

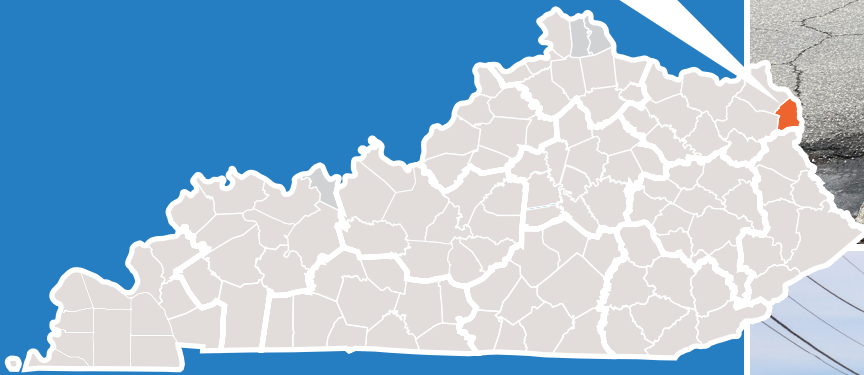
# KY 716

## CORRIDOR STUDY

Boyd County

Item No. 9-180

Executive Summary  
July 2024



TEAM  
KENTUCKY®

TRANSPORTATION  
CABINET





## Executive Summary

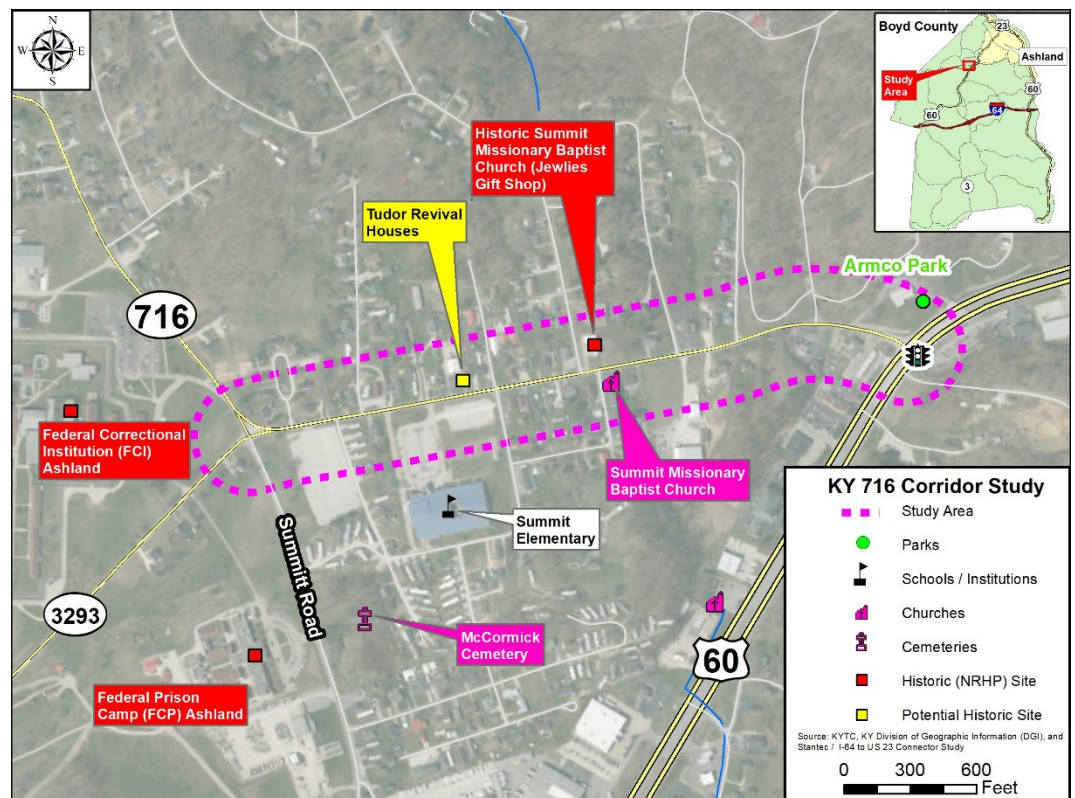
The Kentucky Transportation Cabinet (KYTC) initiated the *KY 716 Corridor Study*, KYTC Item No. 9- 180.00, in Boyd County to identify and evaluate the need for and scope of potential options to improve safety, mobility, and capacity between US 60 and Summit Road / KY 3293 (Little Garner Road).

### Existing Conditions

The study corridor shown in **Figure ES-1**, includes KY 716 from the US 60 intersection at milepoint 0.0 to the Summit Road / KY 3293 intersection at milepoint 0.565. KY 716 provides access to the people who live and work in Summit, Kentucky and US 60, a direct, regional connection between I-64 and Ashland, Kentucky, the largest city in Boyd County. Summit is an unincorporated community in Boyd County on the southwest side of the city of Ashland.

KY 716 is a two-lane minor arterial with 10-foot lanes and a posted speed limit of 35 miles per hour (MPH). There are several utilities within the study area, including gas, water, sewer, electric, and communication.

The latest daily traffic count in 2021 shows 3,900 vehicles per day (VPD) on KY 716. At the east end of the study corridor, KY 716 intersects US 60 at a signalized intersection adjacent to Armco Park and multiple businesses, including Speedway and Crisp Dairy Treat. On the west side of the study corridor, KY 716 intersects Summit Road at an all-way stop-controlled intersection with a westbound channelized right-turn lane. There is one active Federally



**Figure ES-1: KY 716 Study Area**

Funded Safety Program project to construct a mini roundabout at the KY 716 intersection with Summit Road / KY 3293. The Federal Correctional Institution (FCI) Ashland and the Federal Prison Camp Ashland are located in the northwest and southwest quadrants respectively of the intersection. Along the study corridor, KY 716 serves residences and small businesses along with Summit Missionary Baptist Church and Summit Elementary School.

Crash data were collected on KY 716 for the five-year period between 2018 – 2022. Over the course of the five years, a total of 86 crashes were reported on KY 716, 14 of which resulted in one or more injuries, all of which were at the KY 716 intersections with US 60 and KY 3293. The most common crash types were rear end collisions (29 percent), angle collisions (28 percent), and single vehicle collisions (19 percent).

### Future Conditions

Population data, including data from the 2020 Census, were obtained from the Kentucky State Data Center (KSDC). Between 2000 and 2020, population in Boyd County and the City of Ashland slightly declined. This decline in population is expected to continue in Boyd County to 2050. Daily traffic has also decreased over the past 20 years in the study area. Study area growth rates from the KYOVA regional travel demand model range from 0.39 to 0.73 percent per year on KY 716 while rates on US 60 range from 0.66 to 0.85 percent per year. These positive growth rates reflect US 60 being used as a regional connection and growing even while the local population slightly declines. Based on the historical count data, study area population estimates and projections, and annual growth rates from the KYOVA regional travel demand model, an annual growth rate of 0.75 percent was selected to reflect the high end of potential growth for the KY 716 study area through the year 2045. Based on this annual growth rate, KY 716 is expected to carry 4,600 VPD in 2045. Operational analyses were conducted, and it was determined that roadway capacity is not an issue on KY 716 and is not expected to be an issue in 2045.

Current and future traffic volumes along KY 716 have acceptable traffic operations without the need for additional capacity.

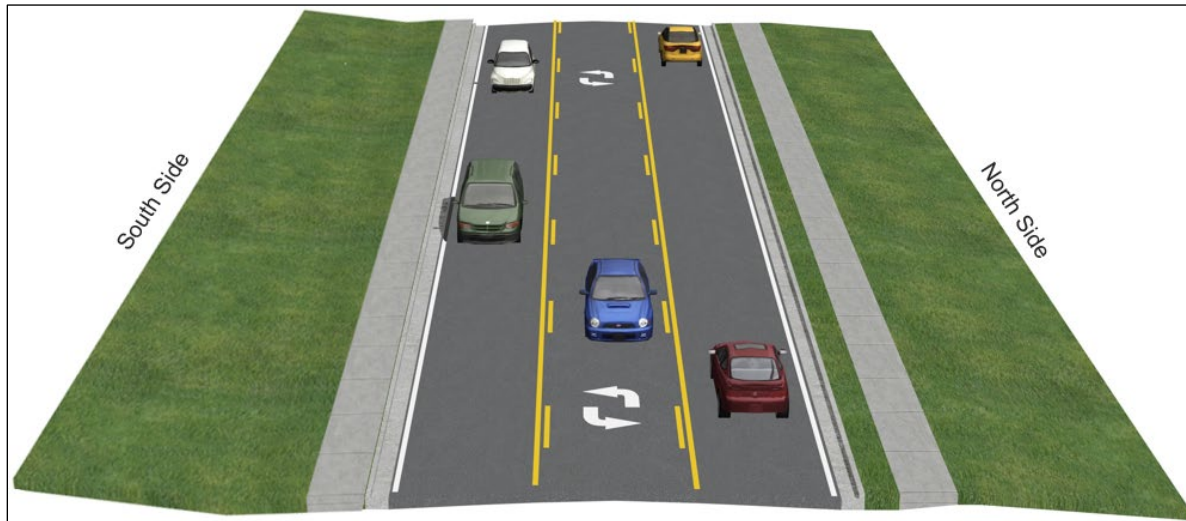
### Preliminary Concept Development

Improvement concepts were developed based on a combination of input from the project team, a review of existing conditions, local officials / stakeholder input, and field reconnaissance. Initial improvement concepts included three-lane widening with multimodal improvements, an improved two-lane section with sidewalks, and spot improvements focused on improving safety.

Based on a review of data from STRAVA, an athletic app that tracks bicycle and pedestrian movement using heat maps with brighter colors representing more activity, ARMCO Park was found to have heavy pedestrian activity. The KY 716 study corridor was shown as warm, indicating moderate pedestrian activity on the north side of KY 716. Activity for bicyclists was highest on KY 716, with moderate activity in ARMCO Park. While STRAVA data only shows activity for users of its app and does not present a full picture of the bicycle and pedestrian activity in the area, the data showed that there is a need for multimodal accommodations on KY 716.

#### Concept 1: Three-Lane Widening

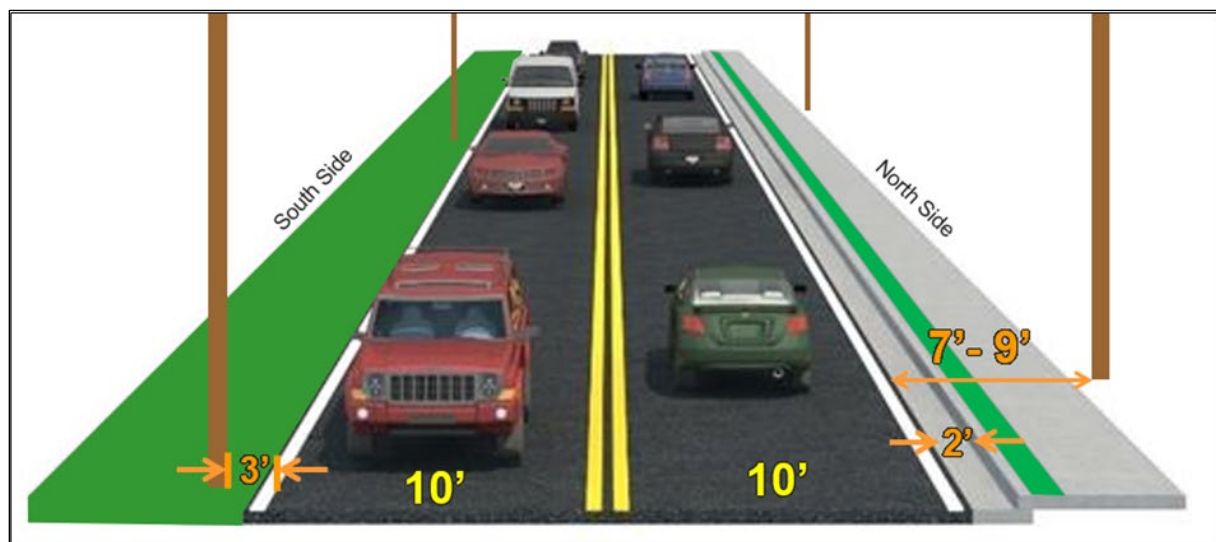
Concept 1 includes widening the travel lanes to 11-feet and constructing a center two-way left-turn lane (TWLTL) with curb and gutter and sidewalks on both sides of the roadway, as shown in **Figure ES-2**. The existing right-of-way and utilities would be maintained on the north side of KY 716, with widening occurring to the south. This concept would require major utility relocations and several home relocations.



**Figure ES-2: Concept 1**

**Concept 2A: Improved Two-Lane Section with a Sidewalk on One Side of the Roadway**

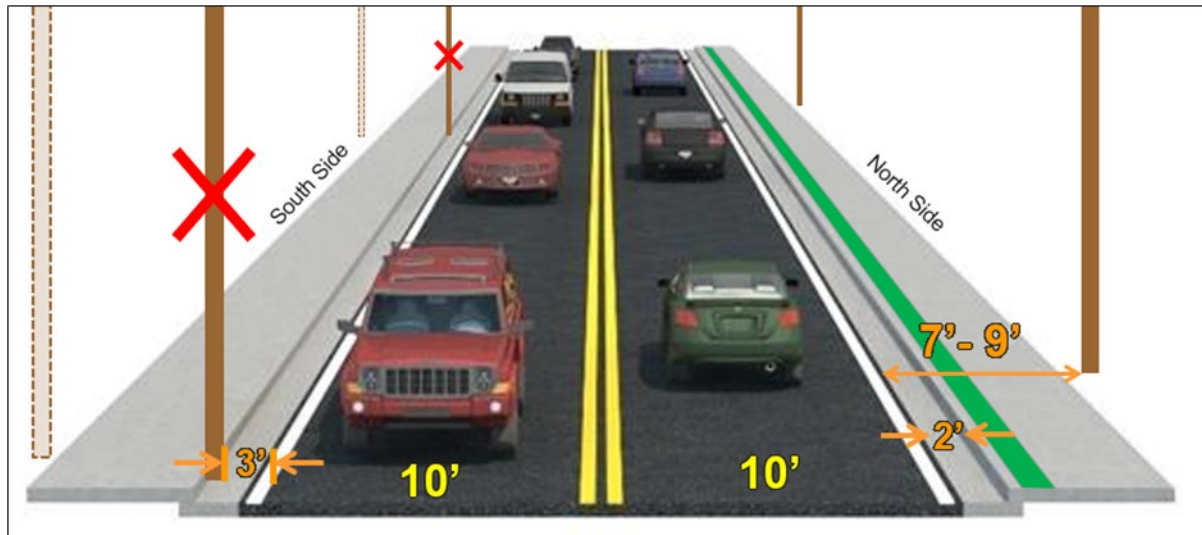
Concept 2A includes constructing a sidewalk with curb and gutter on one side (north) of the roadway to minimize impacts due to the large number of utilities along the corridor - both aerial and buried, as shown in **Figure ES-3**. The utility poles on the north side of KY 716 support transmission / communication lines and are generally located approximately seven to nine feet from the edge of the paved roadway. The utility poles on the south side of KY 716 support electrical service drop / communication lines and are located approximately three feet from the edge of the roadway.



**Figure ES-3: Concept 2A**

**Concept 2B: Improved Two-Lane Section with Sidewalks on Both Sides of the Roadway**

Concept 2B includes curb and gutter with sidewalks on both sides of KY 716 as shown in **Figure ES-4**. This option would require the relocation of the utility poles and some above ground gas meters on the south side of KY 716 but would be envisioned to stay within existing right-of-way (although temporary construction easements will likely be required).



**Figure ES-4: Concept 2B**

**Spot Improvement 1**

The first spot improvement includes improving safety by prohibiting left turns to/from Speedway along KY 716 by installing a median barrier on KY 716, as shown in **Figure ES-5**.

The entrance would operate as right-in / right-out only. The distance between the stop bar for the eastbound KY 716 approach at the US 60 traffic signal and the easternmost Speedway entrance is approximately 60 feet. Queued vehicles on eastbound KY 716 frequently extend across the Speedway entrance. The driver of a queued vehicle may leave a gap in traffic to allow left turning motorists to proceed to/from Speedway which can result in a "courtesy" crash (when the left-turning vehicle crosses a lane of traffic and fails to yield the right of way).





**Figure ES-5: Spot Improvement No. 1**

### **Spot Improvement 2**

The second spot improvement is to restripe the left-turn lane for northbound US 60 as a tapered (diagonal) offset left-turn with a raised median to further designate the left-turn lane, as shown in **Figure ES-6**.



**Figure ES-6: Spot Improvement No. 2**

The existing concrete paved median is flush with a width over 30 feet wide and the markings for the parallel offset left turn lane are faded making it difficult for motorists to ascertain where to enter the left-turn lane. FHWA's Handbook for Designing Roadways for the Aging Population provides guidance for design of offset left-turn lanes. Offset left-turn lanes are used to reduce the risk of crashes due to sight restrictions from opposite left-turn vehicles. Although the left-turn signal indication from northbound US 60 to westbound KY 716 is protected-only, a tapered offset left-turn lane is suitable for higher speed arterials like US 60 and can be constructed with a raised median to further delineate the lane. Further consideration is required prior to implementing this concept as additional costs to address drainage may be necessary due to storm drain in median.

### **Spot Improvement 3**

The third spot improvement is to eliminate the westernmost entrance at the Crisp Dairy Treat which does not have adequate sight distance, as shown in **Figure ES-7**. The crash analysis identified two angle crashes which were in front of the Crisp Dairy Treat, and the property owners have posted a sign in their parking lot notifying existing customers to use only the east driveway. The figure depicts an access management strategy to close the west entrance and create a narrower east entrance which lines up better with the entrance to Armco Park across the street. This would provide adequate sight distance, allow for more orderly merging of traffic, reduce potential conflict points, and presents fewer challenges to drivers. This concept would require coordination with the Crisp Dairy Treat.





**Figure ES-7: Spot Improvement No. 3**

### Local Official / Stakeholder Outreach

Two Local Officials / Stakeholder Meetings were held over the course of the study to provide information on the study and solicit feedback on transportation issues and improvement concepts. School traffic was identified as the top concern, followed by safety and lack of sidewalks. Most of the survey respondents indicated that corridor-wide improvements are needed in the study area, and all eight chose the corridor-wide Improvement Concept 2A (Curb & Gutter with a Sidewalk on the North Side Only) as the preferred concept. Respondents were asked which of the three Spot Improvements, if any, that they support. There was support for all three Spot Improvements, with Spot Improvement 2, restriping the left-turn on northbound US 60 to westbound KY 716, as the most popular. One respondent noted that Spot Improvement 1 (prohibit left turns from Speedway) should be removed due to number of staff from FCI who frequent Speedway.

#### Top 3 Concerns Identified by Local Officials / Stakeholders

1. School Traffic
2. Safety
3. Lack of Sidewalks

Summit Elementary School has an efficient process during their convening and dismissal hours to circulate vehicles. The on-campus gravel lot and well-organized process avoid storing queued vehicles on KY 716. However, traffic volumes and turning vehicles are highest during convening and dismissal times, which is likely the reason school traffic was identified by local officials as an issue on KY 716. Based on the results from a turn lane warrant analysis, neither a left turn lane nor a right turn lane is warranted at Summit Elementary.



## Conclusions

The objective of this study was to identify and evaluate the need for and scope of potential options to improve safety, mobility, and capacity between US 60 and KY 3293 (Summit Road). An evaluation matrix was developed to summarize the improvement concepts' ability to satisfy the study objectives. **Table ES-1** presents the evaluation matrix, which includes estimated cost and whether the concept improves safety, mobility, and capacity and reduces right-of-way and utility impacts. Based on results from the traffic analysis, roadway capacity is not an issue and is not expected to be an issue in the future. As a result, Concept 1 was removed from further consideration.

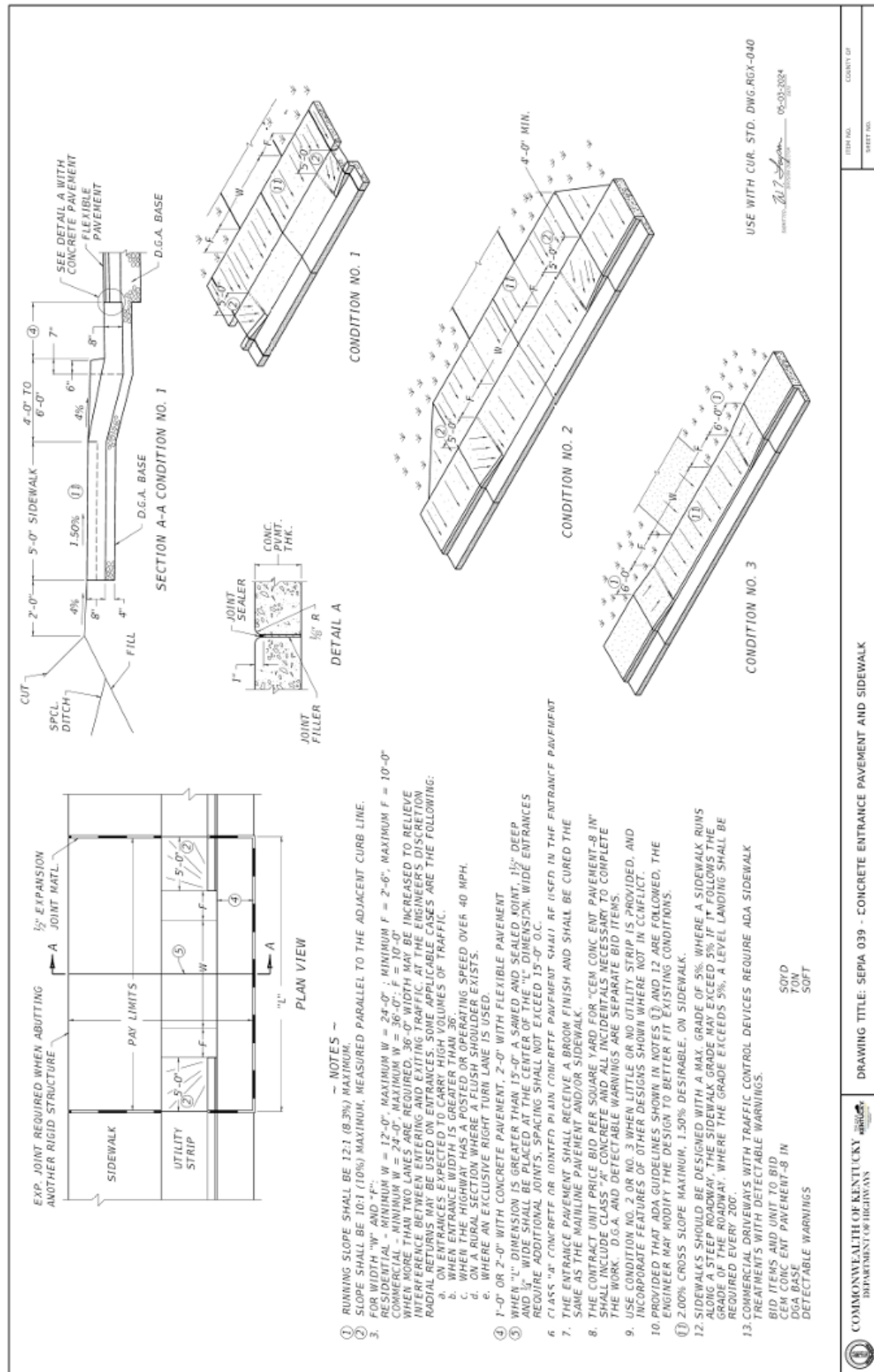
While Concept 1 improves safety and mobility, it will likely require home, electric, gas, water, sewer, and communication line relocations. Concept 2A provides improved safety and mobility for all modes of travel while limiting the right-of-way and utility impacts.

As part of the design of Concept 2A, Condition No. 1 and Condition No. 3 in KYTC's Standard Drawing for Concrete Entrance Pavement and Sidewalk<sup>1</sup> should both be considered, as shown in **Figure ES-8**. Condition No. 1 is preferred and incorporates a small utility strip between the curb and sidewalk to accommodate roadside mailboxes as well as other utilities and maintains a consistent grade across entrances for the sidewalks. Condition No. 3 removes the utility strip which would reduce right-of-way and utility impacts but provides less of a buffer between traffic and pedestrians.

**Table ES-1: Evaluation Matrix**

Issues / Project Goals	Existing (No Build)	Concept 1 (3-Lane Section with TWLTL and Sidewalks on Both Sides)	Concept 2A (Sidewalk on Northside Only)	Concept 2B (Sidewalks on Both Sides)	Concept 3 (Spot Improvements)
Estimated Total Cost	\$0	\$8,300,000	\$2,800,000	\$4,700,000	Low Cost
Improves Safety	✗	✓	✓	✓	✓
Improves Mobility	✗	✓	✓	✓	NA
Improves Capacity	NA	NA	NA	NA	NA
Reduces Right-of-Way Impacts	✓	✗ <sup>1</sup>	✓	● <sup>2</sup>	✓
Reduces Utility Impacts	✓	✗ <sup>3</sup>	● <sup>4</sup>	✗ <sup>3</sup>	✓
<p><b>Note 1:</b> Potential 4 home relocations  <b>Note 2:</b> ROW easements likely / ROW acquisition possible  <b>Note 3:</b> Assumes electric, gas, water, sewer &amp; communication relocations  <b>Note 4:</b> Assumes water &amp; sewer relocations</p> <p><b>Key:</b>  ✗ Not addressed  ● Somewhat addressed  ✓ Addressed</p>					

<sup>1</sup> <https://transportation.ky.gov/Highway-Design/Standard%20Drawings%20DGNS%202020/rpm150.pdf>



**Figure ES-8: KYTC's Standard Drawing for Concrete Entrance Pavement and Sidewalk**



Based on a combination of input from the project team, a review of existing conditions, local officials / stakeholder input, and field reconnaissance, the following improvements are recommended to move forward to Phase 1 Design:

- **Concept 2A:** construct a sidewalk with curb and gutter on one side (north) of the roadway to minimize impacts due to the large number of utilities along the corridor.
- **Spot Improvement 1:** prohibit left turns to/from Speedway from/to KY 716 by installing a median barrier on KY 716.
- **Spot Improvement 2:** restripe the left-turn lane for northbound US 60 as a tapered (diagonal) offset left-turn with a raised median to further designate the left-turn lane. Further consideration is required prior to implementing this concept as additional costs to address drainage may be necessary.
- **Spot Improvement 3:** eliminate the westernmost entrance at the Crisp Dairy Treat and tighten the easternmost entrance. It is envisioned that this improvement would be implemented by the property owner with District approval or incorporated with the project for Concept 2A.

### Next Steps

The next step following this study for any potential improvements would be Phase 1 Design (Preliminary Engineering and Environmental Analysis). Funding for the Design phase is programmed in *Kentucky's FY 2024 – FY 2030 Enacted Highway Plan*.

Concept 2A could also be developed at the local level or through the Kentucky Ohio West Virginia Interstate Planning Commission (KYOVA) using federal funding and/or grants. Multi-modal grant opportunities are an emphasis in current federal funding programs. Due to the proximity of Summit Elementary, there may be federal funding available through programs such as Safe Routes to School.

**Full Report and Appendices are located  
on the KYTC Division of Planning  
Website:**



<https://transportation.ky.gov/Planning/Pages/Project-Details.aspx?Project=KY%20716%20Corridor%20Study>