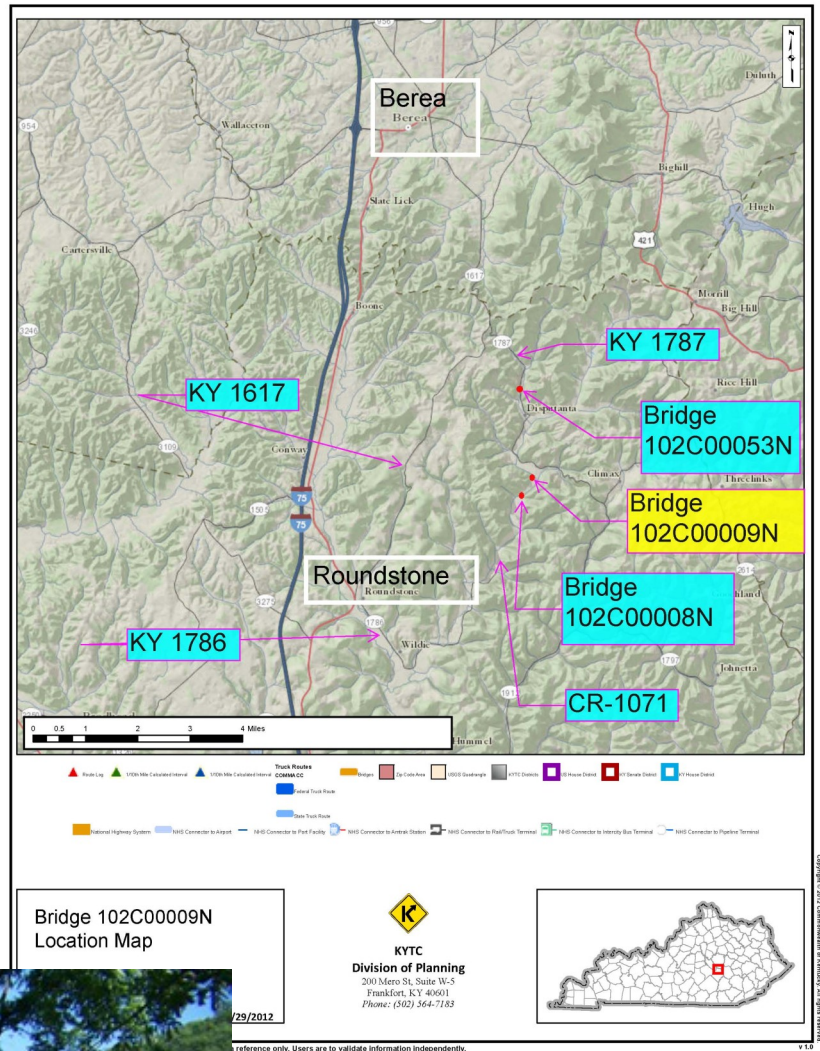


Data Needs Analysis



Scoping Study

**CR-1071—Rockcastle County
Bridge Replacement
102C00009N
MP 2.181 to 2.221
Item No. 8-1058.00**

Prepared by KYTC
District 8
Planning Section

July 2013

I. PRELIMINARY PROJECT INFORMATION

County: ROCKCASTLE Item No.: 8-1058.00
Route Number(s): CR 1071 Road Name: WILDIE
Program No.: 87957 UPN: FD52 102 1071 002-003
Federal Project No.: BRZ 0803(177) Type of Work: BRIDGE REPLACEMENT

2012 Highway Plan Project Description:

REPLACE BRIDGE ON WILDIE ROAD (CR 1071) OVER CLEAR CREEK 0.2 MILES SOUTH OF DISPUTANTA RD.
(KY 1787) 102C00009N

Beginning MP: 2.181 Ending MP: 2.221 Project Length: 0.04

Functional Class.: ☐ Urban ☒ Rural State Class.: ☐ Primary ☐ Secondary

Local

Route is on: ☐ NHS ☐ NN ☐ Ext Wt

MPO Area: Not Applicable

Truck Class.: 10 TON POSTED LIMIT

In TIP: ☐ Yes ☐ No

% Trucks:

ADT (2009): 117

Terrain: Rolling

Access Control: ☒ None ☐ Permit ☐ Fully Controlled ☐ Partial Spacing:

Median Type: ☒ Undivided ☐ Divided (Type):

Existing Bike Accommodations: Shared Lane

Ped: ☐ Sidewalk

Posted Speed: ☐ 35 mph ☐ 45 mph ☐ 55 mph ☒ Other (Specify): not posted

KYTC Guidelines Preliminarily Based on : 45 MPH Proposed Design Speed

COMMON GEOMETRIC

Roadway Data:

EXISTING

PRACTICES*

No. of Lanes	2	2
Lane Width	8'	10'
Shoulder Width	<1'	2'
Max. Superelevation**	N/A	8%
Minimum Radius**	±230'	600'
Maximum Grade	<2%	9%
Minimum Sight Dist.	<360'	360'
Sidewalk Width(urban)		
Clear-zone***	<12'	12-14'

[Existing Rdwy. Plans available?](#)

☐ Yes ☒ No

Year of Plans:

☐ [Traffic Forecast Requested](#)

Date Requested:

☐ Mapping/Survey Requested

Date Requested:

Type:

Project Notes/Design Exceptions?: AASHTO GUIDELINES FOR LOW VOLUME LOCAL ROADS MAY BE CONSIDERED IN FINAL DESIGN

*Based on proposed Design Speed, **AASHTO's A Policy on Geometric Design of Highways and Streets, ***AASHTO's Roadside Design Guide

Bridge No.*: 102C00009N

Sufficiency Rating: 17.6

[Existing Geotech data available?](#)

Total Length: 60

☐ Yes ☒ No

Width, curb to curb: 16

Span Lengths: 2@27' (CONCRETE SLAB DECK)

Year Built: 1935; BRIDGE SUBSTR. IS STACKED QUARRIED STONE BLOCK

Posted Weight Limit: 10 TON

Structurally Deficient? YES

Functionally Obsolete? NO

II. PROJECT PURPOSE AND NEED

A. Legislation

FROM 2012 ENACTED HWY PLAN	<i>Funding</i>	<i>Phase</i>	<i>Year</i>	<i>Amount</i>
	BRZ	D	2013	\$250,000
	BRZ	R	2014	\$50,000
	BRZ	U	2014	\$100,000
	BRZ	C	2015	\$570,000

B. Project Status

NO UNSCHEDULED NEED "PIF" EXISTS FOR THIS PROJECT. SEE PART A ABOVE FOR FUNDING SCHEDULE OF OUTLYING YEARS.

C. System Linkage

THIS COUNTY ROAD IS 2.417 MILES LONG AND RUNS BETWEEN KY 1786 AND KY 1787. LOCAL TRAFFIC FROM THE COMMUNITIES OF CLIMAX AND DISPUTANTA LIKELY USE THIS ROUTE TO TRAVEL TO THE RENFRO VALLEY/MT. VERNON AREAS. THIS ROUTE WILL CONTINUE TO FUNCTION AS A RURAL LOCAL ROUTE AFTER THIS PROJECT IS COMPLETE. TWO OTHER BRIDGE REPLACEMENT PROJECTS ARE LOCATED NEARBY. ONE IS APPROX. 2 MILES NORTH FROM THIS PROJECT ON KY 1787 AT MP (ITEM NO. 8-1053.00) AND THE OTHER IS APPROX. 0.2 MILES SOUTH OF THIS PROJECT ON CR-1071 WILDIE ROAD (ITEM NO. 8-1057.00). SEE THE DETOUR ROUTE MAP AT THE END OF THIS REPORT FOR THE LOCATIONS OF ALL THREE BRIDGE PROJECTS RELATIVE TO ONE ANOTHER. ALSO, RESIDENCES EXIST ON THE PORTION OF CR-1071 BETWEEN THE TWO BRIDGE PROJECTS ON CR-1071.

D. Modal Interrelationships

LOCAL FARM RELATED ACTIVITIES USE THIS ROUTE.

E. Social Demands & Economic Development

A SMALL COMMUNITY PARK/SHELTER IS LOCATED ON THIS ROAD.

F. Transportation Demand

ADT IN 2009 WAS 117. ADDITIONAL HISTORIC TRAFFIC VOLUMES ARE NOT AVAILABLE. DEMAND SHOULD REMAIN THE SAME FOR THE FOREESEEABLE FUTURE.

II. PROJECT PURPOSE AND NEED (cont.)

G. Capacity

NO KNOWN ISSUES AT THIS TIME OR EXPECTED IN THE FUTURE.

H. Safety

UPON SEARCHING THE CRASH DATABASE, NO CRASH DATA HAS BEEN REPORTED ON THIS ROUTE.

I. Roadway Deficiencies

EXISTING ROADWAY WIDTH, CLEAR ZONE, AND HORIZONTAL CURVATURE DEFICIENCIES EXIST ALONG THIS ROUTE. THIS BRIDGE AND THE OTHER LOCATED APPROX. 0.2 MILES AWAY ARE BOTH STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE. FUNDING FOR THIS PROJECT IS THE FEDERAL BRIDGE REPLACEMENT PROGRAM, THUS, MAJOR APPROACH REALIGNMENT SHOULD ONLY BE CONSIDERED IF THE NEW BRIDGE LOCATION IS OTHER THAN THE EXISTING LOCATION.

Draft Purpose and Need Statement:

Need: Bridge 102C0009N has a sufficiency rating of 30.5 is structurally deficient. The project need is to eliminate the low sufficiency rating and structural deficiencies of the existing bridge.

Purpose: The purpose of this study is to address the low sufficiency rating of this structurally deficient bridge.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

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

STIP Pg. #: TIP Pg. #:

B. Archeology/Historic Resources

☒ Known Archeological or Historic Resources are present

The existing bridge over Clear Creek (102C0009N) was constructed in 1935 and is potentially a historic structure. There may be some RoW required for this project depending on the alternate selected. Aside from the bridge itself, a complete determination of historical and archaeological impacts cannot be completed until the environmental documentation process is completed for this project.

C. Threatened and Endangered Species

There may be potential habitat for Indiana bat, Virginia big-eared bat, Virginia spiraea and six mussel species, however this is a preliminary statement. Until a habitat assessment is completed a full determination of biological and ecological impacts cannot be determined.

D. Hazardous Materials

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

There does not appear to be potentially contaminated sites within the project area, however given the age of the structure, an asbestos survey will be required to determine if there is suspect ACM present.

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

An LON is anticipated on this project.

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 the [KYTC Noise Analysis and Abatement Policy?](#) ☐ Yes ☒ No

G. Socioeconomic

Check all that may apply: ☐ Low Income/Minority Populations affected ☐ Relocations ☐ Local Land Use Plan available
There are no relocations on this project.

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

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

The presence of 4(f) and/or 6(f) resources will not be determined until the environmental documentation process has begun.

Anticipated Environmental Document:

CE Level 1



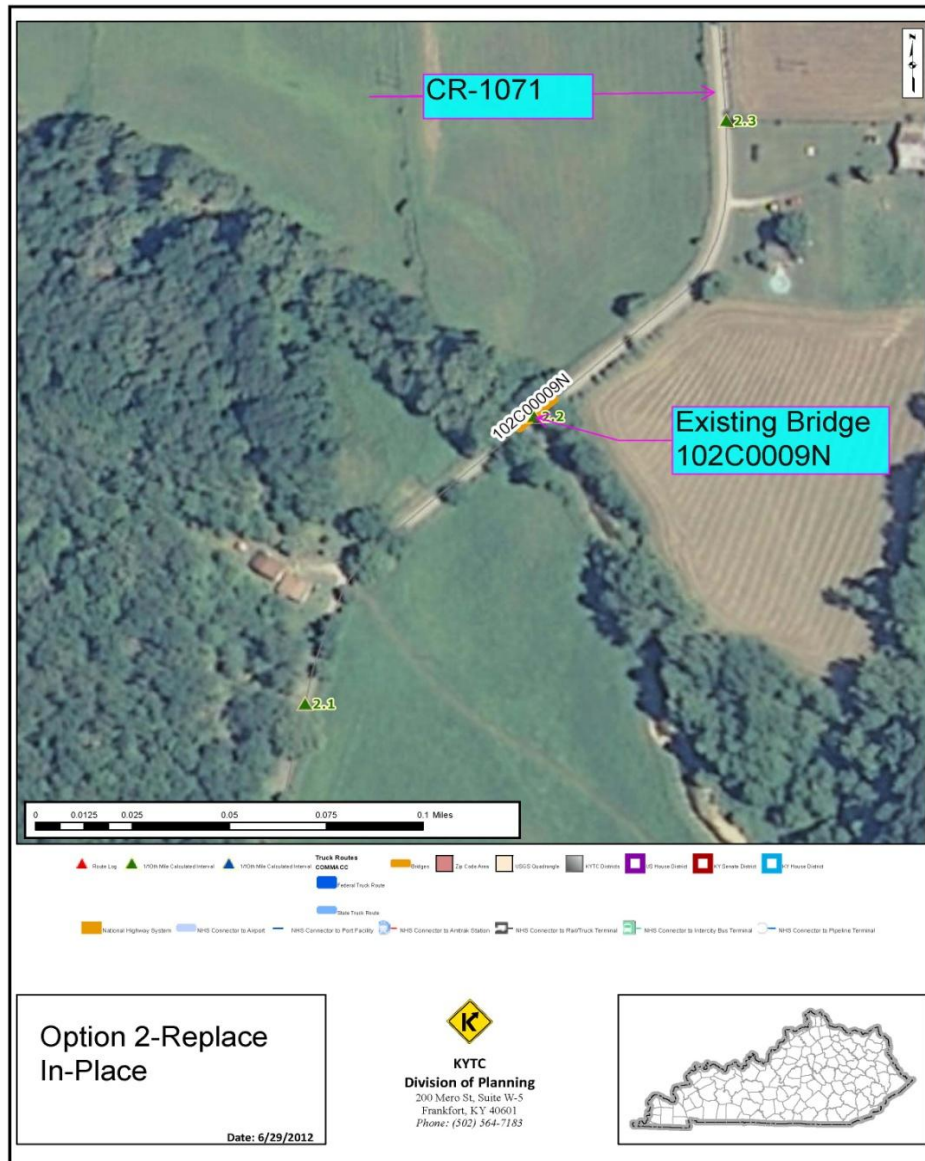
IV. POSSIBLE ALTERNATIVES

A. Alternative 1: No Build

NO BUILD OPTION DOES NOT ADDRESS THE PURPOSE AND NEED OF THE PROJECT.

B. Alternative 2-Replace Bridge In-Place and Detour Traffic

REPLACE ENTIRE BRIDGE IN-PLACE AND DETOUR TRAFFIC. SEE DETOUR ROUTE MAP AT END OF THIS REPORT.
APPROX. CONSTRUCTION TIME IS **120 DAYS**.



Planning Level Cost Estimate:

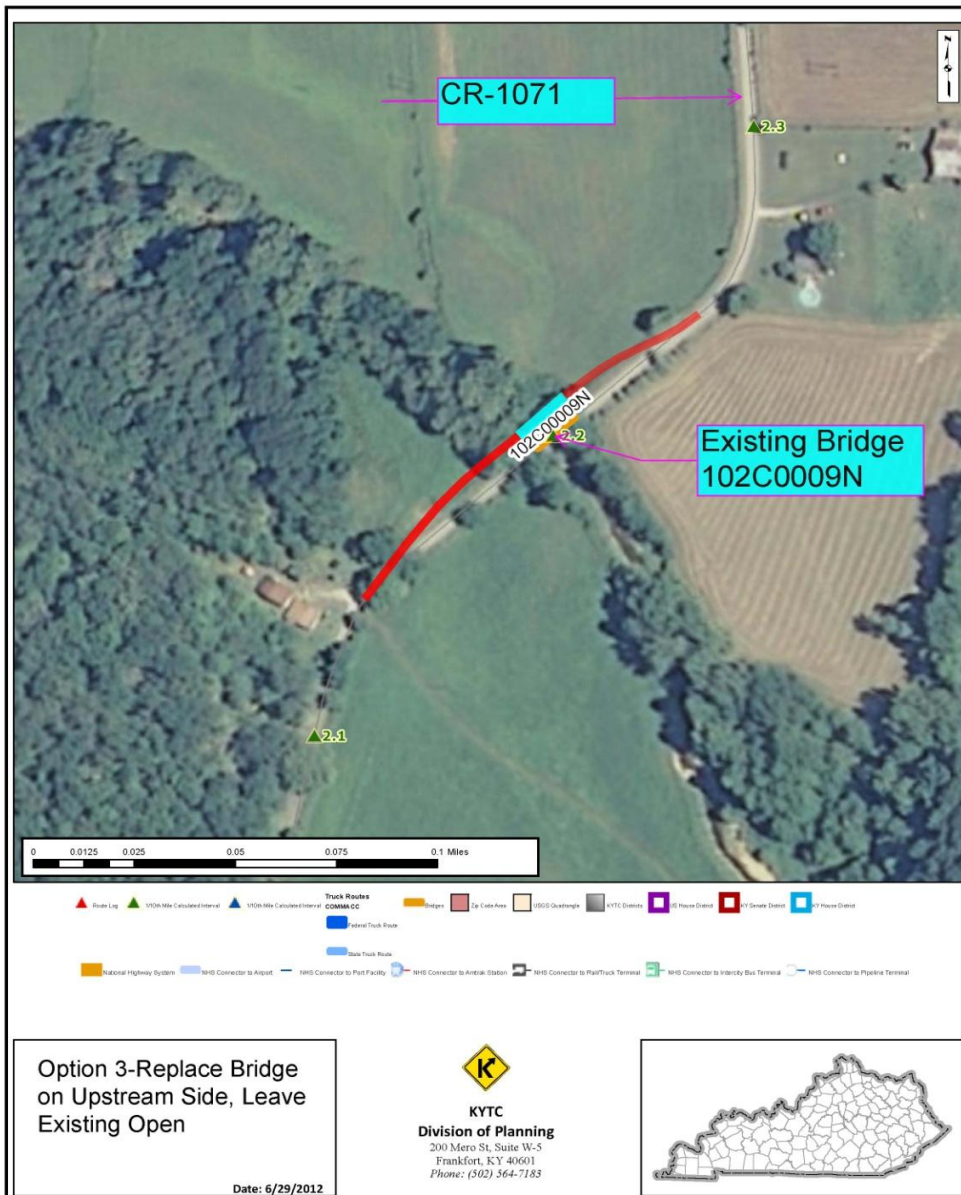
Phase	Estimate
Design	\$125,000
R/W	\$8,000
Utilities	\$100,000
Const	\$363,000
Total	\$596,000

INCL. \$50K FOR ENV. PERMITTING/IN-LIEU
FEES

IV. POSSIBLE ALTERNATIVES (cont.)

C. Alternative #3-Leave Existing Open and Construct New Bridge on Upstream Side

CONSTRUCT NEW BRIDGE ON UPSTREAM SIDE AND LEAVE EXISTING BRIDGE OPEN UNTIL NEW BRIDGE AND APPROACHES ARE COMPLETED. EXISTING BRIDGE AND APPROACHES TO BE REMOVED. APPROX. CONSTRUCTION TIME IS **120 DAYS**.



Planning Level Cost Estimate:

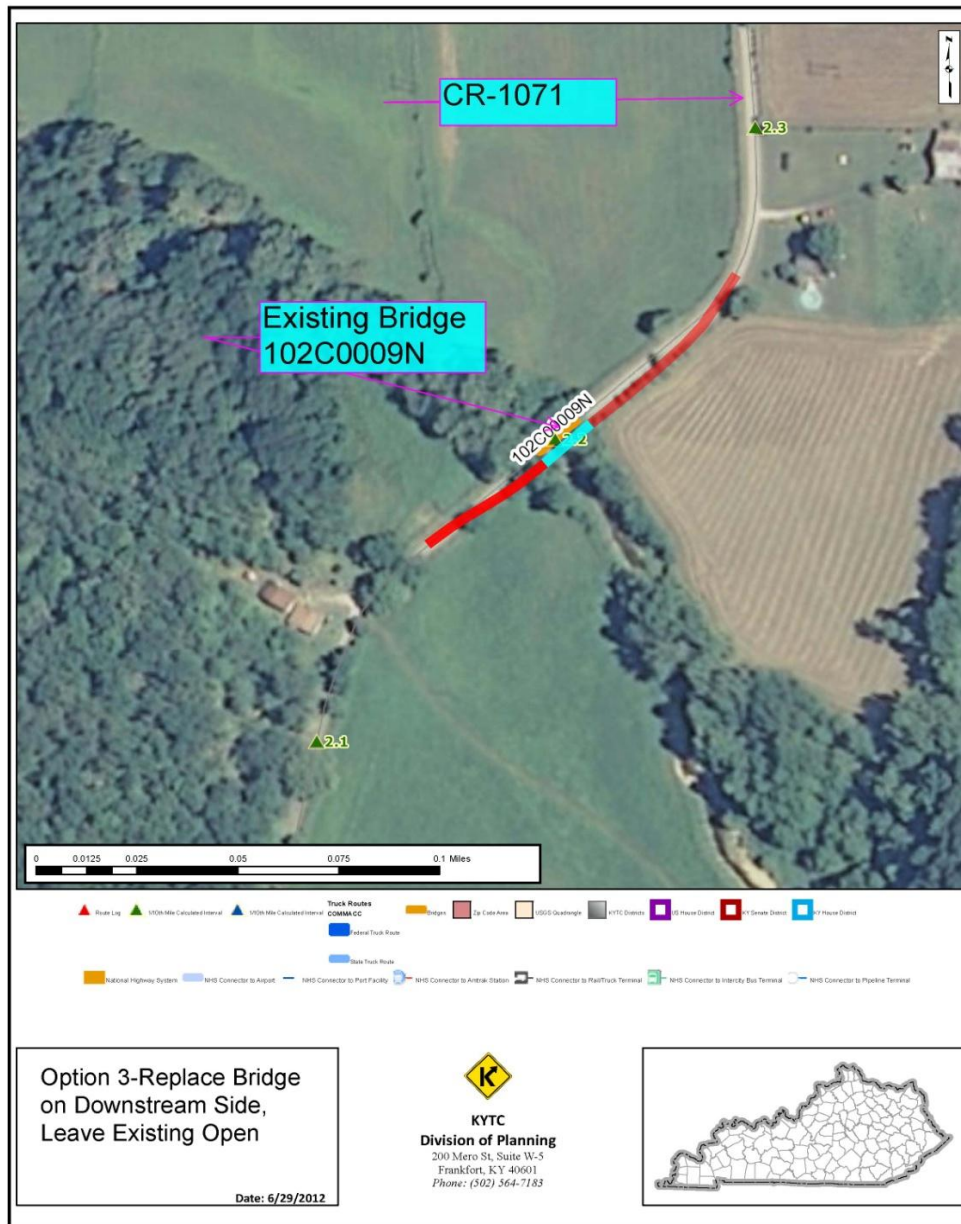
Phase	Estimate
Design	\$225,000
R/W	\$25,000
Utilities	\$100,000
Const	\$577,000
Total	\$927,000

INCL. \$100K FOR ENV. PERMITTING/IN-LIEU FEES

IV. POSSIBLE ALTERNATIVES (cont.)

D. Alternative #4-Leave Existing Open and Construct New Bridge on Downstream Side

CONSTRUCT NEW BRIDGE ON DOWNSTREAM SIDE AND LEAVE EXISTING BRIDGE OPEN UNTIL NEW BRIDGE AND APPROACHES ARE COMPLETED. EXISTING BRIDGE AND APPROACHES TO BE REMOVED. APPROX. CONSTRUCTION TIME IS 120 DAYS.



Planning Level Cost Estimate:

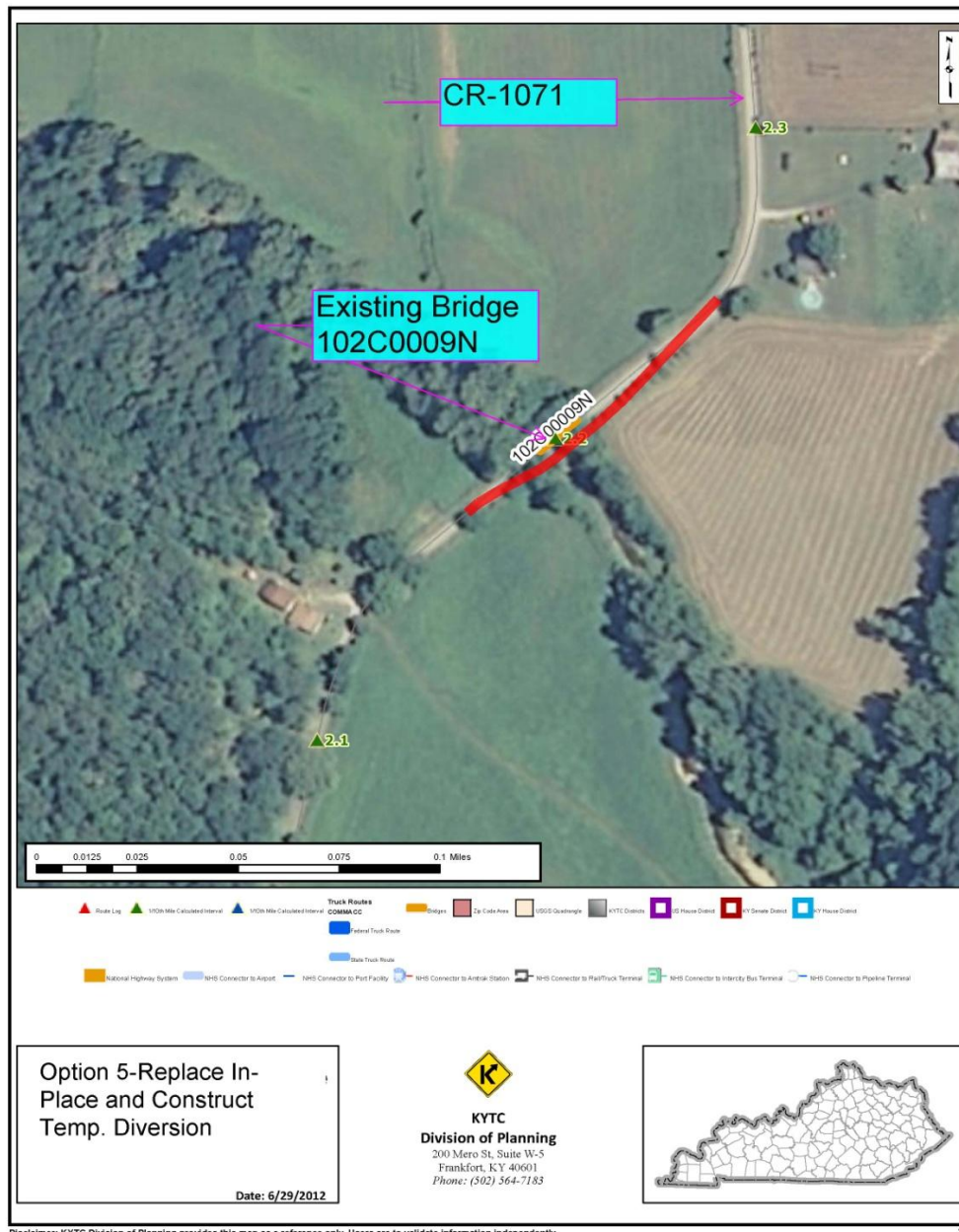
Phase	Estimate
Design	\$225,000
R/W	\$23,000
Utilities	\$100,000
Const	\$557,000
Total	\$905,000

INCL. \$100K FOR ENV. PERMITTING/IN-LIEU FEES

IV. POSSIBLE ALTERNATIVES (cont.)

E. Alternative #5-Replace in-place and Construct Temp. Diversion on Downstream Side

REPLACE ENTIRE BRIDGE IN-PLACE SIDE AND CONSTRUCT TEMP. DIVERSION ON DOWNSTREAM SIDE. APPROX. CONSTRUCTION TIME IS **120 DAYS**.



Planning Level Cost Estimate:

Phase	Estimate
Design	\$200,000
R/W	\$15,000
Utilities	\$100,000
Const	\$656,000
Total	\$971,000

INCL. \$100K FOR ENV. PERMITTING/IN-LIEU FEES

V. Summary

THIS PURPOSE OF THIS DNA STUDY IS TO ADDRESS THE LOW SUFFICIENCY RATING OF THE EXISTING BRIDGE. THE 2012 ENACTED HWY PLAN INCLUDES THIS PROJECT AS ITEM 8-1058.00. IN CONSIDERATION OF THE VARIOUS OPTIONS BELOW, IT IS RECOMMENDED TO SELECT AN ALTERNATE THAT DOES NOT DETOUR TRAFFIC DUE TO THE LONG DETOUR ROUTE THAT WOULD HAVE TO BE TAKEN. ALSO, OTHER NEARBY BRIDGE PROJECTS MAY BE UNDER CONSTRUCTION AS WELL (8-1057.00 AND 8-1053.00). SEE EXHIBIT 2. RESIDENCES EXIST BETWEEN THIS PROJECT AND 8-1058.00 ALONG THIS SAME COUNTY ROAD CR 1071 (SEE EXHIBIT 3).

Alt #	Description	D (\$) (2013)	R (\$) (2014)	U (\$) (2014)	C (\$) (2015)	Total (\$)
1	NO BUILD	-	-	-	-	-
2	REPLACE IN-PLACE, DETOUR TRAFFIC	\$125,000	\$8,000	\$100,000	\$363,000	\$596,000
3	REPLACE ON UPSTREAM SIDE	\$225,000	\$25,000	\$100,000	\$577,000	\$927,000
4	REPLACE ON DOWNSTREAM SIDE	\$225,000	\$23,000	\$100,000	\$557,000	\$905,000
5	REPLACE IN-PLACE, CONSTRUCT TEMP. DIVERSION	\$200,000	\$15,000	\$100,000	\$656,000	\$971,000
-	Current Hwy Plan Estimated Cost	\$250,000	\$50,000	\$100,000	\$570,000	\$970,000
-	Current Pre-Con Estimated Cost					

VI. Tables and Exhibits

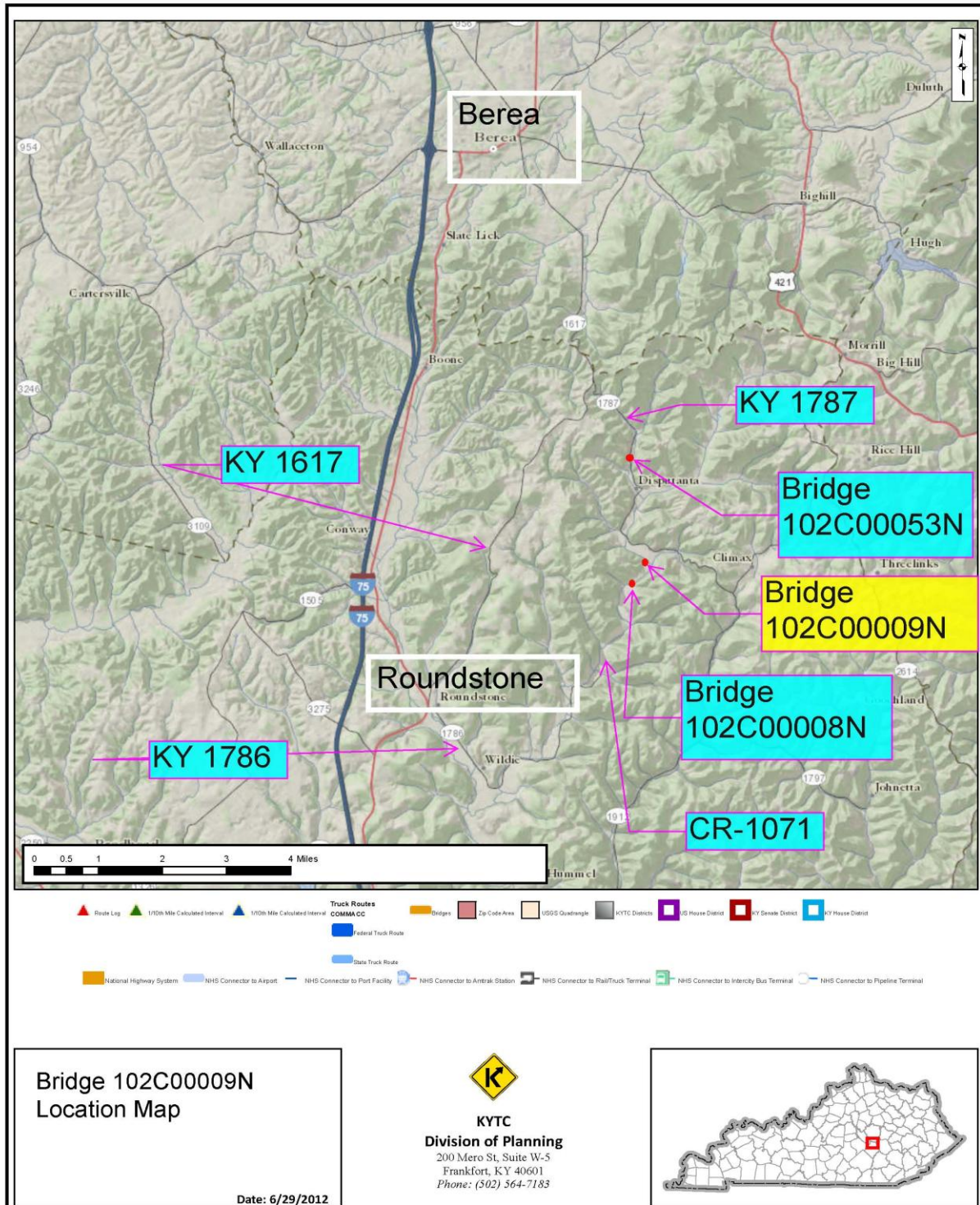


Exhibit 1: Project Location Map

VI. Tables and Exhibits

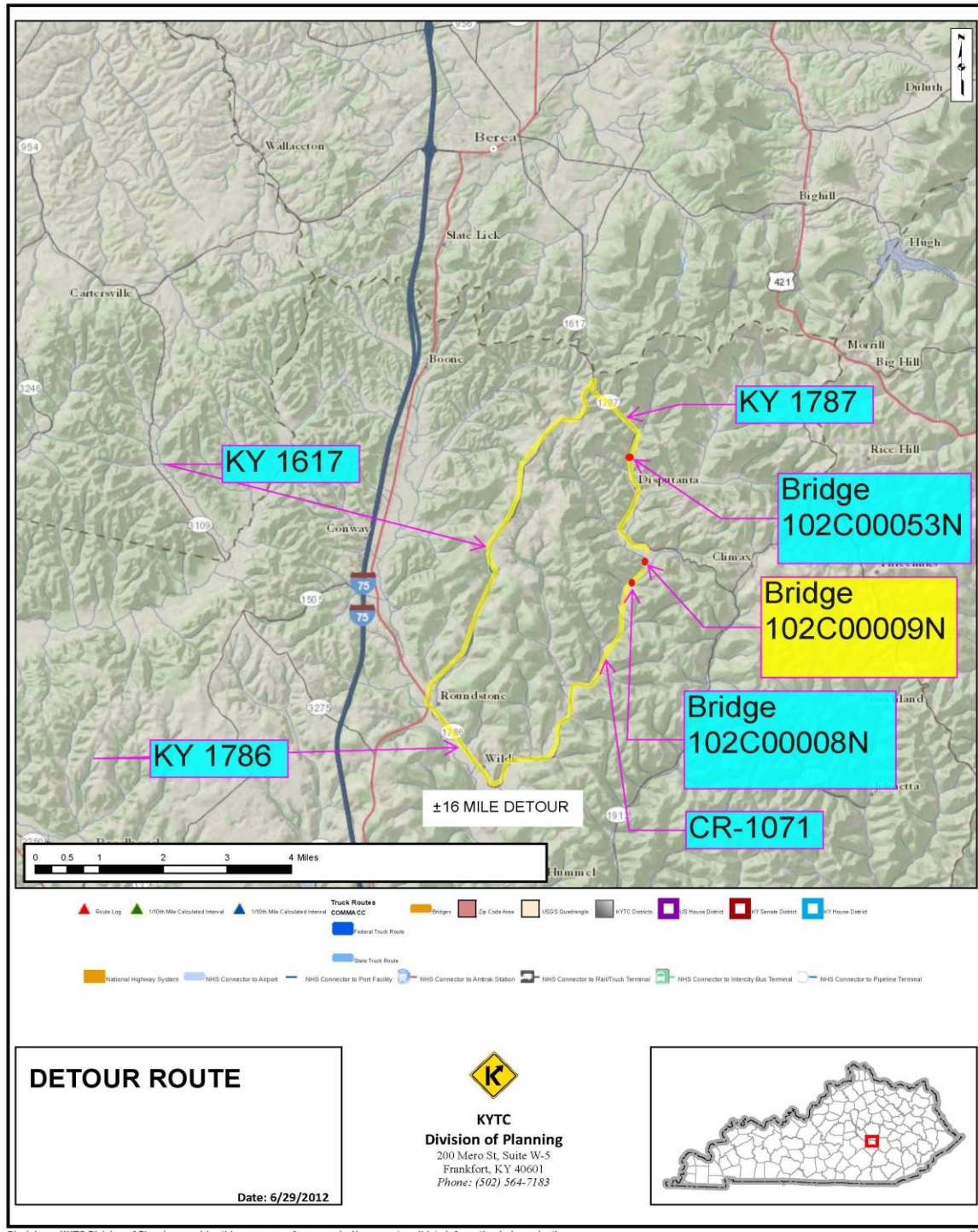


Exhibit 2: Detour Map

VI. Tables and Exhibits

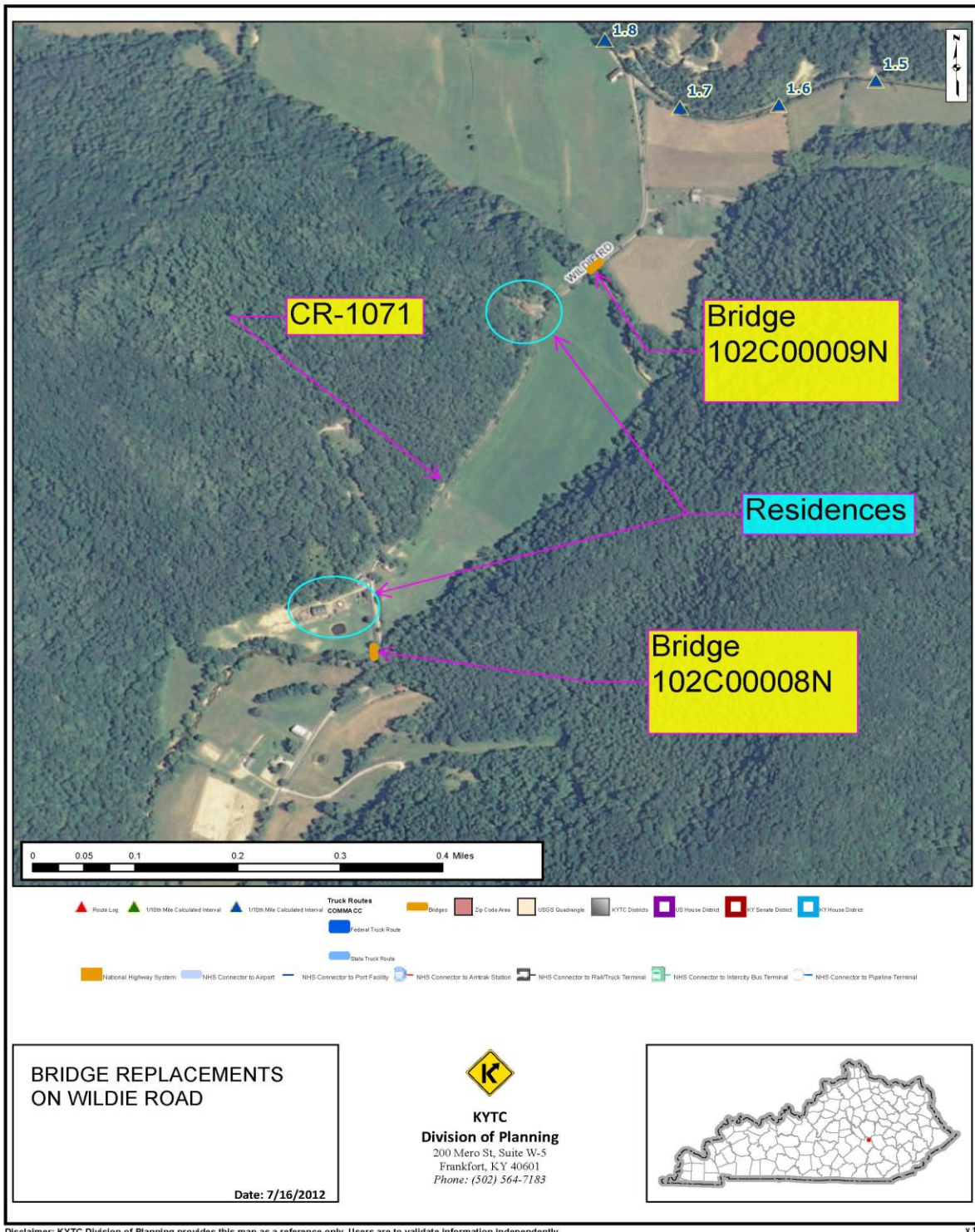


Exhibit 3: View of Both Bridges and Residences

VI. Tables and Exhibits

KENTUCKY TRANSPORTATION CABINET-DEPARTMENT OF HIGHWAYS DIVISION OF TRANSPORTATION PLANNING									
PORTABLE TRAFFIC RECORDER REPORT									
ROUTE: C01071		ROCKCASTLE COUNTY					STATION 051		
		WEEK OF		JUNE 29 TO JULY 05 2009					
DATE:		30	01	02	03	04	05		
DAY:		TUE	WED	THU	FRI	SAT	SUN		
12- 1 AM		29	0	1			TOTALS		
1- 2 AM		MON	0	1			1		
2- 3 AM			0	1			1		
3- 4 AM			0	1			2		
4- 5 AM			0	2			0		
5- 6 AM			0	0			4		
6- 7 AM			3	1			3		
7- 8 AM			2	1			5		
8- 9 AM			1	4			11		
9-10 AM			4	7			16		
10-11 AM			8	8			16		
11-12 AM			9	7			17		
12- 1 PM			10	5			10		
1- 2 PM		0	12				29		
2- 3 PM		18	21				29		
3- 4 PM		9	9				18		
4- 5 PM		9	12				21		
5- 6 PM		12	11				23		
6- 7 PM		9	9				18		
7- 8 PM		6	6				12		
8- 9 PM		3	4				7		
9-10 PM		5	4				9		
10-11 PM		1	3				4		
11-12 PM		0	0				0		
TOTALS:		80	139	38	AVERAGE DAILY TRAFFIC:			117	257
MONTHLY FACTOR: 97		MILE POINT : 1.9							
AXLE FACTOR : 95		COUNTED BY : DIST 8							
TOTAL HOURS : 48		DATA SOURCE : VOLUME							
AM HIGH HOUR: 12		ARRAY : TUBE							
PM HIGH HOUR: 21		LANES COUNTED: ALL LANES							

Exhibit 4: 2009 Traffic Count Data

APPENDICES

Appendix A

Pages

Photos of Existing Bridge 6-26-12:
1/3/2013 Bridge Inspection Report

1-5
6-10