

# Turkey Neck Bend Bridge

**FEASIBILITY STUDY**  
Executive Summary  
September 2024

**TEAM**  
**KENTUCKY**<sup>®</sup>  
TRANSPORTATION  
CABINET



## Executive Summary

### Turkey Neck Bend Bridge Feasibility Study

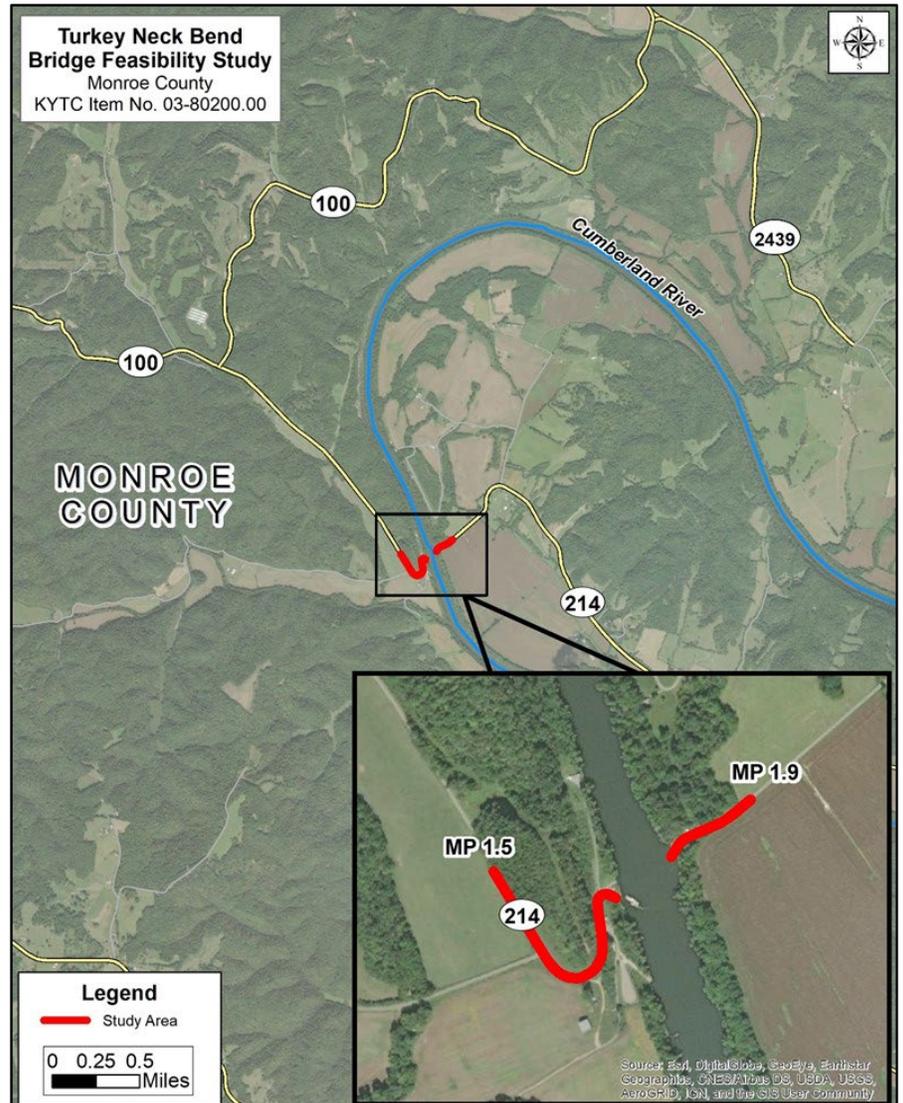
## Executive Summary

The Kentucky Transportation Cabinet (KYTC) initiated the *Turkey Neck Bend Bridge Feasibility Study*, KYTC Item No. 3-80200.00 in Monroe County to evaluate an array of options to maintain a connection for Turkey Neck Bend Road (KY 214) across the Cumberland River.

### Existing Conditions

The Turkey Neck Bend study area, shown in **Figure ES-1**, crosses the Cumberland River at KY 214 milepoint (MP) 1.54 and ends at MP 1.9 in southeastern Monroe County, Kentucky. KY 214 is a two-lane east-west collector with eight- to nine-foot lanes that provides a connection between KY 100 in Monroe County to KY 61 in Cumberland County, serving mostly sparsely populated, rural farmland areas.

The Turkey Neck Bend Ferry, formerly a privately-owned operation, was acquired by KYTC in 1968 and is the only free KYTC-operated ferry open 24 hours per day. It connects KY 214 across the Cumberland River at an area known as McMillian's Landing, and a ferry service has operated in the area since before the American Civil War. The ferry currently transports an average of 200 vehicles per day (VPD) across the river, including emergency response vehicles and Monroe County School District students via SUV.



**Figure ES-1: Turkey Neck Bend Study Area**

The Turkey Neck Bend Ferry provides the only Cumberland River crossing in Monroe County, as shown in **Figure ES-2**. The nearest river crossing to the north is approximately 27 miles from the western bank of the Turkey Neck Bend crossing in Burkesville and requires an estimated 37 minutes to drive. The nearest river crossing to the south is 25.5 miles from Turkey Neck Bend in Celina, Tennessee and requires an estimated 34 minutes to drive. The ferry currently costs over \$1 million per year to operate including labor, equipment, and repairs. \$1.25 million is budgeted for fiscal year 2025.

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Between 2017 – 2021, there were two crashes on the study portion of KY 214, both resulting in property damage only. One of the crashes was a single vehicle collision while the other was a rear end.

Based on historical KYTC daily traffic count data, Monroe County population projections and growth rates from the most updated version of the KYSTM, an annual growth rate of 0.5 percent was selected to reflect moderate growth for the KY 214 corridor through the year 2045. The annual growth rate was applied to the latest KYTC daily traffic counts to develop 2045 daily traffic forecasts. KY 214 is expected to carry around 225 VPD across the Cumberland River in 2045.

### Public Outreach

Over the course of the study, the project team met with local officials and stakeholders to coordinate on key issues. Agencies represented included Monroe County Schools, Monroe County Economic Development, Monroe County Property Value Administrator (PVA), and Community Action of Southern Kentucky, among others. A Local Officials / Stakeholder meeting was held at the Monroe County Courthouse to discuss the existing conditions and solicit feedback on potential river crossing options via a paper survey. **In the near-term, 85 percent of the 13 responding local officials do not think changes are needed. In the long-term, 87 percent support the construction of a bridge over maintaining the ferry.**

A broader survey was disseminated to Turkey Neck Bend Ferry users starting on December 5, 2023 to solicit feedback on ferry use. Paper copies of the survey were handed out to motorists while on the ferry and an online version was also available. A total of 91 survey responses were collected during the comment period, 54 of which were mailed in or returned in person and 37 were submitted online.

Shopping was the most popular reason to use the ferry, followed by healthcare and work. 42 respondents stated their reason as “other,” with comments that included banking, visiting friends and family, and recreation. The most common time of day to use the ferry was between 6:00 a.m. and 12:00 p.m. (44 percent), followed by the period between 12 p.m. and 6 p.m. (36 percent). When the ferry is closed, 70 percent of ferry users indicated they use a detour, most of which detour through Clay County, Tennessee or Cumberland County, Kentucky. Approximately 27 percent of respondents indicated they do not cross the river or do not make a trip if the ferry is closed.



**Figure ES-2: Turkey Neck Bend Ferry**

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**In the near-term, ferry users indicated they do not think changes are needed. In the long-term, 48 respondents (53 percent) support maintaining the ferry while 43 (47 percent) support the construction of a bridge.**

## Improvement Concept Development

Improvement concepts were developed based on a combination of a review of existing conditions, local officials / stakeholder input, public input, and field reconnaissance. These improvements were developed while considering a comprehensive range of options and included both ferry and bridge concepts.

### Ferry Options

The following options were considered for continued operations of the Turkey Neck Bend Ferry:

#### No Action / Do Nothing

The No Action concept maintains the Turkey Neck Bend Ferry with its current 24-hour service, which costs KYTC over \$1 million per year. The 2022 Long-Range Statewide Transportation Plan identified \$32.5 million in funding needs between 2022 and 2045 to operate the Turkey Neck Bend Ferry. This includes \$22 million in operations and maintenance, \$4.3 million in budget requests, and \$6.1 million in additional staffing based on expected Coast Guard requirements.

#### Adjust Hours of Operation

Based on a review of the Valley View Ferry budget, reducing the daily operating hours of the Turkey Neck Bend Ferry from 24 to 12 or 16 hours would result in reduced labor and fuel costs. It was assumed that 25 percent of the trips would divert to the north detour if the ferry hours were reduced. Overall, cutting the hours of operations to 16 would result in an estimated \$217,000 in savings per year and reducing to 12 hours would result in \$435,000 in savings per year. The reduced operational hours would result in added travel time costs for motorists due to diversions while the ferry is closed.

#### Crossing Fee (Toll)

Based on a review of fee-based ferries in Kentucky, a user fee of \$5 per trip was assumed for Turkey Neck Bend. It was also assumed that this fee would result in a 25 percent reduction in traffic demand across the river. Based on these assumptions, a \$5 fee would bring in approximately \$262,500 in gross revenue per year.

#### Close Ferry

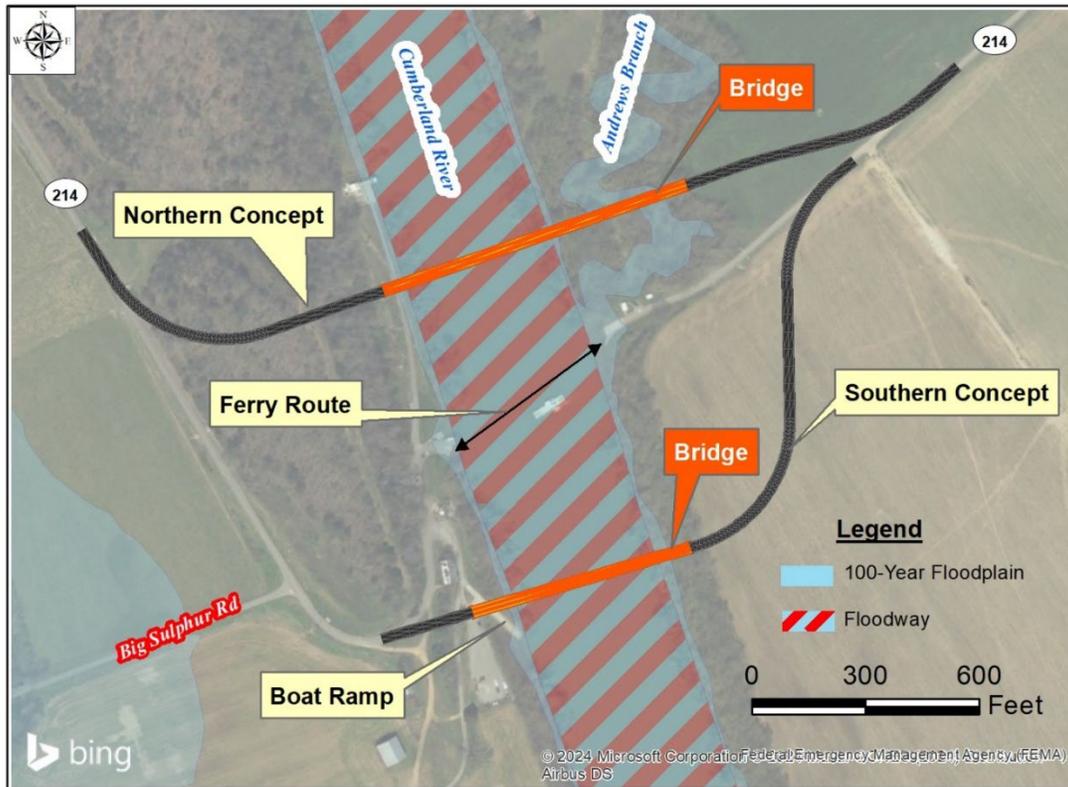
Closing the Turkey Neck Bend Ferry would require current users to detour to the north or south to cross the Cumberland River. User costs associated with the ferry closure were calculated using a cost of time of \$18.80 per hour, a driving cost per mile of \$0.46 per mile, a current ferry delay time of approximately six minutes, and no reduction in travel demand for crossing the Cumberland River. The cost for all users using the south detour to Celina, Tennessee rather than the Turkey Neck Bend Ferry would be about \$2.7 million per year and the cost of using the north detour to Burkesville would be \$1.5 million per year.

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## Bridge Options

This segment of the Cumberland River is not a navigable waterway and sees only recreational river traffic. Base criteria assumptions for the bridge concepts, largely based on the KY 61 bridge over the Cumberland River in Tompkinsville, include 30 feet of vertical clearance above the normal pool and 250 feet of horizontal clearance for the main river span. Bridge options include two 11-foot-wide lanes with four-foot-wide shoulders and are shown north and south of the ferry for it to remain in operation during construction. The general locations are shown on **Figure ES-3**.



**Figure ES-3: Cumberland River Bridge Options**

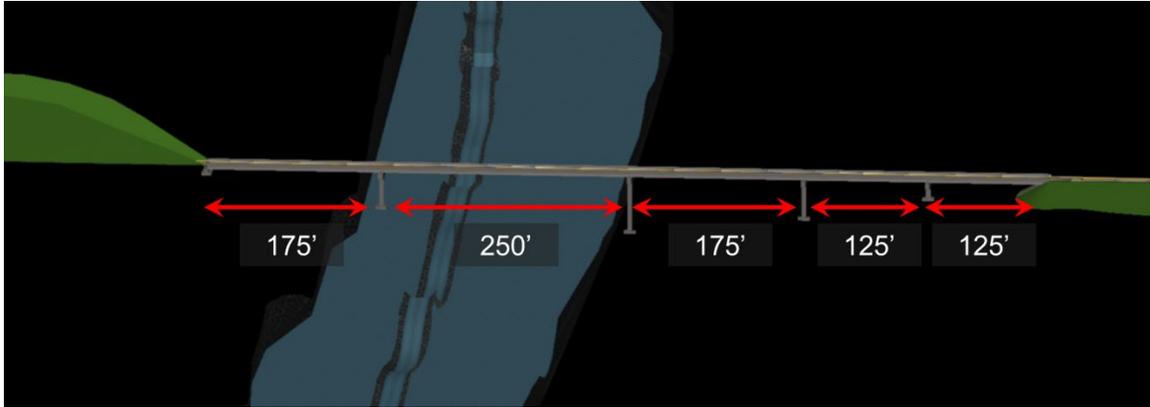
### Bridge North of the Ferry

The northern bridge option includes constructing a new alignment north of the existing crossing with a total 850-foot-long bridge, including a 250-foot main span with 175-foot approach spans and 125-foot spans over the floodplain associated with Andrews Branch, as shown in **Figure ES-4**. The approximate cost of a bridge north of the ferry is \$40.2 million. An additional \$9.9 million would be spent on ferry operations assuming 16-hour ferry operation from 2024 to 2032 until the new bridge opens.

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**Figure ES-4: Bridge North of the Ferry**

### Bridge South of the Ferry

The southern bridge option includes constructing a new alignment south of the existing crossing with a 600-foot-long bridge, as shown in **Figure ES-5**. The approximate cost of a bridge south of the ferry is \$25.8 million. An additional \$9.9 million would be spent on ferry operations assuming 16-hour ferry operation from 2024 to 2032 until the new bridge opens.



**Figure ES-5: Bridge South of the Ferry**

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## Conclusions

The goal of the *Turkey Neck Bend Bridge Feasibility Study* was to assess future traffic demand along KY 214 and to evaluate feasible alternatives to maintain a connection in the KY 214 corridor across the Cumberland River. Local officials and the ferry-crossing public were given surveys to solicit input on potential crossing options and lifecycle costs were developed to compare the crossing strategies. **Table ES-1** presents a summary of the lifecycle costs from 2024 to 2075, including maintaining 16-hour ferry operations during the design and construction of the bridge concepts. Maintenance costs are included for all ferry and bridge options.

**Table ES-1: Life Cycle Analysis (2024 – 2075)**

Concept	Cost (2024 - 2075)				
	Bridge	24-Hour Ferry Operation	16-Hour Ferry Operation	12-Hour Ferry Operation	Total
24-Hour Ferry Operation	N/A	\$133,165,000	N/A	N/A	<b>\$133,165,000</b>
16-Hour Ferry Operation	N/A	N/A	\$105,921,000	N/A	<b>\$105,921,000</b>
12-Hour Ferry Operation	N/A	N/A	N/A	\$78,652,000	<b>\$78,652,000</b>
South Bridge Option*	\$25,806,000	N/A	\$9,922,600	N/A	<b>\$35,728,000</b>
North Bridge Option*	\$40,164,000	N/A	\$9,922,600	N/A	<b>\$50,086,000</b>

\*Assumes 16-hour ferry operation from 2024-2032 until new bridge opens.

As a long-term solution, it is recommended that the south bridge concept be moved forward to Phase 1 Design (Preliminary Engineering and Environmental Analysis). The Turkey Neck Bend Ferry will reduce to 16-hour operations between 6 a.m. and 10 p.m. until the bridge is open to traffic, and the costs associated with the reduced hours of operation are included. Once construction is complete, it is recommended that the ferry is closed permanently, with the boat dock remaining open to the public.