

# *Chapter 2*

## *ALTERNATIVES*

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This section discusses those alternatives developed, analyzed, and evaluated over the life of this project. This includes those alternatives developed in previous efforts led by the Federal Highway Administration (FHWA) and the Florida Department of Transportation (FDOT), and a recommendation for these alternatives to be advanced in the current effort led by the U.S. Coast Guard (USCG). It should be noted that the FHWA-lead effort evaluated a four-lane crossing of the Manatee River. This USCG effort evaluates only a two-lane crossing due to the fact this is the only financially feasible alternative funded through 2035 as per the Sarasota/Manatee Metropolitan Planning Organization's (MPO's) 2035 Long Range Transportation Plan (LRTP) Financially Feasible Plan (MPO, 2012).

### **2.1     *HISTORICAL BACKGROUND***

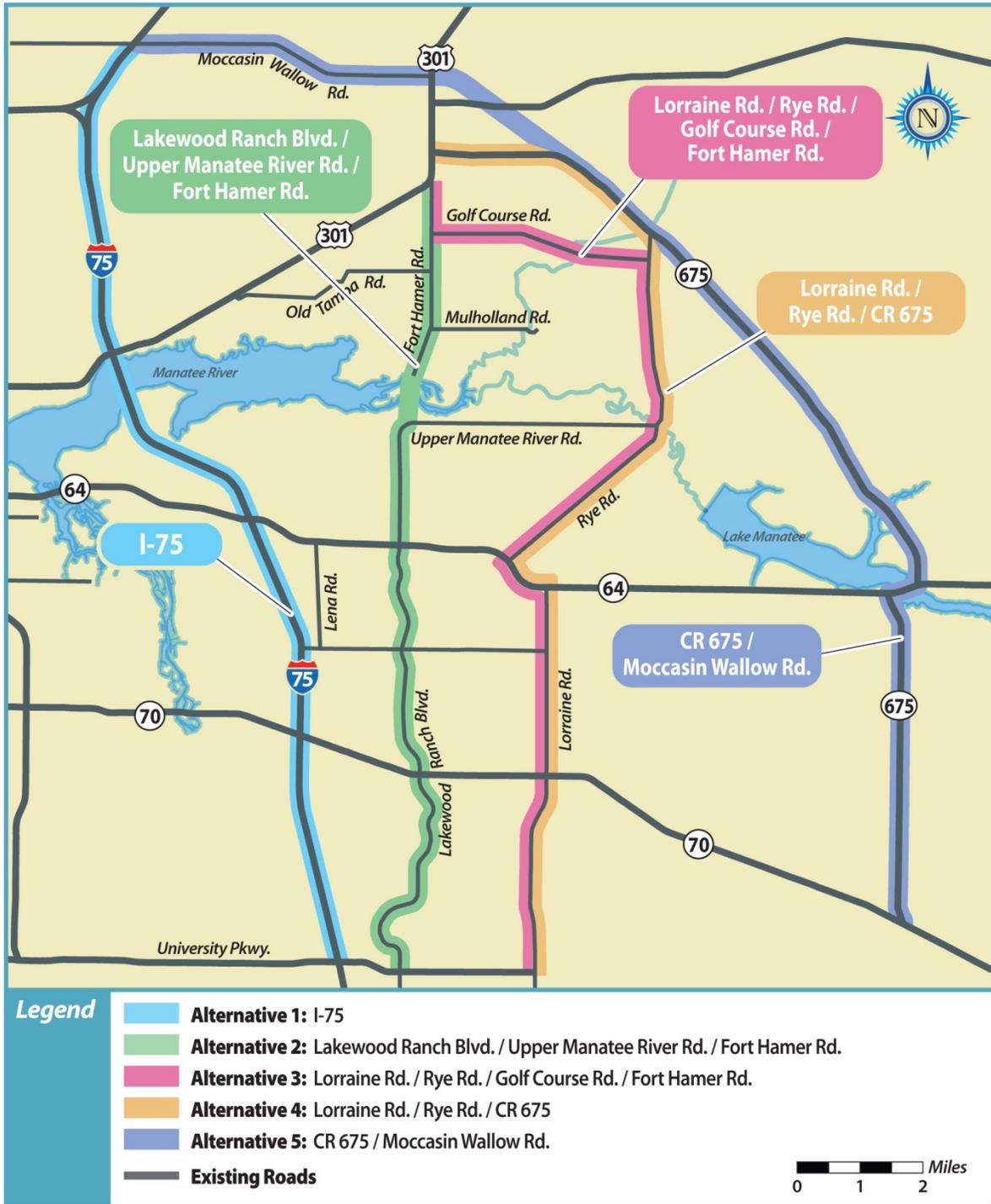
Between 1999 and 2006, Manatee County (the County) undertook detailed consideration of the need for transportation improvements east of Interstate 75 (I-75) (**Figure 2-1**). Since that time, ongoing improvements; public input; changes in transportation priorities, population and economic growth; and fiscal realities have necessitated revising parts of the earlier analysis. As a result, the alternatives analysis presented here is an amalgamation of earlier and later work. Manatee County has divided its analysis into three parts; one that identifies the alternatives considered (Section 2.2), one that describes screening that identifies reasons for excluding alternatives from further consideration (Section 2.3), and one that describes reasonable alternatives in detail (Sections 2.4 and 2.5).

### **2.2     *ALTERNATIVES CONSIDERED***

Manatee County has analyzed several alternatives for meeting its stated Purpose and Need for the Proposed Action:

- No-Build,
- Five build alternative corridors (**Figure 2-1**),
- Transportation system management (TSM),
- Multimodal improvements,
- Alternative bridge design concepts, and
- Alternative bridge alignments.

**FIGURE 2-1  
AREA CONSIDERED FOR THE DEVELOPMENT OF ALTERNATIVE CORRIDORS**



The following paragraphs define the alternatives for the purpose of initiating screening. During and after screening, as subsequent sections indicate, some alternatives were re-defined.

The No-Build Alternative would not add road capacity improvements other than those already funded for construction under the FDOT Work Program and the County's Capital Improvement Program (CIP) (Manatee County BOCC, 2012) or by private, non-governmental entities, such as developers.

Alternative 1 is the I-75 corridor from University Parkway to Moccasin Wallow Road. For most of the alternatives analysis, Alternative 1 is the same as the No-Build Alternative, with I-75 in its current, six-lane configuration. For the analysis in Step 2, I-75 is assumed to expand to eight lanes with associated ramp modifications at the five interchanges within this segment.

Alternative 2 is a corridor extending from University Parkway to U.S. Highway 301 (US 301). This alternative would improve to four lanes Upper Manatee River Road from State Road 64 (SR 64) to the Manatee River and Fort Hamer Road from the river to US 301, and would add a four-lane bridge across the Manatee River.

Alternative 3 is a corridor extending from University Parkway to US 301. This alternative would improve to four lanes SR 64 to Rye Road, Rye Road to Golf Course Road, Golf Course Road to Fort Hamer Road, and Fort Hamer Road to US 301, and would add a second two-lane bridge across the Manatee River.

Alternative 4 is a corridor extending from University Parkway to US 301. This alternative would improve to four lanes Lorraine Road from SR 70 to SR 64, SR 64 to Rye Road, Rye Road to County Road 675 (CR 675), and CR 675 to US 301, and would add a second two-lane bridge across the Manatee River.

Alternative 5 is a corridor extending from SR 70 to I-75. This alternative would improve CR 675 and Moccasin Wallow Road to four lanes, including a short new stretch to connect CR 675 directly to Moccasin Wallow Road (new connection), and would add a second two-lane bridge across the Lake Manatee reservoir.

Alternative 6 would include TSM activities, which maximize the efficiency of the existing system without major capacity improvements. Potential TSM activities include fringe parking, ridesharing, high-occupancy vehicle (HOV) lanes, traffic signal optimization, and access control.

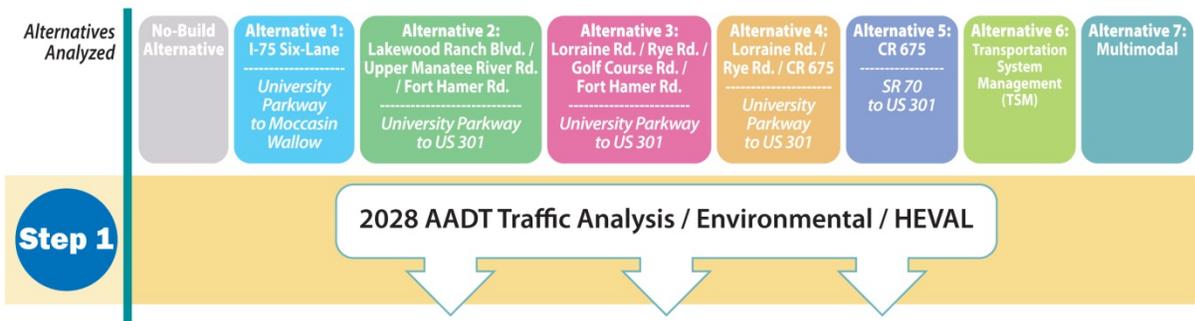
Alternative 7 would include Multimodal options, such as bus and/or rail service to decrease congestion.

The alternative bridge design concepts and alternative bridge alignments are limited to the preferred alternative that screening found to be reasonable, and are discussed in Section 2.5.

## 2.3 ALTERNATIVES SCREENING

Manatee County used a three-step process for analyzing the alternatives, with steps using increasingly detailed evaluative criteria designed to screen out alternatives that are not reasonable.

### 2.3.1 STEP 1 ANALYSIS



Manatee County used Step 1 to determine the overall effectiveness of each alternative in meeting the basic need for increased mobility and reduced traffic congestion within the project area.

Step 1 evaluated alternative corridors using the Sarasota/Manatee MPO's Travel Demand Model (TDM) and socioeconomic data sets found within that model, adjusted to replicate anticipated 2028 conditions, to estimate annual average daily traffic (AADT) volumes. **Table 2-1** shows the results of the AADT modeling for all road segments and **Table 2-2** excerpts AADT volumes for road segments crossing the Manatee River.

Step 1 also evaluated alternative corridors using the model's Highway Evaluation module (HEVAL) to estimate environmental impacts. **Table 2-3** shows the results of the HEVAL modeling.

Only Alternative 2 produced a substantial increase in overall north/south mobility, producing the greatest reduction in I-75 volume, network vehicle miles traveled (VMT), vehicle hours traveled (VHT), and network emissions, while using the least amount of fuel and producing the most river crossings. Alternative 5 had the least positive impact, producing the least reduction in I-75 volume, network VMT, and network emissions, while producing the fewest river crossings. Alternative 5 would also increase the number of network VHT. Due to its poor performance measures, Manatee County screened Alternative 5 out from further analysis.

The analysis showed that transportation characteristics of the project area are not conducive to Alternatives 6 and 7. Manatee County screened Alternative 6 out from further analysis because the travel characteristics of the project area do not support effective use of ridesharing or fringe parking and the project area does not support the use of HOV lanes (which are more conducive for limited-access freeways).

**TABLE 2-1  
STEP 1 ALTERNATIVE CORRIDOR COMPARISONS – 2028 AADT<sup>1</sup> PROJECTED VOLUMES<sup>2</sup>**

<b>Road</b>	<b>Section</b>	<b>No-Build</b>	<b>Alternative 1 I-75 Six-Lane</b>	<b>Alternative 2 Lakewood Ranch Boulevard/ Upper Manatee River Road/ Fort Hamer Road</b>	<b>Alternative 3 Lorraine Road/ Rye Road/ Golf Course Road/Fort Hamer Road</b>	<b>Alternative 4 Lorraine Road/ Rye Road/ CR 675</b>	<b>Alternative 5 CR 675/ Moccasin Wallow Road</b>
I-75	University Parkway - SR 70	105,200	105,200	104,900	106,400	106,300	104,900
	SR 70 - SR 64	94,800	94,800	91,000	93,200	93,200	95,400
	SR 64 - US 301	100,400	100,400	89,500	93,900	94,600	100,100
	US 301 - I-75/I-275 Junction	96,200	96,200	88,900	93,300	93,500	96,000
	I-75/I-275 Junction - Moccasin Wallow Road	80,700	80,700	76,900	78,700	79,200	80,700
Lorraine Road	University Parkway - SR 70	11,600	11,600	12,600	27,800	27,400	12,500
	SR 70 - SR 64	12,300	12,300	11,900	27,900	27,200	11,900
Rye Road	SR 64 - Upper Manatee River Road	14,400	14,400	12,100	37,500	36,900	14,000
	Upper Manatee River Road - Golf Course Road	15,200	15,200	6,300	36,900	35,900	14,900
CR 675	SR 70 - SR 64	11,800	11,800	10,200	10,100	10,200	15,200
	SR 64 - Rye Road	11,700	11,700	5,200	5,100	5,400	15,700
	Rye Road - US 301	12,000	12,000	9,000	10,400	30,800	19,700
	CR 675 Extension to Moccasin Wallow Road	---	---	---	---	---	14,400
University Parkway	I-75 - Lakewood Ranch Boulevard	31,800	31,800	33,400	34,200	34,400	34,100
	Lakewood Ranch Boulevard - Lorraine Road	11,900	11,900	13,100	27,600	27,100	13,000
SR 70	I-75 - Lakewood Ranch Boulevard	76,100	76,100	77,000	80,900	80,300	82,200
	Lakewood Ranch Boulevard - Lorraine Road	44,700	44,700	45,500	44,900	44,900	47,200
	Lorraine Road - CR 675	16,800	16,800	16,000	17,100	17,100	18,400
SR 64	I-75 - Lakewood Ranch Boulevard	65,100	65,100	63,800	67,800	68,000	66,200
	Lakewood Ranch Boulevard - Lorraine Road	40,700	40,700	38,300	41,100	41,500	39,700
	Lorraine Road - CR 675	21,100	21,100	19,600	31,200	31,100	21,200

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**TABLE 2-1 (CONTINUED)**  
**STEP 1 ALTERNATIVE CORRIDOR COMPARISONS – 2028 AADT<sup>1</sup> PROJECTED VOLUMES<sup>2</sup>**

<b>Road</b>	<b>Section</b>	<b>No-Build</b>	<b>Alternative 1 I-75 Six-Lane</b>	<b>Alternative 2 Lakewood Ranch Boulevard/ Upper Manatee River Road/ Fort Hamer Road</b>	<b>Alternative 3 Lorraine Road/ Rye Road/ Golf Course Road/Fort Hamer Road</b>	<b>Alternative 4 Lorraine Road/ Rye Road/ CR 675</b>	<b>Alternative 5 CR 675/ Moccasin Wallow Road</b>
Lakewood Ranch Boulevard	University Parkway - SR 70	54,600	54,600	54,800	45,300	46,400	56,300
	SR 70 - SR 64	40,100	40,100	40,100	38,200	37,600	41,100
Upper Manatee River Road	SR 64 - Manatee River	23,800	23,800	46,500	20,500	20,600	23,600
	At Manatee River	---	---	42,500	---	---	---
Fort Hamer Road	Old Tampa Road - US 301	14,200	14,200	25,400	12,200	12,300	10,300
Golf Course Road	Rye Road - Fort Hamer Road	13,600	13,600	3,200	31,500	9,400	8,200
	Fort Hamer Road - US 301 (New)	---	---	---	18,400	---	---
US 301	I-75 - 60th Avenue	43,800	43,800	41,000	43,600	43,700	42,800
	60th Avenue - Old Tampa Road	44,100	44,100	41,600	41,400	44,700	39,900
	East of Fort Hamer Road	25,400	25,400	23,100	30,300	28,700	26,500
Moccasin Wallow Road	East of I-75	28,900	28,900	23,600	28,100	28,700	29,800
	West of US 301	25,000	25,000	20,600	25,000	25,700	26,100

<sup>1</sup> AADT = Annual average daily traffic.

<sup>2</sup> MPO, 2011.

**TABLE 2-2  
STEP 1 ALTERNATIVE CORRIDOR COMPARISONS – 2028 AADT<sup>1</sup> PROJECTED VOLUMES<sup>1</sup> OVER MANATEE RIVER**

<b>Road</b>	<b>Segment</b>	<b>No-Build</b>	<b>Alternative 1 I-75 Six-Lane</b>	<b>Alternative 2 Lakewood Ranch Boulevard/ Upper Manatee River Road/ Fort Hamer Road</b>	<b>Alternative 3 Lorraine Road/ Rye Road/ Golf Course Road/Fort Hamer Road</b>	<b>Alternative 4 Lorraine Road/ Rye Road/ CR 675</b>	<b>Alternative 5 CR 675/ Moccasin Wallow Road</b>
I-75	SR 64 - US 301	100,400	100,400	89,500	93,900	94,600	100,100
Rye Road	Upper Manatee River Road - Golf Course Road	15,200	15,200	6,300	36,900	35,900	14,900
CR 675	SR 64 - Rye Road	11,700	11,700	5,200	5,100	5,400	15,700
Upper Manatee River Road	At Manatee River	0	0	42,500	0	0	0
<b>Total over River</b>		<b>127,300</b>	<b>127,300</b>	<b>143,500</b>	<b>135,900</b>	<b>135,900</b>	<b>130,700</b>
<b>Difference from No-Build</b>			<b>0</b>	<b>16,200</b>	<b>8,600</b>	<b>8,600</b>	<b>3,400</b>

<sup>1</sup> AADT = Annual average daily traffic.

<sup>2</sup> MPO, 2011.

**TABLE 2-3  
STEP 1 ALTERNATIVE CORRIDOR COMPARISONS – 2028 ENVIRONMENTAL (HEVAL) MEASURES<sup>1</sup>**

<b>HEVAL Statistical Measures</b>	<b>No-Build</b>	<b>Alternative 1 I-75 Six-Lane</b>	<b>Alternative 2 Lakewood Ranch Boulevard/ Upper Manatee River Road/ Fort Hamer Road</b>	<b>Alternative 3 Lorraine Road/ Rye Road/ Golf Course Road/Fort Hamer Road</b>	<b>Alternative 4 Lorraine Road/ Rye Road/ CR 675</b>	<b>Alternative 5 CR 675/ Moccasin Wallow Road</b>
Total VMT <sup>2</sup> Volumes	29,791,760	29,791,760	29,486,162	29,867,310	29,873,260	29,859,364
Total VMT <sup>2</sup> Using Capacity	34,621,344	34,621,344	26,175,712	34,901,040	34,899,552	34,901,060
Total VHT <sup>3</sup> Volumes	1,760,464	1,760,464	1,730,924	1,701,636	1,697,786	1,756,097
Total VHT <sup>3</sup> Using Capacity	1,526,780	1,526,780	1,135,816	1,502,483	1,499,830	1,534,519
Total Congested Speed	20.18	20.18	20.40	20.59	20.59	20.23
Total Emissions (CO) <sup>4</sup>	396,153	396,153	390,422	393,403	393,022	395,050
Total Emissions (HC) <sup>5</sup>	47,084	47,084	46,390	46,889	46,867	47,004
Total Emissions (NO) <sup>6</sup>	38,891	38,891	38,587	39,109	39,121	39,057
Total Fuel Used (gallons)	2,587,700	2,587,700	2,561,988	2,598,125	2,598,511	2,594,196
Total Delay Due to Congestion (Vehicles/Hours)	994,521	994,521	973,161	934,290	930,333	988,948

<sup>1</sup> MPO, 2011.

<sup>2</sup> VMT = vehicle miles traveled.

<sup>3</sup> VHT = vehicle hours traveled.

<sup>4</sup> CO = Carbon Monoxide

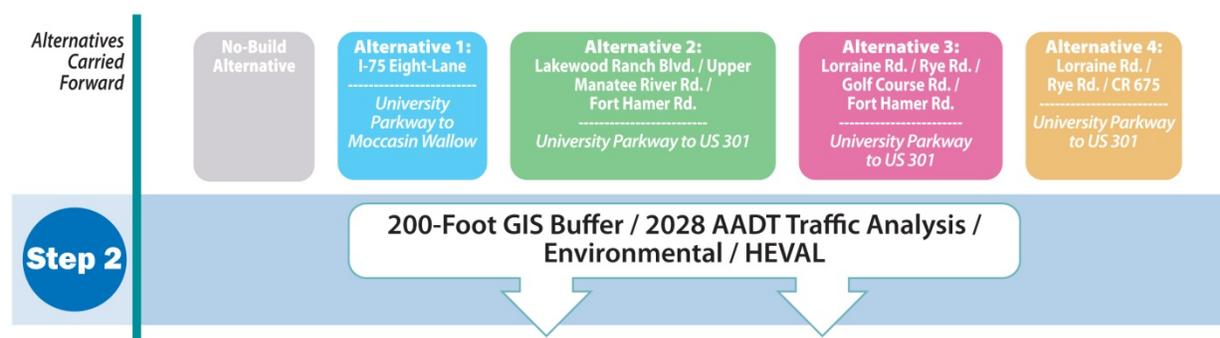
<sup>5</sup> HC = Hydrocarbons

<sup>6</sup> NO = Nitrogen Oxide

Manatee County screened out Alternative 7 from further analysis because the current Manatee County Area Transit (MCAT) system does not provide service east of I-75 and MCAT has no plans to fund, plan, or operate service east of I-75 in the reasonably foreseeable future.

The *National Environmental Policy Act of 1969* (NEPA) requires comparing reasonable alternatives, including a preferred alternative, to a No-Build/No-Action Alternative as a way to clearly show environmental impacts of proposed actions. For this reason, Manatee County has carried the No-Build Alternative through for a full analysis in subsequent chapters.

### 2.3.2 STEP 2 ANALYSIS



Manatee County used Step 2 to evaluate the remaining alternatives using additional and more refined factors.

Step 2 added environmental screening using a geographic information system (GIS). Each corridor was assessed using a FDOT Environmental Screening Tool (EST) and the University of Florida's Florida Geographic Data Library (FGDL) to identify potential impacts within 100 feet of the corridor's centerline (200-foot GIS buffer). The 200-foot buffer represents a broad area of potential impact. At this stage of the analysis there is no assumption on right-of-way (ROW) requirements for each corridor; i.e., it is unknown what each corridor's actual footprint would be. Therefore, a 200-foot buffer was selected to identify the resources potentially affected by the range of footprints for each corridor. **Table 2-4** shows the results of the 200-foot buffer analysis. With the exception of floodplain acreage, Alternatives 3 and 4 have more environmental resources that could be affected than Alternatives 1 and 2. Alternative 1 has the most floodplain acreage, which is consistent with the alternative's location furthest downstream and which means that, if I-75 were expanded, it would have the most potential for floodplain impacts. Alternative 2 would have the least potential for environmental impact of the three build alternatives, with Alternative 4 having slightly more potential than Alternative 3. The Sarasota/Manatee MPO's 2035 LRTP (MPO, 2012) demonstrates there is a need to expand I-75 from six lanes to eight lanes. Therefore, it was assumed in Alternative 1 that I-75 would be expanded to eight lanes.

**TABLE 2-4  
STEP 2 ALTERNATIVE CORRIDOR COMPARISONS – 200-FOOT BUFFER ANALYSIS**

<b>Issues</b>	<b>No-Build Impacts</b>	<b>Alternative 1 I-75 Eight-Lane Impacts</b>	<b>Alternative 2 Lakewood Ranch Boulevard/ Upper Manatee River Road/Fort Hamer Road Impacts</b>	<b>Alternative 3 Lorraine Road/ Rye Road/ Golf Course Road/ Fort Hamer Road Impacts</b>	<b>Alternative 4 Lorraine Road/ Rye Road/ CR 675 Impacts</b>
Wetlands	0	81.8 acres	73.8 acres	86.5 acres	112.7 acres
Floodplains (A) <sup>1</sup>	0	4.2 acres	12.8 acres	2.4 acres	2.5 acres
Floodplains (AE) <sup>2</sup>	0	145.7 acres	76.1 acres	88.2 acres	122.9 acres
Archaeological and Historic Sites	0	2 (Prehistoric Sites)	5 (Structures)	11 1 Cemetery 7 Structures 3 Prehistoric Sites	3 (Prehistoric Sites)
Historic Districts	0	0	0	0	1 (Parrish)
Section 4(f) Properties	0	1 Property	1 Property	1 Property	1 Property
Section 6(f) Properties	0	0	0	1 Property	1 Property
<b>Residential Land Use</b>					
Existing	0	N/A	139.5 acres	208.4 acres	222.7 acres
Future	0	N/A	319.3 acres	820.2 acres	598.2 acres
<b>Agricultural Land Use</b>					
Existing	0	N/A	236.3 acres	311.5 acres	509.7 acres
Future	0	N/A	7.4 acres	0.0 acres	0.2 acres

<sup>1</sup> Without established Base Flood Elevation.

<sup>2</sup> With established Base Flood Elevation.

Sources: Florida Geographic Data Library and Florida Department of Transportation's Efficient Transportation Decision-Making Environmental Screening Tool.

The Sarasota/Manatee MPO's 2035 LRTP (MPO, 2012) demonstrates there is a need to expand I-75 from six lanes to eight lanes. For the Step 2 corridor analyses, the Step 1 transportation model was re-coded to assume that I-75 had eight lanes and re-run. The re-run allowed evaluation of the sensitivity of modeling results for the corridors of Alternatives 2, 3, and 4 to expansion of I-75. **Tables 2-5 and 2-6** show the AADT modeling results. The I-75 bridge AADT would increase by 27,900 (28 percent) as compared to the No-Build Alternative. Comparison of Tables 2-1 and 2-5 shows that expanding I-75 from six lanes to eight lanes would attract traffic off the local system, including the corridors for Alternatives 2, 3, and 4. **Table 2-7** shows the 2028 environmental HEVAL measures with I-75 at eight lanes. Comparison of the HEVAL modeling results in Tables 2-3 and 2-7 shows that an eight-lane I-75 corridor and the local system would result in a decline in emissions and delays due to congestion within the local system. Alternative 2 still showed the best performance measures, but none of the modeling results suggests a basis for screening out any alternative.

**TABLE 2-5  
STEP 2 ALTERNATIVE CORRIDOR COMPARISONS – 2028 AADT<sup>1</sup> PROJECTED VOLUMES<sup>2</sup> (WITH EIGHT-LANE I-75)**

<b>Road</b>	<b>Section</b>	<b>No-Build Six-Lane I-75</b>	<b>Alternative 1 I-75 Eight-Lane<sup>3</sup></b>	<b>Alternative 2 Lakewood Ranch Boulevard/ Upper Manatee River Road/ Fort Hamer Road</b>	<b>Alternative 3 Lorraine Road/ Rye Road/ Golf Course Road/Fort Hamer Road</b>	<b>Alternative 4 Lorraine Road/ Rye Road/ CR 675</b>
I-75	University Parkway - SR 70	105,200	119,900	120,200	115,700	119,200
	SR 70 - SR 64	94,800	113,300	108,600	104,200	111,900
	SR 64 - US 301	100,400	128,300	114,300	102,100	122,800
	US 301 - I-75/I-275 Junction	96,200	109,600	98,100	101,700	104,800
	I-75/I-275 Junction - Moccasin Wallow Road	80,100	92,500	83,700	83,100	88,900
Lorraine Road	University Parkway - SR 70	11,600	6,700	7,600	28,000	15,100
	SR 70 - SR 64	12,300	10,700	10,600	26,900	22,000
Rye Road	SR 64 - Upper Manatee River Road	14,400	13,400	9,300	34,800	24,300
	Upper Manatee River Road - Golf Course Road	15,200	12,500	2,900	33,600	21,400
CR 675	SR 70 - SR 64	11,800	9,500	9,400	10,000	9,300
	SR 64 - Rye Road	11,700	4,300	3,600	4,800	3,900
	Rye Road - Rutland Road at US 301	12,000	8,700	6,500	10,200	16,800
	CR 675 Extension to Moccasin Wallow Road	---	---	---	---	---
University Parkway	I-75 - Lakewood Ranch Boulevard	31,800	39,700 <sup>4</sup>	41,800 <sup>4</sup>	34,600 <sup>4</sup>	41,100 <sup>4</sup>
	Lakewood Ranch Boulevard - Lorraine Road	11,900	6,600	7,700	27,800	14,900
SR 70	I-75 - Lakewood Ranch Boulevard	76,100	79,400 <sup>5</sup>	77,300 <sup>5</sup>	82,900 <sup>5</sup>	85,000 <sup>5</sup>
	Lakewood Ranch Boulevard - Lorraine Road	44,700	42,700	43,300	44,800	43,900
	Lorraine Road - CR 675	16,800	17,700	18,000	16,200	17,700
SR 64	I-75 - Lakewood Ranch Boulevard	65,100	58,000	60,100	68,000	60,600
	Lakewood Ranch Boulevard - Lorraine Road	40,700	39,400	37,500	40,900	38,400
	Lorraine Road - CR 675	21,100	18,500	17,000	31,400	23,400
Lakewood Ranch Boulevard	University Parkway - SR 70	54,600	38,600	40,800	44,900	35,900
	SR 70 - SR 64	40,100	32,000	37,000	37,600	28,500

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**TABLE 2-5 (CONTINUED)**  
**STEP 2 ALTERNATIVE CORRIDOR COMPARISONS – 2028 AADT<sup>1</sup> PROJECTED VOLUMES<sup>2</sup> (WITH EIGHT-LANE I-75)**

<b>Road</b>	<b>Section</b>	<b>No-Build Six-Lane I-75</b>	<b>Alternative 1 I-75 Eight-Lane<sup>3</sup></b>	<b>Alternative 2 Lakewood Ranch Boulevard/ Upper Manatee River Road/ Fort Hamer Road</b>	<b>Alternative 3 Lorraine Road/ Rye Road/ Golf Course Road/Fort Hamer Road</b>	<b>Alternative 4 Lorraine Road/ Rye Road/ CR 675</b>
Upper Manatee River Road	SR 64 - Manatee River	23,800	23,700	43,200	20,600	21,600
	At Manatee River	---	---	35,300	---	---
Fort Hamer Road	Old Tampa Road - US 301	14,200	10,500	18,900	11,200	11,300
Golf Course Road	Rye Road - Fort Hamer Road	13,600	7,900	1,900	28,100	7,300
	Fort Hamer Road - US 301	---	---	---	16,400	---
US 301	I-75 - 60th Avenue	43,800	47,300 <sup>6</sup>	41,000 <sup>6</sup>	43,900 <sup>6</sup>	45,600 <sup>6</sup>
	60th Avenue - Old Tampa Road	44,100	44,800	37,800	45,100	44,400
	East of Fort Hamer Road	25,400	24,600	18,700	30,000	24,900
Moccasin Wallow Road	East of I-75	28,900	30,400	20,100	29,700	26,800
	West of US 301	25,000	26,800	16,400	26,600	23,200

<sup>1</sup> AADT = Annual average daily traffic.

<sup>2</sup> MPO, 2011.

<sup>3</sup> Includes ramp and cross street improvements, for eight-lane I-75.

<sup>4</sup> With six-/eight-lane University Parkway.

<sup>5</sup> With six-/eight -lane SR 70.

<sup>6</sup> With six-/eight -lane US 301.

**TABLE 2-6  
STEP 2 ALTERNATIVE CORRIDOR COMPARISONS –  
2028 AADT PROJECTED VOLUMES<sup>1</sup> OVER MANATEE RIVER**

<b>Road</b>	<b>Segment</b>	<b>No-Build</b>	<b>Alternative 1 I-75 Eight- Lane</b>	<b>Alternative 2 Lakewood Ranch Boulevard/ Upper Manatee River Road/Fort Hamer Road</b>	<b>Alternative 3 Lorraine Road/ Rye Road/ Golf Course Road/ Fort Hamer Road</b>	<b>Alternative 4 Lorraine Road/ Rye Road/ CR 675</b>
I-75	SR 64 - US 301	100,400	128,300	114,300	102,100	122,800
Rye Road	Upper Manatee River Road - Golf Course Road	15,200	12,500	2,900	33,600	21,400
CR 675	SR 64 - Rye Road	11,700	4,300	3,600	4,800	3,900
Upper Manatee River Road	At Manatee River	0	0	35,300	0	0
<b>Total Over River</b>		<b>127,300</b>	<b>145,100</b>	<b>156,100</b>	<b>140,500</b>	<b>148,100</b>
<b>Difference from No-Build</b>		<b>0</b>	<b>17,800</b>	<b>28,800</b>	<b>13,200</b>	<b>20,800</b>

<sup>1</sup> MPO, 2011.

**TABLE 2-7  
STEP 2 ALTERNATIVE CORRIDOR COMPARISONS –  
2028 ENVIRONMENTAL (HEVAL) MEASURES<sup>1</sup>**

<b>HEVAL Statistical Measures</b>	<b>No-Build</b>	<b>Alternative 1 I-75 Eight- Lane<sup>2</sup></b>	<b>Alternative 2 Lakewood Ranch Boulevard/ Upper Manatee River Road/ Fort Hamer Road</b>	<b>Alternative 3 Lorraine Road/ Rye Road/ Golf Course Road/ Fort Hamer Road</b>	<b>Alternative 4 Lorraine Road/ Rye Road/ CR 675</b>
Total VMT Volumes	29,791,760	29,310,950	29,146,492	29,876,522	29,354,164
Total VMT Using Capacity	34,621,344	35,299,980	26,632,266	35,481,188	35,580,004
Total VHT Volumes	1,760,464	1,569,623	1,573,277	1,665,313	1,561,512
Total VHT Using Capacity	1,526,780	1,440,665	1,086,258	1,489,561	1,440,449
Total Congested Speed	20.18	21.52	21.33	20.73	21.55
Total Emissions (CO) <sup>3</sup>	396,153	378,608	375,972	386,851	377,696
Total Emissions (HC) <sup>4</sup>	47,084	45,341	44,998	46,234	45,274
Total Emissions (NO) <sup>5</sup>	38,891	38,592	38,475	39,450	38,728
Total Fuel Used	2,587,700	2,537,256	2,526,675	2,596,523	2,543,569
Total Delay Due to Congestion (Vehicles/Hours)	994,521.31	820,563.56	827,325.75	899,695.50	811,306.81

<sup>1</sup> MPO, 2011.

<sup>2</sup> Includes ramp and cross street improvements on eight-lane I-75.

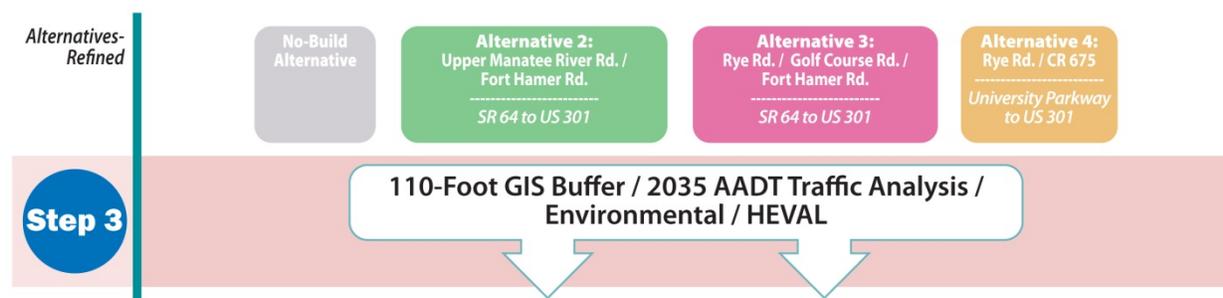
<sup>3</sup> CO = Carbon Monoxide

<sup>4</sup> HC = Hydrocarbons

<sup>5</sup> NO = Nitrogen Oxide

The AADT and HEVAL modeling show that I-75 expansion from six lanes to eight lanes would reduce traffic on the local roadway network and improve mobility. However, although the MPO's 2035 LRTP (MPO, 2012) demonstrates a need for expansion, it also indicates expansion is not financially feasible. Furthermore, I-75 expansion would not provide an additional Manatee River crossing. For these reasons, Manatee County has screened out from further analysis I-75 expansion as an alternative. Section 4.6 addresses the potential contribution to cumulative impacts that I-75 expansion could have.

### 2.3.3 STEP 3 ANALYSIS



Manatee County used Step 3 to further refine its analysis by applying reasonable engineering and environmental constraints and taking into account changed conditions.

During the time Manatee County undertook detailed consideration of the need for transportation improvements east of I-75, the County continued making improvements determined to be needed. Roadwork on portions of Lakewood Ranch Boulevard and Lorraine Road was completed and both are now four-lane roadways. Therefore, the County has refined and re-titled the definitions of the corridors for Alternatives 2, 3, and 4. For Step 3, the corridors for all three alternatives extend from SR 64 to US 301.

For Step 3, an environmental analysis of greater detail was performed on the remaining three corridors. The first step was the determination of the most likely improvement that may occur in any of the given build corridors. It was determined that a four-lane divided typical section utilizing 110 feet of ROW (110-foot GIS buffer) would be the most likely typical section for any of the corridors. The 110-foot buffer analysis represents the area most likely to be contained within the ROW for each corridor after considering the likely engineering and environmental constraints. **Table 2-8** shows the results of the 110-foot buffer analysis. With the reduced corridor width and length, the potential for environmental impact is reduced as compared to the Table 2-4 results. With the exception of floodplains, Alternatives 3 and 4 still have the higher potential for environmental impact, with Alternative 4 generally having the greatest potential. Table 2-8 shows that Alternative 4 would have approximately 33 percent more construction costs than Alternatives 2 and 3 and would have the highest wetland mitigation costs.

No changes to the AADT or HEVAL modeling assumptions were made for Step 3. The results are the same as shown in Step 1 Tables 2-1, 2-2, and 2-3, with the sensitivity to I-75 expansion to eight lanes shown in Step 2 Tables 2-5, 2-6, and 2-7.

Based on the Step 3 analysis, Alternatives 3 and 4 were not recommended for further analysis. As compared to Alternative 2, both have higher potential for environmental impact, lower AADT crossing the river, and poorer performance measures from the HEVAL analysis. As compared to each other, Alternative 4 has higher potential for environmental impact but there is little difference otherwise. Alternative 2 has the lowest construction and wetland mitigation cost estimates and Alternative 4 the highest.

**TABLE 2-8**  
**STEP 3 ALTERNATIVE CORRIDOR COMPARISON – 110-FOOT BUFFER ANALYSIS**

<b>Category</b>	<b>Alternative 2 Upper Manatee River Road/ Fort Hamer Road</b>	<b>Alternative 3 Rye Road/ Golf Course Road/ Fort Hamer Road</b>	<b>Alternative 4 Rye Road/ CR 675</b>
Churches (Number)	0	0	1
Schools (Number)	0	1	1
Historic/Archeological Sites (Number)	0	0	2
Wetlands (Acres)	7.50	12.28	14.45
Upland Habitat (Acres) <sup>1</sup>	0.96	15.46	10.76
Floodplain (Acres)	33.08	14.16	24.64
Floodplain Compensation (Acres)	33.08	14.16	24.64
Floodway (Acres)	7.33	7.86	14.50
Potentially Affected Parcels (Number)	130	163	213
Total Area of Corridor (Acres)	102.35	153.82	160.34
Total Distance of Corridor (Miles)	7.0	10.4	10.1
Wetland Mitigation Costs <sup>2</sup>	\$483,000	\$791,000	\$930,000
Construction Costs	\$93.17 million	\$94.81 million	\$126.46 million

<sup>1</sup> Florida Land Use Cover and Forms Classification System (FLUCFCS) codes grouped as “Uplands” - 3100, 3200, 3300, 4100, 4120, and 4340 (FDOT, 1999).

<sup>2</sup> Based on Uniform Mitigation Assessment Method (UMAM) bank cost of \$99,000/credit (1 acre = 0.65 credit).

### **2.3.4 SCREENING ANALYSIS CONCLUSIONS**

The Manatee County analysis screened out one alternative corridor due to poor performance alleviating the I-75 traffic burden, one due to financial infeasibility, and two due to high potential for environmental impact, least increase in Manatee River crossings, and poorest highway mobility and emissions performance measures. TSM and multimodal improvement alternatives were screened out due to infeasibility and lack of service. The screening analysis resulted in recommending improving to four lanes Upper Manatee River Road from SR 64 to the river and Fort Hamer Road from the river to US 301, and adding a four-lane bridge across the Manatee River. Alternative bridge design and alignment alternatives would be developed for this alternative.

## 2.4 *POST-SCREENING CHANGES*

During Manatee County discussions with the USCG regarding a permit for constructing a bridge across the Manatee River, the USCG asked the County to include in the Environmental Impact Statement (EIS) a detailed environmental impact analysis of an alternative corridor in addition to Alternative 2. The County and the USCG decided on adding Alternative 3 for detailed analysis. As shown in the screening Step 3 GIS analysis, Alternative 3 has less potential for environmental impact than Alternative 4 and would cost approximately one third less to construct.

In 2010, the Sarasota/Manatee MPO issued the 2035 LRTP (MPO, 2012). The Fort Hamer Road/Upper Manatee River Road Bridge is listed as a committed project through 2014. Due to financial constraint, Manatee County has reduced its preferred Alternative 2 to a two-lane bridge. The County has considered the effect this change might have on the prior alternatives screening.

A two-lane Alternative 2 bridge would have less carrying capacity than a four-lane bridge, which would alter the Alternative 2 performance relative to the other alternatives. The eight-lane Alternative 1 was screened out due to financial infeasibility, so the reduced Alternative 2 performance would be immaterial to Alternative 1. Alternative 5 was screened out due to performance and Alternative 4 due to potential for environmental impact, but inclusion of Alternative 3 in the detailed analysis would ensure that the two-lane alternative was subjected to a rigorous comparison to its next closest performer.

## 2.5 *ALTERNATIVES RECOMMENDED FOR EVALUATION IN THIS FEIS*

As a result of the preliminary evaluation of alternatives discussed above, it was determined the following two build alternatives would be considered “reasonable” for further, detailed analysis and evaluation in this Final EIS (FEIS) and the No-Build Alternative as a comparative baseline:

- No-Build Alternative,
- Fort Hamer Alternative, and
- Rye Road Alternative.

**Figure 2-2** shows the location of the study area and construction limits associated with each of the two build alternatives. The study area of each build alternative is defined as the area contained within a 0.5-mile buffer of the alternative’s centerline.

FIGURE 2-2  
REASONABLE BUILD ALTERNATIVES ANALYZED



### 2.5.1 NO-BUILD ALTERNATIVE

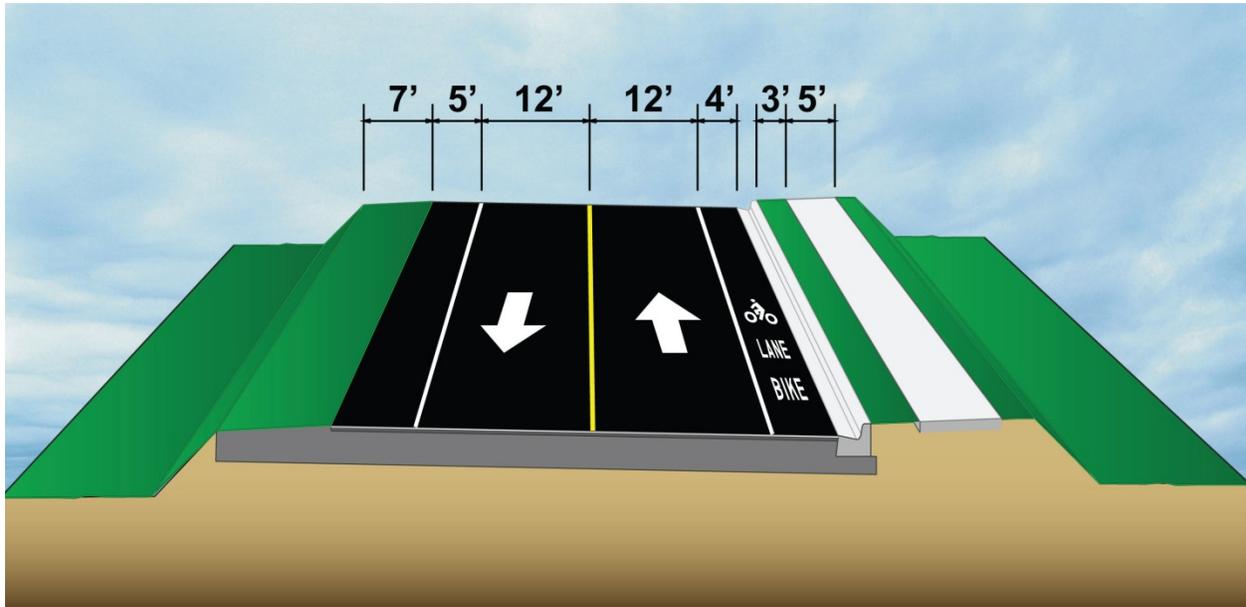
The No-Build Alternative was analyzed for the design year (2035). The No-Build Alternative does not include any additional road capacity improvements other than the road safety improvements and scheduled maintenance already funded to be constructed in Manatee County's CIP (Manatee County BOCC, 2012), or improvements provided by private non-government entities, such as developers. As previously stated, the No-Build Alternative will be considered throughout the entire EIS process as a comparative baseline for the build alternatives.

### 2.5.2 FORT HAMER ALTERNATIVE

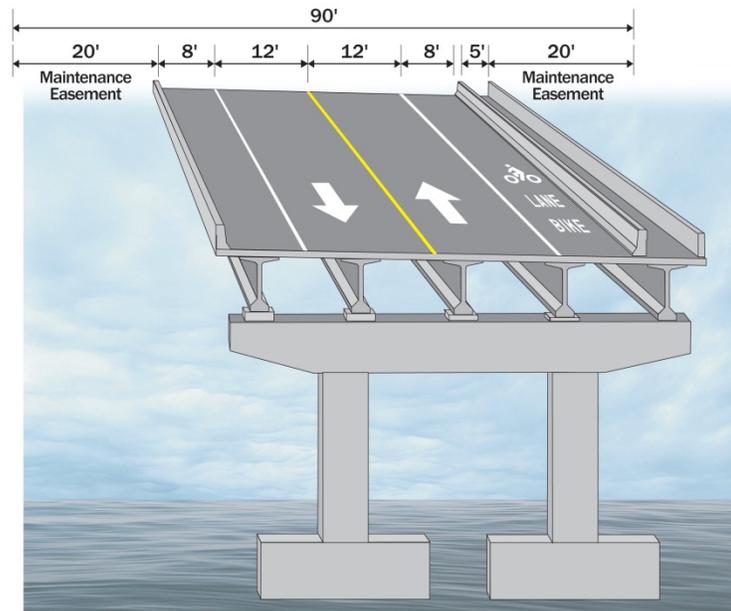
The Fort Hamer Alternative consists of a new two-lane bridge crossing the Manatee River connecting the existing two-lane Upper Manatee River Road with the existing two-lane Fort Hamer Road. The construction limits of this alternative extend from just north of the main entrance of the Waterlefe subdivision to the north side of the Manatee River, a total of approximately 1.4 miles. The length of the proposed bridge is approximately 2,570 feet. The study area for this alternative extends south to SR 64 and north to US 301 because of the increased traffic between these points that would result from this alternative. The proposed roadway and bridge typical sections for the Fort Hamer Alternative are shown in **Figure 2-3**.

FIGURE 2-3  
FORT HAMER ALTERNATIVE TYPICAL SECTIONS

ROADWAY TYPICAL SECTION



BRIDGE TYPICAL SECTION



As part of the previous FHWA/FDOT study, a vessel survey was conducted during the Memorial Day weekend 1999 to assess vessel type, size, and usage along this portion of the Manatee River. At the time it was determined that a vertical clearance (air draft) of 26 feet would accommodate all vessels in this portion of the Manatee River. These results were presented to the USCG and a vertical clearance of 26 feet was found acceptable.

Due to the length of time since that survey was conducted, a second vessel survey was conducted in spring 2011. All property owners with water access between Fort Hamer Road and Rye Road were identified using the Manatee County Property Appraisers Office database and mailed a questionnaire. Based on the response of that survey, three respondents noted they had vessels that exceeded 26 feet in height. A subsequent field review in December 2011 indicated that one of these vessels (a small sailboat) was sunk in place at the owner's dock. The second vessel consisted of a houseboat with a flagpole that exceeded 26 feet in height; however, it was noted that the houseboat required less than 26 feet vertical clearance if the flagpole was lowered. The third vessel was a sailboat with a permanently mounted mast exceeding 26 feet in height. The results of both vessel surveys are provided in Appendix A-2 of this FEIS.

Within the Fort Hamer Alternative, three bridge concept alternatives were evaluated:

- Bascule Concept
  - Single leaf bascule (moveable) bridge with a 10-foot vertical clearance
- Mid-Level Fixed Concept
  - Fixed span bridge with a 26-foot vertical clearance
- High-Level Fixed Concept
  - Fixed span bridge with a 40-foot vertical clearance

**Table 2-9** summarizes the estimated costs of each of these concepts based on the FDOT *Structures Manual* (FDOT, 2011a).

Based on the estimated total lifetime cost (construction, maintenance, and operations) of the Bascule Bridge Concept (\$106,142,880 - \$111,083,600) and the very low number of vessels needing unlimited vertical clearance, it was recommended the Bascule Bridge Concept for the Fort Hamer Alternative be eliminated for further consideration.

The bridge height is the basis for much of the controversy related to the Waterlefe subdivision immediately southwest of the proposed Fort Hamer Alternative crossing. The High-Level Fixed Bridge would increase the vertical clearance to 40 feet and be contradictory to the aesthetic and visual issues raised by that community. Additionally, because of the estimated total lifetime cost (construction, maintenance, and operations) of the High-Level Fixed Bridge Concept (\$14,906,580 - \$26,016,350) and the very low number of vessels needing a 40-foot vertical clearance, it was recommended the High-Level Fixed Bridge Concept for the Fort Hamer Alternative be eliminated for further consideration.

**TABLE 2-9**  
**BRIDGE CONCEPT ALTERNATIVES**  
**GENERALIZED COST COMPARISON**

Components	Bascule	Mid-Level Fixed	High-Level Fixed
Bridge Length (Fixed)	2,320 ft	2,570 ft	2,870 ft
Bridge Length (Bascule Span)	200 ft	0	0
Bridge Width	49 ft	49 ft	49 ft
Square Footage (Fixed Span)	113,680 sq ft	125,930 sq ft	140,630 sq ft
Square Footage (Bascule Span)	9,800 sq ft	0	0
Fixed Span Cost per square foot low range @ \$66 <sup>1</sup>	\$7,502,880	\$8,311,380	\$9,281,580
Fixed Span Cost per square foot high range @ \$145 <sup>1</sup>	\$16,483,600	\$18,259,850	\$20,391,350
Bascule Span Cost per square foot low range @ \$1,800 <sup>1</sup>	\$17,640,000	0	0
Bascule Span Cost per square foot high range @ \$2,000 <sup>1</sup>	\$19,600,000	0	0
Average annual maintenance costs <sup>2</sup>	\$1,000,000	\$75,000	\$75,000
Estimated life of bridge	75 years	75 years	75 years
Lifetime maintenance costs	\$75,000,000	\$5,625,000	\$5,625,000
<b>ESTIMATED TOTAL COSTS</b>	<b>\$106,142,880 - \$111,083,600</b>	<b>\$13,936,380 - \$23,884,850</b>	<b>\$14,906,580 - \$26,016,350</b>

<sup>1</sup> FDOT, 2011a.

<sup>2</sup> Includes the cost of bridge tender for Bascule Bridge Concept.

In conjunction with the Fort Hamer Alternative, Manatee County has recently constructed or funded for design and construction several projects that compliment and facilitate a new crossing at this location. **Table 2-10** provides a summary of these projects. It is important to note that all of these projects are independent of the Fort Hamer Alternative (i.e., they are being designed and constructed regardless if the Fort Hamer is implemented).

In addition to alternative designs, Manatee County considered alternative alignments for the Fort Hamer Bridge. The alignments differed in length, the angle the bridge crossed the river channel, the amount of existing ROW used, and cost. Manatee County chose the alignment that used additional curvature to improve the skew angle across the river. A conceptual plan view of the bridge, and bridge approaches is shown on **Figure 2-4**.

### **2.5.3 RYE ROAD ALTERNATIVE**

The Rye Road Alternative consists of a new two-lane bridge crossing the Manatee River parallel to the existing Rye Road Bridge. To accommodate the two new lanes over the river, this alternative also includes the expansion of Rye Road from two to four lanes from SR 64 north to Golf Course Road, Golf Course Road from two to four lanes from Rye Road to Fort Hamer Road, and Fort Hamer Road from two to four lanes from Golf Course Road to US 301, a total of approximately 10.2 miles. The proposed roadway and bridge typical sections for the Rye Road Alternative are shown in **Figure 2-5** and a conceptual plan view of the bridge and bridge approaches is shown on **Figure 2-6**.

**TABLE 2-10  
CURRENT CIP PROJECTS**

<b>Project Name</b>	<b>Description</b>	<b>Fiscal Year Funding Design Status</b>	<b>Fiscal Year Funding Construction Status</b>
Upper Manatee River Road from SR 64 to Fort Hamer Bridge	Roadway improvements to include widening, shoulder enhancement, and sidewalk. Intersection improvements to provide right- and left-turning lane movements.	2012/2013 \$200,000 Under design	2014 \$1,575,000 Upon completion of design/permits
Fort Hamer Road from US 301 to proposed Fort Hamer Bridge	Roadway improvements to include widening, shoulder enhancement, and sidewalk. Intersection improvements to provide right- and left-turning lane movements.	2012/2013 \$125,000 Under design	2014 \$975,000 Upon completion of design/permits
US 301 @ Fort Hamer Road Intersection	Intersection improvements to include realignment, signalization upgrades, and turn lanes in all directions.	2012 \$300,000 Design Complete	2013/2014 \$2,200,000 Bidding/Construction
Fort Hamer Road - Sidewalk	Sidewalk on west side of Mulholland Road to 30 <sup>th</sup> Street East to provide immediate, continuous sidewalk from Manatee River to Annie Lucy Williams Elementary School.	2012 Funding complete Design complete	2012/2013 \$145,000 Construction Complete
US 301 roadway improvement from Erie Road/Old Tampa Road to CR 675 (Rutland Road)	Add two lanes to the existing two-lane roadway resulting in a four-lane divided facility with 28 feet median/turning lanes with bike lanes on both sides and continuous sidewalk. Upgrade both potable water and wastewater system; signalization of Chin Road/US 301 intersection.	Completed FDOT Funded	Completed 2011 Joint FDOT & Manatee County Funded
US 301 roadway improvement from CR 675 to Moccasin Wallow Road	Roadway widening from two to four lanes resulting in a four-lane facility with median for turning movement with bike lane and sidewalk.	2011 – 2013 FDOT Funded Design Underway	2015 FDOT Funded

Source: Manatee County BOCC, 2012.

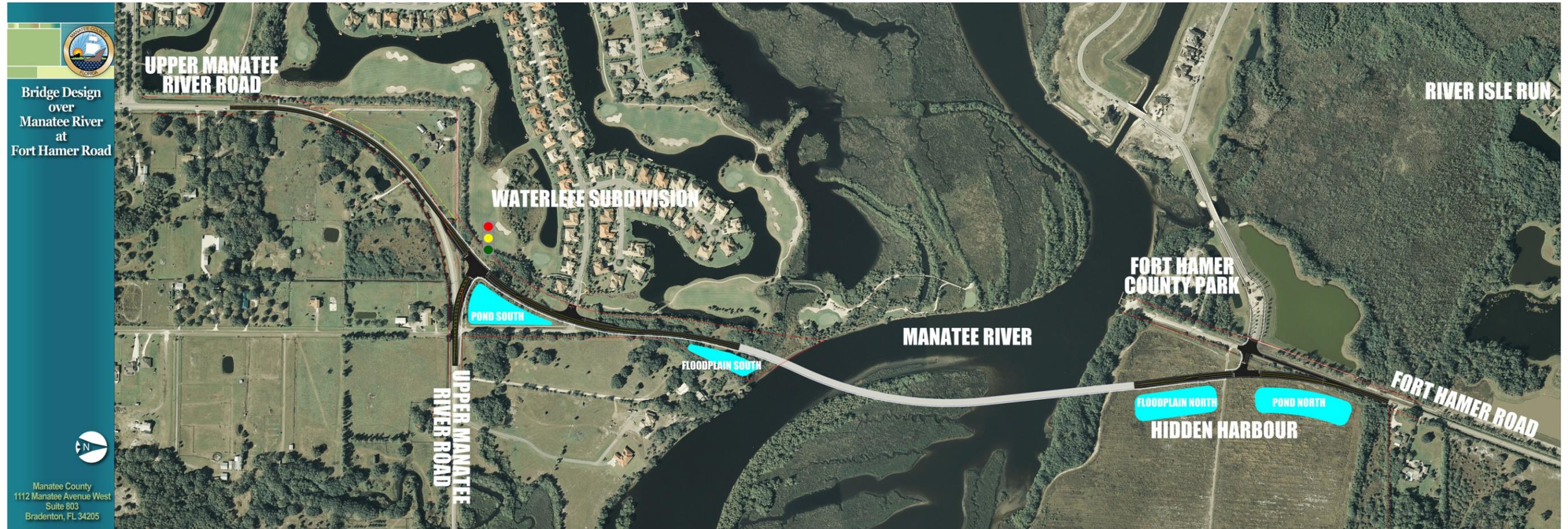
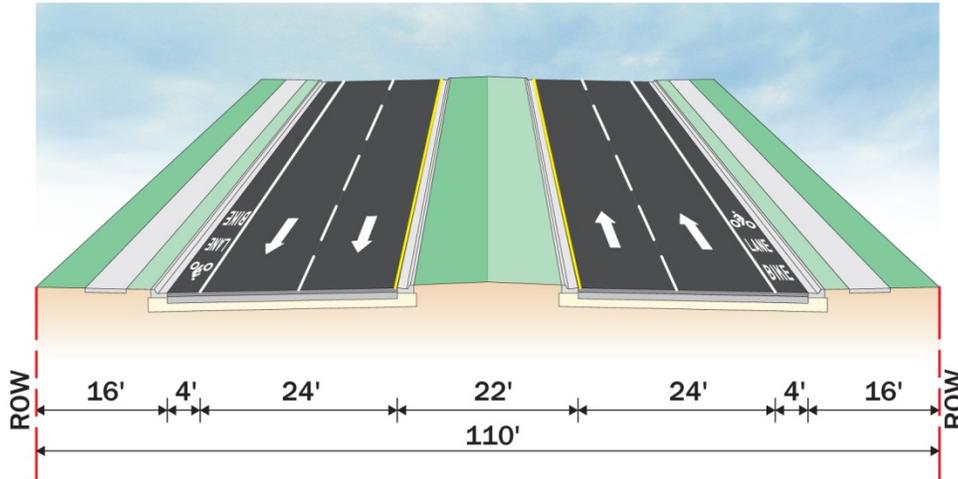


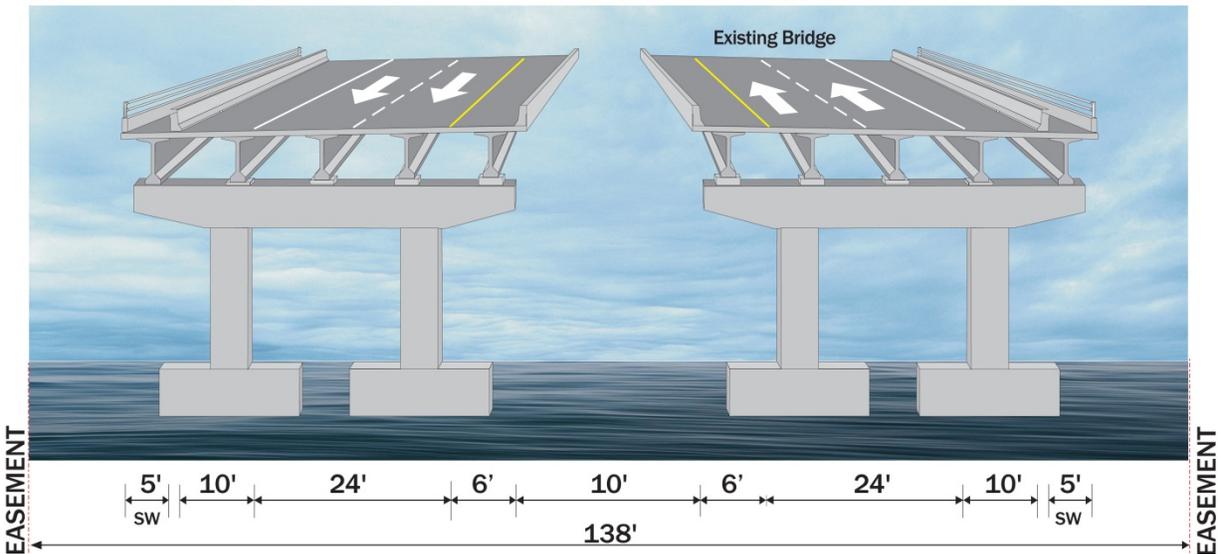
FIGURE 2-4  
FORT HAMER ALTERNATIVE  
CONCEPTUAL PLAN VIEW OF  
BRIDGE AND APPROACHES

**FIGURE 2-5  
RYE ROAD ALTERNATIVE TYPICAL SECTIONS**

**ROADWAY TYPICAL SECTION**

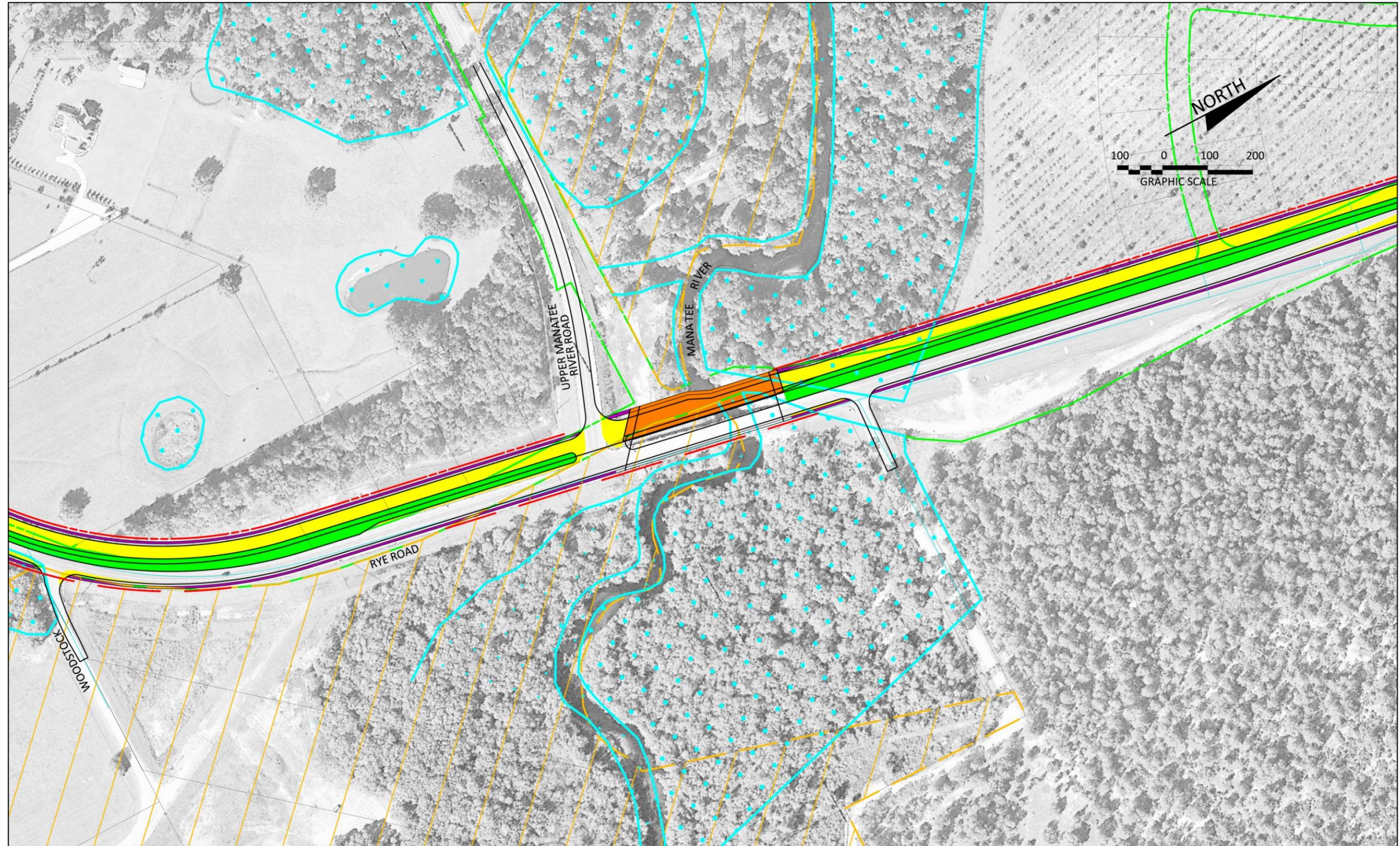


**BRIDGE TYPICAL SECTION**



The existing Rye Road Bridge has a vertical clearance of approximately 25 feet above the Manatee River. Since this portion of the river is navigable only by non-motorized vessels (e.g., canoes and kayaks) it is reasonable to assume that the additional two-lane bridge would be of similar structure and clearance as the existing bridge.

The estimated total lifetime cost (construction, maintenance, and operations) of the Rye Road Alternative is \$54,386,000 (FDOT, 2011a).



**FIGURE 2-6**  
**RYE ROAD ALTERNATIVE**  
**CONCEPTUAL PLAN VIEW OF**  
**BRIDGE AND APPROACHES**