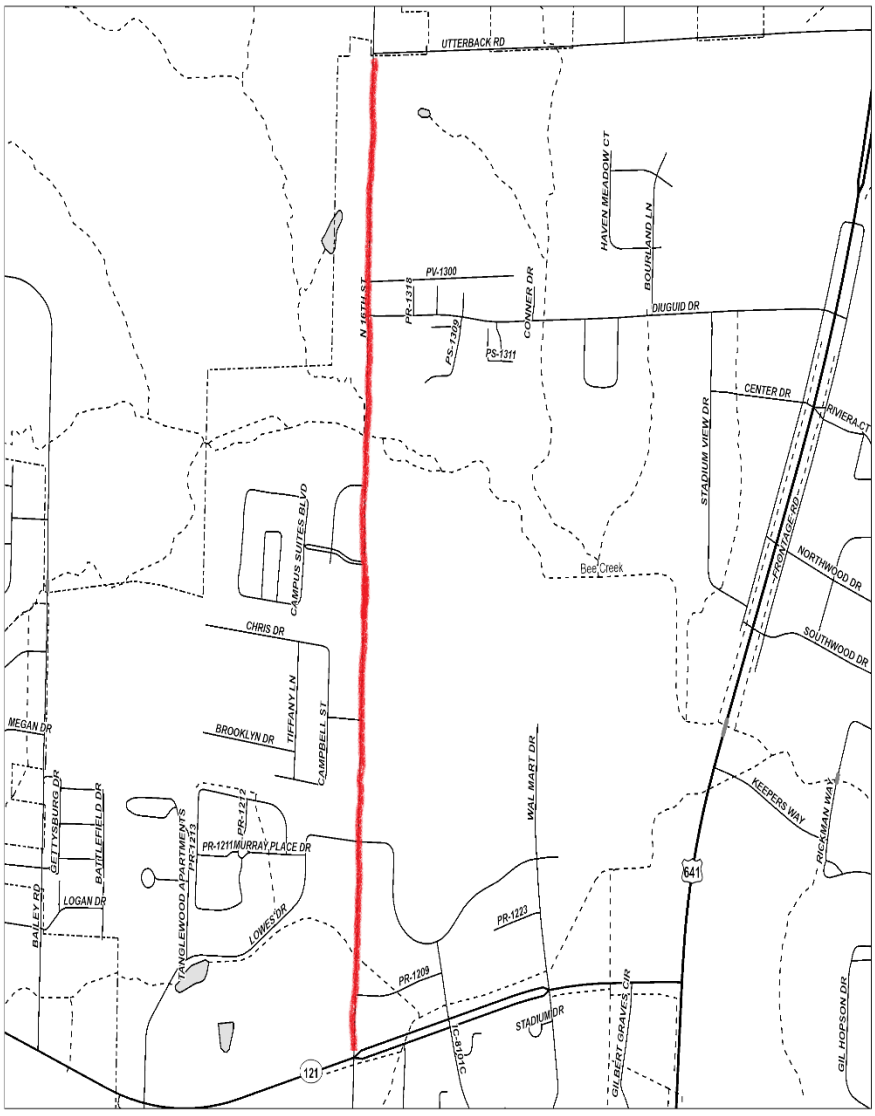
Data Needs Analysis

Preliminary Design



CS 1047 (North 16th St),
Calloway County
From KY 121 to
Utterback Rd.
Item No. 01-80200

Prepared by the KYTC
Division of Planning and
KYTC District 1

December 2022

I. PRELIMINARY PROJECT INFORMATION

County: Calloway | Item No.: 1-80200
Route Number(s):* CS 1047 | Road Name: North 16th Street
Program No.: | UPN: STP 18 1047 0-1.079
Federal Project No.: | Type of Work: Minor Widening

2022 **Highway Plan Project Description:**

Address congestion, geometric deficiencis, and access issues from KY121 to Utterback Road in Murray

Beginning MP: 0 **Ending MP:** 1.079 **Project Length:** 1.079

In TIP: ☐ Yes ☑ No — Use PDP/CHAF to Verify Project Data

State Class.: ☐ Primary ☐ Secondary **Route is on:** ☐ NHS ☐ NN ☐ Ext Wt

Functional Class.: ☑ Urban ☐ Rural Collector **Truck Class.:** **% Trucks:** 14.07%

MPO Area: Not Applicable **Terrain:** Rolling

ADT (current): 4794 2021

Access Control: ☐ None ☑ Permit ☐ Fully Controlled ☐ Partial Spacing: 3

Median Type: ☑ Undivided ☐ Divided (Type):

Existing Bike Accommodations: Shared Lane **Ped:** ☑ Sidewalk

Posted Speed: ☑ 35 mph ☐ 45 mph ☐ 55 mph ☐ Other (Specify):

KYTC Guidelines Preliminarily Based on : **35** **MPH Proposed Design Speed**

Roadway Data:	EXISTING	COMMON GEOMETRIC PRACTICES**
No. of Lanes	2	2-4
Lane Width	9'-10'	10'-11'
Shoulder Width	6"	2'-10'
Max. Superelevation***	NA	4%
Minimum Radius***	NA	510'
Maximum Grade	4%	8%
Minimum Sight Dist.	175'	250'
Sidewalk Width	4'-5'	4'-8'
Clear-zone†	15'	7'-10'

Existing Rdwy. Plans available? ☐ Yes ☑ No — Year of Plans:

☐ Traffic Forecast Requested — Date Requested: NA

☐ Mapping/Survey Requested — Date Requested:

Type: Lidar

Project Notes/Design Exceptions? NA

Bridge No.:‡	018C00138N	N/A
Sufficiency Rating	80.2	N/A
Total Length	82'	N/A
Width, curb to curb	27'	N/A
Span Lengths	N/A	N/A
Year Built	2003	N/A
Posted Weight Limit	None	N/A
Structurally Deficient?	No	N/A
Functionally Obsolete?	No	N/A
Existing Bridge Type	Tied Box Beams	N/A

Existing Geotech Data Available? ☐ Yes ☑ No

Detour Length(s): 1.9 Miles

*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 project was approved in the 2022 Six Year Plan.

Funding	*Phase*	*Year*	*Amount*
STP	D	2023	$750,000
STP	R	2025	$3,000,000
STP	U	2026	$3,000,000
STP	C	2027	$3,500,000

B. Project Status

Design funds have been requested October 2022.

C. System Linkage

On this route, there are many duplexes and town houses. These house mainly students so they can keep close to the University just south of the project. It is a daily commute for students to classes, jobs and social life. North of the project is Ky 80; it's a 4 lane divided arterial highway that connects Murray to Mayfield, I-69 to the west and I-24, Hopkinsville and I-169 to the east.

D. Modal Interrelationships

This route does not provide direct access to a multi modal facility such as an riverport, airport or rail facility. It does link KY 80, which is a 65 MPH 4 lane divided highway. It provides a direct route to the heart of the University without going through the business part of town. It also provides bike/ped access between student housing and the University.

E. Social Demands & Economic Development

The improved connection will promote safer access to businesses and residences along the route and to KY 80 as well as to the University. Improvements along this route should give bicyclists a dedicated bike lane or wider shoulder as well as pedestrians a place to walk to the University without haveing to cross the road at a midblock crossing.

II. PROJECT PURPOSE AND NEED (cont.)

F. Transportation Demand

The most recent count from CTS for this segment has an AADT 4,794 for the year 2021. This is an increase from the year 2018 which had 4690 AADT. It has steadily been increasing since 2009 which had an AADT of 3780. There is no truck information available. This is a bike/ped friendly community, but with only sidewalks, cyclists are forced to share the road with vehicles.

G. Capacity

There is congestion throughout this roadway corridor. There are residential entrances throughout and commercial developments on the south end of the corridor. There are no shoulders or multi-use paths for cyclists to ride on. This route has an elementary school outside of the project limits. With an AADT of 4794 the roadway is reaching near capacity.

H. Safety

5 years of crash data showed 100 collisions, with 8 resulting in injuries. The collisions were spread throughout the corridor with clusters more apparent at the ingress and egress of business/residential entrances. Heavy vehicular traffic combined with a shared traffic/bicycle lane, sight distance issues, compound sefety issues on this route.

I. Roadway Deficiencies

The entire length of the project has very narrow shoulders. There are spots where the vertical crest curves do not provide adequate sight distance to/from entrances. There is an often occurance of flooding on the south end of the project.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

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

STIP Pg.#: Not in current book **TIP Pg.#:**

B. Archeology/Historic Resources

☐ Known Archeological or Historic Resources are present

No historic resources known at present time. A phase 1 archaeological assessment on an adjacent project revealed the need for additional study at the southern portion of the project area. However, with only minor widening proposed, construction outside of disturbed areas is unlikely.

C. Threatened and Endangered Species

Tree cutting likely, so potential for bat habitat to be affected.

D. Hazardous Materials

☑ Potentially Contaminated Sites are present ☐ Potential Bridge or Structure Demolition

1 service station is present within corridor, but encroachment upon USTs unlikely. Work to bridges may require an asbestos inspection.

E. Permitting

Check all that may apply: ☐ Waters of the US ☐ MS4 area ☐ Floodplain Impacts ☐ Navigable Waters of the US Impacts

Are 401/404 Permits likely to be required? ☐ Yes ☑ No Impacts to: ☐ Wetlands ☐ Stream/Lake/Pond

☐ ACE LON ☐ ACE NW ☐ ACE IP ☐ DOW IWQC ☐ Special Use Waters

May require Division of Water KPDES notification if ground disturbance reaches 1 acre. 401/404 permit is not needed unless there is stream disturbance.

F. Noise

Are existing or planned noise sensitive receptors adjacent to the proposed project? ☑ Yes ☐ No

Is this considered a "Type I Project" according to KYTC Noise Analysis and Abatement Policy? ☐ Yes ☑ No

G. Socioeconomic

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

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

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

Anticipated Environmental Document: CE Level 1

IV. PROJECT NEED, PURPOSE & SCOPE

A. Need:

This segment of CS-1047 (16th St) serves as a connector to KY 80 down a two lane road. The shoulders are almost non-existant and there is one sidewalk down half of the project. The south end of the project has residential appartments/townhouses and there is a shopping center that has places to eat. There are a lot of accidents along this route that tends to get busy at certain times of the day with an AADT of 4794. The south end of the project has an area that floods often across the roadway.

B. Purpose:

~~P~~urposes of this project include to increasing safety for pedestrians and bicyclists; alleviate the collision clusters; enhance the road safety features.

C. Scope:

The two lane corridor should be examined for possible widening throughout. With an AADT of 4794 it causes congestion issues. The city as a whole is bike/pedestrian encrouageing and we want to continue that with this project. There are collision clusters that will need to be examined and decrease their occurances whether that would be by sight distance, left/right turn lanes or innovative intersections. There is an area of flooding that will need to be addressed on the south end of the project.

V. PROJECT ESTIMATE & METHODOLOGY

Estimate Methodology:

Comparison to similar projects

Current Estimate

Phase	Estimate
Planning	
Design	$750,000.00
R/W	$3,000,000.00
Utilities	$3,000,000.00
Const	$3,500,000.00
Total	**$10,250,000.00**

VI. UTILITIES POTENTIALLY AFFECTED - CONTACT INFORMATION

Company Name -	City of Murray Public Works
Contact -	Thomas Kutcher
Address -	200 Andrus Drive, Murray, KY 42071
Phone No. -	270-762-0336
Company Name -	Murray Electric System
Contact -	Terry McCallon
Address -	401 Olive Street, Murray, KY 42071
Phone No. -	270-753-5312
Company Name -	Murray Electric System
Contact -	Chad Lawson, Communications Manager
Address -	401 Olive Street, Murray, KY 42071
Phone No. -	270-753-5312
Company Name -	Spectrum Cable
Contact -	Michael Lyons
Address -	P.O.Box 658, 515 Double Springs Rd, Bowling Green KY
Phone No. -	812-202-0135
Company Name -	AT&T
Contact -	Amanda Berkley
Address -	810 Kentucky Avenue, Paducah, KY 42003
Phone No. -	270-444-5047

VII. TABLES AND EXHIBITS

Map
10/10/2022 8:58 AM

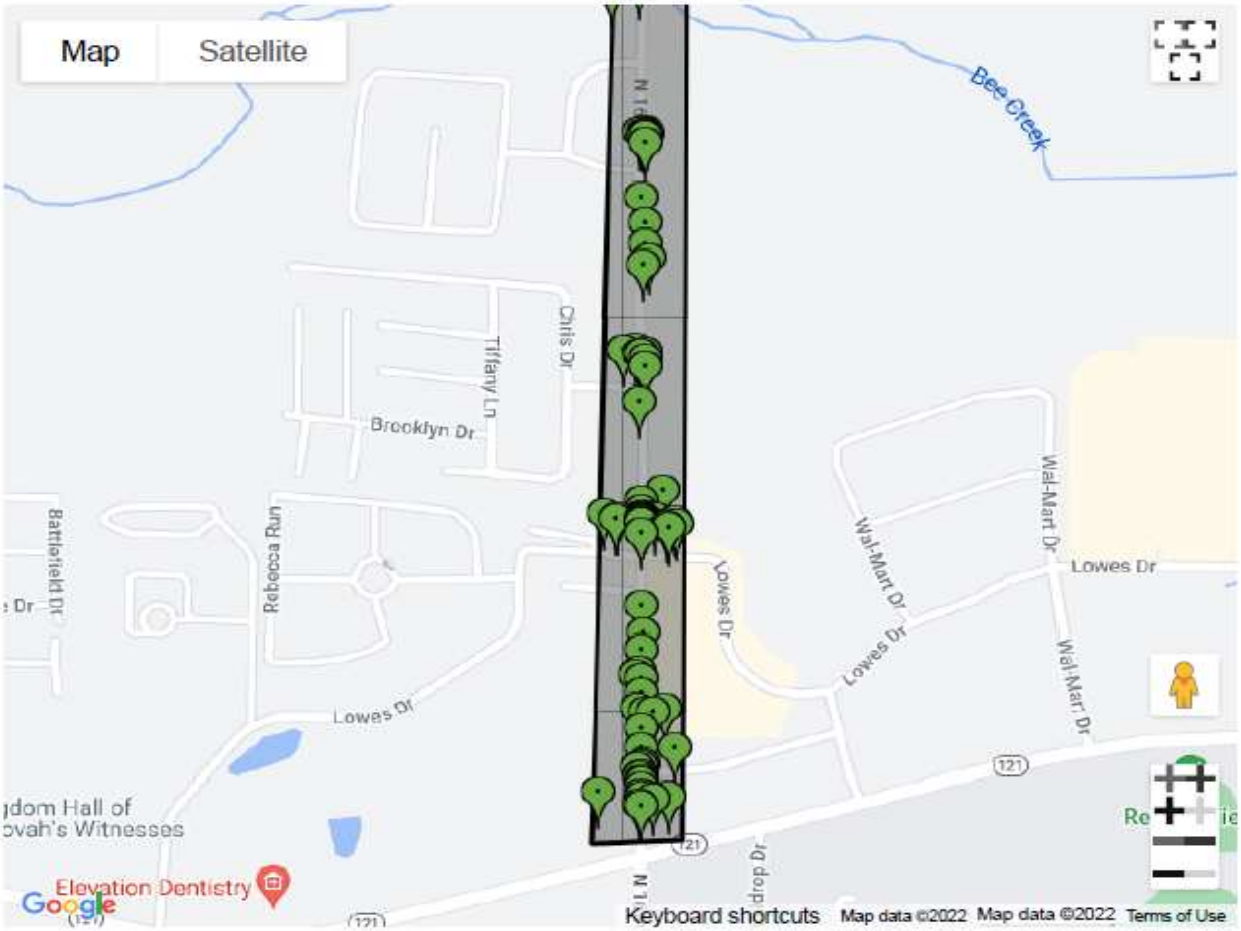
Legend:

Collision

VII. TABLES AND EXHIBITS (cont.)

Map

10/10/2022 8:55 AM



Legend:

Collision