | Brian Kells |
| Address - | 100 Barnwood Drive Edgewood, Kentucky 41017 |
| Phone No. - | 859 743 0064 |
| Company Name - | SD1 |
| Contact - | Bob Wilson |
| Address - | 1045 Eaton Drive Fort Wright, KY 41017 |
| Phone No. - | 859 640 2796 |

VII. TABLES AND EXHIBITS

CRASH MAP

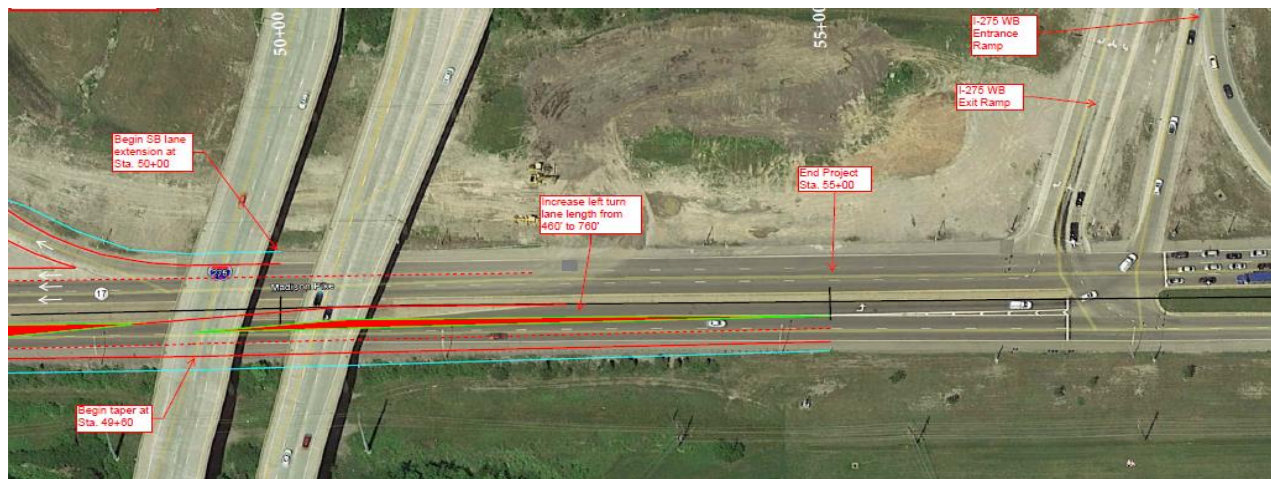
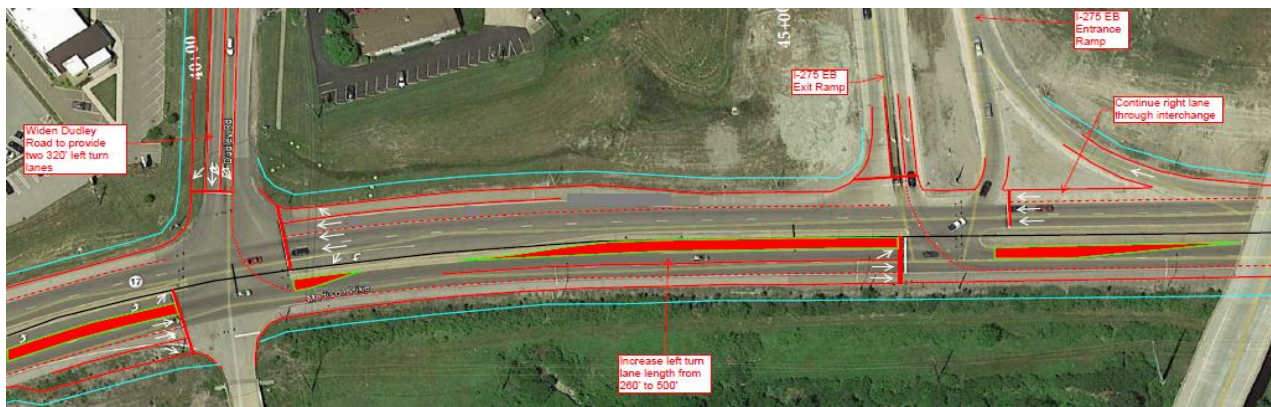
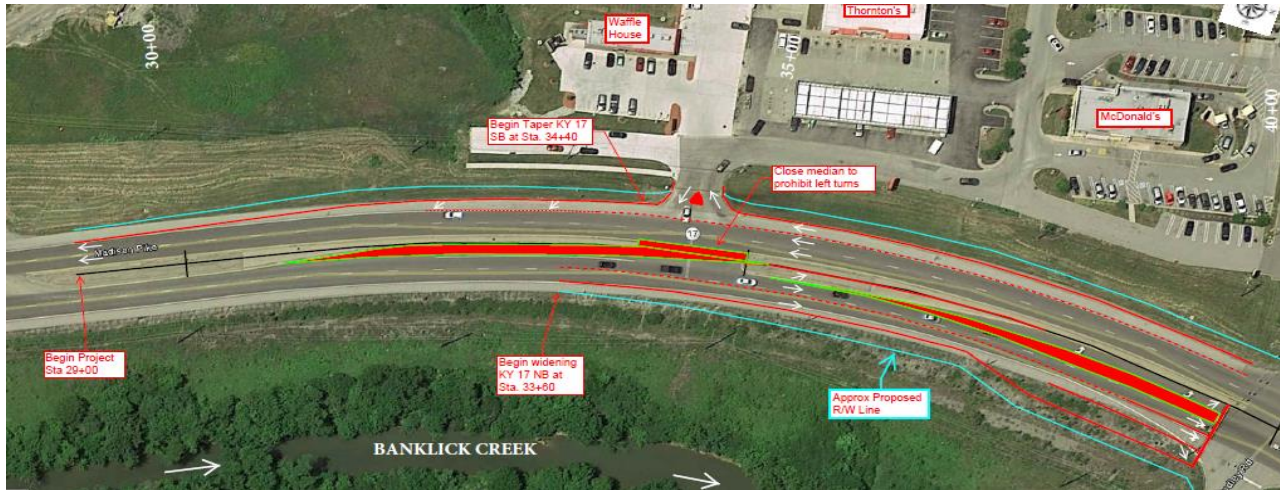


VII. TABLES AND EXHIBITS (cont.)



VII. TABLES AND EXHIBITS (cont.)

POTENTIAL ALTERNATIVES



VII. TABLES AND EXHIBITS (cont.)

PROJECT LOCATION

