

Buford Dam Road Feasibility Study

Alternative #3

Known as **Mainline Realignment Forsyth County Focus**, this alternative begins at the intersection of Sweetwater Drive and Buford Dam Road and transitions to a roundabout at the intersection of Buford Dam Road and the Sawnee Campground entrance. This roundabout was designed to accommodate a MH-B type vehicle (Motorhome with Boat Combination) with a length of approximately 55ft. (See Figure 1). See Figure 4,6, & 10 for the wheel tracking path for the roundabouts associated with this alternative.

This realignment would be to the west (downstream) of the current roadway alignment and has a design speed of 40 mph with an 8% maximum super-elevation and will tie back to the existing alignment at the intersection of Buford Dam Road and Little Mill Road. From the point where it ties back into the existing roadway, the existing travel way width will increase from 11ft. lanes to 12ft. lanes and a 4ft. bike path will be added to each side of the roadway (See Figures 1 and 2).

The improvements at the point of tie back to existing alignment will hold the eastern edge of the existing pavement on the lake side and incorporate all improvements to the western side of the existing travel way. Holding the existing edge of pavement on the Dam (See **Cross Section on Dam**/ Figure 2) should reduce the amount of utilities that will need to be relocated. Some excavation will be required to construct the new pavement section that will be built back up to the existing grade (See Figure 2).

The future ultimate design concept would Alternative #5 at approximately station 74+85.63 to Alternative #3 at approximately station 344+85.63 both horizontally and vertically (See Figure 7).

Summary of Proposed Improvements:

- Roundabout added at the intersection of Sawnee Campground Entrance and Buford Dam Road with a 120ft. inscribed circle, 10ft. truck apron, and 20ft. pavement section (Figure 3)
- Provide Property Access to two residential lots (Figure 3)
- Provided an entrance from realigned roadway to the existing Buford Dam Road (Saddle Dike). Buford Dam Road will be closed to public vehicle traffic, but will be open as a Dam maintenance vehicle entrance and an access point for pedestrians via trails (Figure 3)
- Roundabout added at the West Bank Parking Area entrance with a 120ft. inscribed circle, 10ft. truck apron, and a 20ft. pavement width (Figure 5)

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- Tie to existing travel way near Little Mill Road at Dam (Figure 7)
- Designed future construction tie location for Alternative #5 tie to Alternative #3 (Figure 7)
- Potential location of new Pedestrian bridge (Figure 8)
- Roundabout added at the intersection of Buford Dam Road and Buford Dam Park with a 120ft. inscribed circle, 10ft. truck apron, and a 20ft. pavement width (Figure 9)
- Relocated Pannell Road Entrance

Advantages:

- Roadway realignment and typical section are safety improvements
- Roundabouts are considered speed reducing and traffic calming improvements
- Removes all public traffic from Saddle Dike up to the intersection of Little Mill Road and Buford Dam Road
- Less disturbance since existing Saddle Dike will be used as pedestrian trail
- Improved pavement width from 11ft. to 12ft. to match county future typical section
- Added 4ft. Bike Path to both sides of travel way to match county future typical section

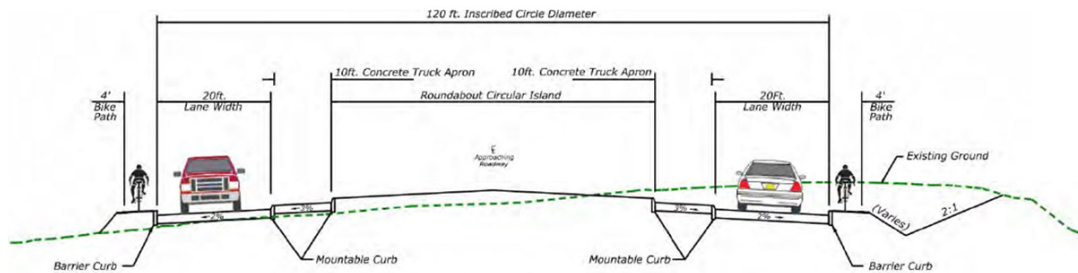
Disadvantages:

- Requires construction of new access gates to control pedestrian and maintenance traffic over saddle dikes.
- May require utility relocation over dam

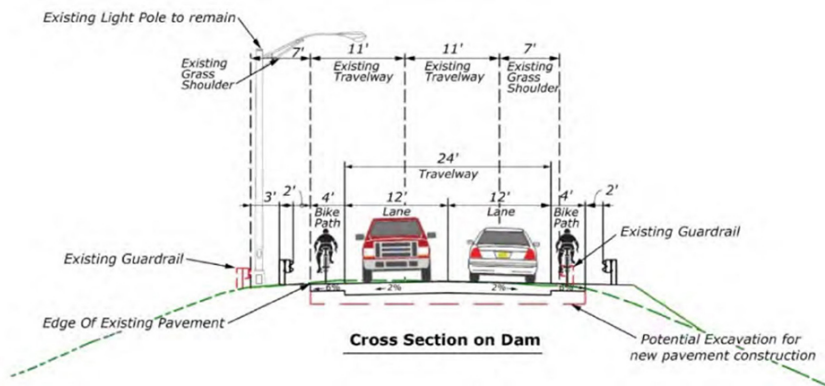
Cost:

	<u>Roadway with Walls</u>	<u>Roadway without Walls</u>	<u>Pedestrian Bridge</u>
<u>Subtotal</u>	\$4,800,000	\$4,650,000	\$300,000
<u>Program Costs (approx. 25%)</u>	\$1,225,000	\$1,175,000	\$75,000
<u>Rounded Total</u>	\$6,025,000	\$5,825,000	\$375,000

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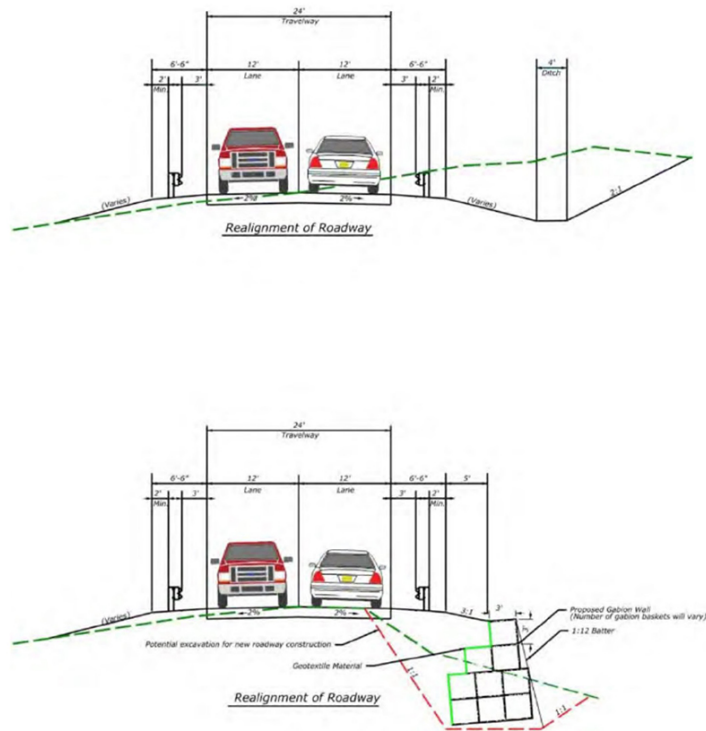
Roundabout Typical



Cross Section on Dam

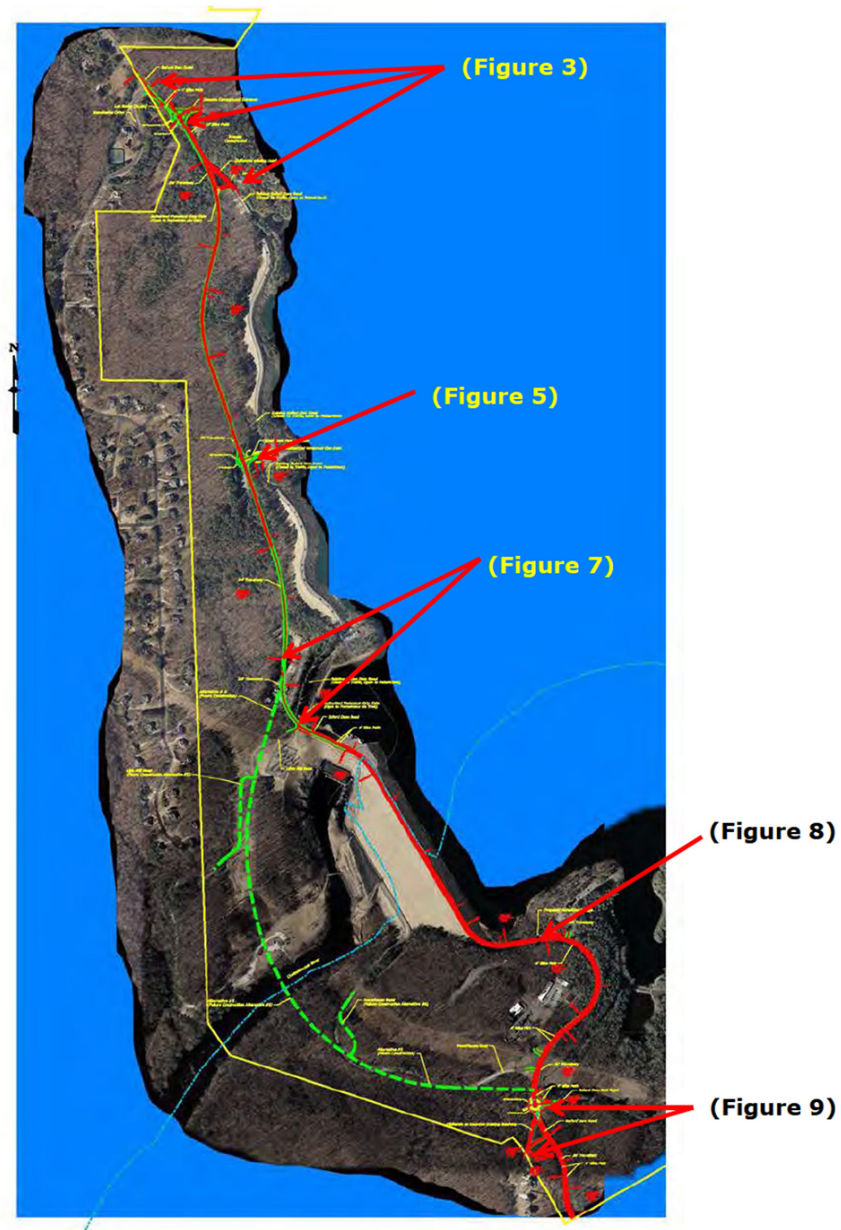
(Figure 1)

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(Figure 2)

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Roundabout at Sawnee Campground Entrance

And Buford Dam Maintenance Entrance

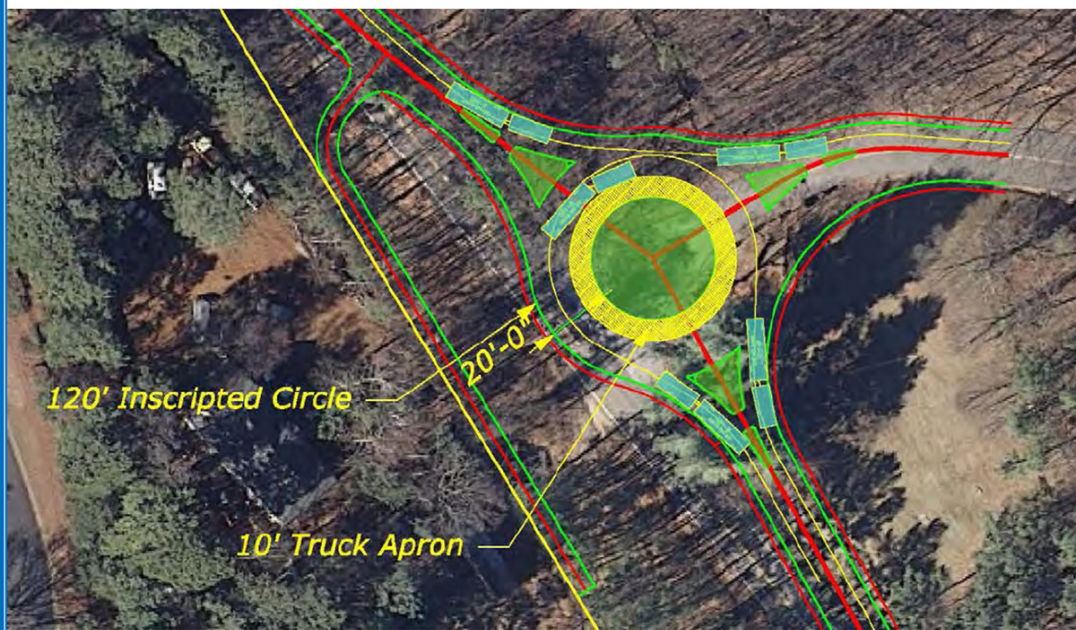


(Figure 3)

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MH-B Motorhome with Boat Combination

Wheel tracking at Sawnee Campground Roundabout



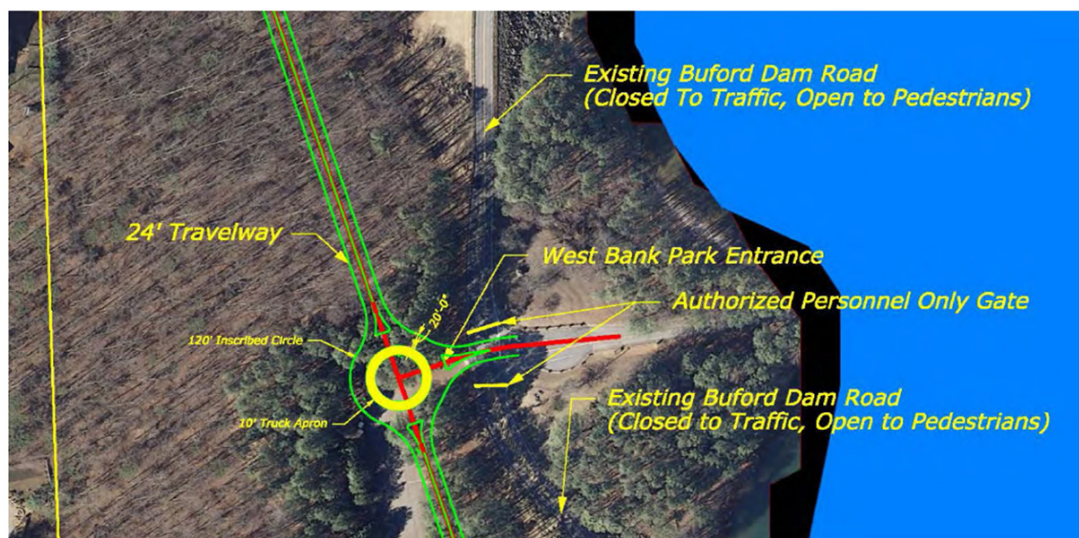
The illustration above depicts the tire path for a MH-B (Light Blue) which was determined to be the largest vehicle that will travel through this roundabout at this location.

(Figure 4)

Buford Dam Road Feasibility Study

Roundabout at West Bank Parking Area

Authorized Personnel Entrance Gate

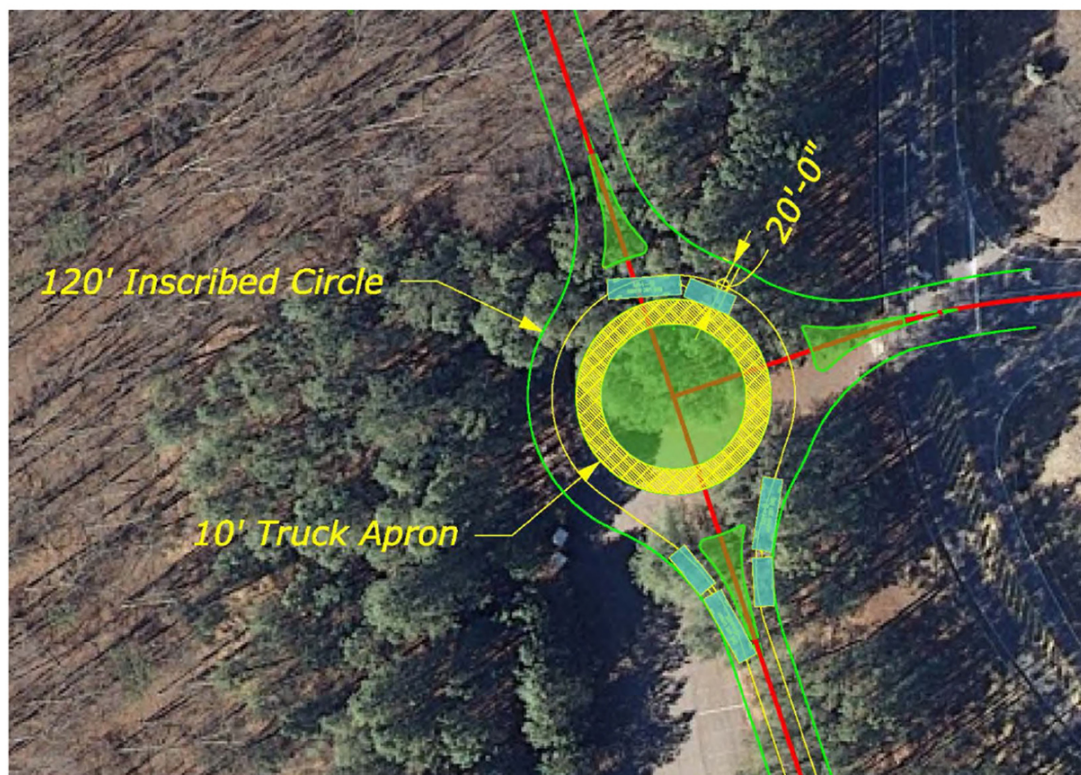


(Figure 5)

Buford Dam Road Feasibility Study

MH-B Motorhome with Boat Combination

Wheel tracking at West Bank Parking Area Roundabout



The illustration above depicts the tire path for a MH-B (Light Blue) which was determined to be the largest vehicle that will travel through this roundabout at this location.

(Figure 6)

Buford Dam Road Feasibility Study

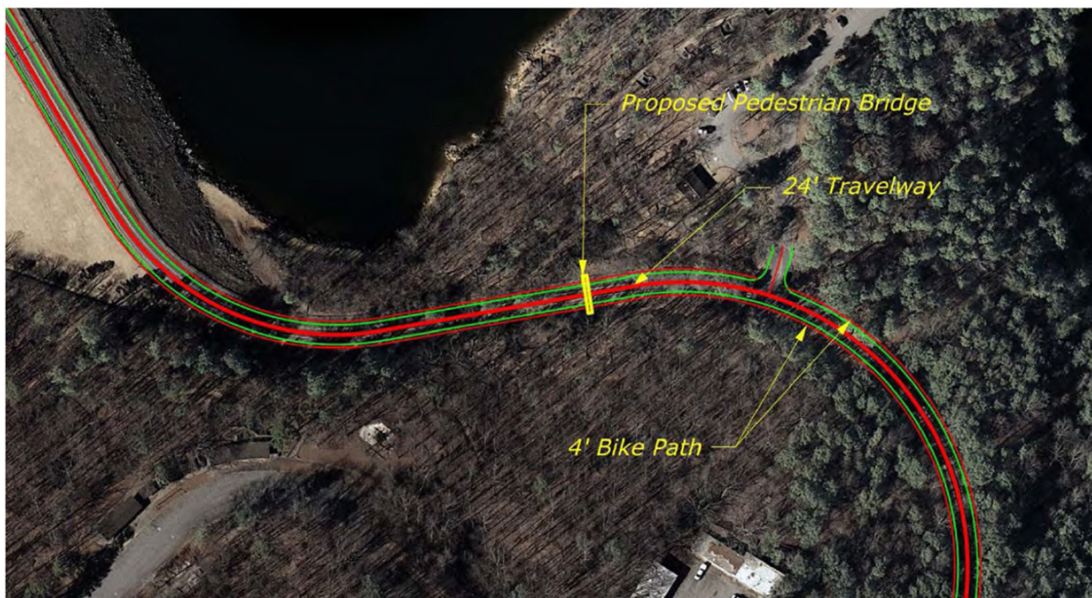
Realignment tie-in to existing alignment at Dam Area
and Future Construction of Alternative #5



(Figure 7)

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Potential Pedestrian Bridge



(Figure 8)

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Roundabout at the intersection of Buford Dam Road and Buford Dam Park Road,
and the Relocation of Pannell Road



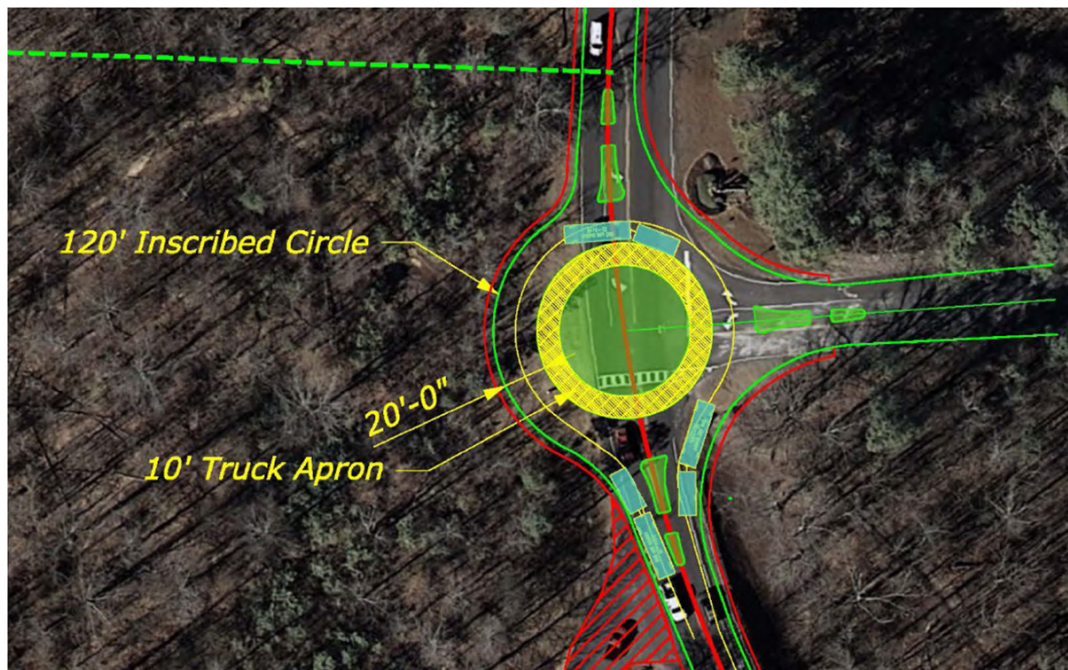
(Figure 9)

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Buford Dam Road Feasibility Study

MH-B Motorhome with Boat Combination

Wheel tracking at Buford Dam Road and Buford Dam Park Road Roundabout



The illustration above depicts the tire path for a MH-B (Light Blue) which was determined to be the largest vehicle that will travel through this roundabout at this location.

(Figure 10)

Buford Dam Road Feasibility Study

Alternative #4

Known as **Mainline Realignment Forsyth and Gwinnett Counties**, this alternative begins at the intersection of Sweetwater Drive and Buford Dam Road and transitions to a roundabout at the intersection of Buford Dam Road and the Sawnee Campground entrance. This roundabout was designed to accommodate a MH-B type vehicle (Motorhome with Boat Combination) with a length of approximately 55ft. (See Figure 1) See Figures 4,6, & 9 for the wheel tracking path for this design vehicle at the roundabouts associated with this alternative.

A 4ft. bike path on each side of the road will start at the roundabout at the Sawnee Campground Entrance and combine to a signal 10ft. bike path and end at the Buford Dam Maintenance Entrance where access to the existing Buford Dam Saddle Dike roadway will be provided for pedestrian traffic only (See Figure 3).

This realignment is west of the current roadway alignment and has a design speed of 40 mph with an 8% maximum super-elevation and will tie back to the existing alignment at the intersection of Buford Dam Road and Little Mill Road. From the point where it ties back into the existing roadway, the existing travel way will increase from 11ft. lanes to 12ft. lanes and a 4ft. bike path will be added to each side of the roadway (See Figure 2). The roadway alignment at the Northern end of the dam will be realigned to the west and tie to the roundabout at Buford Dam Road and Buford Park Entrance.

The improvements at the point of tie back to existing alignment will hold the eastern edge of the existing pavement on the lake side and incorporate all improvements to the western side of the existing travel way. Holding the existing edge of pavement on the Dam (See **Cross Section on Dam/** Figure 2) should reduce the amount of utilities that will need to be relocated. Some excavation will be required to construct the new pavement section that will be built back up to the existing grade (See Figure 2).

Summary of Proposed Improvements:

- Roundabout added at the intersection of Sawnee Campground Entrance and Buford Dam Road with a 120ft. inscribed circle, 10ft. truck apron, and 20ft. pavement section (Figure 3)
- Provided an entrance from realigned roadway to the existing Buford Dam Road (Saddle Dike). Buford Dam Road will be closed to public vehicle traffic, but will be open as a Dam maintenance vehicle entrance and an access point for pedestrians via trails (Figure 3)
- Provide Property Access to two lots (Figure 3)

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- Roundabout added at the West Bank Parking Area entrance with a 120ft. inscribed circle, 10ft. truck apron, and a 20ft. pavement width (Figure 5)
- Realignment and tie to existing roadway near Little Mill Road at Dam (Figure 7)
- Realigned existing travel way from the northern end of Dam to the proposed Roundabout at Buford Dam Park Road (Figure 8)
- Roundabout added at the intersection of Buford Dam Road and Buford Dam Park with a 120ft. inscribed circle, 10ft. truck apron, and a 20ft. pavement width (Figure 8)
- Relocated Pannell Road Entrance away from roundabout (Figure 8)

Advantages:

- Roadway realignment and typical section are safety improvements
- Roundabouts are considered speed reducing and traffic calming improvements
- Removes all public traffic from Saddle Dike up to the intersection of Little Mill Road and Buford Dam Road
- Disturbance reduced by using existing Saddle Dike as pedestrian trail
- Disturbance reduced by using existing Buford Dam Road South of the Dam as a pedestrian trail
- Eliminates the need for Pedestrian Bridge and Speed Humps
- Improved pavement width from 11ft. to 12ft. to match county future typical section
- Added 4ft Bike Path to both sides of travel way to match county future typical section

Disadvantages:

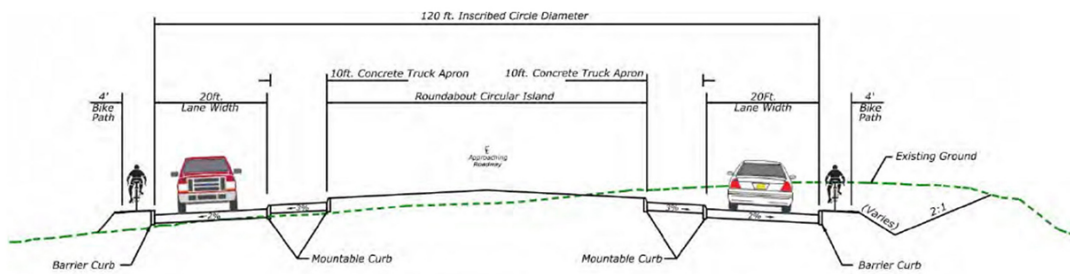
- Requires construction of new access gates to control pedestrian and maintenance traffic over saddle dikes.
- Eliminates access to Upper Overlook Day Use Park
- Impact historic bench marks used to check for alignment and settling of the main dam.
- May require utility relocation over dam

Cost:

	<u>Roadway with Walls</u>	<u>Roadway without Walls</u>
Subtotal	\$4,800,000	\$4,650,000
Program Costs (approx. 25%)	\$1,225,000	\$1,175,000
Rounded Total	\$6,025,000	\$5,825,000

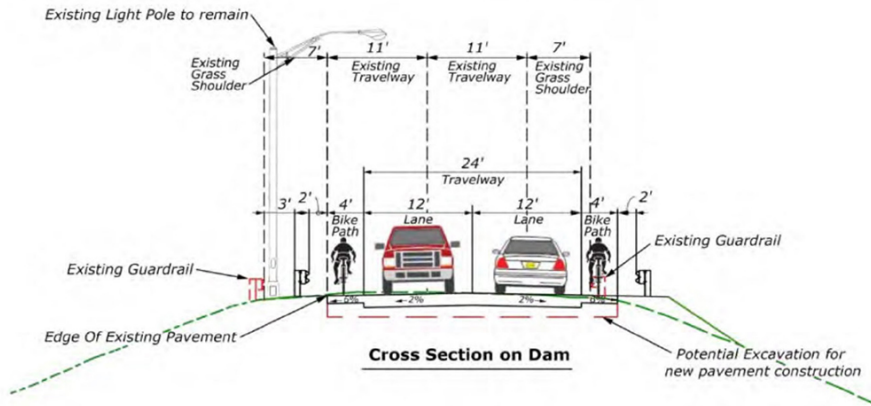
(Figure 1)

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Roundabout Typical

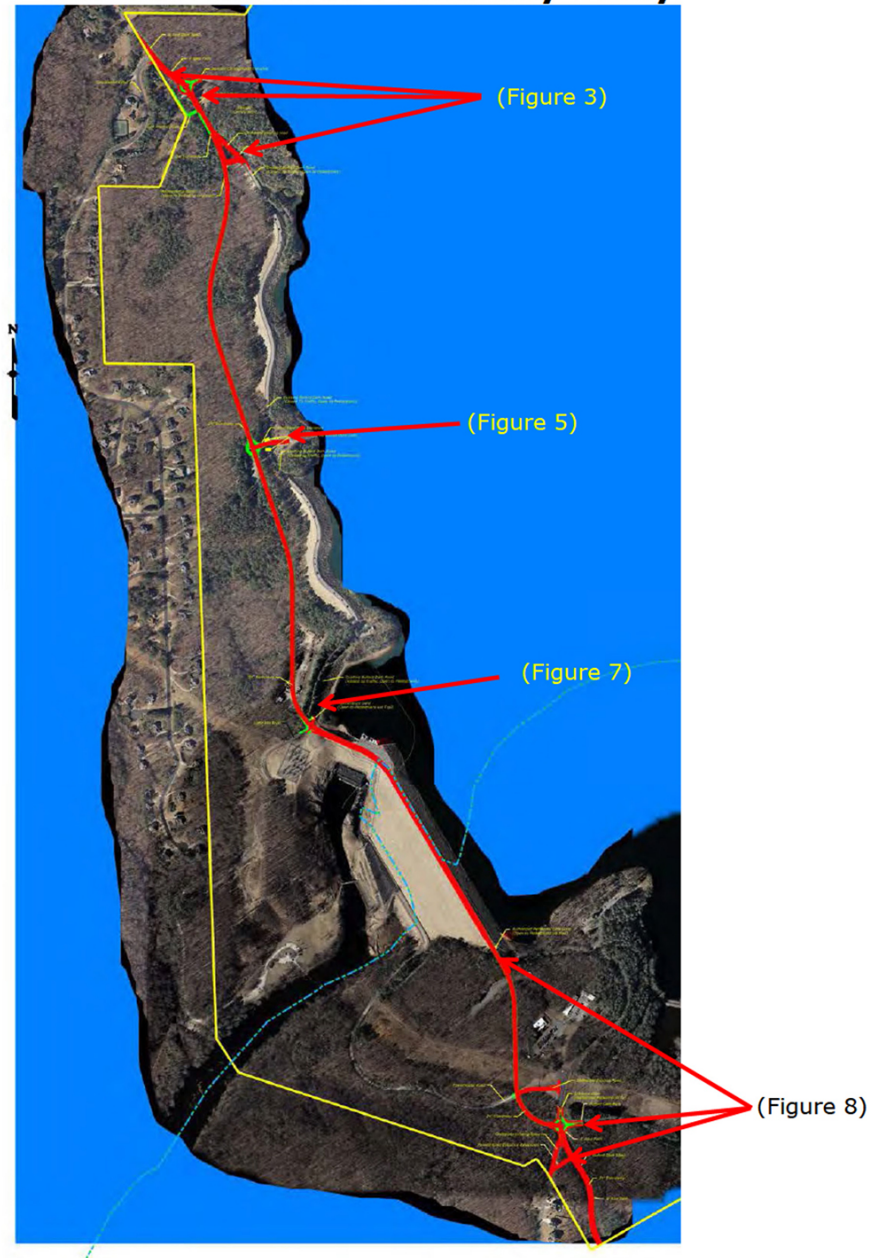
(Figure 1)



Cross Section on Dam

(Figure 2)

Buford Dam Road Feasibility Study



Buford Dam Road Feasibility Study

Roundabout at Sawnee Campground Entrance

And Buford Dam Maintenance Entrance



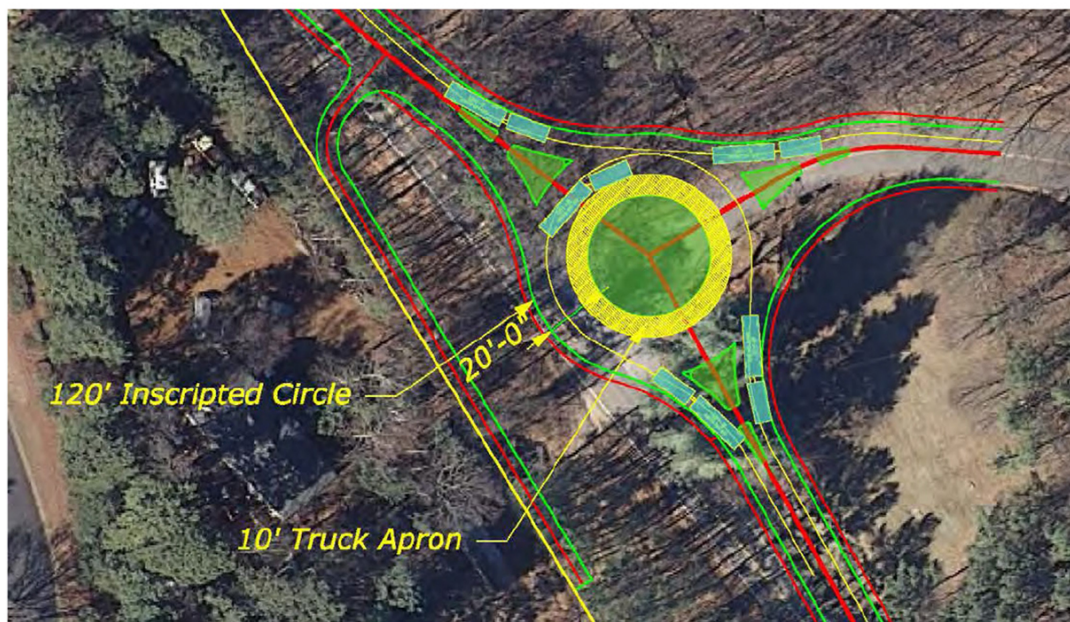
(Figure 3)

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Buford Dam Road Feasibility Study

MH-B Motorhome with Boat Combination

Wheel tracking at Sawnee Campground Roundabout



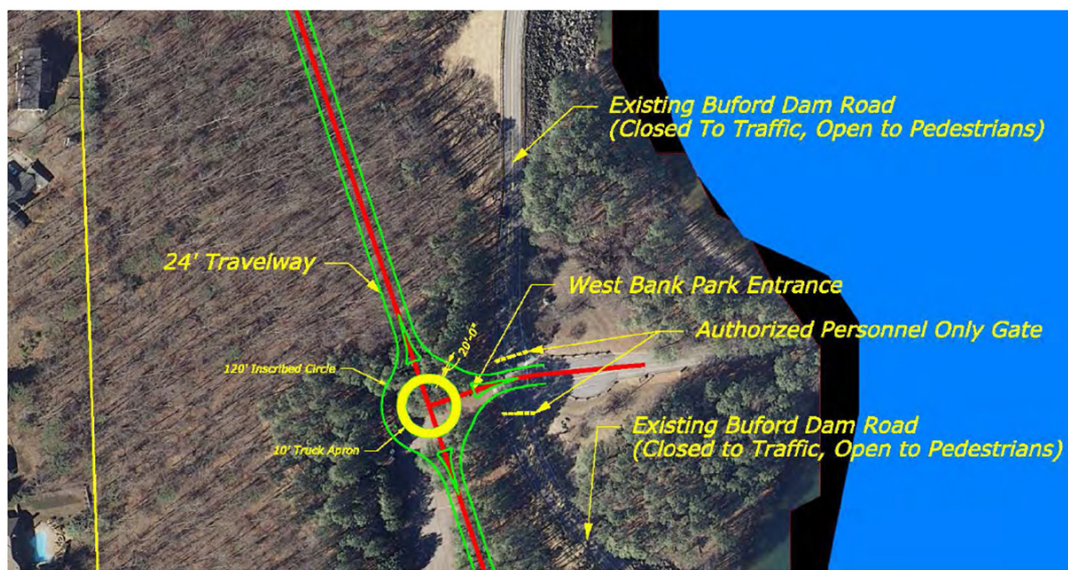
The illustration above depicts the tire path for a MH-B (Light Blue) which was determined to be the largest vehicle that will travel through this roundabout at this location.

(Figure 4)

Buford Dam Road Feasibility Study

Roundabout at West Bank Parking Area

Authorized Personnel Entrance Gate



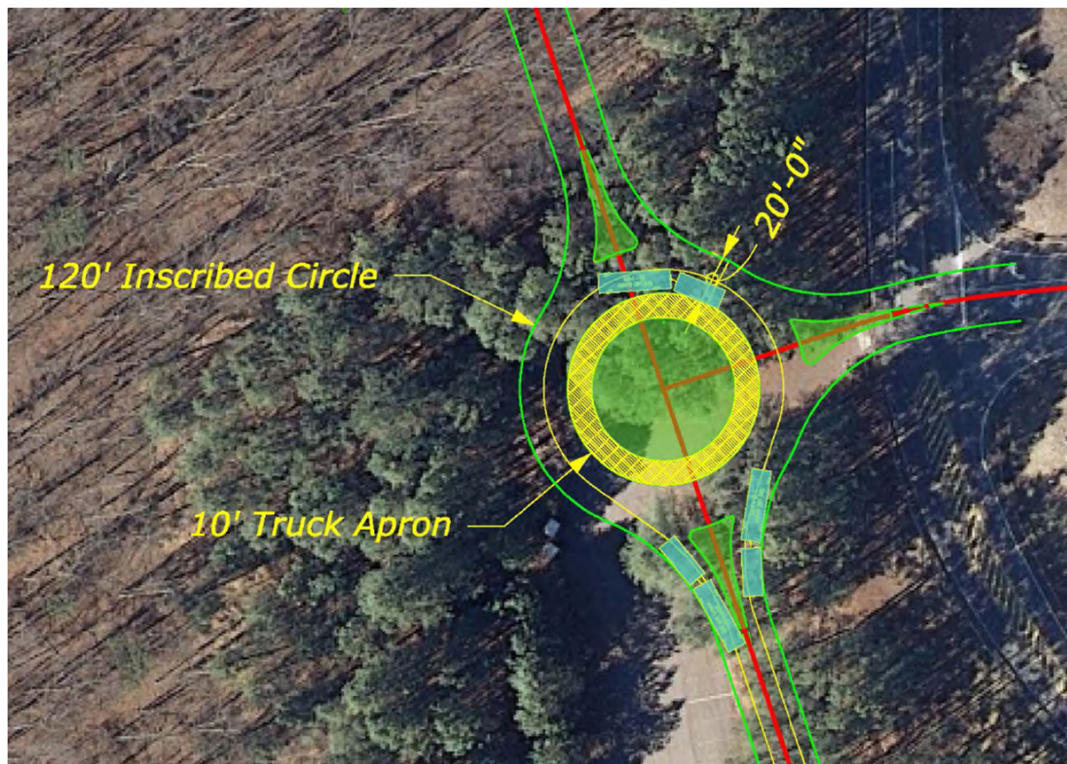
(Figure 5)

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Buford Dam Road Feasibility Study

MH-B Motorhome with Boat Combination

Wheel tracking at West Bank Parking Area Roundabout

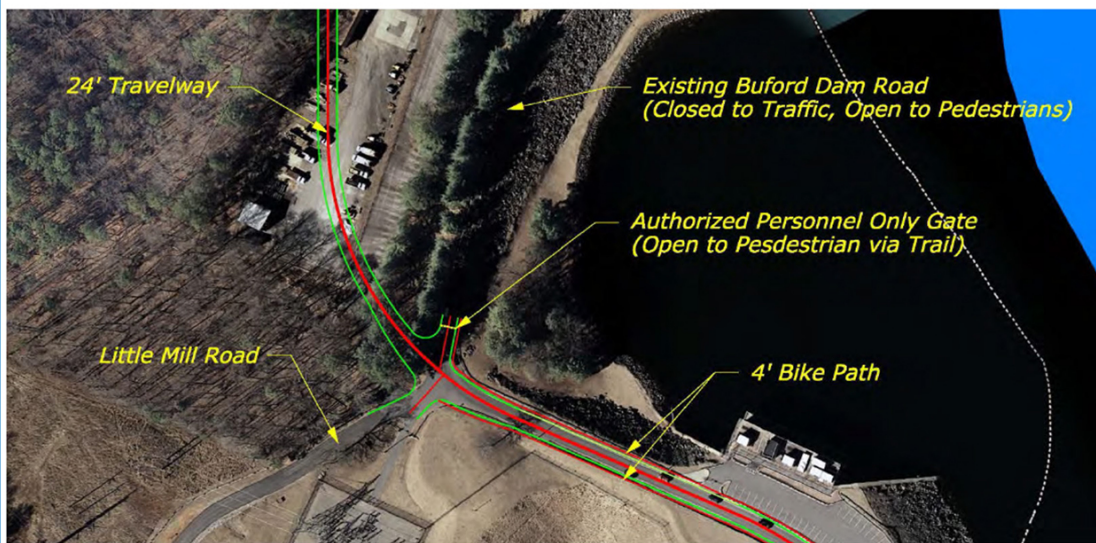


The illustration above depicts the tire path for a MH-B (Light Blue) which was determined to be the largest vehicle that will travel through this roundabout at this location.

(Figure 6)

Buford Dam Road Feasibility Study

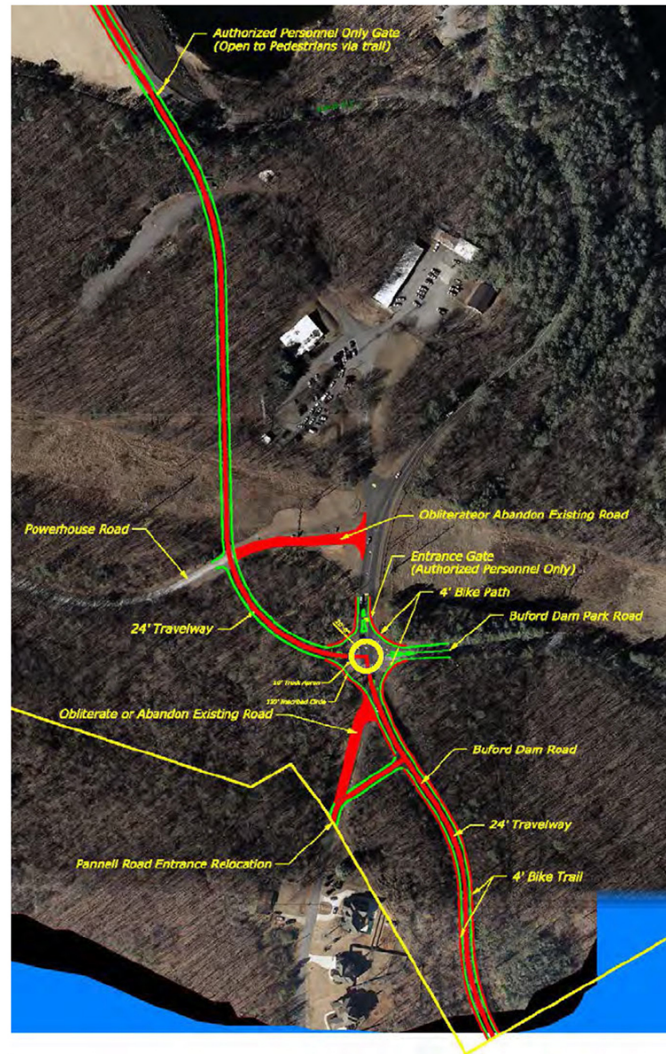
Realignment tie-in to existing alignment at Dam Area



(Figure 7)

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Roundabout at the intersection of Buford Dam Road and Buford Dam Park Road,
and the Relocation of Pannell Road

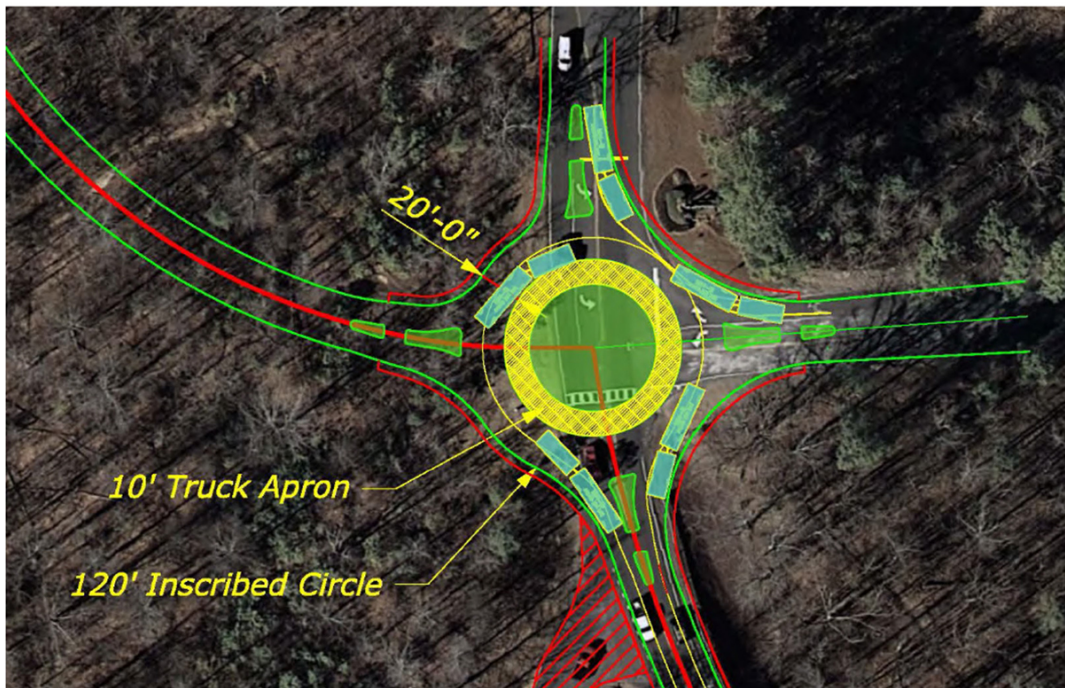


(Figure 8)

Buford Dam Road Feasibility Study

MH-B Motorhome with Boat Combination

Wheel tracking at Buford Dam Road and Buford Dam Park Road Roundabout



The illustration above depicts the tire path for a MH-B (Light Blue) which was determined to be the largest vehicle that will travel through this roundabout at this location.

(Figure 9)

Buford Dam Road Feasibility Study

Alternative#5

Known as the **Full Scale Mainline Security Realignment**, this potential improvement option begins at the intersection of Sweetwater Drive and Buford Dam Road and transitions to a roundabout at the intersection of Buford Dam Road and the Sawnee Campground entrance. This roundabout was designed to accommodate a MH-B type vehicle (Motorhome with Boat Combination) with a length of 55ft. (See Figure 1). See Figure 4, 6, & 10 for the wheel tracking path for this design vehicle at the proposed roundabouts associated with this alternative.

A 4ft. bike path on each side of the road will start at the roundabout at the Sawnee Campground Entrance and beyond that point would be combined to a single 10ft. multiuse ped/bike path and end at the Buford Dam Maintenance Facility Entrance where access to the existing Buford Dam Saddle Dike roadway will be provided for bicycle and pedestrian traffic only (See Figure 3).

The proposed realignment has a 45mph design speed with 8% super-elevation and increases the current lane width from 11ft. to 12ft. (See Figure 2). Along this alignment there is a proposed 1,260ft. long bridge that crosses over the Chattahoochee River. This feasibility study has assumed this new structure to be a variable depth concrete segmental type bridge with two 12ft. travel lanes and 6ft. shoulders (See Figure 1). The implementation of this alternative would require the realignment of both Little Mill Road to provide access to the boat ramp on the Chattahoochee River and of Powerhouse Road to provide access to the parking area below the dam (See Figure 6).

The proposed ultimate future design would tie Alternative #5 approximately at station 74+85.63 to the Alternative #3 approximately at station 344+85.63 both horizontally and vertically (See Figure 7)

Summary of Proposed Improvements:

- Roundabout added at the intersection of Sawnee Campground Entrance and Buford Dam Road with a 120ft. inscribed circle, 10ft. truck apron, and 20ft. pavement section (Figure 3)
- Improve pavement and shoulder width matching the County's future typical section
- Added 4ft. Bike Path to both sides of the travel way matching the County's future typical section
- Provide Property Access to two lots (Figure 3)
- Provide an Authorized Personnel Only Gate from the realignment to the Existing Buford Saddle Dike (Figure 3)
- Roundabout added at the West Bank Parking Area entrance with a 100ft. inscribed circle, 10ft. truck apron, and a 20ft. pavement width (Figure 5)

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- Provide access to Little Mill Road via the mainline at station 84+51.80 (Figure 8)
- Proposed 1,260ft. bridge over the Chattahoochee River (Figure 8)
- Provide access to Powerhouse Road via the mainline at station 109+21.19 (Figure 8)
- Roundabout added at the intersection of Buford Dam Road and Buford Dam Park with a 120ft. inscribed circle, 10ft. truck apron, and a 20ft. pavement width (Figure 9)

Advantages:

- Roadway alignment and typical section are safety improvements
- Roundabouts are considered speed reducing and traffic calming improvements
- Can construct while existing roadway remains open to traffic
- Removes all public traffic from the Dam and Saddle Dikes other than bicycles and pedestrian movement
- Disturbance reduced by using existing Saddle Dike as pedestrian trail
- No utility relocation over dam

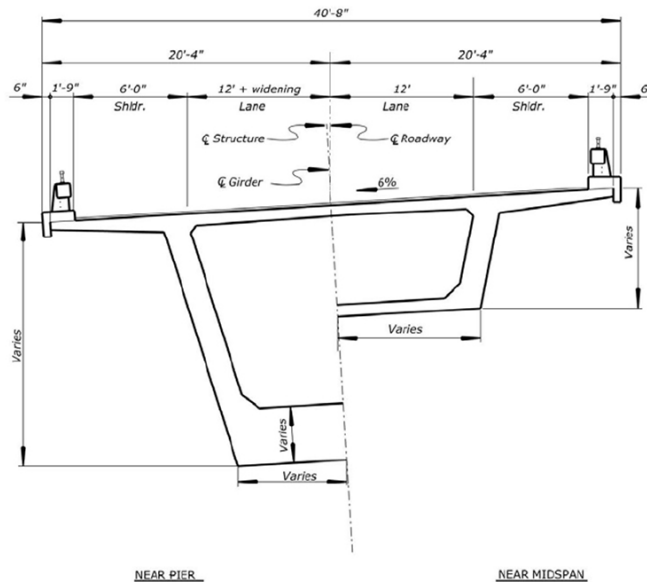
Disadvantages:

- Highest Cost when compared to the other potential alternatives considered
- Bridge Pier #1 may encroach into the existing drain field near Little Mills Road boat ramp
Cost for long-term maintenance of the bridge

Cost:

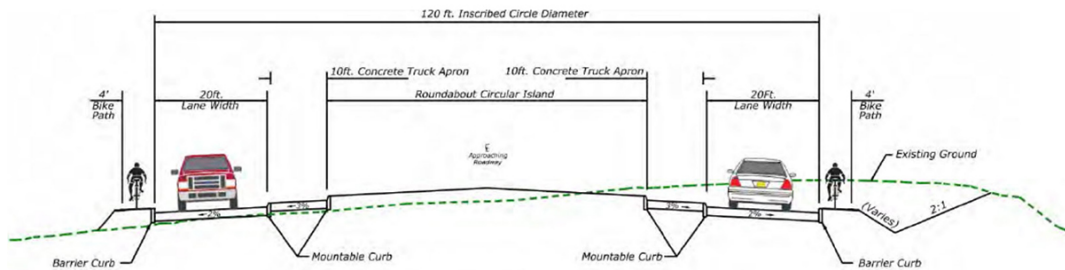
	<u>Roadway with Walls</u>	<u>Roadway without Walls</u>
<u>Subtotal</u>	\$7,500,000	\$7,300,000
<u>Concrete Segmental Bridge</u>	\$41,580,000	\$41,580,000
<u>Pre-Cast Concrete Structure</u>	\$500,000	\$500,000
<u>Program Costs (approx. 25% of non-bridge items)</u>	\$2,000,000	\$1,950,000
<u>Rounded Total</u>	\$51,580,000	\$51,330,000

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BRIDGE TYPICAL SECTION

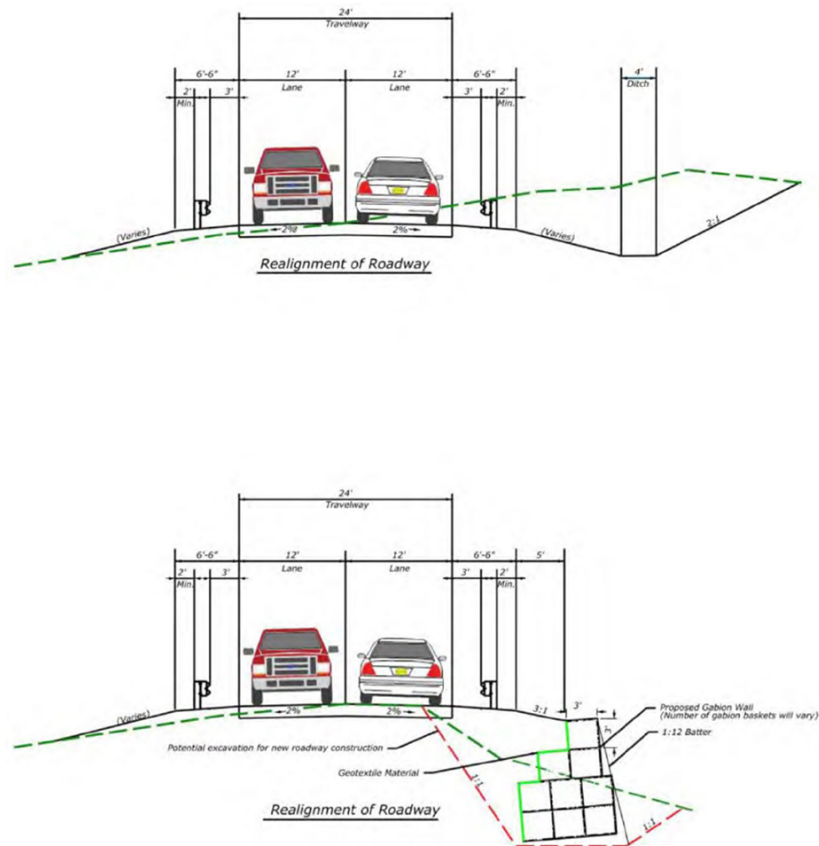
NOT TO SCALE



Roundabout Typical

(Figure1)

Buford Dam Road Feasibility Study



(Figure 2)

Buford Dam Road Feasibility Study



Buford Dam Road Feasibility Study

Roundabout at Sawnee Campground Entrance, Lot Access (2 Lots),

Authorized Personnel Entrance Gate



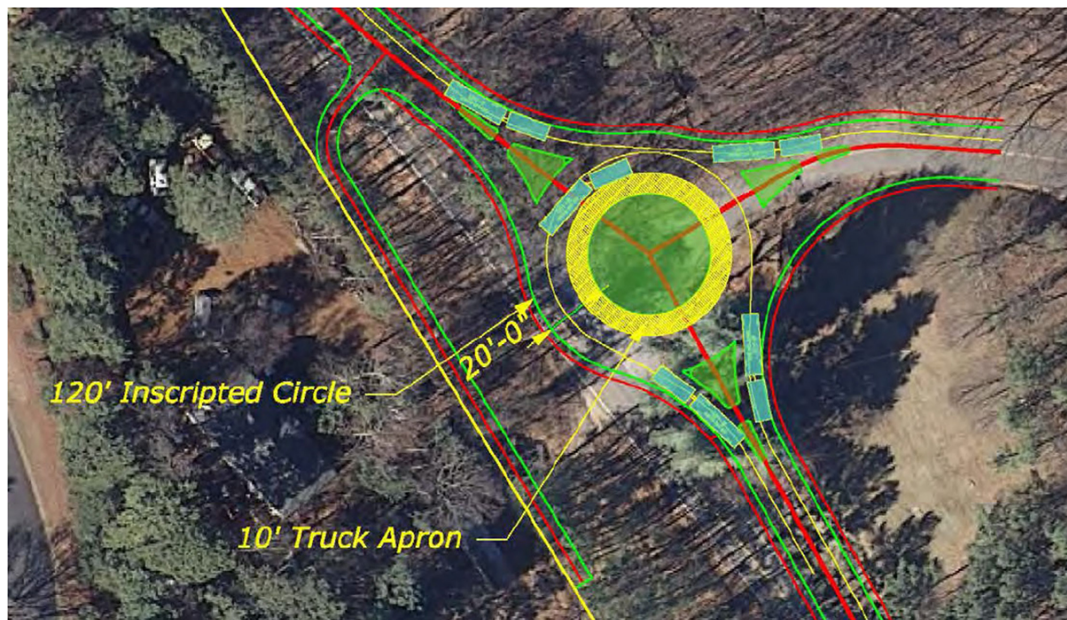
(Figure 3)

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MH-B Motorhome with Boat Combination

Wheel tracking at Sawnee Campground Roundabout

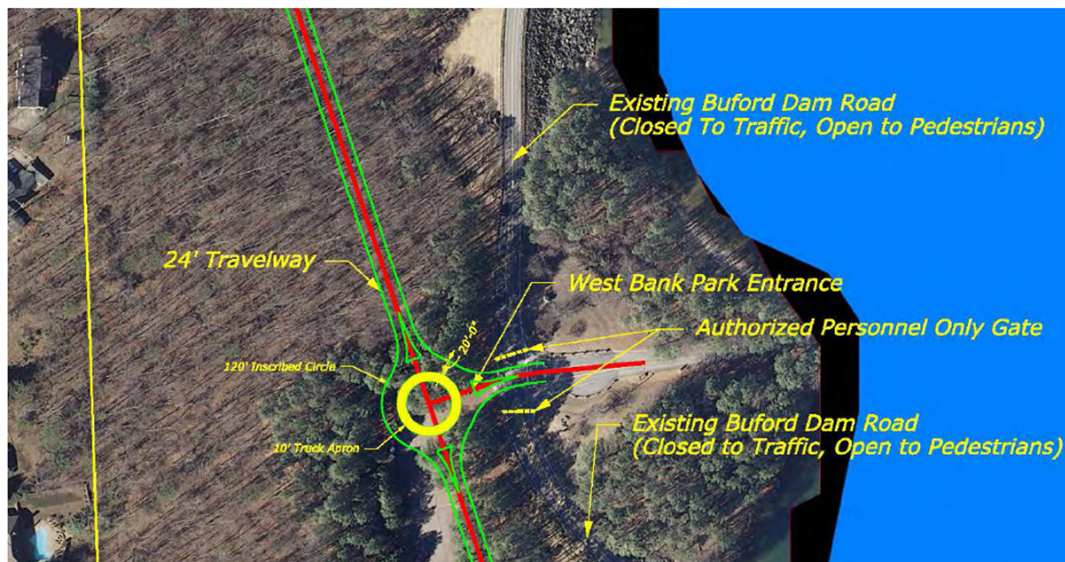


The illustration above depicts the tire path for a MH-B (Light Blue) which was determined to be the largest vehicle that will travel through this roundabout at this location.

(Figure 4)

Buford Dam Road Feasibility Study

Roundabout at West Bank Parking Area,
Authorized Personnel Entrance Gate

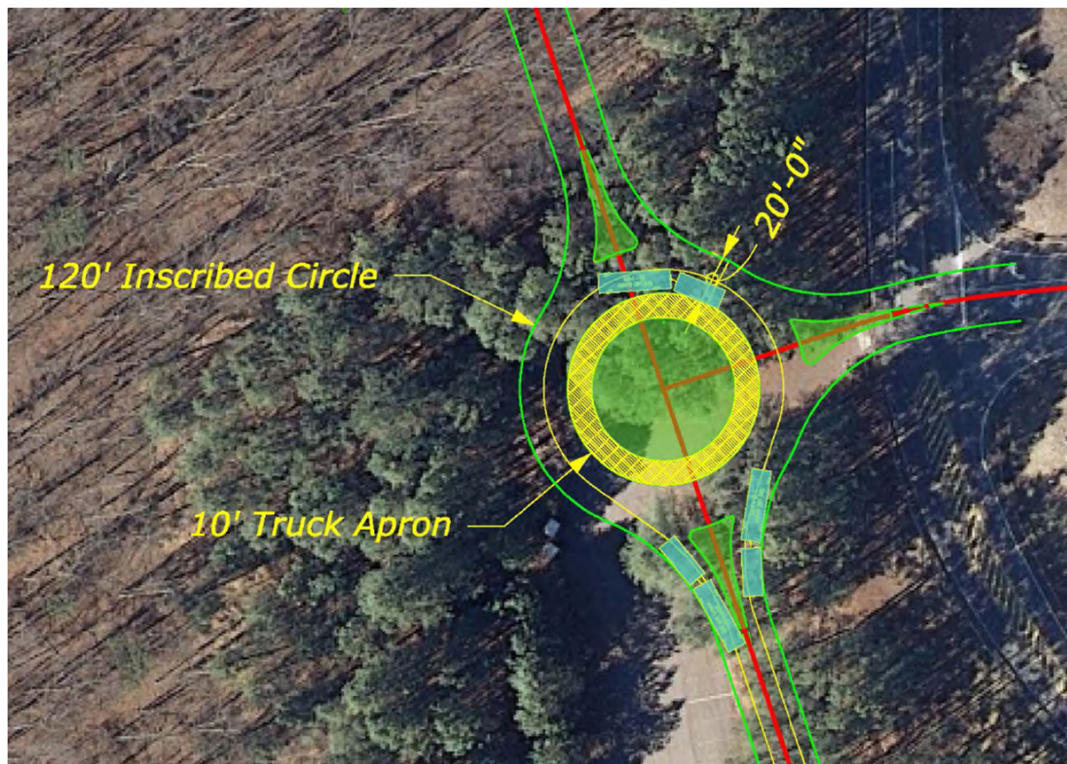


(Figure 5)

Buford Dam Road Feasibility Study

MH-B Motorhome with Boat Combination

Wheel tracking at West Bank Parking Area Roundabout



The illustration above depicts the tire path for a MH-B (Light Blue) which was determined to be the largest vehicle that will travel through this roundabout at this location.

(Figure 6)

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Construction of Alternative #5 from tie location on Alternative #3



(Figure 7)

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Proposed 1,260ft Bridge over Chattahoochee River,

Realignment of Little Mill Road and Powerhouse Road



(Figure 8)

Buford Dam Road Feasibility Study

Roundabout at Buford Dam Road and Buford Dam Park Road,
and Relocation of the Entrance to Pannell Road



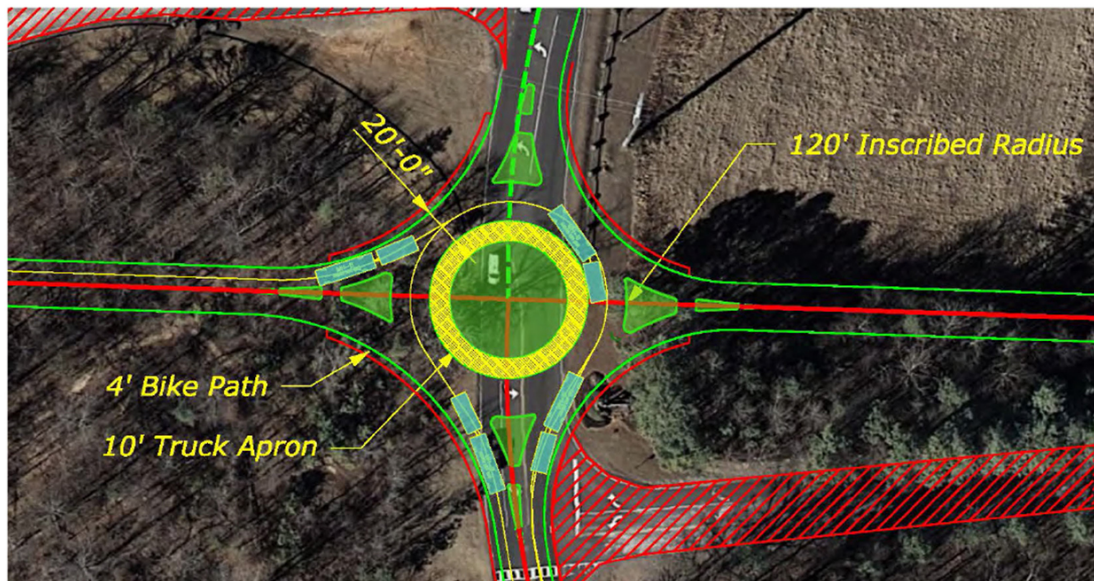
(Figure 9)

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Buford Dam Road Feasibility Study

MH-B Motorhome with Boat Combination

Wheel tracking at Buford Dam Road and Buford Dam Park Road Roundabout



The illustration above depicts the tire path for a MH-B (Light Blue) which was determined to be the largest vehicle that will travel through this roundabout at this location.

(Figure 10)