

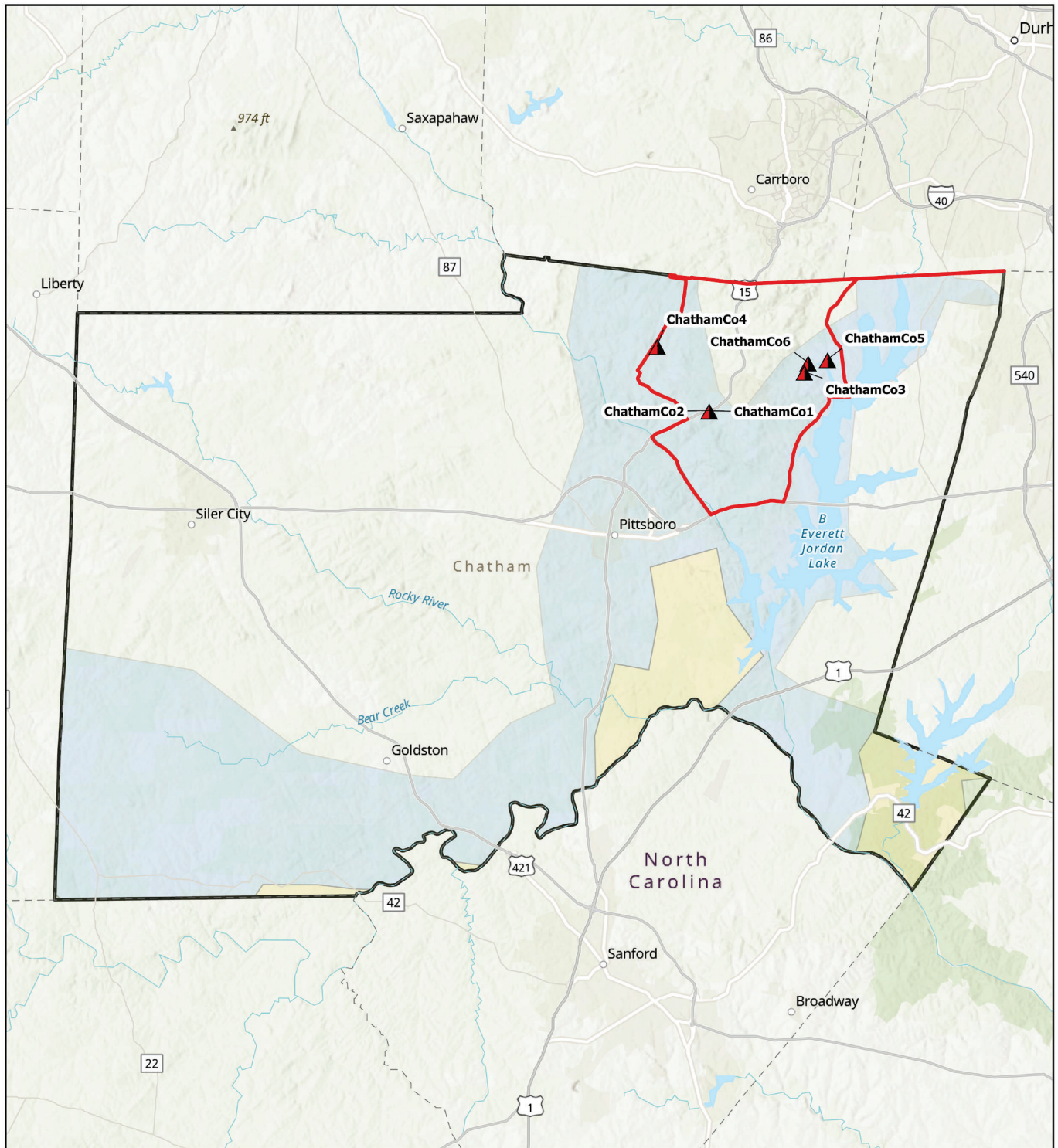
## Section 3.1

# CHATHAM COUNTY RECOMMENDATIONS

The DCHC MPO is recommending five (5) wildlife crossing projects that reside within Chatham County as part of this plan. The list of projects can be found below, and a map showing these sites are found in Figure 3.1: Map of complete list of wildlife crossing project recommendations in Chatham County. This map also distinguishes between the MPO's planning area boundary and the boundary for Chatham County. Project recommendations assigned two project IDs signify two separate structures at the site.

Project ID	Project Name	Jurisdiction
ChathamCo1 ChathamCo2	US 15-501 over Pokeberry Creek	Chatham County
ChathamCo3	Big Woods Road over Bush Creek	Chatham County
ChathamCo4	Manns Chapel Road over Wilkinson Creek	Chatham County
ChathamCo5	Lystra Road over Overcup Creek / Jordan Lake	Chatham County
ChathamCo6	Jack Bennett Road over Herndon Creek	Chatham County

Table 3.1: Complete list of wildlife crossing project recommendations in Chatham County.



## Legend

- ▲ Chatham County Sites
- Wildlife Corridors
- Wildlife Cores
- Chatham County Boundary
- MPO Boundary



0 2 5 Miles

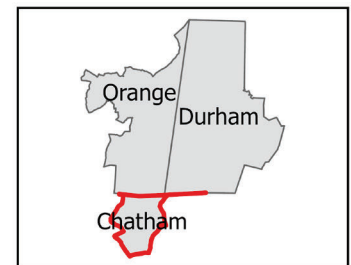


Figure 3.1: Map of complete list of wildlife crossing project recommendations in Chatham County.

Chatham County

# US 15-501 over Pokeberry Creek



# Summary and Problem Statement

The two bridges on US 15-501 S and N (Chapel Hill Road) over Pokeberry Creek have been identified as a priority wildlife crossing. This crossing resides within a wildlife corridor identified by Wildlands Network, and 20 WVCs have been reported within a one-mile buffer of this site. This roadway has two lanes running both north- and southbound divided by a 20-foot grass median; the divide continues through the bridge structure. The gap between the bridges provides good daylight and visibility to the creek banks below. This site has no bicycle and pedestrian facilities, has a posted speed limit of 55 mph, and garners 16,500 vehicles per day (2021 AADT).

This site has an existing good, dry bench on both sides of the stream when not flooded. The width of the spans and the cross section of the ground surface under the spans already provide adequate space and geometry for wildlife passage on dry banks on both sides of the creek. However, barriers to wildlife travel exist along this corridor and under the bridges, which encourages wildlife travel on the roadway and results in conflicts with motorists. There are areas of exposed riprap with shallow to no sediment/soil (i.e., large voids) that are creating an uneven surface that likely makes it difficult for some wildlife species to traverse. The exposed riprap areas along the streambanks (and possibly in the adjacent toe ditches running parallel to the road) should be filled with material such as fines, soil, screenings, or aggregate to make the surface more even and traversable for wildlife.

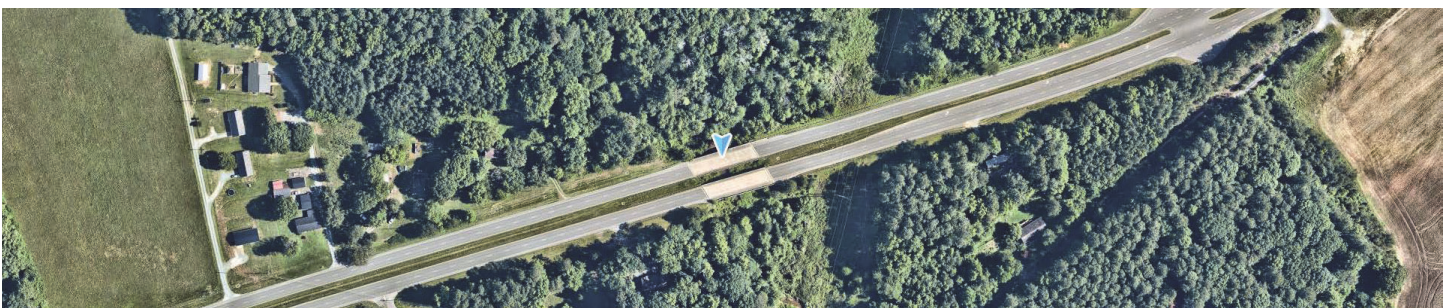
Vegetation under the bridge does not appear to be an obstacle, but vegetation downstream along the streambanks is dense, brushy, and thorny. There are also abundant invasive woody species present which should be removed, as they significantly degrade the habitat value of the corridor through the ROW. Vegetation management in at least the downstream riparian area should be explored to determine if it would help guide or attract wildlife to the riparian corridor and the crossing under the bridge. If these aspects are addressed, this crossing site may be a good candidate for fencing, depending on parcel ownership, fencing design factors, etc.



Facing east, under US 15-501 bridge at Pokeberry Creek. DCHC MPO.



Facing west, under US 15-501 bridge at Pokeberry Creek. DCHC MPO.



Aerial photograph of US 15-501 over Pokeberry Creek. Nearmap.

# Site Facts

Location ID	ChathamCo1 (southbound) ChathamCo2 (northbound)
Date of Site Visit	May 24, 2024
Jurisdiction	Chatham County
Coordinates	<a href="#">35°47'23.7"N, 79°06'31.3"W</a>
NCDOT Crossing/Structure Code	Southbound bridge: 180037 Northbound bridge: 180489
Existing Structure Type	Bridge (two separate structures)
Property Owner Type	Public, private
Existing Plan Alignment	2024-2033 STIP (TIP #: U-6192)
Managed and Natural Lands	N/A
Average Annual Daily Traffic (AADT) (2019)	Unavailable
Average Annual Daily Traffic (AADT) (2021)	16,500
Projected Average Weekday Traffic (AWDT)	25,694
Speed Limit	55 mph
Reported Wildlife-vehicle collisions (WVCs) within 1-mile Buffer (2018-2022) and Comprehensive Crash Cost Estimate	Non-injury crash: 19 (\$475,000) Type C injury crash: 1 (\$107,000) <b>Total crashes and cost estimate: 20 (\$582,000)</b>
Likely Wildlife-vehicle collisions (WVCs) within 1-mile buffer (based on VDOT study revealing 8.5 times more WVCs are occurring than what DOT reports show)	Non-injury crash: 161.5 (\$4,037,500) Type C injury crash: 8.5 (\$909,500) <b>Total crashes and cost estimate: 170 (\$4,947,000)</b>



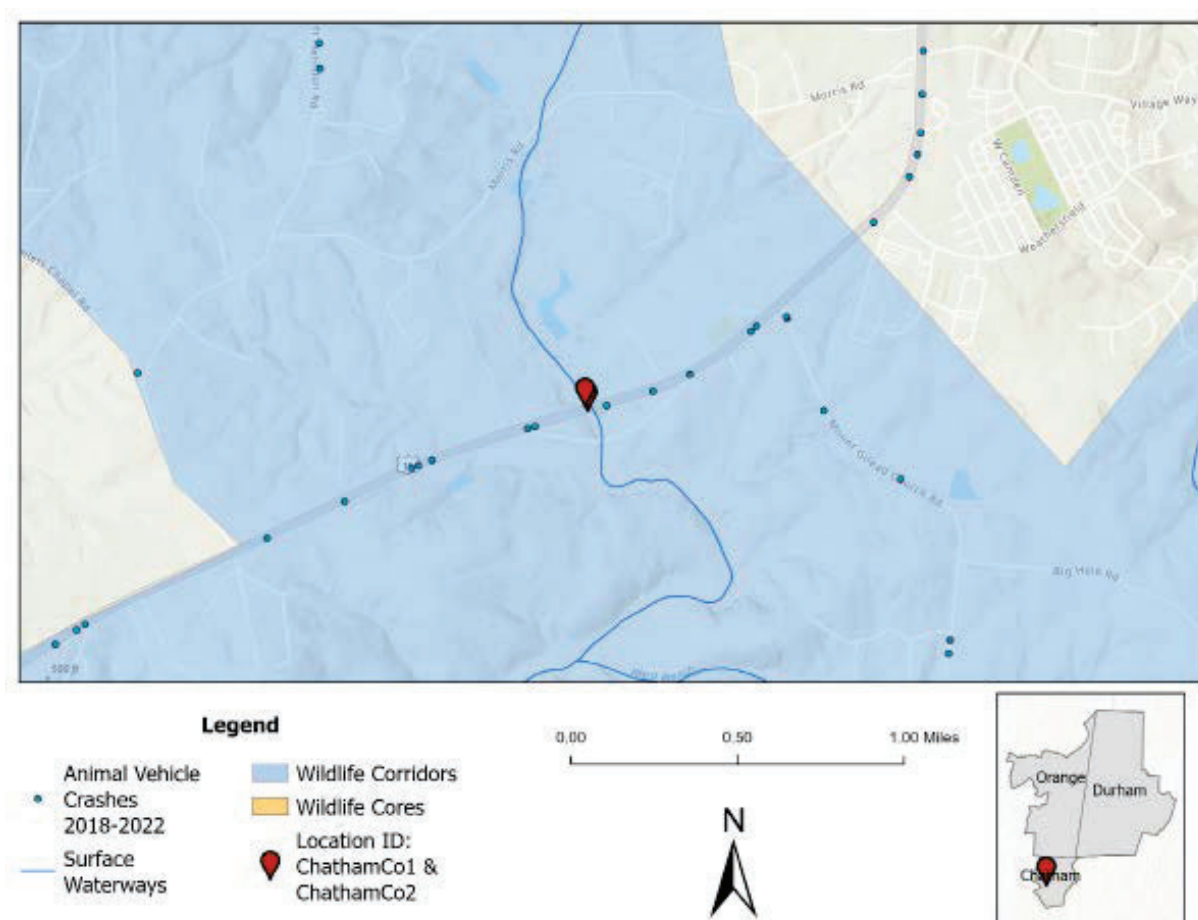


## Preferred Scenario

Fill voids in the exposed riprap under and adjacent to the spans on both sides of the creek with fine aggregate to provide a smooth natural surface for wildlife passage on the existing benches. Thin vegetation and remove invasives within the ROW immediately downstream of the bridge to increase permeability into the adjacent undisturbed habitat to allow wildlife passage. Install fencing to guide wildlife under the bridge.

## Alternate Scenario

Until the riprap surface can be filled/improved, perform the selective vegetation clearing described above at a minimum.



Chatham County

# Big Woods Road over Bush Creek



# Summary and Problem Statement

The culvert at Big Woods Road over Bush Creek has been identified as a priority wildlife crossing. This crossing resides within a wildlife corridor identified by Wildlands Network, and 8 WVCs have been reported within a one-mile buffer of this site. The bridge is a two-lane undivided roadway with no bicycle and pedestrian facilities, and has a posted speed limit of 55 mph. This site is adjacent to several managed and natural lands, which include the US Army Corps of Engineers land that includes the Bush Creek marshes area which connects nearby to Jordan Lake, and the NC Department of Natural and Cultural Resources Natural Heritage Program.

Barriers to wildlife travel exist along this corridor and through the culvert, which encourages wildlife travel on the roadway and results in conflicts with motorists. Barriers include standing water through the double box / two-bay culvert, and the placement of riprap. There are areas of suitable dry habitat approaching the underpass area on both sides of the road, even though there are also flooded wetland areas. However, there is no dry passage because both cells of the culvert are flooded to their full width, and because the riprap slope protection on the roadway embankment (causeway) extends into the standing water both up and downstream of the culvert.

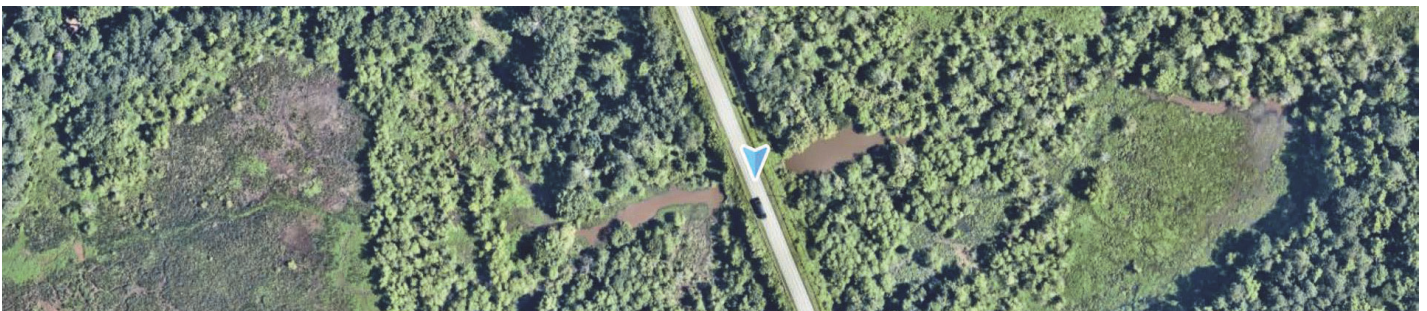
Several elements of the roadway embankment (causeway) and stream culvert construction present challenges for the potential of dry passage through the culvert except potentially in times of extremely low water levels when no standing water is present. First, the culverts are not wide enough to accommodate dry wildlife passage and hydrology. Further, the placement of embankment riprap slope protection to the toe of the embankment at the adjacent floodplain elevation, cuts off dry passage from the floodplain when it is flooded. In addition, the uniform steep slope of the riprap on the embankments and the concrete wingwalls does not include a level bench that could be tied into the culvert if dry passage through them were provided.



Facing East from west side of Big Woods Road culvert. Pete Schubert.



Facing west from above Big Woods Road culvert. Pete Schubert.



Aerial photograph of Big Woods Road over Bush Creek. Nearmap.

# Site Facts

Location ID	ChathamCo3
Date of Site Visit	June 13, 2024
Jurisdiction	Chatham County
Coordinates	<a href="#">35°48'41.8"N 79°02'36.2"W</a>
NCDOT Crossing/Structure Code	180440
Existing Structure Type	Culvert
Property Owner Type	Public
Existing Plan Alignment	CTP Highway: Big Woods Rd CTP Pedestrian: Big Woods Rd
Managed and Natural Lands	U.S. Army Corps of Engineers, NC DNCR Natural Heritage Program
Average Annual Daily Traffic (AADT) (2019)	Unavailable
Average Annual Daily Traffic (AADT) (2021)	Unavailable
Projected Average Weekday Traffic (AWDT)	2,392
Speed Limit	55 mph
Reported Wildlife-vehicle collisions (WVCs) within 1-mile Buffer (2018-2022) and Comprehensive Crash Cost Estimate	Non-injury crash: 8 (\$200,000) <b>Total crashes and cost estimate: 8 (\$200,000)</b>
Likely Wildlife-vehicle collisions (WVCs) within 1-mile buffer (based on VDOT study revealing 8.5 times more WVCs are occurring than what DOT reports show)	Non-injury crash: 68 (\$1,700,000) <b>Total crashes and cost estimate: 68 (\$1,700,000)</b>



**8**

Reported  
WVCs within  
1-mile buffer  
(2018-2022)

**\$200,000**

Reported  
WVCs cost  
estimate

**2,392**

Projected  
annual daily  
traffic

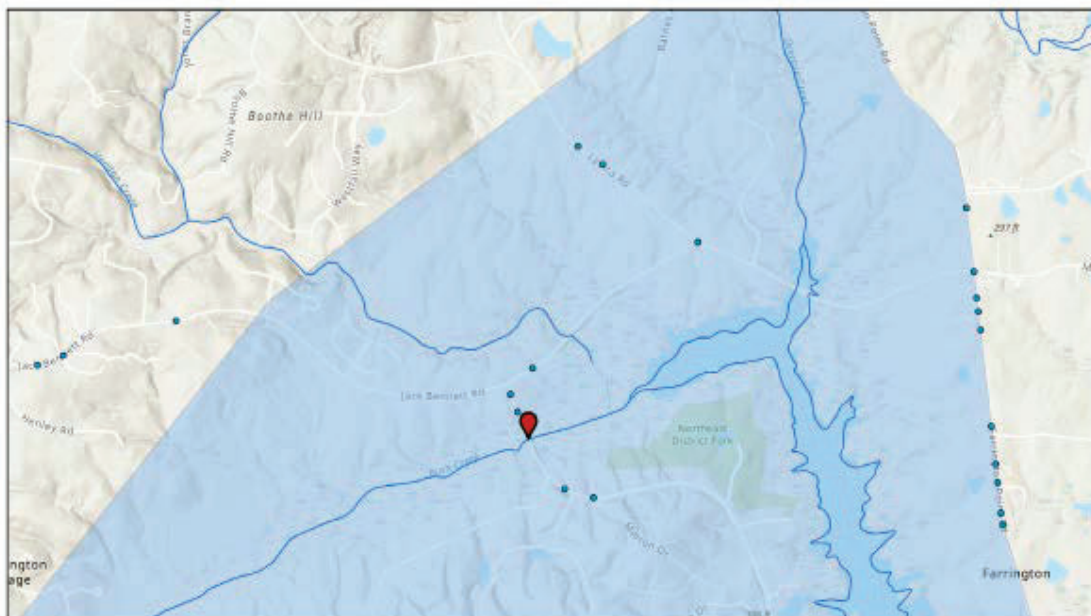
Adjacent  
managed  
natural land

## Preferred Scenario

Replace the existing culverts and adjacent earthen embankments with a single span bridge of sufficient roadway length to provide both hydrologic function plus a minimum width of 8 feet at and above floodplain elevation on both sides of the creek for dry wildlife passage. Extend these dry passages on both side of the bridge up and downstream into adjacent dry habitat areas. All dry passages must be natural surface, free of open riprap.

## Alternate Scenario

Construct new dry culverts through the causeway as wildlife underpasses on both sides of the existing culvert, placed so that wildlife can move from dry habitat areas on either side of the road, through these new dry culverts, to dry habitat areas on the other side of the road. These two new culverts should be at least 8 feet high and 12 feet wide, with a natural surface floor that is not normally flooded and should be straight with no offset or skew. If sufficient causeway height is not present to achieve the required height of the new dry culverts, the profile of the roadway may need to be raised in the section between the new culverts.



### Legend

- Animal Vehicle Crashes 2018-2022
- Surface Waterways
- Wildlife Corridors
- Wildlife Cores
- Location ID: ChathamCo3

0.00 0.50 1.00 Miles



Chatham County

# Manns Chapel Road over Wilkinson Creek



# Summary and Problem Statement

The triple pipe culvert at Manns Chapel Road (SR 1532) over Wilkinson Creek has been identified as a priority wildlife crossing. This crossing resides within a wildlife corridor identified by Wildlands Network, and there have been four reported wildlife-vehicle crashes within a one-mile buffer of this site. This crossing is positioned along a two-lane road that has no bicycle and pedestrian facilities, and has a posted speed limit of 45 mph.

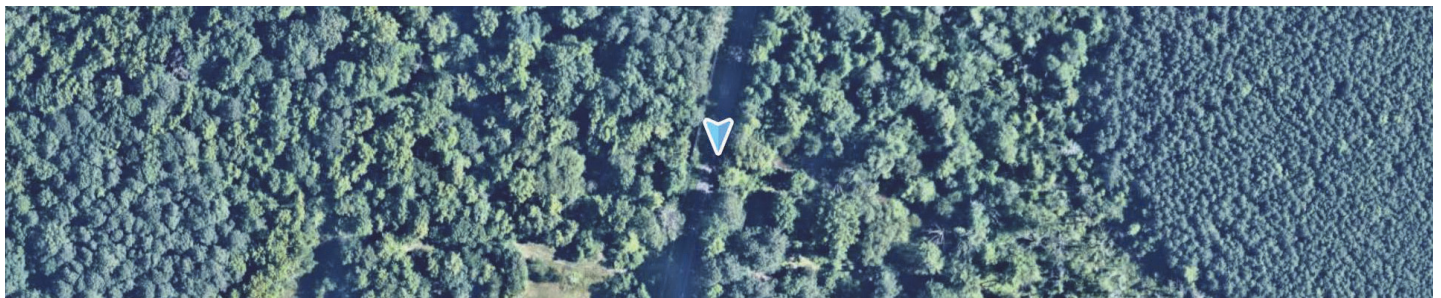
Barriers to wildlife travel exist along this corridor and through the culvert, which encourages wildlife travel on the roadway and results in conflicts with motorists. This site offers no dry passage for wildlife through the existing triple pipe culvert. During the relatively low water conditions on the date of site assessment, all pipe culverts were flooded with water, and debris was blocking the central culvert pipe. The three identical pipe culverts are round corrugated galvanized steel (pipe appears to be bituminous-coated on bottom) and are aging. Given the less than 6 feet of elevation difference between the road profile and the adjacent floodplain, there is no opportunity for any modification to the pipe culverts or installation of dry passage culverts adjacent to the existing culverts away from the stream channel.



East side of Manns Chapel Road culvert over Wilkinson Creek. DCHC MPO.



West side of Manns Chapel Road culvert over Wilkinson Creek. DCHC MPO.

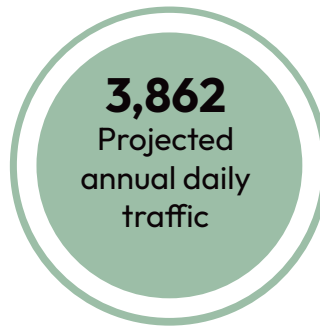


Aerial photograph of Manns Chapel Road culvert over Wilkinson Creek. Nearmap.

# Site Facts

Location ID	ChathamCo4
Date of Site Visit	May 24, 2024
Jurisdiction	Chatham County
Coordinates	<a href="#">35°49'33.7"N 79°08'39.6"W</a>
NCDOT Crossing/Structure Code	180444
Existing Structure Type	Triple pipe culvert
Property Owner Type	Private
Existing Plan Alignment	CTP Highway: Highway: Manns Chapel Rd. CTP Bicycle & Pedestrian: Manns Chapel Rd.
Managed and Natural Lands	N/A
Average Annual Daily Traffic (AADT) (2019)	Unavailable
Average Annual Daily Traffic (AADT) (2021)	Unavailable
Projected Average Weekday Traffic (AWDT)	3,862
Speed Limit	45 mph
Reported Wildlife-vehicle collisions (WVCs) within 1-mile Buffer (2018-2022) and Comprehensive Crash Cost Estimate	Non-injury crash: 4 (\$100,000) <b>Total crashes and cost estimate: 4 (\$100,000)</b>
Likely Wildlife-vehicle collisions (WVCs) within 1-mile buffer (based on VDOT study revealing 8.5 times more WVCs are occurring than what DOT reports show)	Non-injury crash: 34 (\$850,000) <b>Total crashes and cost estimate: 34 (\$850,000)</b>



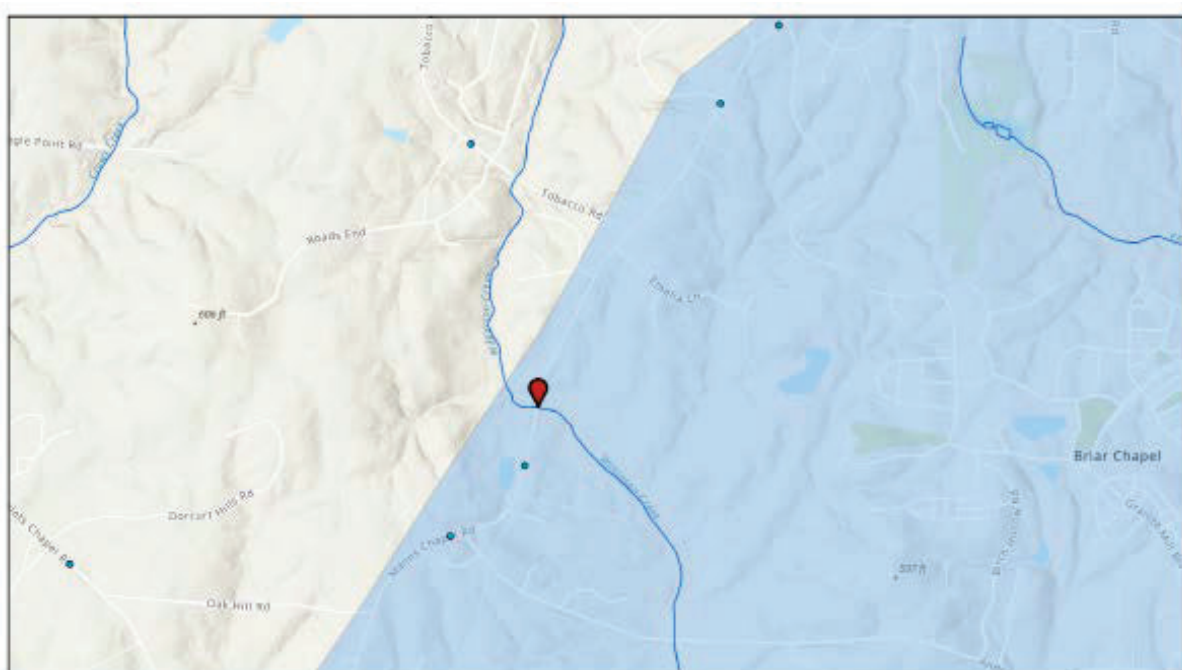


## Preferred Scenario

The triple pipe culverts should be replaced with a single bridge of sufficient span to provide dry passage for wildlife on both sides of the stream at or above floodplain elevation. The road causeway profile should be raised to provide at least 8 feet of vertical clearance between dry passages and the bottom of the bridge structure.

## Alternate Scenario

The existing triple pipe culvert could be replaced with a 5-bay box culvert that provides outer cells with higher, dry passage for wildlife on both sides of the stream, with these dry passages connected to habitat up and down stream; or, a relatively short, full open-span bridge wide enough and high enough for dry passage on both sides of stream. The road causeway profile should be raised sufficiently to provide at least 8 feet of vertical clearance between the natural surface bottoms and the box culvert ceilings within dry passage bays.



0.00 0.50 1.00 Miles



Chatham County

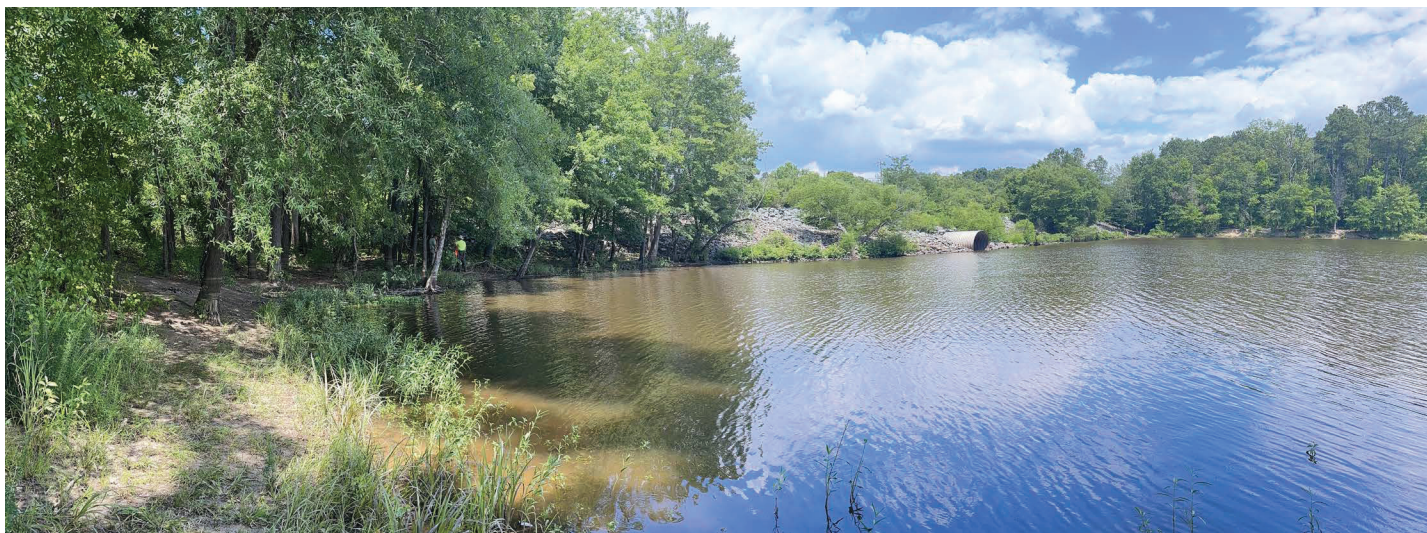
# Lystra Road over Overcup Creek / Jordan Lake



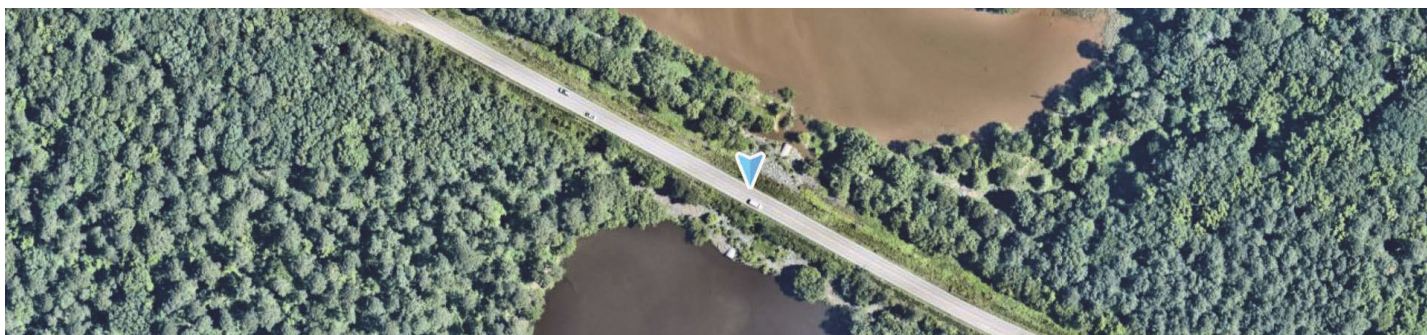
## Summary and Problem Statement

Lystra Road over Overcup Creek has been identified as a priority wildlife crossing. This crossing resides within a wildlife corridor identified by Wildlands Network, and there have been sixteen reported wildlife-vehicle crashes within a one-mile buffer of this site. This crossing is positioned along a two-lane road that has no bicycle and pedestrian facilities, and has a posted speed limit of 45 mph. The US Army Corps of Engineers maintains the natural managed land of Jordan Lake adjacent to this site.

Barriers to wildlife travel exist along this corridor and through the pipe, which encourages wildlife travel on the roadway and results in conflicts with motorists. The road at this site crosses the lake on a raised causeway with steep riprap slopes from the road down to the floodplain and lake. The land around this crossing has existing trails currently used by the public that are conducive to wildlife travel. However, due to the pipe's location in the middle of Overcup Creek, and the wide body of water surrounding it, the structure is not conducive for wildlife passage through a retrofit.



View of pipe from north side of Lystra Road over Overcup Creek / Jordan Lake. DCHC MPO.



Aerial photograph of Lystra Road pipe over Overcup Creek / Jordan Lake. Nearmap.

# Site Facts

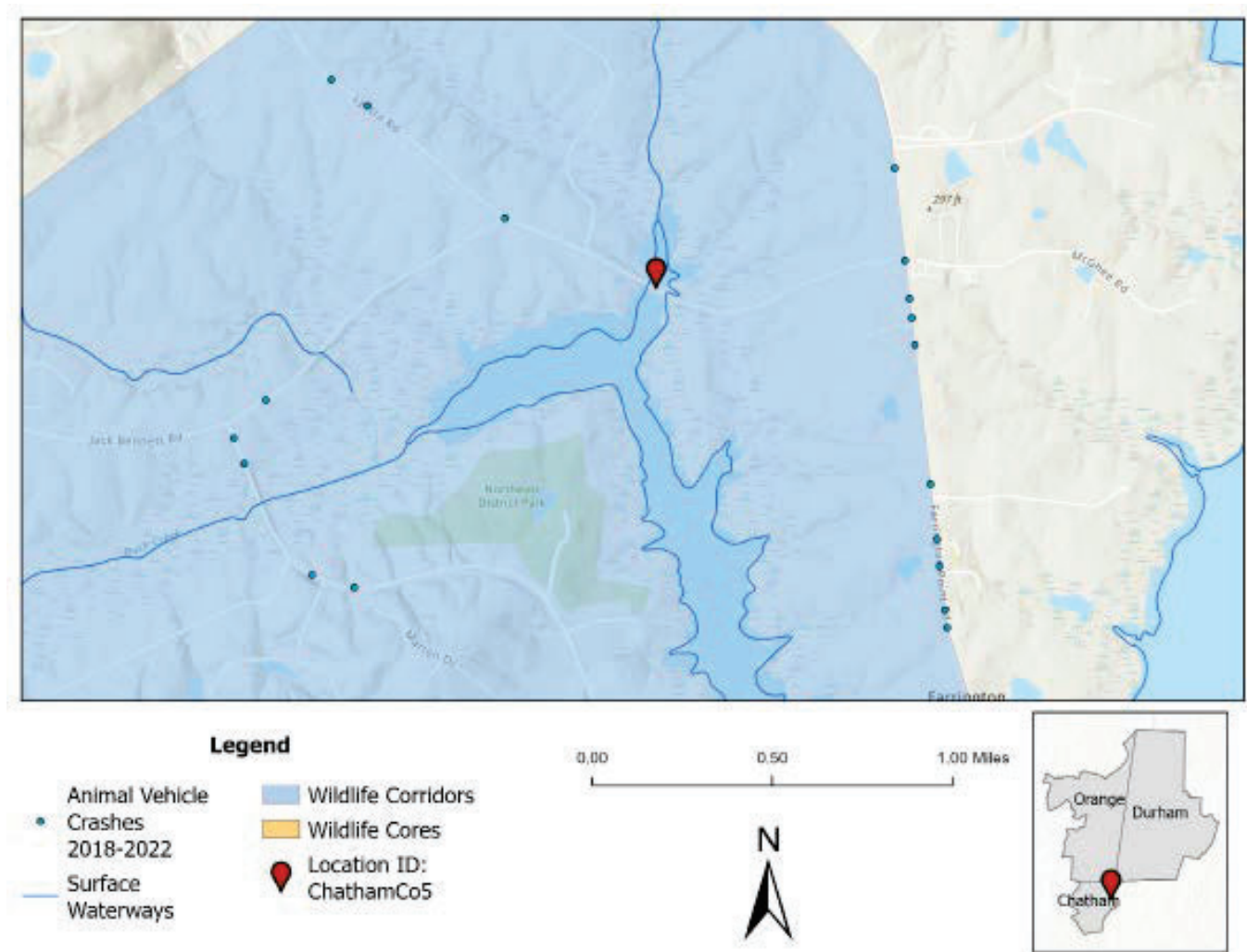
Location ID	ChathamCo5
Date of Site Visit	June 13, 2024
Jurisdiction	Chatham County
Coordinates	<a href="#">35°49'07.1"N 79°01'39.1"W</a>
NCDOT Crossing/Structure Code	16333
Existing Structure Type	Pipe
Property Owner Type	Public
Existing Plan Alignment	2050 MTP Highway: Jack Bennet Rd/Lystra Rd CTP Highway: Jack Bennet Rd CTP Pedestrian: Jack Bennet Rd
Managed and Natural Lands	US Army Corps of Engineers
Average Annual Daily Traffic (AADT) (2019)	8,700
Average Annual Daily Traffic (AADT) (2021)	6,700
Projected Average Weekday Traffic (AWDT)	9,143
Speed Limit	45 mph
Reported Wildlife-vehicle collisions (WVCs) within 1-mile Buffer (2018-2022) and Comprehensive Crash Cost Estimate	Non-injury crash: 16 (\$400,000) <b>Total crashes and cost estimate: 16 (\$400,000)</b>
Likely Wildlife-vehicle collisions (WVCs) within 1-mile buffer (based on VDOT study revealing 8.5 times more WVCs are occurring than what DOT reports show)	Non-injury crash: 136 (\$3,400,000) <b>Total crashes and cost estimate: 136 (\$3,400,000)</b>





## Preferred Scenario

Construct dry culverts through the causeway on both sides of the lake to connect the high-quality lakeside habitat on both sides of the road. Dry culverts should be at least 12 feet wide and 8 feet high. The existing approach for wildlife to a potential underpass in these areas (visibility, slopes, etc.) is already good. This solution would also require fencing to guide wildlife to the dry culverts.



Chatham County

# Jack Bennett Road over Herndon Creek



# Summary and Problem Statement

Jack Bennett Road over Herndon Creek has been identified as a priority wildlife crossing. This crossing resides within a wildlife corridor identified by the Wildlands Network, and there have been eight reported wildlife-vehicle crashes within a one-mile buffer of this site. This crossing is positioned along a two-lane road that has no bicycle and pedestrian facilities, and has a posted speed limit of 55 mph. The US Army Corps of Engineers has adjacent natural and managed land within the Jordan Reservoir impoundment area, managed by the NC Wildlife Resources Commission as a gameland.

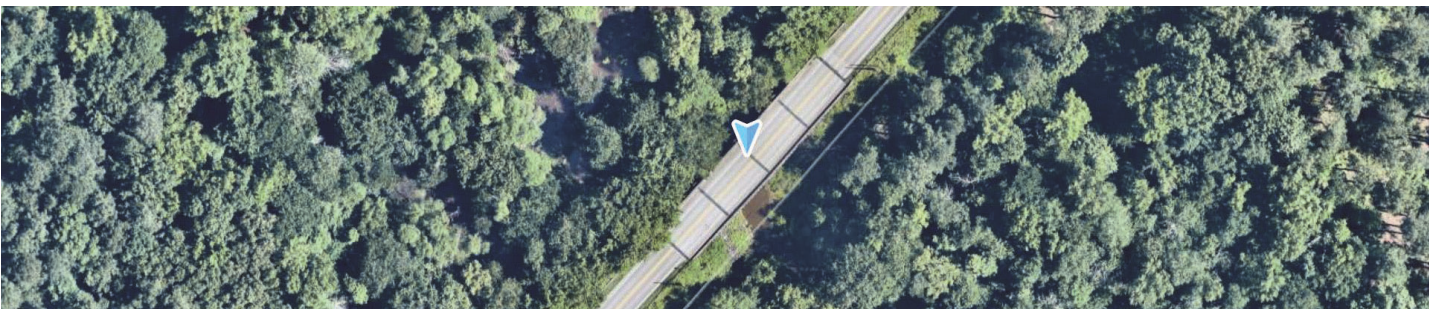
Barriers to wildlife travel exist along this corridor and under the bridge, which encourages wildlife travel on the roadway and results in conflicts with motorists. The continuous riprap slope protection along the causeway/roadway embankments and under the bridge is a major barrier to wildlife passage through the underpass and connection to habitat areas up and downstream. This riprap extends from about 10 feet below shoulder grade down to the toe of the slopes at the floodplain without a bench that could function as dry passage above the floodplain elevation. Though low water dry passage exists on the east side, none exists on the west side, and neither functions at high creek levels. A 30 feet wide partially dry natural surface floodplain exists on the north bank under the bridge, beyond the toe of the riprap slope protection that has good connectivity to adjacent up and downstream habitat, but only at low water levels. No dry passage is present on the south bank as the riprap slope protection extends to the top of the creek bank.



Under bridge at Jack Bennett Road over Herndon Creek, facing northwest. Pete Schubert.



Under bridge at Jack Bennett Road over Herndon Creek, facing southwest. Pete Schubert.



Aerial photograph of Jack Bennett Road bridge over Herndon Creek. Nearmap.

# Site Facts

Location ID	ChathamCo6
Date of Site Visit	June 13, 2024
Jurisdiction	Chatham County
Coordinates	<a href="#">35°49'00.2"N 79°02'27.0"W</a>
NCDOT Crossing/Structure Code	180060
Existing Structure Type	Bridge
Property Owner Type	Public
Existing Plan Alignment	2050 MTP Highway: Jack Bennet Rd/Lystra Rd CTP Highway: Jack Bennet Rd CTP Pedestrian: Jack Bennet Rd
Managed and Natural Lands	US Army Corps of Engineers
Average Annual Daily Traffic (AADT) (2019)	Unavailable
Average Annual Daily Traffic (AADT) (2021)	Unavailable
Projected Average Weekday Traffic (AWDT)	6,651
Speed Limit	55 mph
Reported Wildlife-vehicle collisions (WVCs) within 1-mile Buffer (2018-2022) and Comprehensive Crash Cost Estimate	Non-injury crash: 8 (\$200,000) <b>Total crashes and cost estimate: 8 (\$200,000)</b>
Likely Wildlife-vehicle collisions (WVCs) within 1-mile buffer (based on VDOT study revealing 8.5 times more WVCs are occurring than what DOT reports show)	Non-injury crash: 68 (\$1,700,000) <b>Total crashes and cost estimate: 68 (\$1,700,000)</b>





## Preferred Scenario

If the length of the bridge span between abutments is sufficient, grade 8 feet wide benches into the embankment/causeway slopes across the entire width of the creek floodplain on both sides of the road to create dry passages for wildlife at high water. Connect the benches under the bridge on each end, and tie them into dry habitat up and downstream. Benches should be natural surface or, if riprap is used, it must have all voids filled to provide a smooth surface.

## Alternate Scenario

Construct new dry culverts through the causeway to serve as wildlife underpasses on both sides of the existing bridge span, placed so that wildlife can move from dry habitat areas on either side of the road, through these new dry culverts, to dry habitat areas on the other side of the road. These two new culverts should be at least 8 feet high and 12 feet wide, with a natural surface floor that is not normally flooded, and be straight with no offset or skew. If sufficient causeway height is not present to achieve the required height of the new dry culverts, the profile of the roadway may need to be raised in the section between the new culverts.

