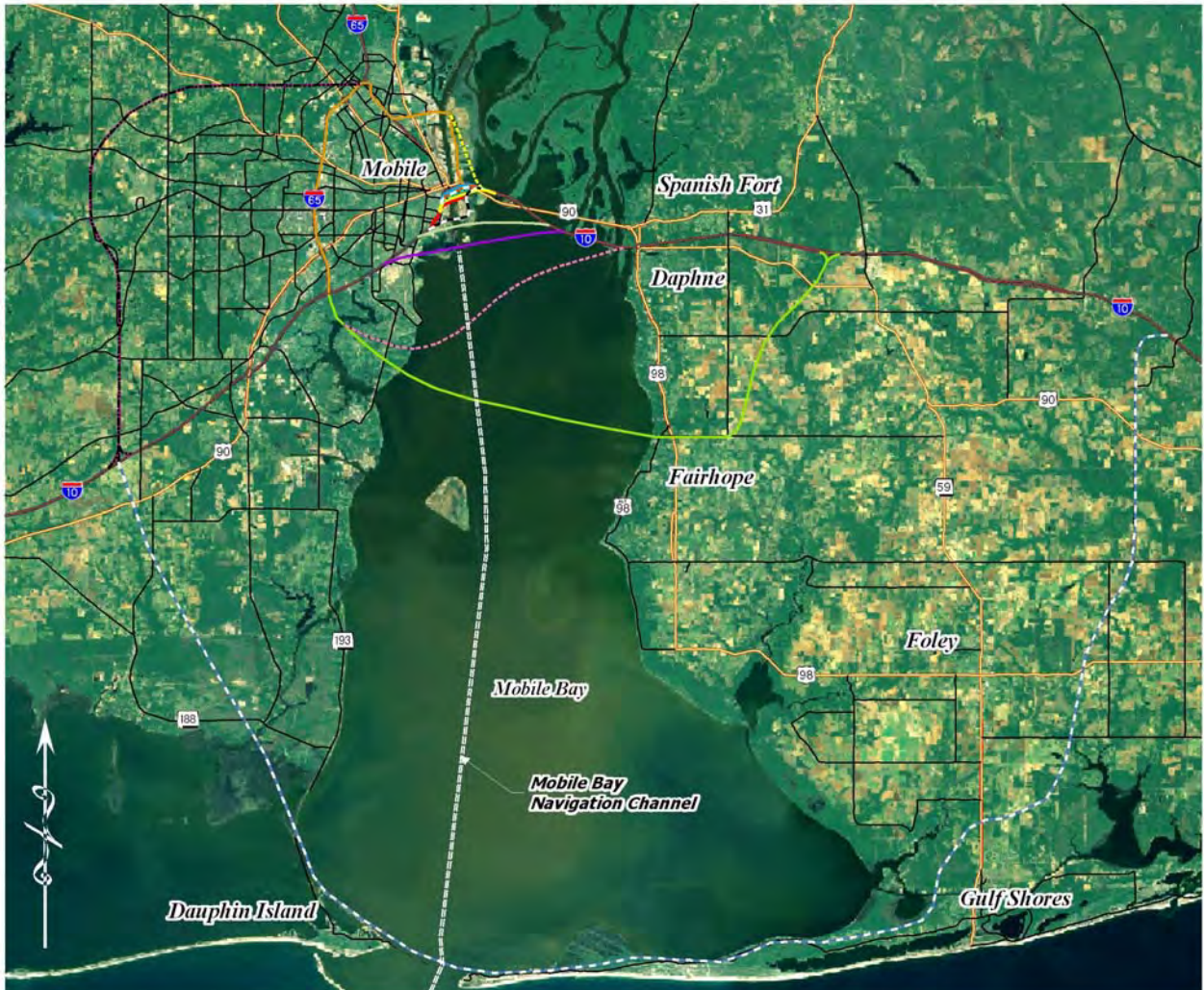


APPENDIX B:
ALTERNATIVES SCREENING
EVALUATION

**Alternatives Screening Evaluation
for the I-10 Mobile River Bridge and
Bayway Widening EIS
Mobile and Baldwin Counties, Alabama
Project DPI-0030(005)**

The following Alternative Screening Evaluation for the I-10 Mobile River Bridge and Bayway Widening EIS, Mobile and Baldwin Counties, Alabama dated August 2005, has been reviewed and determined to be in compliance with USDOT updated Environmental Justice Order 5610.2(a) dated May 2, 2012, and a FHWA Order 6640.23A FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations dated June 14, 2012. Environmental Justice is addressed in the evaluation on page 15 and in Table 5.

Alternatives Screening Evaluation
for the I-10 Mobile River Bridge and
Bayway Widening EIS
Mobile and Baldwin Counties, Alabama
Project DPI-0030(005)



August 2005
(FINAL)
Volume I

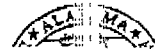




ALABAMA DEPARTMENT OF TRANSPORTATION

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Bob Riley
Governor

STATE

August 29, 2005

Mr. Joe D. Wilkerson
Division Administrator
Federal Highway Administration
500 East Boulevard, Suite 200
Montgomery, AL 36117-2018

Dear Mr. Wilkerson:

Re: DPI-0030(005)
I-10 Mobile River Bridge and
Bayway Widening
Mobile & Baldwin Counties

In accordance with the Final Phase I Screening Evaluation Report for the I-10 Mobile River Bridge project submitted on August 24, 2005 by David Volkert and Associates, the Department recommends carrying Alternatives 3, 9, and a combination of Alternatives 1 and 2 forward for detailed analysis in the Environmental Impact Study. These alternatives are depicted as Alternatives A, B, and C respectively on the attached Figure 8 of Appendix A from the report. Of the alternatives studied to date, these alternatives provide the most economical and least intrusive solutions to providing relief for the current and projected traffic through the Wallace Tunnel as well as providing a direct route for hazardous material transport through the City of Mobile along I-10. Please indicate your concurrence with this recommendation by signing in the space provided below and return the original to the Department for distribution.

Sincerely,

Don W. Vaughn
Chief Engineer

RECEIVED
DIVISION OF
HIGHWAY
CONSTRUCTION
MONTGOMERY, ALA
SEP 1 2005

Concur:

Joe D. Wilkerson
Division Administrator

Date:

9/6/05

DJM/WFA/WDH

cc: Mr. Don T. Arkle
Mr. Ronnie Poiroux
Ms. Alfredo Acoff

Volkert & Associates, Inc.
Location File

APPROVAL

Based upon the findings of the Final Alternatives Screening Evaluation Report for the I-10 Mobile River Bridge and Bayway Widening Environmental Impact Statement (EIS), Mobile and Baldwin Counties, Alabama, Project DPI-0030(005), the following alternatives are approved as reasonable alternatives to be studied in further detail for the Draft EIS:

Current Alternative Designation	New Alternative Designation
3	A
9	B
Combination of 1 and 2	C

Approved:

ALDOT

Date

FHWA

Date

Executive Summary

Fourteen (14) alternatives were identified for evaluation in the alternatives screening evaluation process. The screening process consisted of five steps which evaluated each alternative's ability to meet the purpose and need, technical/practical and feasible considerations, economic costs/savings, estimated construction costs, and an overall assessment of the alternatives' reasonableness. Other considerations, such as environmental resources, cultural resources, relocations, maritime interests, and environmental justice issues, were also incorporated into Step Five. In addition, a comparison of two sets of alternatives designated as alternatives utilizing a northern bridge route and alternatives in proximity to downtown Mobile is included. The 14 alternatives and the results of the screening process were presented to the public at public involvement meetings on June 6, 2005, in Mobile, and on June 7, 2005, in Spanish Fort, and public input was obtained. The South Alabama Regional Planning Commission (SARPC) conducted computer model runs of Alternatives 1, 2, 3, 5, 6, 9, and 11 utilizing their Mobile Area Transportation Study (MATS) TRANPLAN Model. The 2030 Average Daily Traffic (ADT) was projected for the alternatives. According to the model results, Alternatives 1, 2, 3, and 9 (downtown alternatives) would achieve the primary purpose and need of reducing congestion in the Wallace Tunnel. Alternatives 5, 6, and 11 (northern alternatives using the Cochrane-Africatown Bridge) would not divert sufficient traffic to alleviate congestion in the Wallace Tunnel and therefore would not meet the purpose and need.

Based upon the results of the alternatives screening evaluation process, the reasonable alternatives recommended to be addressed in detail in the EIS are Alternatives 3, 9, and a combination of Alternatives 1 and 2. This recommendation is contingent upon approval by ALDOT and FHWA.

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1.0 Screening Criteria

1.1 Background

The Federal Highway Administration (FHWA) issued a Notice of Intent (NOI) on October 20, 2003, to prepare an EIS on a proposal to increase the capacity of Interstate Route 10 (I-10) at Mobile, Alabama, by constructing a new six-lane bridge across the Mobile River, including its navigation channel, and widening the existing bridges (Bayway) across Mobile Bay from four to eight lanes. Alternatives noted in the NOI for evaluation included the No Build Alternative and the three alternatives that were considered in a 1997 Feasibility Study (**Figure 1, Appendix A**). Subsequent to issuance of the NOI, the following agency coordination and public involvement activities that brought forth additional alternatives for consideration were conducted:

- December 8, 2003: Section 106 Consulting Parties meeting
- December 8, 2003: Scoping Meeting with agencies and local officials
- December 9, 2003: Public Meeting.

Based upon input from these meetings and other sources, a total of fourteen (14) alternatives were identified for further consideration. A map depicting these 14 alternatives (**Figure 2, Appendix A**) was provided to Consulting Parties and agencies. **Figures 3, 4, and 4a (Appendix A)** present more details on Alternatives 1, 2, 3, 4, 7, 8, 9, and 14. The alternatives can generally be described as follows:

- Alternative 1: I-10 bridge crossing the Mobile River navigation channel 0.56 mile south of the Wallace Tunnel*
- Alternative 2: I-10 bridge crossing the Mobile River navigation channel 0.44 mile south of the Wallace Tunnel*
- Alternative 3: I-10 bridge crossing the Mobile River navigation channel 0.11 mile south of the Wallace Tunnel*
- Alternative 4: New tunnel under the Mobile River navigation channel 0.24 mile south of the Wallace Tunnel
- Alternative 5: Routes traffic from I-10 to I-65, I-165, Bay Bridge Road, and Cochrane Bridge parallel to U.S. 90 to I-10 Bayway
- Alternative 6: Routes traffic from I-10 to I-65, I-165, Bay Bridge Road, and Cochrane Bridge over Blakeley Island disposal areas to I-10 Bayway
- Alternative 7: I-10 at Michigan Avenue to I-10 bridge across Garrows Bend, south of the McDuffie Coal Terminal, then crossing the Mobile Bay navigation channel 2.44 miles south of the Wallace Tunnel via a new Bayway to the existing I-10 Bayway east of the Mid-Bay Interchange
- Alternative 8: I-10 at Broad Street to I-10 bridge crossing the Mobile Bay navigation channel 1.60 miles south of the Wallace Tunnel via a new Bayway to the existing I-10 Bayway east of the Mid-Bay Interchange.

* Alternative from the 1997 Feasibility Study

- Alternative 9: I-10 bridge crossing the Mobile River navigation channel 0.30 mile south of the Wallace Tunnel (south of the City of Mobile’s Mobile Landing)
- Alternative 10: I-10 12 miles west of I-65 to Dauphin Island and then via a bridge crossing the Mobile Outer Bar navigation channel to Fort Morgan to I-10 at Baldwin County Road 87
- Alternative 11: I-10 12 miles west of I-65 via proposed Mobile Western Loop to I-165, Bay Bridge Road, and the Cochrane Bridge to I-10 Bayway
- Alternative 12: I-65 south of Brookley Field across Mobile Bay to I-10 at the existing I-10/US 98 Interchange (I-10 bridge crossing the Mobile Bay navigation channel 5.93 miles south of the Wallace Tunnel)
- Alternative 13: I-65 across Mobile Bay to Fairhope to I-10 one mile west of Alabama State Highway 59 Interchange (I-10 bridge crossing the Mobile Bay navigation channel 8.30 miles south of the Wallace Tunnel)
- Alternative 14: I-10/Broad Street to I-10 bridge crossing the Mobile Bay navigation channel 1.27 miles south of the Wallace Tunnel to south end of Pinto Island north through Atlantic Marine to I-10 Bayway

1.2 NEPA Requirements

The National Environmental Policy Act (NEPA) guidance states that only reasonable alternatives need to be evaluated in an EIS. The 14 alternatives represent a “Range of Alternatives” that includes all reasonable alternatives which must be explored and objectively evaluated in an EIS, as well as other alternatives that can be eliminated from detailed study with a brief discussion of the reasons for elimination. Alternatives have to be based on something tangible and related to the purpose and need for the project. For an alternative to be reasonable, it must also be practical or feasible from technical and economic standpoints and make common sense. The whims and desires of participants should not be an issue.

1.3 Goal of the Screening Process

The goal of the screening process was to identify reasonable alternatives and eliminate unreasonable alternatives. The screening process will also be used to document the rationale for the elimination of alternatives determined not to represent reasonable alternatives.

1.4 Methodology

A five-step hierarchical approach was utilized to screen the alternatives for reasonableness. To help assure that all alternatives evaluated were afforded equitable treatment, each alternative was carried through the entire five-step process. The rationale for any determinations regarding the reasonableness of an alternative was documented. Tables used to document the results of each step are included in **Appendix B**.

The following summarizes the steps of the screening process.

Step 1: Does the alternative meet the purpose and need?

- Does it provide additional capacity to the Mobile-Baldwin County I-10 corridor?
- Does it accommodate vehicles transporting hazardous materials?
- Does it meet the purpose and need?

Step 2: Technical/Practical and Feasible Considerations of Alternatives

- Can the alternative meet interstate geometric requirements?
- Does the alternative create additional traffic on other routes outside of the I-10 corridor?
- Does the alternative shift traffic to other travel routes?
- Are there negative implications associated with traffic shifts?
- Does the alternative meet the test for technical/practical and feasible reasonableness?

Step 3: Economic Considerations of Alternatives

- How would the alternative increase or decrease the miles required to traverse the Mobile-Baldwin County I-10 corridor?
- What are the travel costs/savings associated with the alternative?
- What are the marginal costs/savings associated with the alternative?
- Are the increased costs practical and acceptable?

Step 4: Estimated Construction Cost of Alternatives

- What is the estimated construction cost of the alternative?
- Does the alternative represent an affordable and cost-efficient solution?

Step 5: Overall Assessment of Alternatives

The alternatives were further evaluated by considering the results from Steps 1-4 in an overall context. A comparison matrix was prepared and a determination made as to whether any alternatives could be eliminated for being not reasonable or essentially representing only a slight variation of another reasonable alternative. Consideration was given to whether the alternatives made common sense. The alternatives were also examined to determine if there were other factors, potential impacts, or concerns associated with the alternatives that should be considered in determining whether the alternatives made common sense or were not reasonable. Input from public involvement meetings will be considered prior to making a finding on the alternatives to be evaluated in detail in the EIS.

2.0 Results of Alternatives Screening Evaluation

2.1 Step One – Purpose and Need

The purpose and need of the project primarily consists of two components: 1) provides additional capacity for traffic utilizing I-10 between Canal Street in Mobile and the US 98/I-10 interchange in Daphne (reduces congestion); and 2) accommodates vehicles transporting hazardous materials, which are currently prohibited from using the Wallace Tunnel and must detour through the Mobile Central Business District.

Alternatives 1, 2, 3, 7, 8, 9, 12, and 14 met the criteria set forth in the purpose and need for the project. These alternatives would provide additional capacity for traffic using I-10 between Canal Street in Mobile and the US 98/I-10 interchange in Daphne and would accommodate vehicles transporting hazardous materials by taking them out of the Mobile Central Business District.

Alternative 4, a new tunnel, partially met the purpose and need by providing additional highway capacity for traffic using I-10 between Canal Street in Mobile and the US 98/I-10 interchange at Daphne. The alternative would not, however, meet the need to transport hazardous materials outside of the Mobile Central Business District because trucks transporting hazardous materials would be prohibited from using a new tunnel, as they are currently prohibited from using the existing Wallace Tunnel. Therefore, the vehicles would continue to use the detour through the Mobile Central Business District.

Alternatives 5 and 6 partially met the purpose and need by providing a means to transport hazardous materials outside of the Mobile Central Business District, but they would not add capacity to the I-10 corridor between Canal Street in Mobile and the US 98/I-10 interchange at Daphne. While these alternatives would not increase capacity for the I-10 corridor, they would reduce congestion as traffic utilized the route, as compared to the No Build alternative. These alternatives would divert traffic to I-65 and the Cochrane Bridge route rather than provide additional capacity to the I-10 corridor. The relative effectiveness of these alternatives in reducing congestion in the Wallace Tunnel is discussed under Step Five.

Alternative 10 did not directly meet the purpose and need of the project. The alternative would result in an increased travel distance of 24.3 miles when compared to the existing I-10 corridor, which would likely deter motorists from using this alternative unless congestion on I-10 was severe. The 24.3-mile travel distance is 13.8 miles longer than the 10.5-mile detour through the Mobile Central Business District. This alternative would reduce congestion to the extent that traffic would use this route in order to keep moving and/or save time. The alternative would not remove hazardous materials from the Mobile Central Business District because trucks would likely continue to travel through the Mobile Central Business District to save time and money. Finally, the alternative would require extensive new right-of-way and would not serve the area between Canal Street in Mobile and the US 98/I-10 interchange at Daphne.

Alternative 11 did not directly meet the purpose and need of the project. The alternative would create a new interstate route in West Mobile and would require extensive new right-of-way. It would result in an increased travel distance of 13.4 miles when

compared to the existing I-10 corridor, which would likely deter motorists from using this alternative unless congestion on I-10 was severe. The alternative would not serve the area between Canal Street in Mobile and the US 98/I-10 interchange at Daphne. This alternative would reduce congestion to the extent that traffic would use this route in order to keep moving and/or save time. The relative effectiveness of Alternative 11 in reducing congestion in the Wallace Tunnel is discussed in Step Five.

Alternative 13 did not directly meet the purpose and need of the project. It would require a new crossing of Mobile Bay on new location between I-10 and Fairhope. This alternative would create a new interstate route in Baldwin County, would require extensive new right-of-way, and would not serve traffic traveling between Canal Street in Mobile and US 98/I-10 interchange at Daphne. This alternative would reduce congestion to the extent that traffic would use this route in order to keep moving and/or save time.

2.2 Step Two – Technical/Practical and Feasible Considerations

For Step Two, the geometrics of all of the alternatives were analyzed to determine if they could meet criteria for an interstate highway. In order to be consistent, a design speed of 70 miles per hour was utilized for all of the alternatives. Design criteria for this project are included in **Appendix E**, and a more detailed explanation of the geometric analysis of each alternative is included in **Appendix F**. Due to the span length required to cross the navigation channel and the desired minimum vertical clearance of 190 feet, a two-pylon, cable-stayed bridge arrangement was used for all alternative bridge crossings of the navigation channel, except for Alternatives 5, 6, and 11. A minimum vertical clearance of 140 feet was used for the northern bridge alternatives (5, 6, and 11) since the vertical clearance of the Cochrane Bridge is 140 feet. The alternatives were also analyzed to determine if they would create additional traffic outside of the existing I-10 corridor. Travel routes on new location remote from the existing I-10 corridor would tend to generate new local traffic due to convenience and improved travel speeds. Finally, the alternatives were analyzed to determine if they would shift traffic to other travel routes. The combination of the findings regarding all three of these components resulted in a determination of whether the alternatives were practical and feasible from a technical perspective.

Alternatives 1, 2, 3, 8, 9, and 14 met the test for technical/practical and feasible reasonableness. These alternatives could be designed to meet the geometric requirements for an interstate highway, would not create additional traffic outside of the existing I-10 corridor, and would not shift traffic to other travel routes. For these reasons, Alternatives 1, 2, 3, 8, 9, and 14 were considered to be reasonable from a technical and practical standpoint.

A special evaluation of Alternative 4, the tunnel alternative, was conducted. While a tunnel is technically feasible, the existing restrictions such as the navigation channel clearances, existing infrastructure, and difficulties in tying the tunnel ramps into the existing I-10 ramps and roadways, led to the conclusion that creating a viable tunnel alternative would be highly problematic. Additionally, as discussed in Step One, a tunnel would not accommodate the transport of hazardous materials. Based upon experience with the existing Wallace Tunnel, operational and maintenance (O&M)

costs would also be expensive and continuous. The O&M costs for the Wallace Tunnel were \$1.9 million in 2003. The annual O&M costs for a larger (six-lane) tunnel would increase substantially due to increased air exchange requirements, increased lighting, greater repair and cleaning requirements, and other factors. After reviewing the geometrics and practical considerations of Alternative 4, it was determined that although the alternative could meet geometric standards for an interstate highway, the alternative is not practical due to the significant impacts to existing infrastructure and disruptions to traffic throughout the proposed area, as well as construction time required, impacts to navigation during construction, and special construction techniques that would be required. For these reasons, Alternative 4 was determined to be unreasonable from a technical and practical perspective.

Alternatives 5 and 6 did not meet the test for technical/practical and feasible reasonableness. These alternatives would shift traffic to I-65 which is already congested and is at capacity or rapidly approaching capacity. Consultation with the Metropolitan Planning Organization at the SARPC confirmed that the segment of I-65 between the Springhill Avenue and Airport Boulevard interchanges was either near or exceeding capacity. Preliminary traffic modeling studies by SARPC project the following ADT levels on selected segments of I-65 with a bridge in proximity of the Cochrane Bridge, or utilizing the Cochrane Bridge (northern bridge), along with projections without any bridge (No Build) and with a bridge built near downtown.

TABLE 1: PROJECTED 2030 ADT

I-65 Segment	Projected 2030 ADT (000)		
	With Northern Bridge (Alternatives 5 and 6)	No Build	Downtown Bridge (Alternatives 1,2,3,9)
North of I-10	110.3	98.0	92.3
North of Airport Boulevard	135.6	102.8	94.4
South of I-165	99.1	75.8	71.1

Source: South Alabama Regional Planning Commission, 2004

For comparative purposes, the existing (2003) ADT for I-65 is 93,840 north of Dauphin Street and 88,650 south of Dauphin Street. The analysis indicates that the downtown bridge alternatives not only alleviate congestion at the Wallace Tunnel but also reduce congestion on I-65 when compared to the No Build alternative. The Level of Service (LOS) for an ADT of 89,000 on I-65 is D. A LOS of D exhibits the following characteristics regarding traffic flow and congestion:

- Speeds begin to decline slightly with increasing flows
- Ability to maneuver is more noticeably limited
- Minor accidents create queuing because traffic stream has little space to absorb disruptions
- Driver's level of physical and psychological comfort is poor.

(Source: Transportation Research Board, Highway Capacity Manual, 2000)

Table 2 displays the actual annual average daily traffic (AADT) counts along the I-65 corridor obtained by the Alabama Department of Transportation in 2003:

TABLE 2: ACTUAL 2003 AADT ON I-65

I-65 Segment	2003 AADT
I-65 between I-10 and US 90	81,870
I-65 between US 90 and Airport Boulevard	81,470
I-65 between Airport Boulevard and Dauphin Street	88,650
I-65 between Dauphin Street and Springhill Avenue	93,840
I-65 between Springhill Avenue and US 98	80,730
I-65 between US 98 and US 45	69,890
I-65 between US 45 and I-165	65,470
I-65 between I-165 and Lee Street	62,880

Source: ALDOT Traffic Data, 2005

Existing (2003) AADT for I-165 ranges from approximately 20,340 to 32,060.

The model results indicate that a downtown bridge would actually reduce the level of traffic on the three segments of I-65 when compared to the No Build alternative. Considerable commercial development exists along the I-65 corridor in this area, and more is anticipated in the future. The congestion on I-65 in the area between US 90 and US 98 is projected to worsen as additional commercial development occurs. Transportation improvements on the section of I-65 between I-165 and I-10 will be required to reduce congestion even if traffic from I-10 is not diverted to I-65. Additional traffic diverted from I-10 would exacerbate congestion on I-65. An additional four (4) lanes, for a total of ten (10) lanes, would be required to accommodate the 2030 ADT levels projected for I-65 with a northern bridge. Two of the additional lanes would be required to accommodate I-65 traffic, and the other two lanes would be required to accommodate traffic diverted from I-10. The ten lanes would produce a LOS of D. The relatively short distances between interchanges along I-65 would aggravate traffic weaving problems that could become a safety issue. All of the interchanges along I-65 between I-165 and I-10 would have to be reconfigured.

Alternatives 5 and 6 would route traffic from the I-10 Bayway east of the Wallace Tunnel to the Cochrane Bridge and Bay Bridge Road, which are not currently designed to interstate standards. The modifications required to bring the bridge structure into compliance with interstate standards would include a substantial reconstruction/modification to the eastern end of the existing Cochrane Bridge. The existing bridge has a barrier down the centerline and two, 12-foot lanes with a ten-foot outside shoulder and a six-foot inside shoulder on both sides. The Cochrane Bridge was not designed as an interstate bridge and currently does not meet interstate design standards due to excessive radius of curvature and grade, especially on the eastern approach with a grade of 4.67 percent. The Cochrane Bridge is currently signed for a 45 mile per hour speed limit.

In addition, Alternatives 5 and 6 would require a new four-lane interstate structure over Bay Bridge Road to carry traffic from I-165 to the Cochrane Bridge. Finally, a new four-lane structure designed to interstate standards would be required to carry traffic from the Cochrane Bridge to the existing I-10 Bayway.

Alternative 7 did not meet the test for technical/practical and feasible reasonableness. The alternative would be aligned along the south side of the McDuffie Coal Terminal owned and operated by the Alabama State Port Authority. A 1,500-foot by 1,500-foot by 55-foot turning basin was authorized by the Water Resource Development Act of 1986 as a component of the Mobile Harbor Project. The turning basin would be located on the east side of the navigation channel (**Figure 3, Appendix A**). In order to provide adequate horizontal and vertical clearance of the navigation channel and the turning basin, a cable-stayed bridge with a 2,350-foot horizontal clearance and a 190-foot minimum vertical clearance would be required. The main span length of the bridge would be almost twice the maximum span of other alternatives being evaluated. A bridge of this magnitude would represent a major engineering challenge and would be very expensive. A shift in the bridge location to the south to avoid the authorized turning basin would require spanning an authorized 4,000-foot by 750-foot by 55-foot anchorage area that would require a horizontal clearance of 1,600 feet. A bridge with a span of this length would also have excessive costs. Any shift further to the south would impact the Brookley Airport. The excessive and complex technical requirements of the bridge structure and its associated costs made Alternative 7 unreasonable from both technical and economic standpoints.

Alternative 10 would involve the construction of approximately 72 miles of new interstate in Mobile and Baldwin Counties. New bridges would be required across the Mississippi Sound and Intracoastal Waterway in Mobile County to Dauphin Island, and a high-level bridge across the Mobile Harbor Entrance Channel from Dauphin Island to the Fort Morgan Peninsula in Baldwin County would be necessary. Extensive new right-of-way would be required. Bridge crossings would be required for numerous streams and grade separations at railroad crossings, and approximately ten (10) new interchanges would be required to accommodate the existing road networks. While this alternative could be designed to meet interstate standards, it would essentially generate its own traffic from Mobile and Baldwin Counties rather than alleviate congestion on the existing I-10 corridor. For these reasons, Alternative 10 does not appear reasonable from a technical and practical standpoint.

Alternative 11 would utilize either Alternative 5 or 6 to traverse the distance between the I-10 Bayway and the I-165/I-65 interchange. Therefore, the technical design issues discussed previously regarding the I-10 connectors to the Cochrane Bridge, the Cochrane Bridge constraints, and the required new interstate along Bay Bridge Road would also apply to Alternative 11. While Alternatives 5 and 6 would require improvements to I-65, Alternative 11 would create a new interstate through Mobile County from I-165 to I-10 approximately 12 miles west of the existing I-65/I-10 interchange. The proposed route would approximate the route of a previously considered Mobile Western Loop. The ALDOT conducted public involvement regarding a Mobile Western Loop in April 2002 and January 2003. Considerable opposition from various public constituencies was expressed, and ALDOT discontinued planning for the Mobile Western Loop. A variation of the Mobile Western Loop is included in the Mobile Area Metropolitan Planning Organization's 25-year (2030) transportation plan.

Alternative 11 would generate local traffic in Mobile County and would provide an optional route for traffic movements between I-10 and I-65. It would also improve access to the Mobile Regional Airport. From a technical standpoint, Alternative 11 could be constructed. Extensive new right-of-way (29.3 miles) would be required, and numerous design challenges involving existing road networks, neighborhoods, and other infrastructure conflicts would occur. Alternative 11 would provide additional transportation options but is not reasonable as an alternative to reduce congestion on the I-10 corridor. Additional discussion is included under Step 5.

Alternative 12 did not meet the test for technical/practical and feasible reasonableness. The alternative would create additional traffic around the Brookley Airport complex and surrounding areas. It would have adverse impacts on the approach to Brookley's NW-SE runway. The proposed bridge would be located approximately 1.3 miles southeast of the NW-SE runway at Brookley Airport. According to Federal Aviation Authority (FAA) criteria, the maximum height of a structure in the runway approach at this distance is approximately 120 feet. Obviously, a bridge with a 190-foot vertical clearance and pylons that would rise to a height of 490 feet would not meet the FAA criteria for objects affecting navigable airspace. Therefore, applicable permits from the FAA could not be obtained. Alternative 12 would also require a new crossing of Mobile Bay, a new bridge over Dog River, and new right-of-way in Mobile County. For these reasons, especially lack of conformance with FAA criteria, Alternative 12 appears to be unreasonable from a technical and practical perspective.

Alternative 13 would require a new bridge over Dog River, a high-level bridge over the Mobile Bay Navigation Channel, and construction of a new bayway across Mobile Bay. A total of 14.9 miles of new land surface right-of-way would be required. New interstate would be constructed in Mobile and Baldwin Counties. The new interstate segments in Mobile and Baldwin Counties would require new interchanges, grade separation of railroads and local road crossings, and measures to accommodate existing neighborhoods and other infrastructure conflicts. The new interstate segments would generate their own local traffic that would utilize the new transportation route. The proposed high-level bridge would be located approximately 4.5 miles southeast of the NW-SE runway at Brookley Airport. The high-level bridge for Alternative 13 appears to marginally comply with FAA criteria for objects affecting navigable airspace. More detailed studies would be required to confirm the implications to the Brookley Airport NW-SE runway approach. Alternative 13 does not appear to be reasonable from technical and economic standpoints as an alternative to relieve congestion in the I-10 corridor.

2.3 Step Three – Economic Considerations

As part of Step Three, the difference in the travel distance between the proposed alternative and the existing I-10 corridor was calculated. Additional miles traveled represent a cost to the motorists while fewer miles would produce a cost savings compared to the existing facility. This difference in travel distance was multiplied by a travel cost of \$0.405 per mile for 365 days to determine the annual travel costs/savings. The distance was also multiplied by a factor based on a FHWA study to determine the marginal costs/savings for each alternative (**Appendix C**). Marginal costs for pavement (maintenance and repairs), congestion (delays), and crash (accidents) were selected to

represent economic considerations that would accrue as either costs or savings. Marginal costs represent an economic cost to governmental entities and the public-at-large. The travel costs/savings and the marginal costs/savings were combined to determine the total economic costs/savings for the respective alternatives. The results are presented in **Table 3** below.

TABLE 3: POTENTIAL ECONOMIC COSTS/SAVINGS

Alternative	Additional Miles Traveled increase/(decrease)*	Annual Cost in \$million for each 10,000 ADT			Annual Cost in \$million for 30,000 ADT**
		Travel Cost	Marginal Cost	Total Cost/(Savings)	Total Cost/(Savings)
1 I-10 bridge south of Wallace Tunnel across portions of Bender and Atlantic Marine	(0.44)	(0.65)	(0.20)	(0.85)	(2.55)
2 I-10 bridge south of Wallace Tunnel, over Metro County Jail	(0.47)	(0.70)	(0.21)	(0.91)	(2.73)
3 I-10 bridge south of Wallace Tunnel over Mobile Landing across Harrison Brothers	(0.18)	(0.27)	(0.08)	(0.35)	(1.05)
4 New tunnel 0.25 mile south of Wallace Tunnel	(0.28)	(0.41)	(0.13)	(0.54)	(1.62)
5 I-10 Bayway to Cochrane Bridge route (parallel to US 90) to I-165 to I-65 to I-10	9.13	13.51	4.11	17.62	52.86
6 I-10 Bayway to Cochrane Bridge route over Blakeley Island to I-165 to I-65 to I-10	8.63	12.77	3.88	16.65	49.95
7 I-10 bridge south of McDuffie Coal Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange	(2.01)	(2.97)	(0.90)	(3.87)	(11.61)
8 I-10 bridge north of proposed Choctaw Point Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange	(1.75)	(2.59)	(0.79)	(3.38)	(10.14)

Alternative	Additional Miles Traveled increase/(decrease)*	Annual Cost in \$million for each 10,000 ADT			Annual Cost in \$million for 30,000 ADT**
		Travel Cost	Marginal Cost	Total Cost/(Savings)	Total Cost/(Savings)
9 I-10 bridge south of Mobile Landing	(0.39)	(0.58)	(0.18)	(0.76)	(2.28)
10 I-65 to Dauphin Island to Fort Morgan through Baldwin County to I-10	24.28	35.93	10.93	46.86	140.58
11 I-10 to Cochrane Bridge route to I-165 to proposed Mobile Western Loop	13.41	19.85	6.03	25.88	77.64
12 I-65 to I-10 bridge south of Brookley Field across Mobile Bay to I-10 west of I-10/ US 98 interchange	0.51	0.75	0.23	0.98	2.94
13 I-10/I-65 interchange across Dog River, to I-10 bridge to new bayway to Baldwin County to I-10	3.41	5.05	1.53	6.58	19.74
14 I-10 bridge from Broad Street to Pinto Island north through Atlantic Marine to I-10 Bayway	(0.15)	(0.22)	(0.07)	(0.29)	(0.87)

* The increase/decrease in miles traveled was calculated as the distance between the proposed alternative and the existing I-10 corridor.

** 30,000 ADT represents approximately 50 percent of the 2004 ADT for the Wallace Tunnel

The results of Step Three indicated that Alternatives 1, 2, 3, 4, 7, 8, 9, and 14 would result in economic cost savings. Alternatives 5, 6, 10, 11, 12, and 13 would produce economic costs ranging from approximately one to 47 million dollars per year per 10,000 ADT. The economic costs would increase as traffic utilizing these alternatives increased.

The potential economic costs/savings are directly related to the amount of traffic that would utilize the alternative. For example, if Alternative 11 carried a level of traffic equivalent to 30,000 ADT (approximately 50 percent of the 2004 ADT for the Wallace Tunnel), the annual economic cost associated with the additional travel distance, when compared to the existing I-10 corridor, would be \$77.64 million. In contrast, the potential annual economic cost savings for Alternative 9 for the same ADT would be \$2.28 million because Alternative 9 has a shorter travel distance than the existing I-10 corridor. For comparison purposes, the relative economic efficiency between Alternative 9 and Alternative 11 can be expressed as \$79.92 million per year per 30,000

ADT. This value consists of an economic savings of \$2.28 million per year per 30,000 ADT for Alternative 9 (which would be 0.39 miles shorter than the existing I-10 route) added to an economic cost of \$77.64 million per year per 30,000 ADT for Alternative 11 (which would be 13.41 miles longer than the existing I-10 route). This comparison is presented to illustrate how economic costs and savings can be considered in assessing the relative merits of alternatives being evaluated. The relative economic efficiency of alternatives is just one factor in evaluating or comparing alternatives. It should be recognized that these economic costs are not costs associated with construction or right-of-way acquisition. They represent direct costs to the travelers and marginal costs to governmental entities and the public-at-large every year.

2.4 Step Four – Estimated Total Construction Costs

Preliminary estimated total construction costs were developed for all of the alternatives. The preliminary construction cost estimates were developed based on costs of the following items, as applicable: widening of the I-10 roadway; approach structures to the Mobile River Bridge; main span structure of the Mobile River Bridge; widening of the I-10 Bayway; right-of-way; new interstate construction; interchange modifications; I-65 widening; pier protection; new interchanges; and other features associated with the various alternatives. The estimated construction cost for a new tunnel was based upon updated costs of constructing the Wallace Tunnel with appropriate consideration for the increased size (six lanes) and other costs associated with connecting to the existing I-10 corridor. The cost estimates for new bayway construction are based upon segmented barge/end-on construction methodologies to avoid the need for dredging and disposal of material for a construction canal. More detailed information on the cost estimates is contained in **Appendix F**.

Table 4 summarizes the preliminary construction cost estimates for all alternatives. The preliminary construction costs for the alternatives ranged from a low of \$603 million for Alternative 1 to a high of \$2.9 billion for Alternative 10. The cost for the alternatives that are in the closest proximity to downtown Mobile, Alternatives 1, 2, 3, and 9, ranged from \$603 million to \$660 million. The cost for alternatives that would traverse a more northern route, utilizing a modified Cochrane Bridge, ranged from \$972 million for Alternative 6 to \$1.1 billion for Alternative 11, or almost twice the cost of Alternative 1.

Based on the preliminary cost estimates, Alternatives 1, 3, and 9 represented the most affordable and cost-efficient solutions for the proposed project. This conclusion is based strictly on construction costs. Other alternatives could be considered to represent affordable and cost-efficient solutions if, for example, they met the purpose and need and produced other beneficial attributes or avoided/minimized undesirable or unacceptable environmental, social, or economic effects.

TABLE 4: PRELIMINARY CONSTRUCTION COST ESTIMATES

Cost Description	Alternatives													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Bridge Length (ft)	48,458	45,501	49,936	44,769	65,808	65,641	54,960	48,794	48,722	162,574	65,808	49,940	55,220	54,692
Roadway Length (mile)	1.1	1.1	1.1	1.1	10.0	10.0	2.4	1.1	1.1	40.8	29.3	3.4	15.5	1.1
Total Project Length (mile)	10.2	9.7	10.5	9.5	22.5	22.4	12.8	10.3	10.3	71.6	41.8	12.9	26.0	11.4
Grade and Drain (\$M)	0.50	0.50	0.50	0.50	8.48	8.48	1.29	0.65	0.50	24.9	17.9	2.08	9.47	0.50
Base & Pavement (\$M)	1.5	1.5	1.5	1.5	22.7	22.7	4.2	1.5	1.5	85.7	61.5	7.1	32.6	1.5
New Bridge (\$M)	137.2	143.2	146.8		151.4	156.0	792.3	501.3	153.6	1,681.8	162.5	656.2	678.0	207.8
Bridge Widening (\$M)	237.1	218.4	246.5	240.8	246.8	240.1	114.5	114.5	238.8		240.1			237.1
Remove Old Bridge (\$M)					1.4	1.4					1.4			
Curb & Gutter (\$M)					2.4	2.4								
Storm Drainage (\$M)					6.7	6.7								
Other/Interchanges (\$M)	24	24	30	832	165	165	18	18	24	102	140	50	50	30
Sub-Total (\$M)	400	388	425	1,075	605	603	930	636	418	1,894	623	715	770	477
Contingencies (20%)((\$M)	80	78	85	215	121	121	186	127	84	379	125	143	154	95
Overhead Costs (20%): Engineering Controls (2%); Mobilization (5%); E&I (13%) (\$M)	80	78	85	215	121	121	186	127	84	379	125	143	154	95
Construction Cost (\$M)	560	544	595	1,505	847	845	1,302	890	586	2,652	873	1,001	1,078	667
Right-of-Way (\$M)	43	116	22	45	126	127	105	83	34	274	276	48	219	93
Total Cost (\$M)	603	660	617	1,550	973	972	1,407	973	620	2,926	1,149	1,049	1,297	760

Brief description of alternatives:

1 – I-10 bridge south of Wallace Tunnel across portions of Bender and Atlantic Marine	8 – I-10 bridge north of proposed Choctaw Point Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange
2 – I-10 bridge south of Wallace Tunnel, over Metro County Jail	9 – I-10 bridge south of Mobile Landing
3 – I-10 bridge south of Wallace Tunnel over Mobile Landing across Harrison Brothers	10 – I-65 to Dauphin Island to Fort Morgan through Baldwin County to I-10
4 – New tunnel 0.24 mile south of Wallace Tunnel	11 – I-10 to Cochrane Bridge route to I-165 to proposed Mobile Western Loop
5 – I-10 Bayway to Cochrane Bridge route (parallel to US 90) to I-165 to I-65 to I-10	12 – I-65 to I-10 bridge south of Brookley Field across Mobile Bay to I-10 west of I-10/US 98 interchange
6 – I-10 Bayway to Cochrane Bridge route over Blakeley Island to I-165 to I-65 to I-10	13 – I-10/I-65 interchange across Dog River, to I-10 bridge to new bayway to Baldwin County to I-10
7 – I-10 bridge south of McDuffie Coal Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange	14 – I-10 bridge from Broad Street to Pinto Island north through Atlantic Marine to I-10 Bayway

2.5 Step Five – Overall Assessment of Remaining Alternatives

The final step of the alternatives screening process was an overall assessment of the alternatives evaluated in Steps One through Four. As part of Step Five, the alternatives were also analyzed to determine whether they could be combined to create an alternative and whether they were considered to be reasonable. It is recognized that factors other than those addressed in the screening process could influence the reasonableness of alternatives. In order to capture and afford an opportunity to consider some of these other factors, each of the fourteen alternatives was analyzed for a selected list of considerations. The analysis utilized known information from previous studies, where available, and incorporated observations and knowledge of the area, along with professional judgment, when detailed information was not available. A relative degree of impact or concern, on a scale from negligible to major, was assigned so a comparison could be made regarding each of the considerations for each alternative. The primary purpose of the additional considerations was to assist in determining the reasonableness of the alternatives. The results of the additional considerations analysis are presented in **Table 5**. The following is a brief description of how each of the considerations was evaluated.

Wetlands: Wetlands refer to jurisdictional wetlands under Section 404 of the Clean Water Act. Wetlands include coastal and inland wetland communities.

Essential Fish Habitat (EFH): EFH refers to resources that support fisheries that are Federally-managed under the Magnuson-Stevens Fishery Conservation Management Act. EFH generally includes coastal wetlands, submerged aquatic vegetation, water columns, and water bottoms.

Submerged Aquatic Vegetation (SAV): SAV, also called sea grasses, are an important component of the aquatic ecosystem and EFH. Potential impacts to SAVs were estimated based upon recent SAV mapping in Mobile Bay by the Mobile Bay National Estuary Program.

Protected Species: Protected species refer to threatened and endangered species listed under the Endangered Species Act. Principal species with potential for impacts include the gopher tortoise in Mobile County and the Alabama Red-Bellied Turtle in the coastal area.

Potential Hazardous Materials Sites: These sites include known and potential sites of contamination from spills, industrial sites, leaking underground storage tanks, and other sources.

Historic Standing Structures, Districts, and National Historic Landmarks (NHLs): These resources refer to cultural resources listed or potentially eligible for listing on the National Register of Historic Places (NRHP) and NHLs. Portions of the project area have been surveyed as part of previous studies while other areas have not. The age of known structures in unsurveyed areas was used to approximate the possibility of potentially eligible NRHP sites. Both potential direct and indirect impacts were considered. A letter from the Alabama

Historical Commission, dated June 9, 2005, providing views on potential impacts to cultural resources is included in **Appendix D**.

Battleship Park: The battleship *USS Alabama* and the submarine *USS Drum* are both National Historic Landmarks. In addition, the USS Alabama Battleship Memorial Park is an important tourist attraction. Impacts related to ease of access and visual considerations could accrue to this resource.

Archaeological Resources: These cultural resources include potential upland and underwater resources. Upland areas of new right-of-way, especially undisturbed areas, generally have the highest potential for archaeological resources. Potential underwater resources include shipwrecks and Civil War fortifications.

Residential Relocations: Developed areas requiring new right-of-way have the greatest potential for residential relocations. Maps and aerial photographs were utilized to estimate residential relocations.

Commercial/Non-Profit Organizations (NPO) Relocations: Aerial photographs and known facilities were utilized to determine potential relocations in this category.

Disposal Areas: Known USACE, ASPA, and other USACE-approved confined disposal facilities (CDFs) were evaluated. The CDFs are used for disposal of dredge material for both new work and maintenance for the Federal navigation channels and associated harbor facilities. The CDFs are generally managed to restore capacity for future disposal activities.

Maritime Interests: Both shorelines of the Mobile Harbor contain maritime facilities, including shipping, shipbuilding and repair, and other port activities, such as cruise ships. This category is included separately from the commercial relocations described above because of the potential implications to these specialized enterprises. Impacts could accrue from both direct effects on the facilities from right-of-way and construction and from vessel air draft restrictions associated with bridge vertical clearances.

Environmental Justice (EJ): EJ concerns generally refer to disproportional impacts to minority or low-income populations in environmental decision-making. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," provides authority and guidance on EJ concerns.

Other: This category is available for relevant considerations not listed above.

TABLE 5: ADDITIONAL CONSIDERATIONS

Consideration	Alt. 1 I-10 bridge south of Wallace Tunnel across portions of Bender and Atlantic Marine	Alt. 2 I-10 bridge south of Wallace Tunnel, over Metro County Jail	Alt. 3 I-10 bridge south of Wallace Tunnel over Mobile Landing across Harrison Brothers	Alt. 4 New tunnel 0.24 mile south of Wallace Tunnel	Alt. 5 I-10 Bayway to Cochrane Bridge route (parallel to US 90) to I-165 to I-65 to I-10	Alt. 6 I-10 Bayway to Cochrane Bridge route over Blakeley Island to I-165 to I-65 to I-10	Alt. 7 I-10 bridge south of McDuffie Coal Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange	Alt. 8 I-10 bridge north of proposed Choctaw Point Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange	Alt. 9 I-10 bridge south of Mobile Landing	Alt. 10 I-65 to Dauphin Island to Fort Morgan through Baldwin County to I-10	Alt. 11 I-10 to Cochrane Bridge route to I-165 to proposed Mobile Western Loop	Alt. 12 I-65 to I-10 bridge south of Brookley Field across Mobile Bay to I-10 west of I-10/ US 98 interchange	Alt. 13 I-10/I-65 interchange across Dog River, to I-10 bridge to new bayway to Baldwin County to I-10	Alt. 14 I-10 bridge from Broad Street to Pinto Island north through Atlantic Marine to I-10 Bayway
Wetlands	++ (a)	++ (a)	+	+	++	+++ (b)	++	++	+	+++	+++ (b)(c)	+++ (d)	+++ (d)	++ (a)
Essential Fish Habitat (includes water bottoms)	++ (a)	++ (a)	+	+	++	++	+++	+++	+	+++	++	+++	+++	++ (a)
Submerged Aquatic Vegetation	+	+	+	+	+	++	+++	+++	+	+++	++	+++	+++	+
Protected Species	+	+	+	+	+	+	+	+	+	+++ (e)	+++ (f)	+	+	+
Potential Hazardous Materials Sites	++	++	+	+++ (g)	+++	+++	+++	+++	++	+	+++	+	+	+++
Historic Standing Structures, Historic Districts, and National Historic Landmarks	+++	+++	+++ (h)	+++ (g)	++	++	+	+	+++	+++ (i)	++	+	++	+
Battleship Park (v)	++ (w)	++ (w)	++ (w)	++ (w)	+(w)	+(w)	+++ (x)	+++ (x)	++ (w)	+++ (x)	+(w)	+++ (x)	+++ (x)	++ (w)
Archaeological Resources	+	+	0 (j)	+++ (g)	+	+	++ (k)	++ (k)	+	+++ (i)	++	++ (k)	++ (k)	++
Residential Relocations	+	+	0	++	+++ (l)	+++ (l)	+	+	+	+++	+++ (l) (m)	+++ (d)	+++ (d)	+
Commercial/NPO Relocations	+++	+++ (n)	+	+++	+++ (o)	+++ (o)	+++	+++	+++	+++	+++	+++	+++	+++
Disposal Areas	0	+++ (p)	0	0	+++ (b)	+++ (b)	+++ (u)	+++ (q)	0	0	+++ (b)	0	0	++ (q)
Maritime Interests	+++	+++	++	++ (r)	0	0	+++	+++	++	+	0	+++	+++	+++
Environmental Justice	+	+	+	++	+++	+++	+++	+	+	++	+++	++	++	+
Other												(s)	(t)	

+++ Major Known or Potential Degree of Impact or Concern
 ++ Moderate Known or Potential Degree of Impact or Concern
 + Minor Known or Potential Degree of Impact or Concern
 0 Negligible Known or Potential Degree of Impact or Concern

(a) Pinto Pass, tidal marsh
 (b) Blakely Island
 (c) Wetland impacts in watersheds in West Mobile
 (d) Dog River
 (e) Coastal species, wildlife refuges
 (f) Gopher tortoise
 (g) Large excavation area

(h) Has no direct impacts on historic structures/resources, but there is concern about indirect impacts
 (i) Fort Morgan/Fort Gaines
 (j) Based on previous studies
 (k) Potential for underwater archaeological resources
 (l) Prichard
 (m) West Mobile

(n) Metro County Jail
 (o) I-65
 (p) Pinto Island
 (q) Atlantic Marine Disposal Area
 (r) Navigation impacts during construction
 (s) Violates FAA criteria for approach to Brookley NW-SE runway
 (t) Appears to marginally meet FAA criteria for approach to Brookley NW-SE runway

(u) ASPA McDuffie Island disposal area
 (v) None of the 14 alternatives would have direct impacts on Battleship Park
 (w) Would not improve access to Battleship Park
 (x) Would bypass Battleship Park

2.5.1 Other Considerations

It is recognized that controversy exists from certain interests in the City of Mobile regarding a bridge that would be located in or near downtown Mobile. Opposition and concern has been expressed during ALDOT public involvement activities held from 2000 to 2003. Also, the Mobile City Council conducted a “Public Hearing” on January 13, 2004, and the preponderance of the presenters expressed opposition and concern regarding a proposed bridge in or near downtown Mobile. Both opposition and support were also expressed regarding a downtown bridge during the public involvement activities conducted on June 6 and 7, 2005.

By letter dated November 29, 2004, to ALDOT, a group of local elected officials, including Mobile Mayor Michael Dow, and others interested in the location of a proposed high-rise I-10 bridge over the Mobile River submitted some of their concerns and advocated a bridge location in the area of the existing Cochrane Bridge (northern bridge). There have been meetings with Mayor Dow and others, as well as an exchange of correspondence between Mayor Dow and ALDOT. There have also been meetings with representatives of the Mobile Area Chamber of Commerce (MACC). By letter dated July 22, 2005, the MACC enumerated four criteria to be evaluated in determining the optimum location for a bridge. Copies of the letters discussed above are included in **Appendix D**.

It is recognized that a northern bridge would avoid or minimize implications to maritime industries, including cruise ship activities. Direct impacts to maritime facilities, as well as constraints that would be imposed by bridge height restrictions would generally be avoided. These types of considerations were captured under the Maritime Interests considerations in **Table 5**, as all three northern bridge alternatives (Alternative 5, 6, and 11) achieved a value of zero which denotes a negligible known or potential degree of impact or concern (also see **Table 7**).

A beneficial attribute of a northern bridge alternative expressed in the November 29, 2004, letter was that “there would be a minimal impact on structures of historic value to the area which is an important issue to the citizens of this City” [Mobile]. The relative values in **Table 5** for the northern bridge alternatives indicate a lesser degree of impact or concern on historic standing structures in the downtown Mobile area than the alternatives that would be located near downtown. These values are qualitative, however, because detailed cultural resources studies have not been conducted for all of the alternatives. All of the northern bridge alternatives have the potential to impact important cultural resources along Bay Bridge Road in the City of Prichard. Also, the Mobile Western Loop component of Alternative 11 has the potential for impacts to important cultural resources in other portions of the City of Mobile and Mobile County.

The bridge alternatives close to downtown Mobile would present a visual image that, depending upon the viewer, may be perceived as unattractive and imposing or as an attractive feature in the Mobile skyline. Also depending upon the particular alternative, there could be direct impacts to historic structures. None of the 14 alternatives would directly impact a National Historic Landmark. Concerns have also been expressed

regarding visual effects to downtown Mobile. Additionally, concerns regarding potential impacts to waterfront development in downtown Mobile have been expressed. A cruise terminal is now operating at Mobile Landing, and other proposed waterfront developments include a maritime museum, a parking deck, a pedestrian bridge, a high speed ferry dock, and a condominium complex.

The downtown bridge alternatives also have the most potential to adversely impact the maritime industry, including shipbuilding and repair, port activities, and cruise ship operations. Again, the severity of the impacts would depend upon the particular alternative. There could be direct impacts on the maritime facilities as well as impacts associated with bridge height restrictions. A minimum vertical clearance of 190 feet is currently being considered for all of the alternative bridges near downtown Mobile.

The Mobile Harbor Federal Navigation Project has a turning basin located south of the Cochrane Bridge (**Appendix F, Figure 1-A**). Vessels using the Mobile Ship Channel, including cruise ships, must use the turning basin in order to turn around and leave the Mobile Port area. Vessels using this turning basin include those from the McDuffie Coal Terminal and all port facilities north of the McDuffie Coal Terminal. Therefore, a bridge located between the McDuffie Coal Terminal and the turning basin would limit maritime traffic to vessels with a vertical clearance requirement of 190 feet or less.

Detailed studies are required to determine the economic implications of both direct physical impacts to maritime facilities, as well as constraints or impacts associated with bridge height restrictions. Martin Associates, a firm with maritime economic expertise, will evaluate the reasonable alternatives to project and document the potential impacts to the maritime industry, including shipbuilding and repair operations, port operations, and the cruise ship industry. Therefore, the degree or amount of potential impact cannot be quantified until appropriate studies are conducted.

Obviously, alternatives involve trade-offs to be considered in an analysis or screening process. Some additional information regarding a comparison of the relative effectiveness of the northern bridge alternatives and the downtown bridge alternatives is presented below.

As stated in the purpose and need, one of the primary purposes of this project is to provide additional capacity along the I-10 corridor between Canal Street in Mobile and the US 98/I-10 interchange in Daphne. The Wallace Tunnel and the I-10 Bayway are currently the primary constraints to traffic flow in this segment of the I-10 corridor. A summary of traffic information for the Wallace Tunnel is shown on **Figure 5 (Appendix A)**. Based upon actual traffic counts, the ADT for the Wallace Tunnel was 63,116 in 2004. The Wallace Tunnel capacity reaches a LOS of F at 63,000 ADT. A LOS of F exhibits the following characteristics:

- Breakdowns are experienced in vehicular flow
- Speed is greatly reduced with frequent stop-and-go traffic
- Ability to maneuver is virtually nonexistent
- Peak hour flow rate can exceed the estimated capacity

- Operations within a queue are the results of a breakdown or bottleneck at a downstream point
- Congestion has the potential to extend upstream for significant distances
- Driver’s level of physical and psychological comfort is extremely poor.

Source: Transportation Research Board, Highway Capacity Manual, 2000

Utilizing the preliminary traffic analyses conducted by the SARPC, a comparison was made of the relative effectiveness of certain alternatives in relieving traffic congestion in the Wallace Tunnel. It should be noted that all 14 alternatives include either a widening of the existing I-10 Bayway or construction of a new bayway. Therefore, the primary bottleneck or constraint is the Wallace Tunnel. The Wallace Tunnel has experienced a number of accidents, including fatal accidents involving trucks and automobiles. Tunnel accidents typically create long delays and can produce additional accidents and severe congestion. Some method in addition to the Wallace Tunnel is needed for I-10 traffic to cross the Mobile River. Basically, the most potentially viable options can be categorized into two general locations for a bridge crossing, i.e., near downtown Mobile and to the north, utilizing, or in proximity to, the Cochrane Bridge. Other alternative bridge locations to the south of McDuffie Island that would require a completely new crossing of Mobile Bay are basically not reasonable for a variety of reasons and are excluded from the comparison. The southern alternatives appear not to be reasonable for several reasons, including conflicts to the approach to the NW-SE runway at Brookley, excessive central bridge span requirements, and other technical, economic, and environmental considerations (see **Table 7**).

For comparison purposes, the bridge alternatives in closest proximity to downtown Mobile (Alternatives 1, 2, 3, and 9) were compared to the northern bridge alternatives (Alternatives 5, 6, and 11) regarding projected traffic that would still use the Wallace Tunnel. The following provides insight into how these alternatives would affect traffic in the Wallace Tunnel in 2030:

TABLE 6: PROJECTED TRAFFIC IN WALLACE TUNNEL 2030 (ADT) (000)

No Build	Downtown Bridge Alternatives	Northern Bridge Alternatives		LOS D*	LOS F*
	1, 2, 3, 9	5 & 6	11		
90.1	38.8	72.9	81.0	50	63

Source: South Alabama Regional Planning Commission, 2004 and 2005.

* Threshold LOS values for the Wallace Tunnel.

This comparison shows that while a northern bridge alternative would relieve some of the congestion at the Wallace Tunnel (compared to the No Build), the LOS in the Wallace Tunnel would remain F and would be more congested than the ADT of 63,116 experienced in 2004. In contrast, alternatives near the downtown area would greatly relieve congestion in the Wallace Tunnel and would produce a LOS of C.

There appear to be logical reasons for the model projections. One consideration is the 60/40 percent traffic split between I-10 through traffic and local/commuter traffic, respectively. The split is based upon origin-destination studies conducted in the mid-1990s. Most of the local/commuter traffic would continue to use the Wallace Tunnel to access downtown Mobile while through traffic would use a convenient bridge to bypass the tunnel and downtown Mobile. Forty percent of the No Build traffic in 2030 would be 36,000 ADT which compares closely to the 38,800 ADT projected to use the Wallace Tunnel with the downtown bridge alternative.

In contrast, Alternatives 5 and 6 (northern bridge and I-65) would require an additional travel distance of 9.1 and 8.6 miles, respectively, to traverse the I-10 corridor. Local/commuter traffic would continue to use the Wallace Tunnel, and about 63 percent of the I-10 through traffic would use the Wallace Tunnel, apparently accepting a LOS of F rather than traveling the additional miles and encountering the congestion that would exist on I-65. Even with four additional lanes added to I-65, a LOS of D would exist on I-65. The existing six-lane segments of I-65 north and south of the I-65/Dauphin Street interchange currently exhibit a LOS of D.

Additional information is also available related to Alternative 11, which would use either Alternative 5 or Alternative 6 to traverse the distance between the I-10 Bayway and the I-165/I-65 interchange. From the I-165/I-65 interchange to I-10, a new interstate route that generally follows a previously considered “Mobile Western Loop” would be developed to complete the alternative. Traffic models conducted by SARPC project that the Wallace Tunnel would experience a 2030 ADT of 80,995. The improved Cochrane Bridge would carry an estimated 2030 ADT of 40,634. The existing four-lane Cochrane Bridge could accommodate this amount of traffic. Additional lanes on the Cochrane Bridge would not attract additional traffic. The additional travel distance for Alternative 11, as compared to the existing I-10 corridor, is 13.4 miles.

The conceptual plan for the Mobile Western Loop, as presented in public involvement meetings conducted by the ALDOT in April 2002, connected to I-65 north of I-165 at two possible locations and to I-10 at one location. Several options were presented for the potential route; however, all of the alternative routes proceeded west from I-65 and then south, west of the Mobile Regional Airport, to I-10.

In January 2003, another set of public involvement meetings was conducted by the ALDOT. The alternatives followed the same general corridors, and another option was included for connecting to I-10. During both the April 2002 and January 2003 public involvement activities, the ALDOT sought public input regarding the various alternatives as well as the degree of support or opposition for a freeway-type facility on the west side of Mobile connecting I-10 and I-65. Both sets of meetings were well-attended, and comments expressing support or opposition totaled 1,521. Over 70 percent of those expressing their opinion were opposed to the overall concept. The January 2003 feedback indicated slightly more opposition than the April 2002 input.

The preferences expressed should not be considered a vote or referendum. However, the overwhelming lack of support for the Mobile Western Loop concept could be considered indicative of what the public views regarding Alternative 11 would be if the alternative was carried forward for more detailed study in the EIS. The Mobile Western Loop also has some local support, and a variation of the plans presented in 2002 and 2003 is included in the Mobile Area MPO's current long range (25-year/2030) transportation improvement plan.

3.0 Conclusions and Recommendations

A summary of the screening process is shown on **Table 7**. The 14 alternatives and the results of the screening process were presented to the public at public involvement meetings on June 6, 2005, in Mobile and on June 7, 2005, in Spanish Fort. The following information regarding the 14 identified alternatives was presented by the ALDOT to the public at the public involvement meetings:

Recommendation	Alternatives
To be dropped from further study	4, 5, 6, 7, 8, 10, 12, 13, 14
Further study	1, 2, 3, 9, 11

ALDOT stated that these recommendations may vary after receipt of public comments on all alternatives (see **Appendix G**). A summary of the preferences for alternatives expressed at and during the comment period following the public meetings is included in **Appendix G**. In general, there was a split between the preferences for the downtown alternatives (1, 2, 3, and 9) with 260 preferences and the northern alternatives (5, 6, and 11) with 182 preferences. All other alternatives received less than 15 statements of preference each.

By letter dated June 20, 2005, Mayor Dow asked ALDOT to continue to consider Alternative 11 as an alternative to be studied in further detail (see **Appendix D**). The SARPC conducted additional traffic modeling studies for Alternative 11. The analysis indicated that Alternative 11 would not divert sufficient traffic from the I-10 corridor to alleviate congestion in the Wallace Tunnel. The 2030 ADT projections for the Wallace Tunnel with Alternative 11 constructed was 81,000, which represents almost 30 percent more traffic than currently exists. The level of service would be a severe F and would exhibit the congestion and traffic delays experienced on I-10 during the July 4th weekends for the past four years on a daily basis (**Figure 5, Appendix A**). Alternative 11, therefore, would not meet the project's purpose and need. **Figures 6a and 6b (Appendix A)** show 2030 traffic projections for Alternatives 1, 2, 3, 9, and 11.

The ALDOT, by letter dated July 11, 2005, informed Mayor Dow that only Alternatives 3, 9, and a combination of Alternatives 1 and 2 would be carried forward for more detailed studies (see **Appendix D**). An additional meeting with Mayor Dow and ALDOT was held on July 22, 2005. By letter dated August 2, 2005, ALDOT provided Mayor Dow additional information supporting the conclusion that Alternative 11 would be dropped from further study in the NEPA process (see **Appendix D**). As shown in Table 7, the construction cost for Alternative 11 is almost twice the costs for

Alternatives 1, 2, 3, or 9. Additionally, the economic cost for Alternative 11 would be almost \$26 million annually per 10,000 ADT in contrast to Alternatives 1, 2, 3, or 9 which would produce economic savings.

A preliminary alignment for an alternative combining Alternatives 1 and 2 has been developed and coordinated with ALDOT. The alignment would avoid the Mobile Metro County Jail and the USACE/ASPA disposal area on Pinto Island. It is the most southern alignment of the alternatives recommended for further study and is located 0.56 mile south of the Wallace Tunnel. The estimated construction cost would be approximately the same as Alternative 1. The alternative combining Alternatives 1 and 2 is shown on **Figure 7 (Appendix A)**.

Based on the findings of the alternatives screening evaluation process and the associated public involvement and coordination activities, the following actions are recommended:

1. ALDOT and FHWA approve Alternatives 3, 9, and the alternative that combines Alternatives 1 and 2 as reasonable alternatives for further detailed studies and documentation in a DEIS.
2. The reasonable alternatives be redesignated as follows:

Current Alternative Designation	New Alternative Designation
3	A
9	B
Combination of 1 and 2	C

These alternatives with their new designations are shown on **Figure 8 (Appendix A)**.

3. A newsletter be prepared and disseminated to agencies and other interested parties to present the findings of the alternatives screening evaluation process, the status of the ongoing studies and anticipated additional activities, schedules, points of contact, and other relevant information on the studies and the NEPA documentation.
4. An approval sheet is included in the front of this report to facilitate the approval process.

TABLE 7: SUMMARY MATRIX OF ALTERNATIVES SCREENING PROCESS

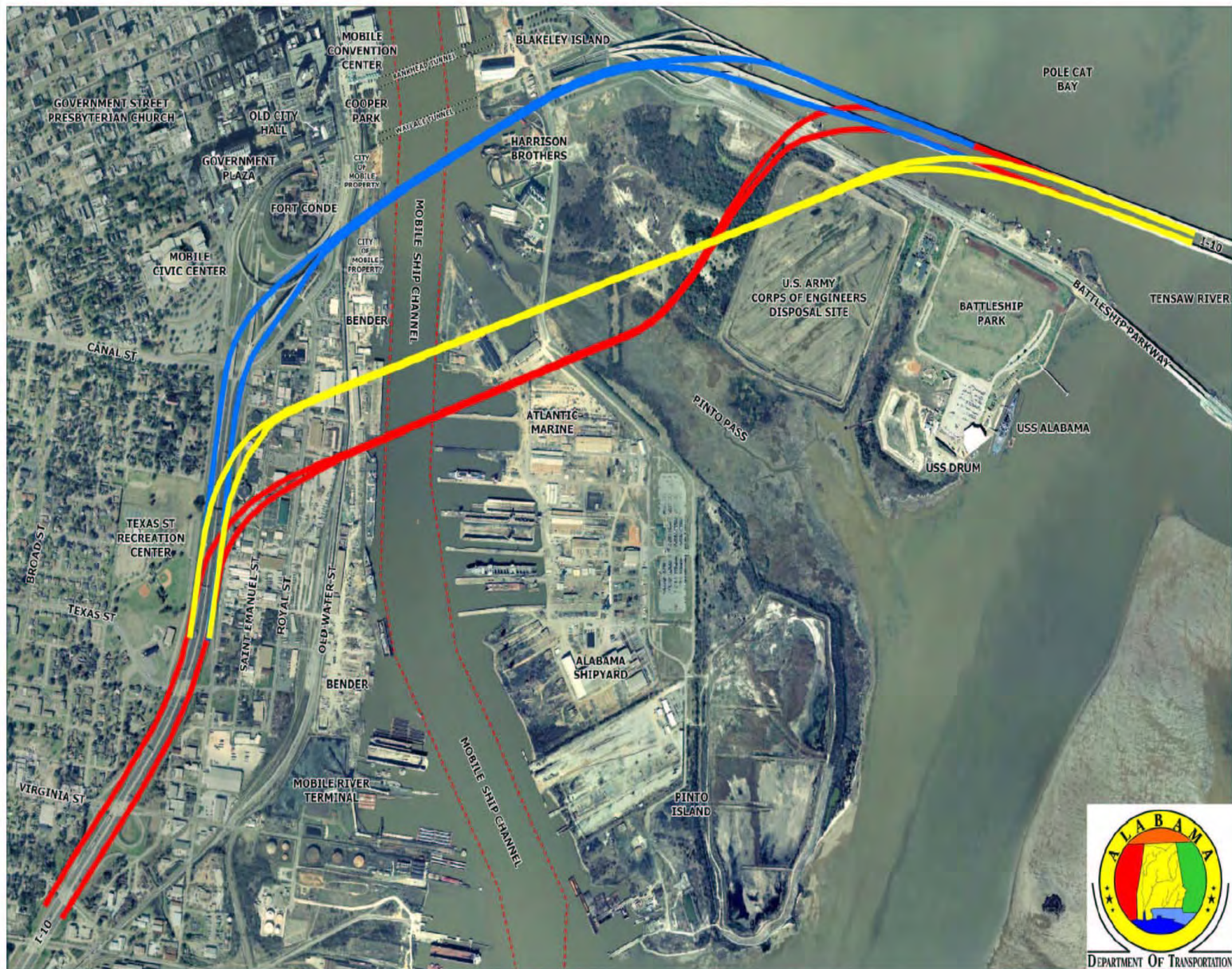
Alternative	Brief Description of Alternative	Step One	Step Two	Step Three	Step Four	Step Five			
		Purpose & Need	Technical/Practical Reasonableness	Economic Costs/(Savings) in \$million per 10,000 ADT	Total Construction Cost in \$million	Overall Comparison/Additional Considerations			
						Potential for Environmental Impacts	Wallace Tunnel LOS 2030	Maritime Interests	
				Direct Physical Impacts	Bridge Height Restrictions*				
1	I-10 bridge south of Wallace Tunnel across portions of Bender and Atlantic Marine	Yes	Yes	(0.85)	603	Medium	B or C	Yes	Yes
2	I-10 bridge south of Wallace Tunnel, over Metro County Jail	Yes	Yes	(0.91)	660	Medium	B or C	Yes	Yes
3	I-10 bridge south of Wallace Tunnel over Mobile Landing across Harrison Brothers	Yes	Yes	(0.35)	617	Low	B or C	Yes	Yes
4	New tunnel 0.24 mile south of Wallace Tunnel	Partial	No	(0.54)	1,550	Medium	B or C ¹	Yes ²	No
5	I-10 Bayway to Cochrane Bridge route (parallel to US 90) to I-165 to I-65 to I-10	Partial	No	17.62	973	High	F	No	No
6	I-10 Bayway to Cochrane Bridge route over Blakeley Island to I-165 to I-65 to I-10	Partial	No	16.65	972	High	F	No	No
7	I-10 bridge south of McDuffie Coal Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange	Yes	No	(3.87)	1,407	High	B or C ¹	Yes	Yes
8	I-10 bridge north of proposed Choctaw Point Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange	Yes	Yes	(3.38)	973	High	B or C ¹	Yes	Yes
9	I-10 bridge south of Mobile Landing	Yes	Yes	(0.76)	620	Medium	B or C	Yes	Yes
10	I-65 to Dauphin Island to Fort Morgan through Baldwin County to I-10	No	No	46.86	2,926	High	F ¹	No	Yes
11	I-10 to Cochrane Bridge Route to I-165 to proposed Mobile Western Loop	No	No	25.88	1,149	High	F ¹	No	No
12	I-65 to I-10 bridge south of Brookley Field across Mobile Bay to I-10 west of I-10/ US 98 interchange	Yes	No	0.98	1,049	High	D ¹	No	Yes
13	I-10/I-65 interchange across Dog River, to I-10 bridge to new bayway to Baldwin County to I-10	No	No	6.58	1,297	High	F ¹	No	Yes
14	I-10 bridge from Broad Street to Pinto Island north through Atlantic Marine to I-10 Bayway	Yes	Yes	(0.29)	760	Medium	B or C ¹	Yes	Yes

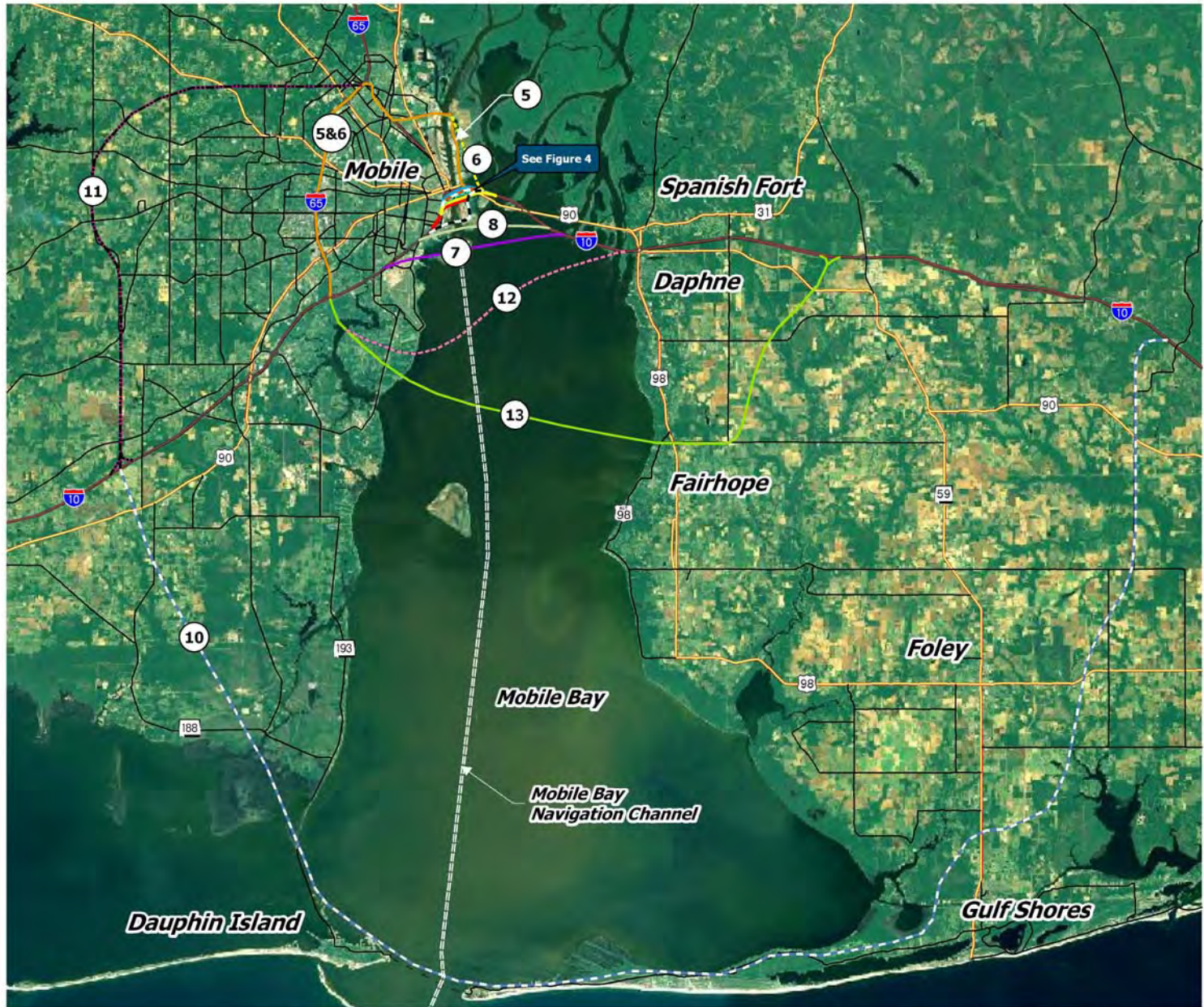
* A minimum vertical clearance of 190 feet would result in bridge height restrictions which would prevent vessels with heights greater than 190 feet from calling at the facilities along the port and from utilizing the turning basin south of the Cochrane Bridge

¹ Tunnel LOS estimated. Not based upon traffic model.

² Interim impacts to maritime navigation and direct impacts to some maritime facilities would result during construction of a new tunnel.

APPENDIX A
FIGURES









Legend

- Alternate 1
- Alternate 2
- Alternate 3
- Alternate 4
- Alternate 5
- Alternate 6
- Alternate 7
- Alternate 8
- - - Alternate 9
- - - Alternate 10
- Alternate 11
- Alternate 12
- Alternate 13
- - - Alternate 14

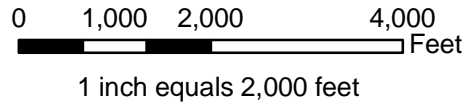
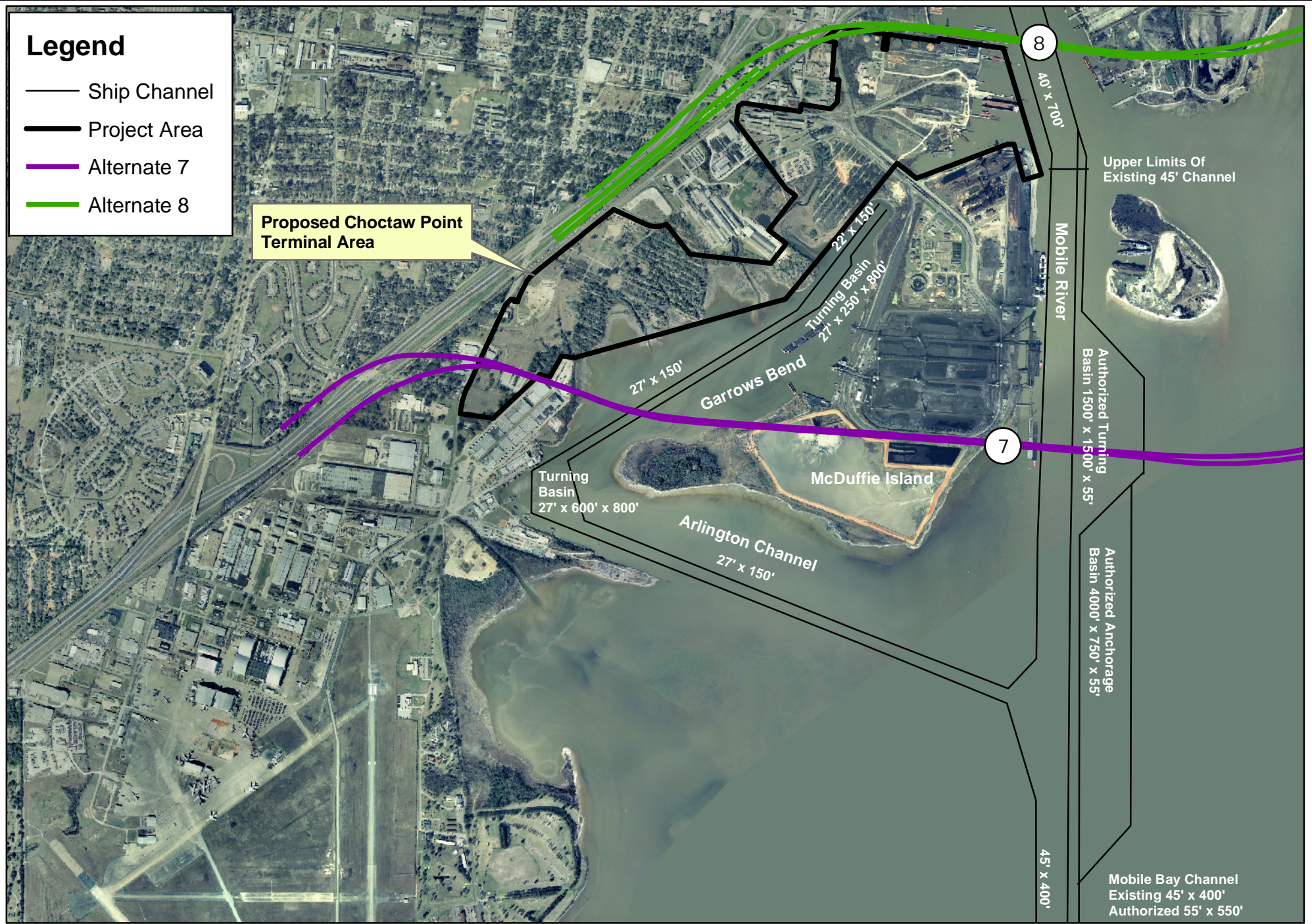


Figure 2
Mobile River I-10
Bridge Alternatives

Legend

-  Ship Channel
-  Project Area
-  Alternate 7
-  Alternate 8

Proposed Choctaw Point Terminal Area



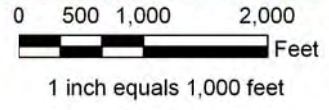
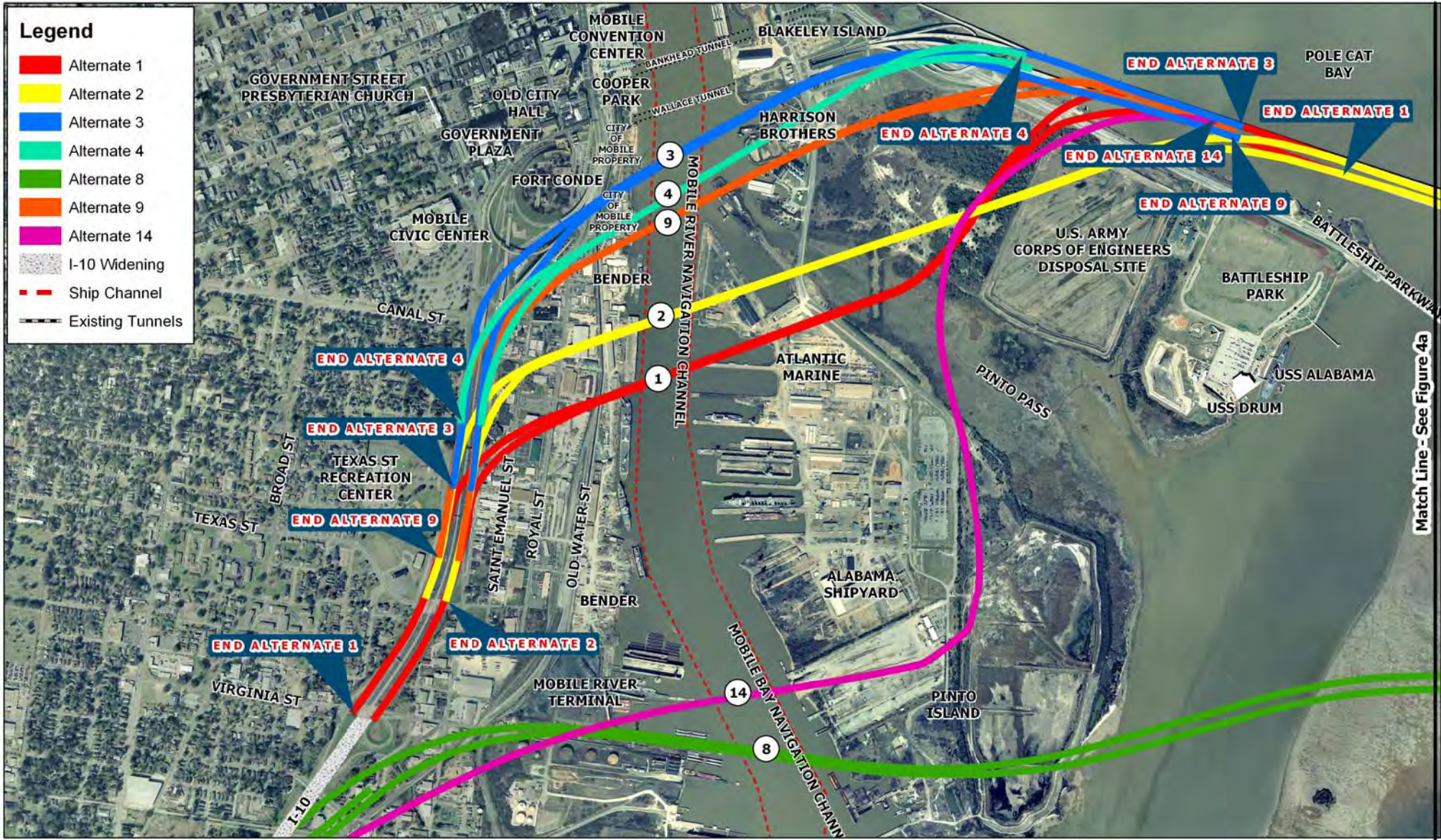
Note: This map is for presentation use only and not to be used for construction purposes.

Map Document: (V:\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figure3.mxd) 11/2/2004 -- 2:48:43 PM

Figure 3
Arlington-Garrows Bend Channel,
Mobile Harbor, Alabama

Legend

- Alternate 1
- Alternate 2
- Alternate 3
- Alternate 4
- Alternate 8
- Alternate 9
- Alternate 14
- I-10 Widening
- Ship Channel
- Existing Tunnels



Note: This map is for presentation use only and not to be used for construction purposes.

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Figure 4
Mobile River I-10 Bridge
Alternatives
PROJECT DPI-0030(005)

Match Line - See Figure 4a



Legend

- Alternate 7
- Alternate 8

Match Line - See Figure 4

8

7

90

10

VOLKERT
& ASSOCIATES, INC.

0 1,250 2,500 5,000
 Feet
 1 inch equals 2,500 feet



Note: This map is for presentation use only and not to be used for construction purposes.

Figure 4a
Mobile River I-10 Bridge
Alternatives
PROJECT DPI-0030(005)

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Figure 5: Wallace Tunnel 1973-2030

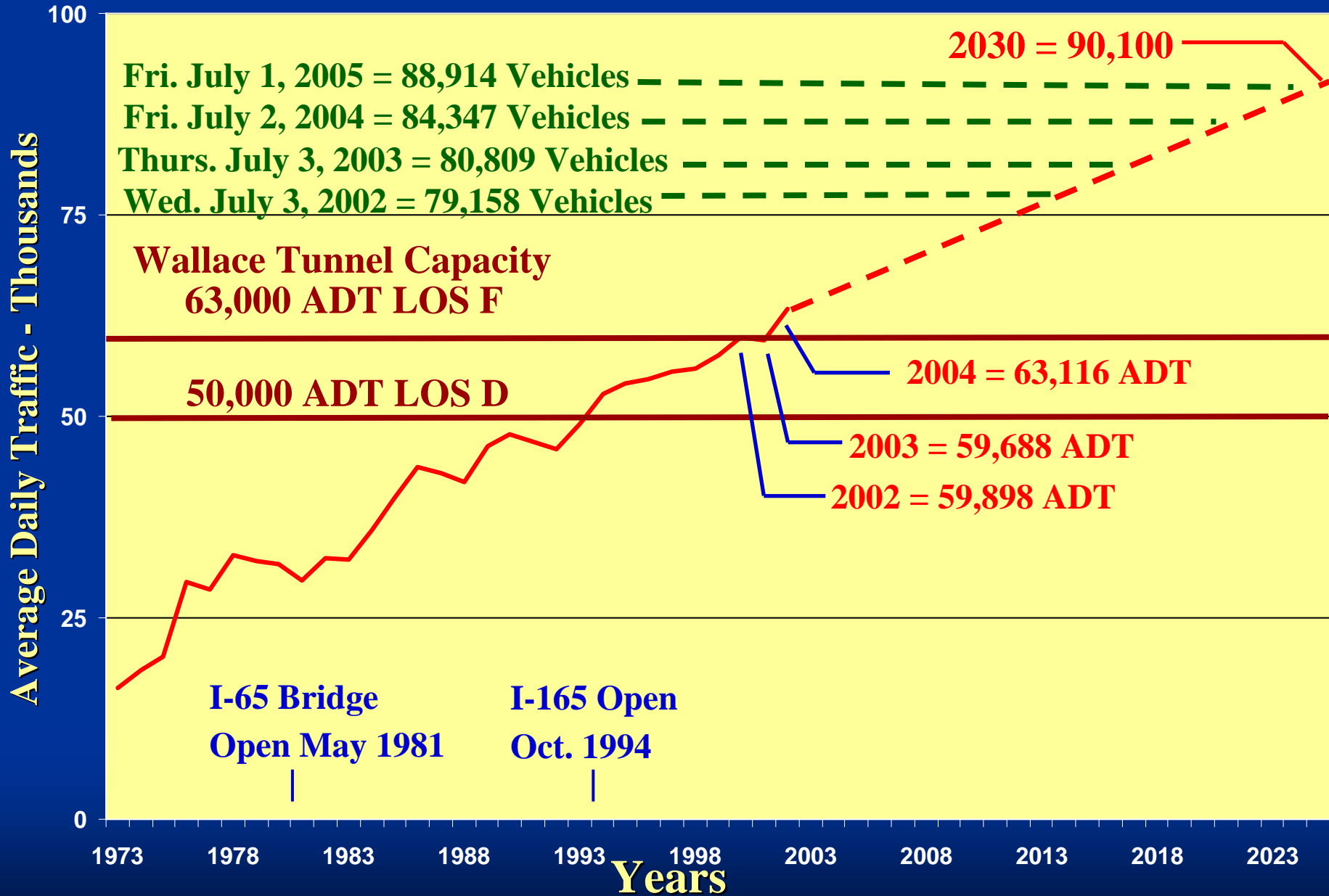
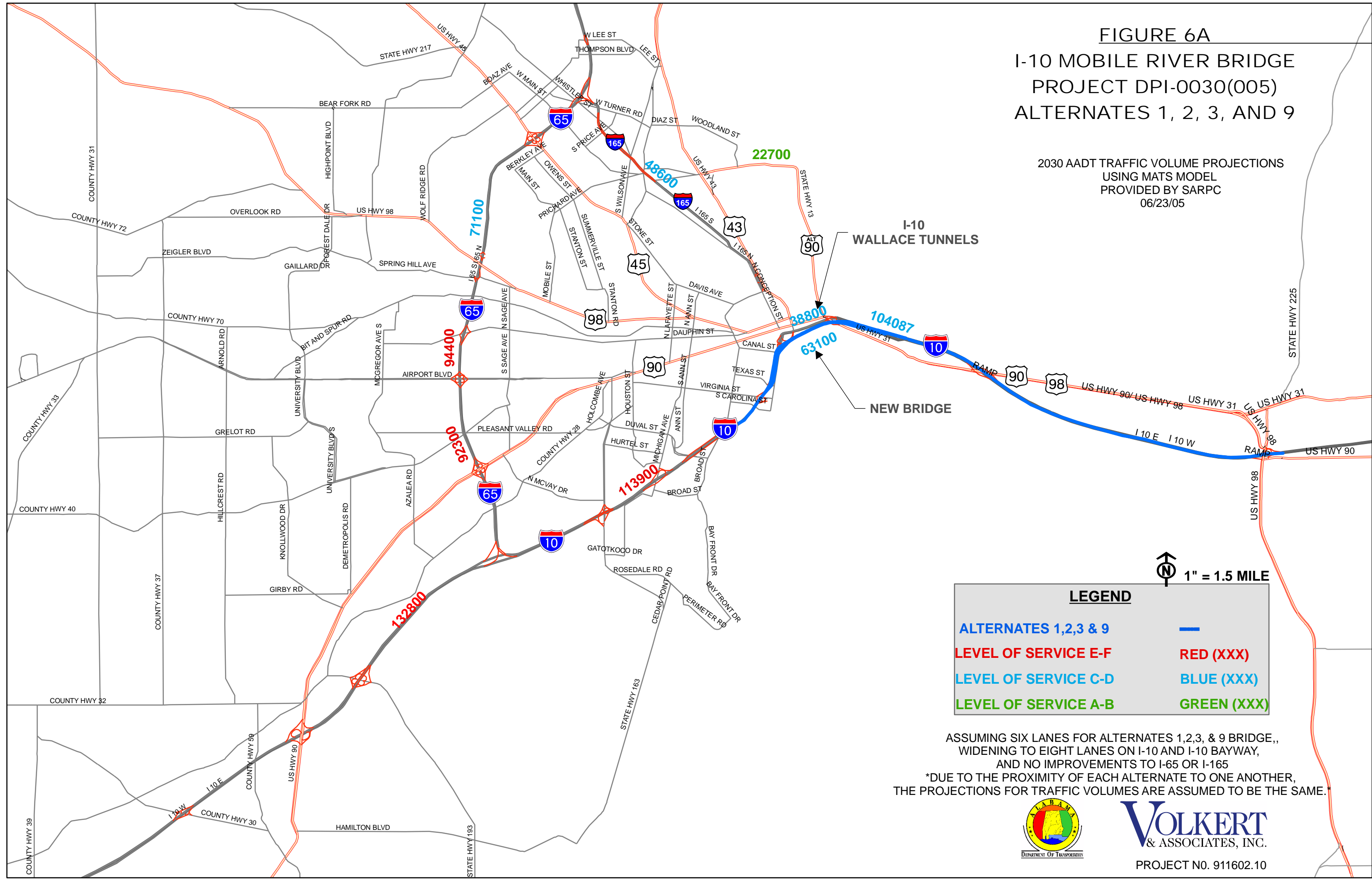


FIGURE 6A
I-10 MOBILE RIVER BRIDGE
PROJECT DPI-0030(005)
ALTERNATES 1, 2, 3, AND 9

2030 AADT TRAFFIC VOLUME PROJECTIONS
 USING MATS MODEL
 PROVIDED BY SARPC
 06/23/05



I-10
 WALLACE TUNNELS

NEW BRIDGE

1" = 1.5 MILE

LEGEND	
ALTERNATES 1,2,3 & 9	—
LEVEL OF SERVICE E-F	RED (XXX)
LEVEL OF SERVICE C-D	BLUE (XXX)
LEVEL OF SERVICE A-B	GREEN (XXX)

ASSUMING SIX LANES FOR ALTERNATES 1,2,3, & 9 BRIDGE,,
 WIDENING TO EIGHT LANES ON I-10 AND I-10 BAYWAY,
 AND NO IMPROVEMENTS TO I-65 OR I-165
 *DUE TO THE PROXIMITY OF EACH ALTERNATE TO ONE ANOTHER,
 THE PROJECTIONS FOR TRAFFIC VOLUMES ARE ASSUMED TO BE THE SAME.*

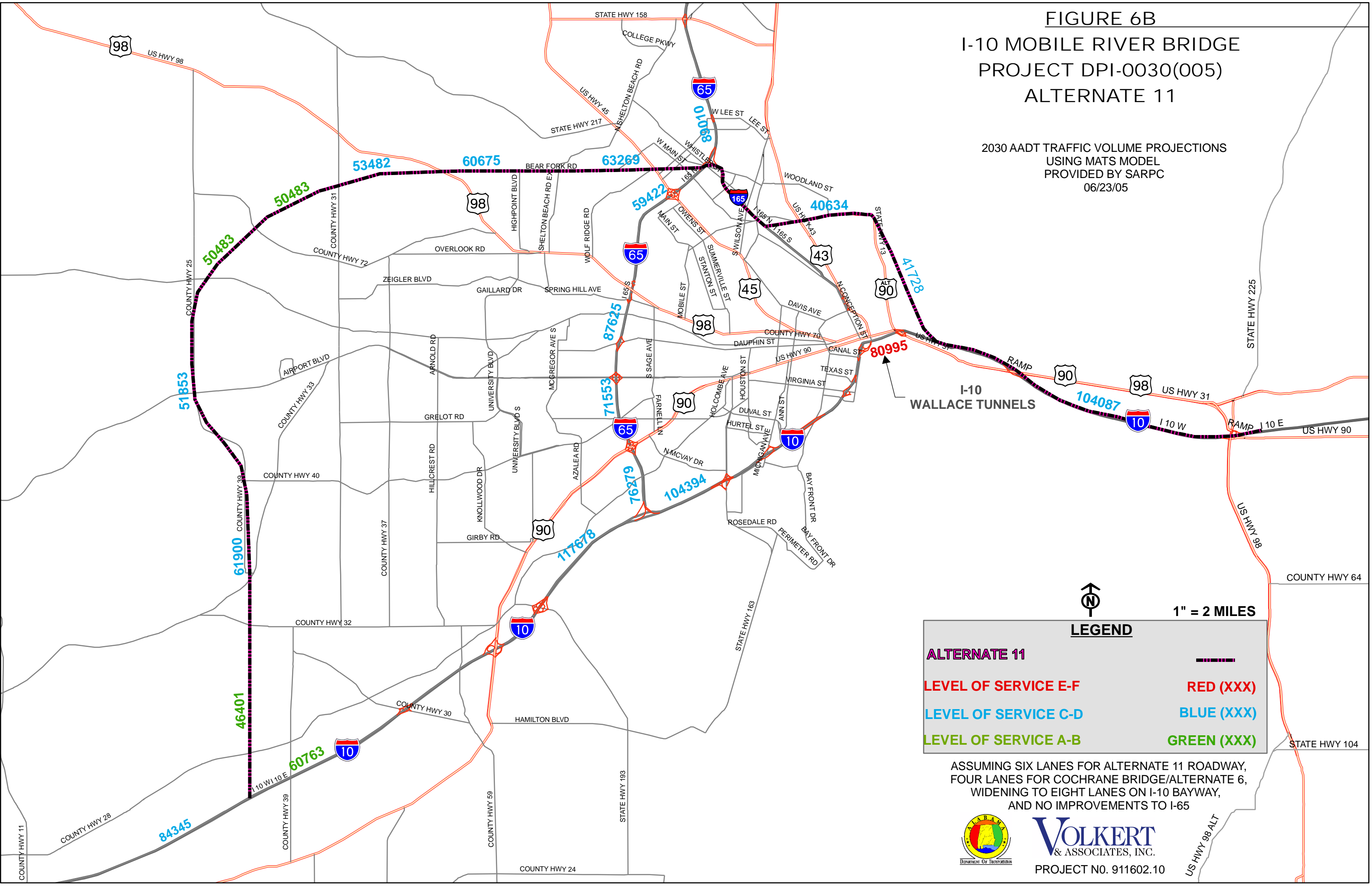


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PROJECT NO. 911602.10

FIGURE 6B
I-10 MOBILE RIVER BRIDGE
PROJECT DPI-0030(005)
ALTERNATE 11

2030 AADT TRAFFIC VOLUME PROJECTIONS
 USING MATS MODEL
 PROVIDED BY SARPC
 06/23/05



1" = 2 MILES

LEGEND

ALTERNATE 11	
LEVEL OF SERVICE E-F	RED (XXX)
LEVEL OF SERVICE C-D	BLUE (XXX)
LEVEL OF SERVICE A-B	GREEN (XXX)

ASSUMING SIX LANES FOR ALTERNATE 11 ROADWAY,
 FOUR LANES FOR COCHRANE BRIDGE/ALTERNATE 6,
 WIDENING TO EIGHT LANES ON I-10 BAYWAY,
 AND NO IMPROVEMENTS TO I-65



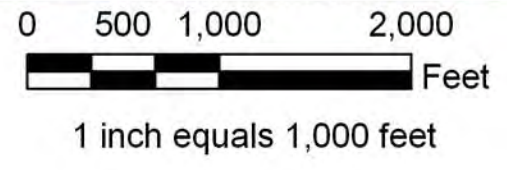
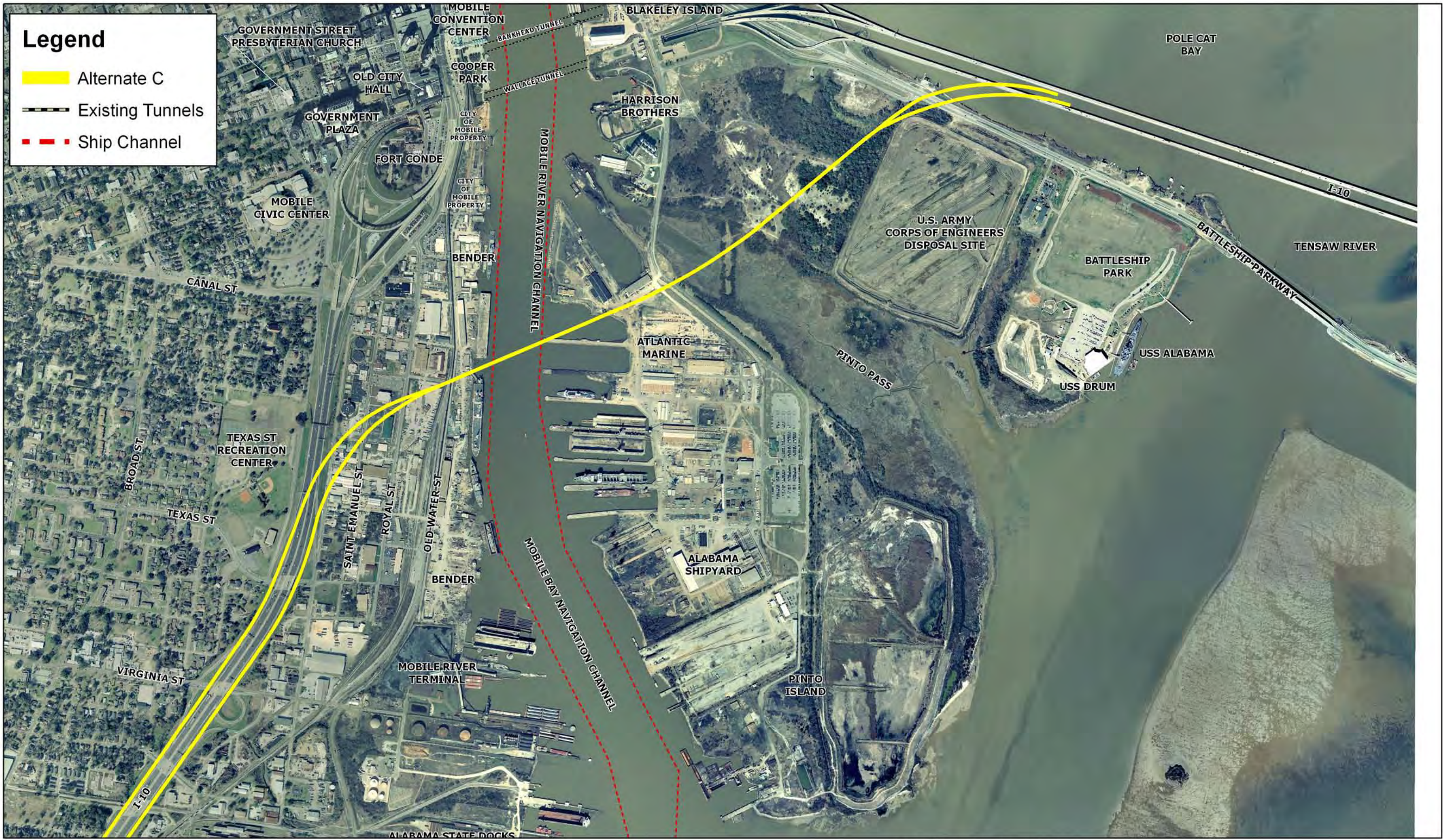
Volkert
 & ASSOCIATES, INC.

PROJECT NO. 911602.10

US HWY 98 ALT

Legend

- Alternate C
- Existing Tunnels
- Ship Channel

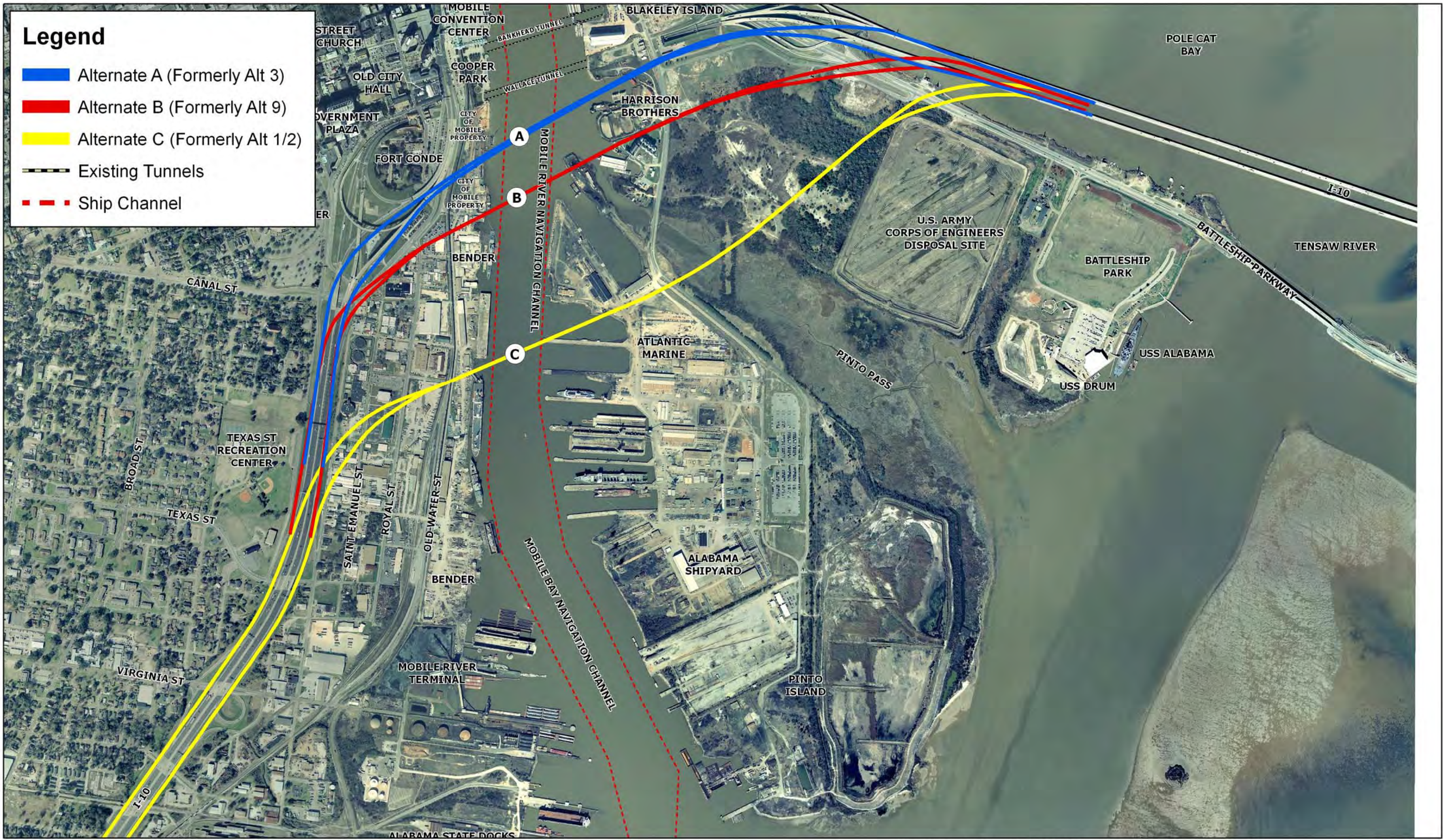


Note: This map is for presentation use only and not to be used for construction purposes.

Figure 7
Mobile River I-10 Bridge
Combination Of Alternatives 1 & 2
PROJECT DPI-0030(005)

Legend

- █ Alternate A (Formerly Alt 3)
- █ Alternate B (Formerly Alt 9)
- █ Alternate C (Formerly Alt 1/2)
- Existing Tunnels
- - - Ship Channel



APPENDIX B
SCREENING TABLES

I-10 Mobile River Crossing – Screening Criteria for Alternatives

STEP 1: Does the alternative meet the purpose and need?

1. Does the alternative provide additional highway capacity for traffic using I-10 between Canal Street in Mobile and the US 98/I-10 interchange at Daphne?

Alternative	Yes/No	Remarks
1	Yes	
2	Yes	
3	Yes	
4	Yes	
5	No	Would divert traffic to I-65 which is already congested
6	No	Would divert traffic to I-65 which is already congested
7	Yes	Would be convenient for traffic not traveling to downtown Mobile
8	Yes	Would be convenient for traffic not traveling to downtown Mobile
9	Yes	Would avoid City of Mobile’s Mobile Landing
10	No	Would require extensive new right-of-way; increased travel distance would likely deter use of this route unless congestion on existing I-10 were severe (i.e. more than one hour delay); would not serve area between Canal Street in Mobile and the US 98/I-10 Interchange in Daphne
11	No	Would require extensive new right-of-way; increased travel distance would likely deter use of this route unless congestion on existing I-10 were severe (i.e. more than one hour delay); would not serve area between Canal Street in Mobile and the US 98/I-10 Interchange in Daphne
12	Yes	Bridge would be in approach to the NW-SE runway at Brookley Field Airport; would require entire new crossing of Mobile Bay; would not serve traffic traveling between Canal Street in Mobile and the US 98/I-10 Interchange in Daphne
13	No	Would require new location between I-10 and Fairhope and would require extensive new right-of-way; would require entire new crossing of Mobile Bay; would not serve traffic traveling between Canal Street in Mobile and the US 98/I-10 Interchange in Daphne
14	Yes	Would require new right-of-way in Mobile and on Pinto Island

2. Does the alternative accommodate vehicles transporting hazardous materials and eliminate the public safety concerns regarding transport of hazardous materials through the Mobile Central Business District and other local streets?

Alternative	Yes/No	Remarks
1	Yes	
2	Yes	
3	Yes	
4	No	Hazardous materials would be prohibited from the tunnel and would continue to go through the Mobile CBD.
5	Yes	
6	Yes	
7	Yes	
8	Yes	
9	Yes	
10	No	Additional travel distance would likely deter trucks from using this alternative. Trucks would likely continue to go through the CBD to save time and money. If trucks did use this alternative, they would expose areas of Dauphin Island, southeast Mobile, and south Baldwin County to hazardous materials issues.
11	Yes	
12	Yes	
13	Yes	
14	Yes	

3. From an overall transportation improvement perspective does the alternative meet the purpose and need?

Alternative	Yes/No	Remarks
1	Yes	
2	Yes	
3	Yes	
4	Partial	Does not meet need to transport hazardous materials outside of the Mobile CBD.
5	Partial	Does not add capacity to I-10 corridor. Would divert traffic to I-65.
6	Partial	Does not add capacity to I-10 corridor. Would divert traffic to I-65.
7	Yes	
8	Yes	
9	Yes	
10	No	Does not add capacity to the I-10 corridor between Canal Street in Mobile and the US 98/I-10 Interchange in Daphne. Would require extensive new location, right-of-way, and added travel distance.
11	No	Does not add capacity to the I-10 corridor between Canal Street in Mobile and the US 98/I-10 Interchange in Daphne. Would require extensive new location, right-of-way, and added travel distance.
12	Yes	
13	No	Would require new location between I-10 and Fairhope and would require extensive new right-of-way; would require entire new crossing of Mobile Bay; would not serve traffic traveling between Canal Street in Mobile and the US 98/I-10 Interchange in Daphne
14	Yes	

STEP 2: Technical/Practical and Feasible Consideration of Alternatives

1. Can the alternative meet the geometric requirements for an interstate highway?

Alternative	Yes/No	Remarks
1	Yes	
2	Yes	
3	Yes	
4	Yes	Possible reconfiguration of Canal Street interchange or more consideration on exact location of tunnel access and egress would be required to fully identify impacts and required relocations of structures, existing roadways, and interchanges.
5	Yes	Cochrane Bridge is not designed to interstate standards. New interstate would be required along Bay Bridge Road to connect the Cochrane Bridge to I-165. New interstate segment would also be required to connect the Cochrane Bridge to the I-10 Bayway.
6	Yes	Cochrane Bridge is not designed to interstate standards. New interstate would be required along Bay Bridge Road to connect the Cochrane Bridge to I-165. New interstate segment would also be required to connect the Cochrane Bridge to the I-10 Bayway.
7	Yes	In order to provide adequate horizontal and vertical clearance, the main span of the bridge for this alternative would have to be 2,350 feet long to clear the navigation channel and an authorized turning basin. This main span would be almost twice the length of the main span of the other alternatives being considered. A bridge of this magnitude is not practical from technical and economic standpoints.
8	Yes	
9	Yes	
10	Yes	
11	Yes	
12	Yes	
13	Yes	
14	Yes	

2. Would the alternative create additional traffic* on other routes outside of the existing I-10 corridor?

Alternative	Yes/No	Remarks
1	No	
2	No	
3	No	
4	No	
5	No	A small amount of additional traffic may be picked up from Bay Bridge Road.
6	No	A small amount of additional traffic may be picked up from Bay Bridge Road.
7	No	A small amount of additional traffic may be picked up from the corridor to Michigan Avenue.
8	No	A small amount of additional traffic may be added, may cause additional traffic on Broad Street.
9	No	
10	Yes	This alternative would essentially generate its own local traffic from Mobile and Baldwin Counties along the new interstate route.
11	Yes	This alternative would essentially generate its own traffic in Mobile County and would provide an optional route for traffic utilizing I-65 to access I-10 westbound and I-10 eastbound traffic that was traveling north of I-65.
12	Yes	This alternative would create additional local traffic near Brookley Airport and in the vicinity of Dog River south of the Brookley Airport.
13	Yes	This alternative would generate new local traffic in Mobile and Baldwin Counties that would utilize the new interstate route.
14	No	

* New interstate locations remote from the existing I-10 corridor would tend to generate additional local traffic that would take advantage of the improved transportation facility with increased speed limits.

3. Does the alternative shift traffic to other travel routes?

Alternative	Yes/No	Remarks
1	No	
2	No	
3	No	
4	No	
5	Yes	Shifts traffic to I-65/I-165. I-65 is already congested.
6	Yes	Shifts traffic to I-65/I-165. I-65 is already congested.
7	No	
8	No	
9	No	
10	No	
11	No	
12	Yes	Shifts traffic to new route between I-10/I-65 intersection and the US 98/I-10 Interchange in Daphne.
13	No	
14	No	

4. Are there negative implications associated with traffic shifts?

Alternative	Yes/No	Remarks
1	N/A	
2	N/A	
3	N/A	
4	N/A	
5	Yes	I-65 is already congested. Additional traffic would aggravate the problem.
6	Yes	I-65 is already congested. Additional traffic would aggravate the problem. Alternative would go over disposal areas.
7	N/A	
8	N/A	
9	N/A	
10	N/A	
11	N/A	
12	Yes	New route would require relocations and would impact adjacent property owners and residents.
13	N/A	
14	N/A	

5. Conclusions of Step 2: Does the alternative meet the test for technical/practical and feasible reasonableness?

Alternative	Yes/No	Remarks
1	Yes	
2	Yes	
3	Yes	
4	No	Based upon a special analysis, a new tunnel was determined not to be practical from technical and economic standpoints.
5	No	Shifts traffic to I-65 which is already congested. Much of the through traffic traveling on I-10 is not likely to travel the additional miles to circumvent the tunnels and downtown Mobile to later get back on I-10 unless congestion on I-10 was more severe than on I-65.
6	No	Shifts traffic to I-65 which is already congested. Much of the through traffic traveling on I-10 is not likely to travel the additional miles to circumvent the tunnels and downtown Mobile to later get back on I-10 unless congestion on I-10 was more severe than on I-65.
7	No	In order to provide adequate horizontal and vertical clearance, the main span of the bridge for this alternative would have to be 2,350 feet long to clear the navigation channel and an authorized turning basin. This main span would be almost twice the length of the main span of the other alternatives being considered. A bridge of this magnitude is not reasonable from technical and economic standpoints.
8	Yes	A new crossing of upper Mobile Bay would be required.
9	Yes	
10	No	While this alternative could be designed to meet interstate standards, it would essentially generate its own traffic from Mobile and Baldwin Counties rather than alleviate congestion on the existing I-10 corridor.
11	No	From a technical perspective, Alternative 11 could be constructed. However, it would require extensive new right-of-way, and numerous design challenges involving existing road networks, neighborhoods, and other infrastructure conflicts. Alternative 11 would provide additional transportation options but would not likely substantially reduce congestion on the I-10 corridor.
12	No	Would create additional traffic around the Brookley Complex. Would have impacts on the approach path to Brookley Airport's NW-SE runway. New route would require fairly extensive relocations and would negatively impact adjacent property owners and residents.
13	No	This alternative would require new interchanges, grade separation of railroad and local road crossings, and measures to accommodate existing neighborhoods and other infrastructure conflicts. The alternative is not practical from technical and economic standpoints to relieve congestion on the I-10 corridor.
14	Yes	

STEP 3: Economic Consideration of Proposed Alternatives

1. How would the alternative increase or decrease the miles required to traverse the Mobile-Baldwin County I-10 corridor?

Alternative	Increase/(Decrease) in Miles
1	(0.44)
2	(0.47)
3	(0.18)
4	(0.28)
5	9.13
6	8.63
7	(2.01)
8	(1.75)
9	(0.39)
10	24.28
11	13.41
12	0.51
13	3.41
14	(0.15)

2. What are the travel cost/(savings) associated with the increase/(decrease) in travel miles per 10,000 ADT?

Alternative	Cost/(Savings)* \$Million
1	(0.65)
2	(0.70)
3	(0.27)
4	(0.41)
5	13.51
6	12.77
7	(2.97)
8	(2.59)
9	(0.58)
10	35.93
11	19.85
12	0.75
13	5.05
14	(0.22)

*Based on \$0.405 per mile

3. What are the marginal cost/(savings) associated with the increase/(decrease) in travel miles per 10,000 ADT?

Alternative	Cost/(Savings)* \$Million
1	(0.20)
2	(0.21)
3	(0.08)
4	(0.13)
5	4.11
6	3.88
7	(0.90)
8	(0.79)
9	(0.18)
10	10.93
11	6.03
12	0.23
13	1.53
14	(0.07)

* Based on vehicle miles traveled. Includes pavement, congestion, and crash.

Source: Addendum to the 1997 Federal Highway Cost Allocation Study, Final Report, USDOT, FHWA, May 2000

4. What are the total costs/(savings) per 10,000 ADT associated with the alternatives?

Alternative	Cost/(Savings)* \$Million
1	(0.85)
2	(0.91)
3	(0.35)
4	(0.54)
5	17.62
6	16.65
7	(3.87)
8	(3.38)
9	(0.76)
10	46.86
11	25.88
12	0.98
13	6.58
14	(0.29)

5. Conclusions of Step 3: Are the increased/decreased economic costs of the alternatives practical and acceptable?

Alternative	Yes/No	Remarks
1	Yes	The alternative represents an economic cost savings.
2	Yes	The alternative represents an economic cost savings.
3	Yes	The alternative represents an economic cost savings.
4	Yes	The alternative represents an economic cost savings.
5	No	The alternative represents an economic cost to users/public-at-large.
6	No	The alternative represents an economic cost to users/public-at-large.
7	Yes	The alternative represents an economic cost savings.
8	Yes	The alternative represents an economic cost savings.
9	Yes	The alternative represents an economic cost savings.
10	No	The alternative would result in the highest economic cost to users and the public-at-large of all of the alternatives.
11	No	The alternative would result in an economic cost to users/public-at-large.
12	No	The alternative would result in an economic cost to users/public-at-large.
13	No	The alternative would result in an economic cost to users/public-at-large.
14	Yes	The alternative represents an economic cost savings.

STEP 4: Estimated Total Construction Cost

1. What is the estimated total construction cost of the alternative?

Cost Description	Alternatives													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Bridge Length (ft)	48,458	45,501	49,936	44,769	65,808	65,641	54,960	48,794	48,722	162,574	65,808	49,940	55,220	54,692
Roadway Length (mile)	1.1	1.1	1.1	1.1	10.0	10.0	2.4	1.1	1.1	40.8	29.3	3.4	15.5	1.1
Total Project Length (mile)	10.2	9.7	10.5	9.5	22.5	22.4	12.8	10.3	10.3	71.6	41.8	12.9	26.0	11.4
Grade and Drain (\$M)	0.50	0.50	0.50	0.50	8.48	8.48	1.29	0.65	0.50	24.9	17.9	2.08	9.47	0.50
Base & Pavement (\$M)	1.5	1.5	1.5	1.5	22.7	22.7	4.2	1.5	1.5	85.7	61.5	7.1	32.6	1.5
New Bridge (\$M)	137.2	143.2	146.8		151.4	156.0	792.3	501.3	153.6	1681.8	162.4	656.2	678.0	207.8
Bridge Widening (\$M)	237.1	218.4	246.5	240.8	246.8	240.1	114.5	114.5	238.8		240.1			237.1
Remove Old Bridge (\$M)					1.4	1.4					1.4			
Curb & Gutter (\$M)					2.4	2.4								
Storm Drainage (\$M)					6.7	6.7								
Other/Interchanges (\$M)	24	24	30	832	165	165	18	18	24	102	140	50	50	30
Sub-Total (\$M)	400	388	425	1,075	605	603	930	636	418	1,894	623	715	770	477
Contingencies (20%)((\$M)	80	78	85	215	121	121	186	127	84	379	125	143	154	95
Overhead Costs (20%): Engineering Controls (2%); Mobilization (5%); E&I (13%); (\$M)	80	78	85	215	121	121	186	127	84	379	125	143	154	95
Construction Cost (\$M)	560	544	595	1,505	847	845	1,302	890	586	2,652	873	1,001	1,078	667
Right-of-Way (\$M)	43	116	22	45	126	127	105	83	34	274	276	48	219	93
Total Cost (\$M)	603	660	617	1,550	973	972	1,407	973	620	2,926	1,149	1,049	1,297	760

STEP 5: Overall assessment of alternatives that have passed Steps 1-4 as being reasonable.

1. Additional Considerations

Consideration	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8	Alt. 9	Alt. 10	Alt. 11	Alt. 12	Alt. 13	Alt. 14
Wetlands	++ (a)	++ (a)	+	+	++	+++ (b)	++	++	+	+++	+++ (b)(c)	+++ (d)	+++ (d)	++ (a)
Essential Fish Habitat (includes water bottoms)	++ (a)	++ (a)	+	+	++	++	+++	+++	+	+++	++	+++	+++	++ (a)
Submerged Aquatic Vegetation	+	+	+	+	+	++	+++	+++	+	+++	++	+++	+++	+
Protected Species	+	+	+	+	+	+	+	+	+	+++ (e)	+++ (f)	+	+	+
Potential Hazardous Materials Sites	++	++	+	+++ (g)	+++	+++	+++	+++	++	+	+++	+	+	+++
Historic Standing Structures, Historic Districts, and National Historic Landmarks	+++	+++	+++ (h)	+++ (g)	++	++	+	+	+++	+++ (i)	++	+	++	+
Battleship Park (v)	++ (w)	++ (w)	++ (w)	++ (w)	+(w)	+(w)	+++ (x)	+++ (x)	++ (w)	+++ (x)	+(w)	+++ (x)	+++ (x)	++ (w)
Archaeological Resources	+	+	0 (j)	+++ (g)	+	+	++ (k)	++ (k)	+	+++ (i)	++	++ (k)	++ (k)	++
Residential Relocations	+	+	0	++	+++ (l)	+++ (l)	+	+	+	+++	+++ (l) (m)	+++ (d)	+++ (d)	+
Commercial/NPO Relocations	+++	+++ (n)	+	+++	+++ (o)	+++ (o)	+++	+++	+++	+++	+++	+++	+++	+++
Disposal Areas	0	+++ (p)	0	0	+++ (b)	+++ (b)	+++ (u)	+++ (q)	0	0	+++ (b)	0	0	++ (q)
Maritime Interests	+++	+++	++	++ (r)	0	0	+++	+++	++	+	0	+++	+++	+++
Environmental Justice	+	+	+	++	+++	+++	++	+	+	++	+++	++	++	+
Other												(s)	(t)	

+++ Major Known or Potential Degree of Impact or Concern

++ Moderate Known or Potential Degree of Impact or Concern

+ Minor Known or Potential Degree of Impact or Concern

0 Negligible Known or Potential Degree of Impact or Concern

(a) Pinto Pass, tidal marsh

(b) Blakely Island

(c) Wetland impacts in watersheds in West Mobile

(d) Dog River

(e) Coastal species, wildlife refuges

(f) Gopher tortoise

(g) Large excavation area

(h) Has no direct impacts on historic structures/resources, but there is concern about indirect impacts

(i) Fort Morgan/Fort Gaines

(j) Based on previous studies

(k) Potential for underwater archaeological resources

(l) Prichard

(m) West Mobile

(n) Metro County Jail

(o) I-65

(p) Pinto Island

(q) Atlantic Marine Disposal Area

(r) Navigation impacts during construction

(s) Violates FAA criteria for approach to Brookley NW-SE runway

(t) Appears to marginally meet FAA criteria for approach to Brookley NW-SE runway

(u) ASPA McDuffie Island disposal area

(v) None of the 14 alternatives would

have direct impacts on Battleship Park

(w) Would not improve access to Battleship

Park

(x) Would bypass Battleship Park

2. Summary Matrix

Alternative	Brief Description of Alternative	Step One	Step Two	Step Three	Step Four	Step Five			
		Purpose & Need	Technical/Practical Reasonableness	Economic Costs/(Savings) in \$million per 10,000 ADT	Total Construction Cost in \$million	Overall Comparison/Additional Considerations			
						Potential for Environmental Impacts	Wallace Tunnel LOS 2030	Maritime Interests	
				Direct Physical Impacts	Bridge Height Restrictions*				
1	I-10 bridge south of Wallace Tunnel across portions of Bender and Atlantic Marine	Yes	Yes	(0.85)	603	Medium	B or C	Yes	Yes
2	I-10 bridge south of Wallace Tunnel, over Metro County Jail	Yes	Yes	(0.91)	660	Medium	B or C	Yes	Yes
3	I-10 bridge south of Wallace Tunnel over Mobile Landing across Harrison Brothers	Yes	Yes	(0.35)	617	Low	B or C	Yes	Yes
4	New tunnel 0.24 mile south of Wallace Tunnel	Partial	No	(0.54)	1,550	Medium	B or C ¹	Yes ²	No
5	I-10 Bayway to Cochrane Bridge route to I-165 to I-65 to I-10	Partial	No	17.62	973	High	F	No	No
6	I-10 Bayway to Cochrane Bridge route over Blakeley Island to I-165 to I-65 to I-10	Partial	No	16.65	972	High	F	No	No
7	I-10 bridge south of McDuffie Coal Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange	Yes	No	(3.87)	1,407	High	B or C ¹	Yes	Yes
8	I-10 bridge north of proposed Choctaw Point Terminal to new bayway to I-10 Bayway east of Mid-Bay interchange	Yes	Yes	(3.38)	973	High	B or C ¹	Yes	Yes
9	I-10 bridge south of Mobile Landing	Yes	Yes	(0.76)	620	Medium	B or C	Yes	Yes
10	I-65 to Dauphin Island to Fort Morgan through Baldwin County to I-10	No	No	46.86	2,926	High	F ¹	No	Yes
11	I-10 to Cochrane Bridge Route to I-165 to proposed Mobile Western Loop	No	No	25.88	1,149	High	F ¹	No	No
12	I-65 to I-10 bridge south of Brookley Field across Mobile Bay to I-10 west of I-10/ US 98 interchange	Yes	No	0.98	1,049	High	D ¹	No	Yes
13	I-10/I-65 interchange across Dog River, to I-10 bridge to new bayway to Baldwin County to I-10	No	No	6.58	1,297	High	F ¹	No	Yes
14	I-10 bridge from Broad Street to Pinto Island north through Atlantic Marine to I-10 Bayway	Yes	Yes	(0.29)	760	Medium	B or C ¹	Yes	Yes

* A minimum vertical clearance of 190 feet would result in bridge height restrictions which would prevent vessels with heights greater than 190 feet from calling at the facilities along the port and from utilizing the turning basin south of the Cochrane Bridge

¹ Tunnel LOS estimated. Not based upon traffic model.

² Interim impacts to maritime navigation and direct impacts to some maritime facilities would result during construction of a new tunnel.

APPENDIX C
ECONOMIC COST FACTORS

I-10 Mobile River Alternatives Screening – Marginal Cost Per Mile – Annual Per 10,000 ADT

2000 Pavement, Congestion, and Crash Costs for Illustrative Vehicles Under Specific Conditions

Vehicle Class/Highway Class	Cents per mile			
	Pavement	Congestion	Crash	Total
Autos/Urban interstate	0.1	7.70	1.19	8.99
40 kip 4-axle S.U. Truck/Urban interstate	3.1	24.48	0.86	28.44*
60 kip 4-axle S.U. Truck/Urban interstate	18.1	32.64	0.86	51.60*
60 kip 5-axle Comb/Urban interstate	10.5	18.39	1.15	30.04*
80 kip 5-axle Comb/Urban interstate	40.9	20.06	1.15	62.11*
Note: S.U. = single unit; Comb = combination				

Source: Addendum to 1997 Federal Highway Allocation Study, Final Report, USDOT, FHWA, May 2000

Assumptions:

1. Urban interstate
2. 90% auto
3. 10% truck – use average total for urban trucks

Total Marginal Cost per mile for I-10 Mobile per year 10,000 ADT

Urban auto: $8.99 \times 0.9 = 8.09$ cents per mile

* Urban truck average: $(28.44 + 51.60 + 30.04 + 62.11) \div 4 = 43.05$ cents per mile

$43.05 \times 0.1 = 4.31$ cents per mile

Composite Urban Auto and Truck: $8.09 + 4.31 = 12.40$ cents per mile = \$0.1240/mile

Annual cost per mile: $\$0.1240 \times 10,000 \times 365 = \$452,600/\text{mile}$

Approximately \$0.45 million/mile

Travel cost per year per 10,000 ADT per mile

$\$0.405 \times 10,000 \times 365 \times 1/1,000,000 = \1.48 million/mile**

** Based upon federal mileage reimbursement rate for 2005

I-10 Mobile River Crossing Alternative Screening Criteria

Criteria	Cost for Additional Miles Traveled from Existing I-10 Corridor (Annual Cost in Millions for Each 10,000 ADT)													
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8	Alt. 9	Alt. 10	Alt. 11	Alt. 12	Alt. 13	Alt. 14
Additional miles traveled Increase/(Decrease)	(0.44)	(0.47)	(0.18)	(0.28)	9.13	8.63	(2.01)	(1.75)	(0.39)	24.28	13.41	0.51	3.41	(0.15)
a. Travel Cost ¹ \$1.48 M/mile	(0.65)	(0.70)	(0.27)	(0.41)	13.51	12.77	(2.97)	(2.59)	(0.58)	35.93	19.85	0.75	5.05	(0.22)
b. Marginal Cost ² \$0.45 M/mile	(0.20)	(0.21)	(0.08)	(0.13)	4.11	3.88	(0.90)	(0.79)	(0.18)	10.93	6.03	0.23	1.53	(0.07)
c. Total Cost³	(0.85)	(0.91)	(0.35)	(0.54)	17.62	16.65	(3.87)	(3.38)	(0.76)	46.86	25.88	0.98	6.58	(0.29)

¹ Based on additional miles traveled at \$0.405/mile per year

² Based on miles traveled. Includes pavement, congestion, and crash.

Source: Addendum to the 1997 Federal Highway Cost Allocation Study, Final Report, USDOT, FHWA, May 2000

³ () represents a savings due to decreased miles traveled.

APPENDIX D
CORRESPONDENCE

File

CITY OF MOBILE

OFFICE OF THE CITY COUNCIL
COUNCIL MEMBERS

REGGIE COPELAND, SR.
PRESIDENT-DISTRICT 3

THOMAS SULLIVAN
VICE PRESIDENT-DISTRICT 2

FREDERICK D. RICHARDSON, JR.
DISTRICT 1

CLINTON L. JOHNSON
DISTRICT 5

BEN BROOKS
DISTRICT 4

CONNIE HUDSON
DISTRICT 6

JOHN R. PEAVY
DISTRICT 7

CITY CLERK
GLENDA A. MORGAN

November 29, 2004

ACTION	INFO	ACTION	FILE
ENV. ENGINEER			
ADMINISTRATION			
CONSTRUCTION			
COUNTY TRANS			
DISTRICT ENGRS			
EQUIPMENT			
MAINTENANCE			
MATERIALS			
PLANNING			
SPECIAL PROJ			

*File - I-10 Br.
C. Volpert*



MICHAEL C. DOW
MAYOR

Mr. Joe McInnis, Director
Alabama Department of Transportation
1409 Coliseum
Montgomery, AL 36130-3050

Dear Joe:

A group of local elected officials and other interested citizens who are concerned about the location of a proposed high-rise 1-10 bridge over the Mobile River met recently in the City of Mobile to discuss this issue that will so clearly affect this city with a lasting impact. This group included Mayor Dow of Mobile, representatives from the Alabama Port Authority, historic preservation interests, the ship repair and shipbuilding industry and other community advocates.

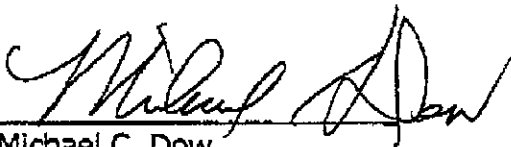
After much discussion and study, it was agreed that the most advantageous location for the new bridge appears to be in the area of the existing Cochrane Bridge just north of the Alabama Port facilities. The clear benefits of this location to the City and County of Mobile and the Alabama Port Authority are many and include the following advantages:

- Utilizing this location would remove the height restrictions that would result from the more southerly locations and the site's negative impact to Alabama's port, the ship repair and shipbuilding yards and Mobile's exciting new cruise industry.
- How can we build an interstate bridge directly over an active cruiseport with multiple cruise ships and high-speed ferries frequenting the port daily and weekly?
- Equally as problematic, it has been brought to my attention that the current bridge is designed at 190 feet. The new, modern and competitive cruise ships that Mobile is aggressively recruiting are 208 feet. This location and design relegates us to noncompetitive and smaller cruise ships forever.
- It would open up a more convenient corridor so that the proposed West Alabama interstate route, as well as the western loop around the City of Mobile, could be incorporated into the overall plan.
- This more northerly location would also significantly diminish the terrorism threat to US Navy vessels which are repaired and built from time to time at the local shipyards.

- There would be a minimal impact on structures of historic value to the area which is an important issue to the citizens of this city.

In view of the above, we respectfully ask that this more northerly location be given every consideration and be included in the pending EIS study in relation to the western bypass and the planned north-south interstate for west Alabama. A favorable response to our request will be deeply appreciated.

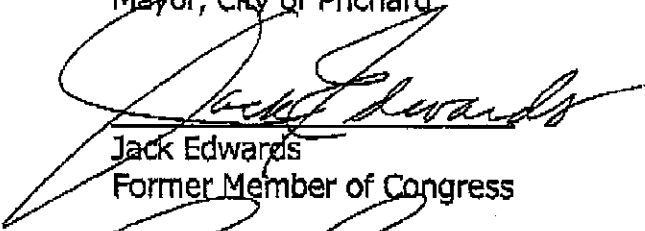
Sincerely,



Michael C. Dow
Mayor, City of Mobile



Ron Davis
Mayor, City of Prichard



Jack Edwards
Former Member of Congress



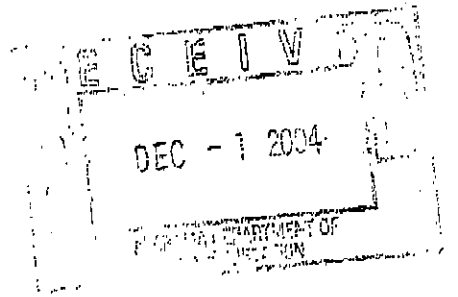
Jimmy Lyons
Director, Alabama State Docks



Ann Bedsole
Chair, Renaissance Mobile

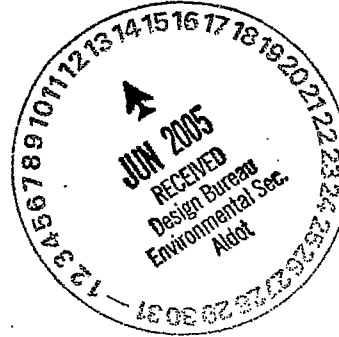
/jm

Copy: Joe Wilkerson
Don Vaughn
Ronnie Poiroux



June 9, 2005

Alfedo Acoff
Environmental Technical Section
Alabama Department of Transportation
1409 Coliseum Boulevard
Montgomery, AL 36130-3050



Re: AHC 2000-0352
I-10 Bridge
Baldwin & Mobile Counties

LEE H. WARNER
Executive Director

468 South Perry Street
Montgomery, Alabama
36130-0900

tel 334 242-3184
fax 334 240-3477

Dear ~~Ms. Acoff~~: *Alfedo*

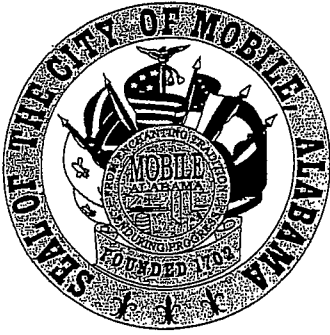
The Alabama Historical Commission held a staff meeting to discuss the fourteen alternatives for the above referenced project. After careful deliberation our office concluded that Alternative #11 is our preferred option, overall, as it seems to be a good long-term solution. Alternative #14 is also a reasonable choice. If, however, an in-town route is necessary the Alabama Historical Commission considers alternative #1 to have the least potential to profoundly effect historic properties. Further, Alternatives #4, #5, #6 & #7 may be acceptable. Finally our office can neither support alternatives #2, #3, #8, #9, #10, #12 nor #13 due to their potential to severely effect historic properties.

We appreciate your continued efforts to help us in preserving Alabama's non-renewable cultural resources. If you have questions or comments or if we may be of additional service, please contact Stacye Hathorn of our office and include the AHC project number referenced above.

Very truly yours,

Elizabeth Ann Brown
Deputy State Historic Preservation Officer

EAB/sgh



CITY OF MOBILE

OFFICE OF THE CITY COUNCIL
COUNCIL MEMBERS

REGGIE COPELAND, SR.
PRESIDENT-DISTRICT 5

THOMAS SULLIVAN
VICE PRESIDENT-DISTRICT 2

FREDRICK D. RICHARDSON, JR.
DISTRICT 1

CLINTON L. JOHNSON
DISTRICT 3

BEN BROOKS
DISTRICT 4

CONNIE HUDSON
DISTRICT 6

JOHN R. PEAVY
DISTRICT 7

CITY CLERK
GLENDA MORGAN

June 20, 2005



MICHAEL C. DOW
MAYOR

Mr. Joe McInnes, Transportation Director
Alabama Department of Transportation
1409 Coliseum
Montgomery, AL 36130-3050

Dear Joe:

I want to thank you, Joe Wilkerson, Don Vaughn, Ron Poiroux and your other team members for taking the time to brief the members of the I-10 Bridge Task Force in my conference room recently. I am writing to pass on the Bridge Task Force members' and my official response.

It is the city's desire that the Western Bypass and the Cochrane Bridge location option be left on the table along with selecting the Southern option that is considered the least disruptive to the state's Port, shipyards, cruise port and elements of Historic Mobile. We cannot afford the mistake that many other bay and river-system cities have made in limiting our commerce. Cruise ships must be studied as to their height requirements, and the industry must be accommodated on a Southern option.

As to the Cochrane Bridge option, all southbound I-65 traffic to eastbound I-10 and all I-10 westbound to I-65 North will take the Cochrane Bridge. All I-10 trucks can be mandated to take Cochrane Bridge. In congested Wallace Tunnel emergencies, all traffic on I-10 can be flashed to Cochrane Bridge. This should greatly ease Wallace Tunnel traffic and prevent the common truck accidents that frequently occur. I need to better understand "the study" related to this option in order to understand why this would not work.

A Western Bypass built for the Cochrane Bridge option will allow the city and county to grow significantly as Mobile migrates westward. Task Force members and I are available to come to Montgomery for brainstorming and working sessions on both the Western Bypass and Africa-Town issues at your request. We will work as diligently on a resolution to the problems of this much needed transportation corridor as we did on the Highway 98 project. We sincerely want to help find a solution that can make south Alabama safer and, equally as important, financially stronger in the end.

We know your job is difficult. I thank each of you for all that you do for our cities, counties and state.

Sincerely,

Michael C. Dow
Mayor

Copy: Joe Wilkerson, Don Vaughn, Ron Poiroux, Don Arkle, William Adams



ALABAMA DEPARTMENT OF TRANSPORTATION

1409 Coliseum Boulevard
P.O. Box 303050
Montgomery, Alabama 36130-3050



Bob Riley
Governor

Telephone: 334/242-6311 - Fax No.: 334/262-8041

Joe McInnes
Transportation Director

July 11, 2005

Mayor Michael C. Dow
City of Mobile
P.O. Box 1827
Mobile, AL 36633-1827

SECTION	INFO	ACTION	FILE
DIV ENGINEER			
ADMINISTRATION			
CONSTRUCTION			
COUNTY TRANS			
DISTRICT ENGRS			
EQUIPMENT			
MAINTENANCE			
MATERIALS			
PLANNING			
SPECIAL PROJ			

Dear Mayor Dow:

Thank you for the opportunity to meet with you and the I-10 Bridge Task Force in your office recently and your follow up letter of June 20, 2005. The Department appreciates your interest and attention to the I-10 Mobile River Bridge project. This project is vital, not only to Mobile, but to the entire southeastern United States.

As discussed in the meeting, we asked the South Alabama Regional Planning Commission to again model the effects that the West Mobile Bypass via Cochrane Bridge alternative would have on the traffic in the Wallace Tunnel. Their analysis shows that this alternate would only pull 18,000 vehicles per day out of the tunnel. This would leave approximately 80,000 vehicles trying to go through the tunnel each day and would result in an unacceptable level of service. Not considering the additional \$ 500 million cost, the Cochrane Bridge alternative would not meet the purpose and need of the project due to the lack of traffic relief in the tunnel. For this reason, the alternative will not be carried forward for detailed study in the environmental document.

The Department intends to carry Alternatives 3, 9, and a combination of 1 and 2 forward for detailed analysis in the Environmental Impact Study. Part of this detailed study will include a maritime study by Martin and Associates, of Lancaster, Pennsylvania, to determine the effects of each alternative on the State Docks, as well as the shipyard and cruise industries. A part of this study will help determine the actual height of the bridge to minimize any effect.

We want to encourage you, your successor, and the members of the I-10 Bridge Task Force to remain active participants in helping the Department as we strive to determine the best alternative for an I-10 Mobile River bridge that will wisely use the tax dollars of the citizens of Alabama, serve the traveling public and not only preserve, but enhance, the economic prosperity and development potential of the City of Mobile and this great state.

Sincerely,

D. J. McInnes
Transportation Director

DJM/WFA/WH

cc: Mr. Don T. Arkle
Mr. Ronnie Poiroux
Ms. Alfredo Acoff

Volkert & Associates, Inc.
Location File

SECTION	INFO	ACTION	FILE
CONSULTANT			
DESIGN			
LOCATION	✓		✓
RIGHT-OF-WAY			
UTILITIES			

July 22, 2005

Mr. D. W. Vaughn, P.E.
 Chief Engineer/Deputy Director
 Alabama Department of Transportation
 1409 Coliseum Boulevard
 Montgomery, AL 36130-3050

Dear Mr. Vaughn:

I appreciate the opportunity to be in the meeting with you, Don Arkle, Al Stokes, the Mayor, Steele Holman and Ronnie Poiroux this morning. It goes without saying that we are extremely interested in the bridge and the route that it will take. Without an official position, I feel comfortable that the Chamber would subscribe to four criteria seem to be paramount:

- That the bridge not curtail and jeopardize maritime commerce and construction;
- That the bridge have the ability to move the most people and product possible;
- That the bridge have minimal environmental impact; and
- That the project is doable in a reasonable timeframe so that we don't reach the gridlock that will inevitably come our way if the bridge is not forthcoming.

That having been said, we appreciate your offer to meet with different groups of people as this process goes forward. You can rest assured that we will take you up on that offer, and it might be in several different venues. Thank you again for your time, and please be sure to give my best regards to Joe McInnes.

Sincerely,

Winthrop M. Hallett III
 President

kd

pc: Mr. Don T. Arkle, P.E.
 Honorable Michael C. Dow
 Mr. Alan L. Heffernan
 Mr. Steele Holman
 Mr. Harris V. Morrissette
 Mr. Ronnie Poiroux
 Mr. Al Stokes

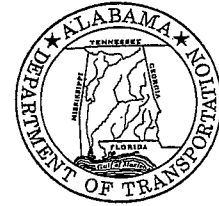


BOB RILEY
GOVERNOR

August 2, 2005

ALABAMA
DEPARTMENT OF TRANSPORTATION

NINTH DIVISION
OFFICE OF DIVISION ENGINEER
1701 I-65 WEST SERVICE ROAD N
MOBILE, ALABAMA 36618-1109
TELEPHONE: (251) 470-8200
FAX (251) 473-3624



JOE MCINNES
TRANSPORTATION DIRECTOR

The Honorable Michael C. Dow
Mayor of Mobile
Post Office Box 1827
Mobile, Alabama 36633-1827

Dear Mayor Dow:

Subject: New I-10 Mobile River Bridge
Project No. DPI-0030(005)

Reference is made to a meeting with you on July 22, 2005. Mr. Don Vaughn, Mr. Don Arkle, and I represented the Alabama Department of Transportation (ALDOT). The purpose of the meeting was to discuss alternatives being evaluated for the proposed improvements to the I-10 corridor in Mobile and Baldwin Counties. During the meeting, Mr. Vaughn stated, "He would provide you with additional information to support ALDOT's determination that a northern bridge alternative utilizing the existing Cochrane-Africatown (Cochrane) Bridge did not meet the purpose and need of the proposed transportation improvements; and therefore, this does not constitute a reasonable alternative."

The purpose of this letter is to provide you additional information regarding the identification of reasonable alternatives for detailed studies in the preparation of a Draft Environmental Impact Statement (DEIS). In particular, additional information is provided regarding the Cochrane Bridge alternatives.

Handouts for the public involvement meetings (copy enclosed) held on June 6, 2005, in Mobile and June 7, 2005, in Spanish Fort, included ALDOT's recommendation on further studies for Alternatives 1, 2, 3, 9, and 11. Alternatives 1, 2, 3, and 9 are in proximity to downtown Mobile, and Alternative 11 would use the Cochrane Bridge. Subsequent studies conducted by the South Alabama Regional Planning Commission (SARPC) found that Alternative 11 would not accomplish the primary purpose and need of the I-10 project to reduce congestion in the I-10 Wallace Tunnels. Alternatives 1, 2, 3, and 9 would accomplish this purpose and need. The enclosed letter, dated June 28, 2005, to Mr. Arkle from Mr. Paul Griggs, Volkert's Project Manager for the I-10 Study, outlines the findings of the SARPC traffic studies.

As described in Mr. McInnes' letter to you dated July 11, 2005, ALDOT will conduct further detailed studies on Alternatives 3, 9, and a combination of Alternatives 1 and 2. The results of these studies will be presented in a DEIS. The DEIS will be circulated for review and comment. Comments received on the DEIS will be evaluated and addressed in a Final Environmental Impact Statement (FEIS). The FEIS will then be circulated for review and comment. A final decision on the proposed I-10 transportation improvements will be made after comments are received on the FEIS.

The Honorable Michael C. Dow
August 2, 2005
Page 2

Additional information regarding the proposed I-10 improvements is also enclosed. I hope this information provides further insight on the need for the project and the basis for ALDOT's reasons to not further study the Cochrane Bridge alternatives. If you need additional information, please contact me at 470-8204. Thank you for your continued interest in this project.

Sincerely,

A handwritten signature in black ink, appearing to read "R.F. Poiroux". The signature is written in a cursive, flowing style.

R.F. Poiroux, P.E.
Division Engineer

Enclosures

c: Mr. Don Vaughn
Mr. Don Arkle
Mr. Paul Griggs
File

APPENDIX E
DESIGN CRITERIA

DESIGN CRITERIA
FOR USE IN A CORRIDOR STUDY
FOR AN I-10 BRIDGE OVER MOBILE RIVER

PREPARED: NOVEMBER 1997
REVISED: SEPTEMBER 2004

GENERAL

THE DESIGN CRITERIA AND GEOMETRIC STANDARDS CONFORM TO THE REQUIREMENTS OF THE LATEST "SPECIFICATION FOR HIGHWAY BRIDGES" PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) AND "POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" PUBLISHED BY AASHTO DATED 2001 AND THE FOLLOWING SUPPLEMENTARY CRITERIA:

TYPE FACILITY

ACCESS CONTROL

FREEWAY

FULL

DESIGN SPEED

MAIN ROADWAY

70 MPH DESIRABLE
60 MPH MINIMUM

DIRECTIONAL RAMPS

60 MPH DESIRABLE

RAMPS-CONVENTIONAL & SLIP RAMPS

45 MPH DESIRABLE

LOOP RAMPS

30 MPH DESIRABLE
25 MPH MINIMUM

CROSS STREETS AND STATE ROADS

60 MPH DESIRABLE

CROSS STREETS AND COUNTY ROADS

45 MPH DESIRABLE

FRONTAGE ROADS

45 MPH DESIRABLE
40 MPH MINIMUM

HORIZONTAL ALIGNMENT

MAINLINE

1820 FT MINIMUM RADIUS
3° MAXIMUM DEGREE OF CURVATURE

DIRECTIONAL RAMPS

1205 FT MINIMUM RADIUS
4°45' MAXIMUM DEGREE OF CURVATURE

RAMPS-CONVENTIONAL & SLIP

600 FT MINIMUM RADIUS
7°30' MAXIMUM DEGREE OF CURVATURE

RAMPS-LOOP

250 FT MINIMUM RADIUS
22°45' MAXIMUM DEGREE OF CURVATURE

VERTICAL ALIGNMENT

MAINLINE

2001 AASHTO GUIDE EXHIBITS 3-76 & 3-79

CREST CURVES – ALGEBRAIC DIFFERENCE IN GRADES X 247 MINIMUM* OR 1000 FT MINIMUM WHICHEVER IS LARGER.

SAG CURVES – ALGEBRAIC DIFFERENCE IN GRADES X 181 MINIMUM* OR 1000 FT MINIMUM WHICHEVER IS LARGER.

ARTERIALS

2001 AASHTO GUIDE EXHIBITS 3-76 & 3-79

CREST CURVES – ALGEBRAIC DIFFERENCE IN GRADES X K VALUE FOR DESIGN SPEED OR 800 FT MINIMUM WHICHEVER IS LARGER.

SAG CURVES – ALGEBRAIC DIFFERENCE IN GRADES X K VALUE FOR DESIGN SPEED OR 800 FT MINIMUM WHICHEVER IS LARGER.

RAMPS, CROSSROADS AND OTHER ROADS

2001 AASHTO GUIDE EXHIBITS 3-76 & 3-79

GRADES

MAIN ROADWAY

± 4.0 % DESIRABLE
± 5.0% MAXIMUM

CROSS STREETS
STATE ROADS

± 3.0 % DESIRABLE
± 6.0 % MAXIMUM

COUNTY ROADS

± 4.0 % DESIRABLE
± 8.0 % MAXIMUM

RAMPS

DOWN GRADE
5.0 % DESIRABLE MAXIMUM
6.0 % MAXIMUM
UP GRADE
± 4.0 % DESIRABLE
± 7.0 % MAXIMUM

FRONTAGE ROADS

± 5.0 % DESIRABLE
± 8.0 % MAXIMUM

BRIDGE OVER MOBILE SHIP CHANNEL

± 4.0% MAXIMUM

MINIMUM LANE WIDTHS

MAIN ROADWAY
(4-LANE MINIMUM)

12 ft.

RAMPS & COLLECTOR/DISTRIBUTOR ROADS
SINGLE LANE

16 ft.

EXHIBIT 3-55 2001 AASHTO GUIDE CASE II
CONDITION C, DEDUCT TOTAL PAVED
SHOULDER FOR TRAVEL WAY WIDTH.
FROM EXHIBIT 3-54 2001 AASHTO GUIDE
OBTAIN TRAVEL WAY WIDTH FOR CASE I -
WB-62 AND USE LARGER OF THE TWO
WIDTHS.

TWO OR MORE LANES

12 ft.

EXHIBIT 3-55 2001 AASHTO GUIDE CASE III
CONDITION C, DEDUCT TOTAL PAVED
SHOULDER FOR TRAVEL WAY WIDTH.
FROM EXHIBIT 3-54 2001 AASHTO GUIDE
OBTAIN TRAVEL WAY WIDTH FOR CASE III -
WB-62 AND USE LARGER OF THE TWO
WIDTHS.

INTERCHANGE CROSSROADS

12 ft.

OTHER ROADS

VARIES FROM 10 ft. TO 12ft.
(SEE 2001 AASHTO GREEN BOOK,
CHAPTERS 5 & 6 & ALDOT COUNTY ROAD
POLICY.)

SUPERELEVATION

MAINLINE AND RAMPS

2001 AASHTO GUIDE EXHIBIT 3-23 @
8.0% MAXIMUM

CITY AND LOCAL STREETS

2001 AASHTO GUIDE EXHIBIT 3-22 @
6.0 % MAXIMUM

CROSS SLOPES

MAIN ROADWAY & COLLECTOR/
DISTRIBUTOR ROADS WITH FOUR
OR MORE LANES IN ONE DIRECTION

2.0 % CROWNED SECTION WITH CROWN
FORMED 12 ft. FROM INSIDE EDGE OF
PAVEMENT ON 4 LANE AND 6 LANE
SECTION AND 24 ft. FROM INSIDE EDGE ON
8 LANE SECTION.

INCREASE CROSS-SLOPE BY 0.5% AFTER
EACH 24 FT. OF WIDTH AWAY FROM
CROWN

RAMPS & COLLECTOR/DISTRIBUTOR
ROADS WITH THREE OR LESS LANES

2.0 % STRAIGHT SLOPE
FROM LEFT OF TRAFFIC PAVEMENT EDGE

INCREASE CROSS-SLOPE BY 0.5% AFTER
EACH 24 FT. OF WIDTH AWAY FROM
CROWN

CROWN ROLLOVER IN RAMP GORE AREA

5.0 % DESIRABLE
7.0 % MAXIMUM

CROSS SLOPE FOR SHOULDERS

PAVED SHOULDERS

4.0 % STRAIGHT SLOPE FROM
TRAFFIC PAVEMENT EDGE

UNPAVED SHOULDERS

6.0 % STRAIGHT SLOPE FROM
TRAFFIC PAVEMENT EDGE

SHOULDER WIDTHS

MAINLINE

OUTSIDE

12 ft. GRADED
10 ft. PAVED

INSIDE

4 LANE SECTION
(2 PER DIRECTION)

6 ft. GRADED
4 ft. PAVED

6 LANES OR MORE
(3 OR MORE PER DIRECTION)

12 ft. GRADED
10 ft. PAVED

RAMPS

SINGLE LANE
OUTSIDE

7 ft. GRADED
5 ft. PAVED

INSIDE

6 ft. GRADED
4 ft. PAVED

TWO LANES
OUTSIDE

12 ft. GRADED
10 ft. PAVED

INSIDE

6 ft. GRADED
4 ft. PAVED

THREE OR MORE LANES
OUTSIDE & INSIDE

12 ft. GRADED
10 ft. PAVED

SIDEROADS

OUTSIDE

10 ft. GRADED
8 ft. PAVED

INSIDE, DIVIDED MEDIAN

8 ft. GRADED
4 ft. PAVED

BRIDGES

MAINLINE OUTSIDE	10 FT MINIMUM
INSIDE 4 LANE SECTION (2 PER DIRECTION)	10 FT DESIRABLE 6 FT MINIMUM
6 LANES OR MORE (3 OR MORE PER DIRECTION)	10 FT MINIMUM
RAMPS SINGLE LANE OUTSIDE	5 FT
INSIDE	4 FT
TWO OR MORE LANES OUTSIDE	10 ft.
INSIDE	10 FT

SIDE SLOPES

GENERAL	USE 3:1 MAXIMUM SLOPE IN INTERCHANGE AREA. (JUSTIFICATION AND DESIGN EXCEPTION REQUIRED FOR STEEPER SLOPES.)
MAINLINE OUTSIDE	USE 6:1 SLOPE FOR 21 ft. EACH SIDE ALDOT STANDARD GN2/NOTE 108 FOR CUT/FILL CONDITIONS OUTSIDE OF 6:1 SLOPE AREA.
INSIDE	USE 8:1 MAXIMUM SLOPE IN 74 ft. MEDIAN. USE 6:1 MAXIMUM SLOPE IN 50 ft. MEDIAN.
RAMPS (V ≥ 50 MPH)	USE 6:1 SLOPE FOR 21 ft. EACH SIDE USE ALDOT STANDARD GN2/NOTE 108 FOR CUT/FILL CONDITIONS OUTSIDE OF 6:1 SLOPE AREA.
RAMPS (V ≤ 50 MPH)	USE ALDOT STANDARD GN2/NOTE 108. 6:1 SLOPES TO BE CARRIED THROUGH GORE AREAS.
(DIVIDED AND DESIGN SPEED 50 mph OR GREATER AND ON STATE OR U.S ROUTE)	FOR 18 ft. ON CUT FRONT SLOPE. USE STANDARD ALDOT GN2/NOTE 107 FOR CUT/FILL SLOPES.
CROSSROADS	USE ALDOT STANDARD GN2/NOTE 106 OR 107 DEPENDING ON TRAFFIC VOLUME.

VERTICAL CLEARANCES (MINIMUM)

OVER RAILROADS	23 ft.
OVER MAIN ROADWAY	17 ft.
OVER RAMPS	17 ft.
OVER CROSSROADS	17 ft.
OVER MOBILE RIVER SHIP CHANNEL	190 FT

HORIZONTAL CLEARANCES

MAIN ROADWAY, COLLECTOR/ CROSSROADS	30FT RIGHT AND LEFT 30 FT RIGHT AND LEFT (16 FT ALLOWED IN SPECIAL CASES)
RAMPS	20 FT RIGHT AND LEFT
RAILROADS	WITHOUT CRASHWALLS: 25 ft. MINIMUM RIGHT AND LEFT (FROM CENTER OF TRACK) WITH CRASH WALLS: 18 ft. MINIMUM ONE SIDE 14 ft. TO 18 ft. MINIMUM OTHER SIDE (FROM CENTER LINE OF TRACK)
BRIDGE FROM TOE OF CHANNEL	75 FT MINIMUM

BRIDGE END SLOPE

ALL ROADWAYS	3:1 DESIRABLE MAXIMUM 2:1 MAXIMUM
STREAMS AND RAILROADS	2:1

ACCELERATION LANE LENGTHS

1000 ft. MINIMUM PARALLEL TYPE LANE REQUIRED. SEE 2001 AASHTO GUIDE (EXHIBITS 10-70, 10-71, & 10-73) AND ALDOT STANDARD DRAWING.

DECELERATION LANE LENGTHS

TAPER TYPE PREFERRED, EXCEPT IN CASES WHERE THE MAIN ROADWAY IS IN A HORIZONTAL CURVE OR DECELERATION LANE IS FOR A LOOP RAMP. 800 ft. MINIMUM PARALLEL TYPE DECELERATION LANE REQUIRED. SEE 2001 AASHTO GUIDE (EXHIBITS 10-70 AND 10-71) AND ALDOT STANDARD DRAWING.

DRAINAGE

USE FHWA HYDRAULIC CIRCULARS, ALDOT "HYDRAULIC MANUALS", 23 CFRR-650A "LOCATION AND HYDRAULIC DESIGN OF ENCROACHMENT IN FLOOD PLAINS" AND FEMA FLOOD INSURANCE PROGRAM.

MAIN ROADWAY & RAMP CROSS DRAINS

50 YEARS (CHECK FOR OVERTOPPING 100 YEAR AND 200 YEAR FLOODS.)

APPENDIX F
GEOMETRIC ANALYSIS AND
COST ESTIMATES

APPENDIX F
Geometric Analysis and Cost Estimates
I-10 Mobile River Bridge Screening Evaluation
Project Number DPI-0030 (005)
Volkert Contract Number 911602

SECTION I

Introduction

Step Two Geometric Analysis Description

Step Four Cost Estimate Description

Alternative 1

- Horizontal Route Description
- Laneage Requirements and Overall Project Length
- Vertical Description
- Required Interchanges
- Cost Estimate Description
- Summary and Conclusions
- Alternative 1 Cost Estimate

Alternative 2

- Horizontal Route Description
- Laneage Requirements and Overall Project Length
- Vertical Description
- Required Interchanges
- Cost Estimate Description
- Summary and Conclusions
- Alternative 2 Cost Estimate

Alternative 3

- Horizontal Route Description
- Laneage Requirements and Overall Project Length
- Vertical Description
- Required Interchanges
- Cost Estimate Description
- Summary and Conclusions
- Alternative 3 Cost Estimate

Alternative 4-The Tunnel

- Horizontal Route Description
- Laneage Requirements and Overall Project Length
- Vertical Description
- Impacts Due to Construction of Tunnel

Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 4 Cost Estimate

Alternatives 5 and 6

Horizontal Route Description
Laneage Requirements and Overall Project Length
Vertical Description
Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 5 Cost Estimate
Alternative 6 Cost Estimate

Alternative 7

Horizontal Route Description
Laneage Requirements and Overall Project Length
Vertical Description
Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 7 Cost Estimate

Alternative 8

Horizontal Route Description
Laneage Requirements and Overall Project Length
Vertical Description
Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 8 Cost Estimate

Alternative 9

Horizontal Route Description
Laneage Requirements and Overall Project Length
Vertical Description
Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 9 Cost Estimate

Alternative 10

Horizontal Route Description
Laneage Requirements and Overall Project Length
Vertical Description

Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 10 Cost Estimate

Alternative 11

Horizontal Route Description
Laneage Requirements and Overall Project Length
Vertical Description
Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 11 Cost Estimate

Alternative 12

Horizontal Route Description
Laneage Requirements and Overall Project Length
Vertical Description
Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 12 Cost Estimate

Alternative 13

Horizontal Route Description
Laneage Requirements and Overall Project Length
Vertical Description
Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 13 Cost Estimate

Alternative 14

Horizontal Route Description
Laneage Requirements and Overall Project Length
Vertical Description
Required Interchanges
Cost Estimate Description
Summary and Conclusions
Alternative 14 Cost Estimate

Section I Summary

SECTION II COST DESCRIPTION AND REFERENCED CHARTS

Introduction

Cost Descriptions and Assumptions Outline

Bridge Construction Costs

- Mobile River Bridge Construction
- I-10 Bayway Widening
- New Bayway Construction
- New Interstate Bridge Construction
- Bridges over Roadways and Other Navigational Channels
- Removal of Structures
- Tunnel Construction

Roadway Construction Costs

- I-10 Widening
- New Interstate Roadway Construction
- I-65 Widening Costs
- Relocation of Frontage Roads
- Retaining Wall Construction
- Interchanges

Right of Way Costs

Contingencies

Referenced Cost Charts

LIST OF TABLES

Table 1 Mobile River Bridge Alternatives Cost Summary

Table 2 Alternative 1 Cost Estimate

Table 3 Alternative 2 Cost Estimate

Table 4 Alternative 3 Cost Estimate

Table 5 Alternative 4 Cost Estimate

Table 6 Alternative 5 Cost Estimate

Table 7 Alternative 6 Cost Estimate

Table 8 Alternative 7 Cost Estimate

Table 9 Alternative 8 Cost Estimate

Table 10 Alternative 9 Cost Estimate

Table 11 Alternative 10 Cost Estimate

Table 12 Alternative 11 Cost Estimate

Table 13 Alternative 12 Cost Estimate

Table 14 Alternative 13 Cost Estimate

Table 15 Alternative 14 Cost Estimate

LIST OF EXHIBITS

Exhibit 1 Mobile Harbor, Alabama Mobile Waterfront Area

Exhibit 2 Mobile River I-10 Bridge Alternatives

Exhibit 2A Mobile River I-10 Bridge Alternatives

Exhibit 3 Alternative 1

Exhibit 4 Alternative 2

Exhibit 5 Alternative 3

Exhibit 6 Alternative 4

Exhibit 7 Alternative 5

Exhibit 8 Alternative 6

Exhibit 9 Alternative 7

Exhibit 10 Alternative 8

Exhibit 11 Alternative 9

Exhibit 12 Alternative 10

Exhibit 13 Alternative 11

Exhibit 14 Alternative 12

Exhibit 15 Alternative 13

Exhibit 16 Alternative 14

Exhibit 17 Bridge Deck and Approach Structures Unit Costs

Exhibit 18 1999 ALDOT Preliminary Cost Estimate Chart

Exhibit 19 2005 ALDOT Estimated Bridge Costs

Exhibit 20 1996 ALDOT Preliminary Cost Estimate Chart

Exhibit 21 Wallace Tunnel Project Description and Cost Estimate

Exhibit 22 2005 Right-of-Way Cost Information

Exhibit 23 Preliminary Right-of Way Estimate along I-65 from I-10 to I-165

(Developed by ALDOT for Alternatives 5 and 6)

APPENDIX F

I-10 MOBILE RIVER CROSSING

GEOMETRIC ANALYSIS AND COST ESTIMATES FOR PROPOSED ALTERNATIVES

The contents of this appendix combine both Steps 2 and 4 for each of the fourteen alternatives of the screening process. With each section tailored to the characteristics of each alternative, the narrative will describe the proposed horizontal route, the laneage requirements and overall project length, vertical span across the Mobile River Ship Channel, required interchanges, right of way, and cost estimate assumptions and procedures. A labeled map for quick reference and a detailed cost estimate spreadsheet is included for each alternative in its relative section.

Step Two Geometric Analysis Description

Step Two of the screening process studies the conceptual geometrics and considers the practicality of each of the fourteen alternatives at an equivalent level of detail. A portion of Step Two involves an analysis of the conceptual geometric design of both the horizontal and vertical alignments to determine if the alternatives could meet the criteria for an interstate highway. This analysis was based upon the 2004 edition of "Policy on Geometric Design of Highways and Streets" published by American Association of State and Highway Transportation Officials (AASHTO Green Book). This step also considers the practical nature of the alternative with respect to all of the alternatives as a whole. If the alternative could be designed to meet criteria recommended by the AASHTO Green Book for interstate highways, then the alternative was deemed technically feasible. The physical paths of the alternatives, the overall project lengths, laneage requirements, and complications with constructability (i.e., interchange modifications, poor terrain, and bridge structure removal) were used to determine the practicality of the alternative.

The project map as given in **Exhibits 2 and 2A** served as the basis for determining the proposed horizontal alignment locations for each of the alternatives. The Mobile River Ship Channel width, shown in **Exhibit 1**, combined with surrounding turning basins, and the skew of the proposed bridge crossing established the basis for determining the main span length and pier locations of the cable stayed bridge. Laneage requirements were determined from the results from analysis of projected traffic volumes and capacity as given in models ran by South Alabama Regional Planning Commission.

EXHIBIT 1 MOBILE HARBOR DIMENSIONS

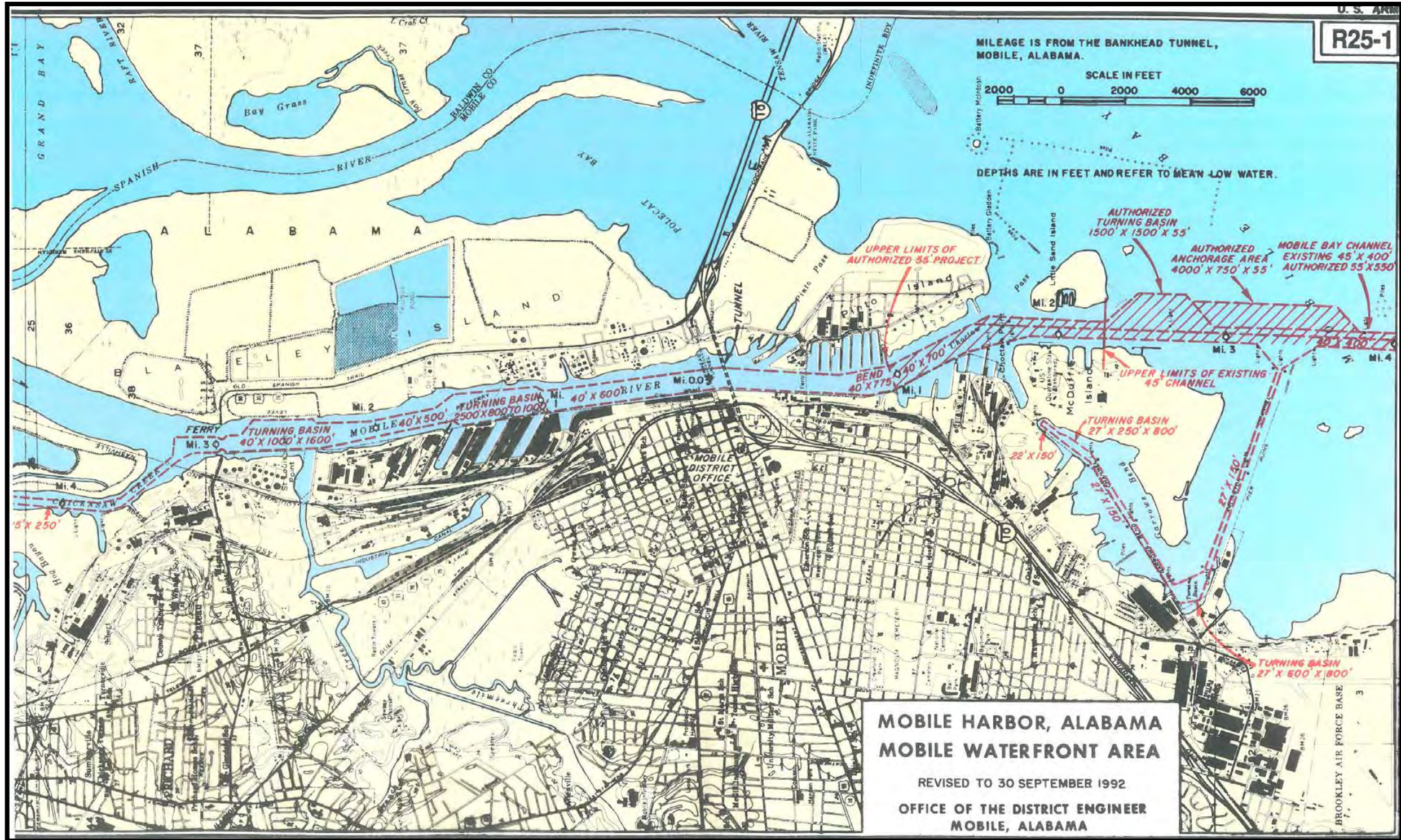


EXHIBIT 2

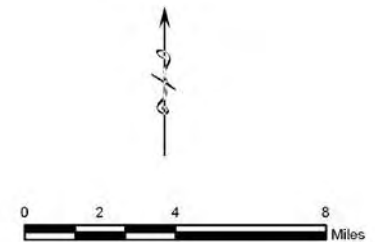
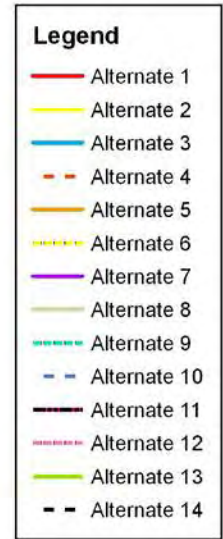
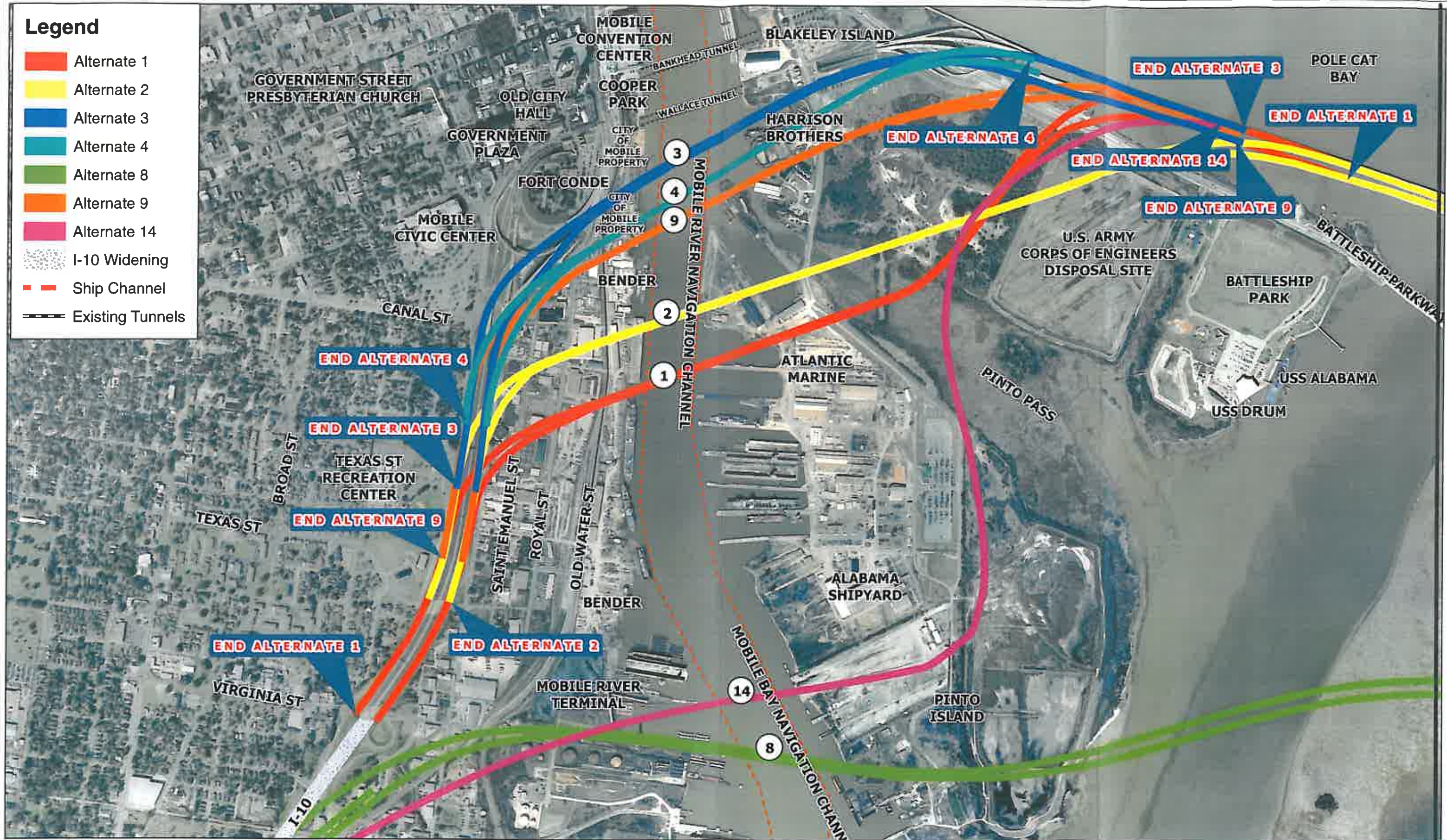


EXHIBIT 2
Mobile River I-10
Bridge Alternatives

Legend

- Alternate 1
- Alternate 2
- Alternate 3
- Alternate 4
- Alternate 8
- Alternate 9
- Alternate 14
- I-10 Widening
- Ship Channel
- Existing Tunnels



Using electronic software, the fourteen alignments were graphically reproduced to best depict the proposed alternatives shown in **Exhibits 2 and 2A** and then reviewed for compliance with the following AASHTO Green Book criteria:

Horizontal Geometry

1. Minimum horizontal radius and curvature for design speed of 70 mph
2. Tangent length required for $e_{\max}=8\%$ with an 80/20 transition to superelevation (80% outside the curve and 20% inside the curve)
3. 15V for minimum horizontal curve length (15 times the design speed)

Vertical Geometry at Navigation Channel Crossing

1. Desirable Grade of 4%; Maximum Grade of 5%
2. Vertical Clearance of 190' over Navigational Channel

Step Four Cost Estimate Description

Step Four in the Mobile River Bridge Screening of Alternatives develops a construction cost estimate for each of the fourteen proposed alternatives at an equivalent level of detail. Evaluated for construction costs are the costs associated with the construction of major interstate bridge/tunnel structures, interstate roadway construction, interchange construction/modification, right of way acquisition, an added 20% additional overhead, and an added 20% contingency to the subtotal cost. Not included in these preliminary costs include traffic handling, traffic signals, signing, detours, and utilities.

Preliminary costs developed by Alabama Department of Transportation (ALDOT) were used in conjunction with costs recommended by subconsultants to calculate an estimated construction cost for each alternative. **Section II Cost Description and Referenced Charts** can be referred to for a more detailed description of the individual items included in the cost estimates, as well as copies of the resources used for guidance to develop these estimates.

The matrix shown on **Table 1** summarizes the estimated construction costs determined in Step Four for each of the fourteen alternatives.

TABLE 1 - MOBILE RIVER BRIDGE ALTERNATIVES COSTS SUMMARY

ALTERNATIVE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
BRIDGE LENGTH (FT.)	48458'	45501'	49936'	44769'	65808'	65641'	54960'	48794'	48722'	162574'	65808'	49940'	55220'	54692'
ROADWAY LENGTH (MILE)	1.1	1.1	1.1	1.1	10.0	10.0	2.4	1.1	1.1	40.8	29.3	3.4	15.5	1.1
TOTAL PROJECT LENGTH (MILE)	10.2	9.7	10.5	9.5	22.5	22.4	12.8	10.3	10.3	71.6	41.8	12.9	26.0	11.4
GRADE & DRAIN (\$M)	0.50	0.50	0.50	0.50	8.48	8.48	1.29	0.65	0.50	24.9	17.9	2.08	9.47	0.50
BASE & PAVEMENT (\$M)	1.5	1.5	1.5	1.5	22.7	22.7	4.2	1.5	1.5	85.7	61.5	7.1	32.6	1.5
NEW BRIDGE (\$M)	137.2	143.2	146.8		151.4	156.0	792.3	501.3	153.6	1681.8	162.5	656.2	678.0	207.8
BRIDGE WIDENING (\$M)	237.1	218.4	246.5	240.8	246.8	240.1	114.5	114.5	238.8		240.1			237.1
REMOVE OLD BRIDGE (\$M)					1.4	1.4					1.4			
CURB & GUTTER (\$M)					2.4	2.4								
STORM DRAINAGE (\$M)					6.7	6.7								
OTHER/ INTERCHANGES (\$M)	24	24	30	832	165	165	18	18	24	102	140	50	50	30
SUB-TOTAL (\$M)	400	388	425	1075	605	603	930	636	418	1894	623	715	770	477
CONTINGENCIES (20%) (\$M)	80	78	85	215	121	121	186	127	84	379	125	143	154	95
OVERHEAD COSTS (20%) : ENGINEERING CONTROLS (2%), MOBILIZATION (5%), E&I (13%) (\$M)	80	78	85	215	121	121	186	127	84	379	125	143	154	95
CONSTRUCTION COST (\$M)	560	544	595	1505	847	845	1302	890	586	2652	873	1001	1078	667
R.O.W. (\$M)	43	116	22	45	126	127	105	83	34	274	276	48	219	93
TOTAL COST (\$M)	603	660	617	1550	973	972	1407	973	620	2926	1149	1049	1297	760

ALTERNATIVE 1

(See Exhibit 3)

Horizontal Route Description

The bridge for Alternative 1 begins at the I-10/Virginia Street interchange, follows the existing I-10 route northeasterly, shifts due east between the I-10 interchanges with Texas Street and Canal Street, spans the Mobile River Navigation Channel at a vertical clearance of 190 feet, and ties into the I-10 Bayway approximately 0.5 miles east of the Wallace Tunnels. Prior to merging with the existing I-10 Bayway, Alternative 1 jogs slightly north to avoid the Alabama State Port Authority/U.S. Army Corps of Engineers (ASPA/ USACE) Disposal Area. Alternative 1 would not pass through areas currently undeveloped by interstate roadways, but would pass over such areas.

Laneage Requirements and Overall Project Length

The results from capacity analysis of the current traffic volume projections were used to determine laneage requirements for Alternative 1. A total of 1.06 miles is necessary for the transition to widen from eight lanes to twelve lanes on I-10 roadway. Widening would occur from approximately 200 ft east of the overpass at the Broad Street Interchange to the Virginia Street interchange where the bridge will begin. The I-10 Bayway would be widened by four lanes (two in each direction) to the inside from where Alternative 1 merges into the Bayway to the US 98/I-10 interchange, a distance of approximately 7.1 miles.

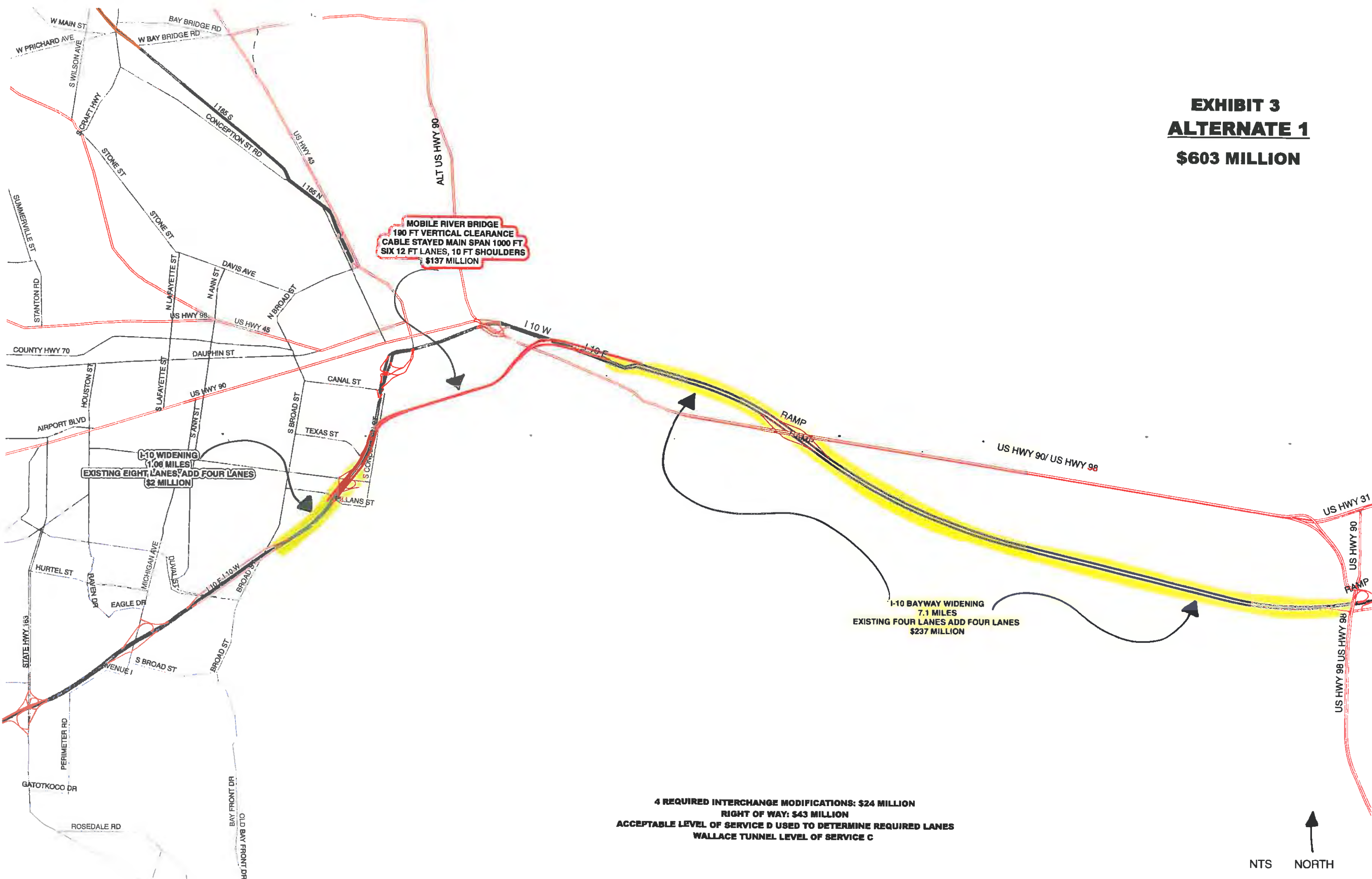
Vertical Description (Span over the Mobile River Navigation Channel)

The west bridge structure approaches would begin at the bank of the Mobile River in Mobile County at Conception Street between Texas Street and Canal Street and span the Mobile River Navigation Channel. The vertical geometry was designed utilizing a minimum vertical clearance of 190 feet over the navigation channel and a maximum grade of 4%. Based on these criteria, the approach structures would begin at approximately 5,125 feet west of the navigation channel and 4,000 feet east of the navigation channel to achieve required vertical clearance. Based upon the width of the Mobile River Navigation Channel (600 feet), the main span skew length for Alternative 1 would be 1,000 feet with side spans of 500 feet. Studies performed as part of prior work developed in the Environmental Assessment indicated that the optimum length of the side spans for a cable-stayed bridge was 60% of the main span length. According to this criteria, the side spans of Alternative 1 would not be of optimum length for a cable-stayed bridge.

Required Interchanges

The existing interstate roadway and bridge structure along I-10 would be widened as part of the proposed project. Therefore, existing interchanges within the area to be widened would have to be removed, modified, and rebuilt. Four

EXHIBIT 3
ALTERNATE 1
\$603 MILLION



MOBILE RIVER BRIDGE
190 FT VERTICAL CLEARANCE
CABLE STAYED MAIN SPAN 1000 FT
SIX 12 FT LANES, 10 FT SHOULDERS
\$137 MILLION

I-10 WIDENING
1.08 MILES
EXISTING EIGHT LANES, ADD FOUR LANES
\$2 MILLION

I-10 BAYWAY WIDENING
7.1 MILES
EXISTING FOUR LANES ADD FOUR LANES
\$237 MILLION

4 REQUIRED INTERCHANGE MODIFICATIONS: \$24 MILLION
RIGHT OF WAY: \$43 MILLION
ACCEPTABLE LEVEL OF SERVICE D USED TO DETERMINE REQUIRED LANES
WALLACE TUNNEL LEVEL OF SERVICE C

NTS
NORTH

interchanges currently exist within the area to be widened as part of Alternative 1; therefore, it was assumed that four interchanges would be modified for this alternative.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate shown in **Table 2** for Alternative 1.

- Bridge Construction
 - Cable Stayed Mobile River Bridge (190' clearance)
 - Six lanes, 12' wide, 10' shoulders inside and outside- per current traffic volume projections
 - Main Span =1000'
 - Symmetrical Side Spans=500'
 - Approach Structures
 - Unit Costs recommended by Earth Tech, refer to **Section II Table 1**
 - I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-per current traffic volume projections
 - Widened from proposed tie-in to US 98 Interchange
 - \$110.00 per square foot per ALDOT Bridge Bureau
 - Roadway Construction
 - I-10 Widening
 - Existing eight lanes, add four lanes (two in each direction) – per current traffic volume projections
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction
 - Interchanges
 - Four assumed required interchanges
 - Assumption: Estimate \$6 million per existing interchange to be modified
 - Right of Way
 - 2005 Right-of-Way Cost Information for unit costs- **Section II Cost Description and Referenced Charts**
- Contingencies

- 20% contingency added to subtotal
- Additional Overhead: ALDOT Preliminary Cost Estimate Chart-
Section II Cost Description and Referenced Charts
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I =
20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 1 would involve 1.06 miles of I-10 roadway widening, 7.1 miles of I-10 Bayway widening, and approximately 4 interchange modifications in areas that have been previously developed by interstate roadway. Alternative 1 appears to be a practical alternative. Analysis of the horizontal and vertical geometrics indicates that Alternative 1 could meet the technical requirements for an interstate highway.

Alternative 1 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Widening	1.06
Miles of Interstate Bridge Widening	7.1
Interchange Modifications	4
Cost Estimate Summary	(\$million)
Roadway Costs	2.1
New Bridge Costs	137
Bridge Widening Costs	237
Interchange/Other Costs	24
20% Additional Overhead	80
20% Contingency	80
Right of Way Costs	43
ALTERNATIVE 1 ESTIMATED CONSTRUCTION COST	603

**TABLE 2
ALTERNATIVE 1 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
 I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
 ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
 UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 1 - MAINSPAN = 1000'				
NEW BRIDGE CONSTRUCTION				
NEW CABLE STAYED BRIDGE CONSTRUCTION: MOBILE RIVER BRIDGE WITH 190' VERTICAL CLEARANCE OVER SHIP CHANNEL SIX LANES @ 12' WIDTH WITH 10' SHOULDERS				
NEW APPROACH STRUCTURES COST/SF	\$87.50	cost recommended by EarthTech for new construction		
NEW BRIDGE DECK COST/SF (includes deck, cables, towers & piers, footings)	\$220.00	cost recommended by EarthTech for new construction		
STRUCTURE WIDTH (FT)	112			
APPROACH STRUCTURE LENGTH (FT)	8970	MEASURED IN CAD		
BRIDGE DECK LENGTH (FT)	2000	MEASURED IN CAD		
NEW BRIDGE CONSTRUCTION TOTAL	\$137,186,000.00			
ROADWAY CONSTRUCTION				
ALDOT PRELIMINARY COST ESTIMATE CHART DATA ALABAMA ZONE VI FLAT TERRAIN				
I-10 WIDENING: EXISTING 8 LANES (4 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION) ALDOT COST DESCRIPTION: 4 LANES NEW CONSTRUCTION				
GRADE AND DRAIN				
FACTOR	1			
COST/MILEX1000	470.00			
FACTORED COST/MILEX1000	470.00			
MILES	1.06			
G&D COST	\$498,200.00			
BASE AND PAVE				
FACTOR	1			
COST/MILEX1000	1,400.00			
FACTORED COST/MILEX1000	1,400.00			
MILES	1.06			
B&P COST	\$1,484,000.00			
I-10 WIDENING SUBTOTAL	\$1,982,200.00			
5% INCREASE FOR BROAD STREET IMPACT	\$99,110.00			
I-10 WIDENING TOTAL	\$2,081,310.00			
INTERCHANGE CONSTRUCTION				
ASSUMPTION: COST/INTERCHANGE	\$6,000,000.00	FOR EXISTING INTERCHANGE MODIFICATIONS		
Virginia Street and I-10	1			
Texas Street and I-10	1			
US HWY 90/US HWY 98 and I-10	1			
US HWY 98 and I-10	1			
TOTAL REQUIRED INTERCHANGES	4			
REQUIRED INTERCHANGE SUBTOTAL	\$24,000,000.00			
BRIDGE WIDENING				
BAYWAY WIDENING: EXISTING 4 LANES (2 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION) FOR A TOTAL WIDTH OF 57.5'				
BRIDGE WIDENING (FOUR 12' LANES)				
COST/SF	\$110.00	PER ALDOT BRIDGE BUREAU		
LENGTH WIDENED (MILES)	7.1	MEASURED IN CAD		
AREA WIDENED (SF)	2155560			
BRIDGE WIDENING COST	\$237,111,600.00			
BAYWAY WIDENING SUBTOTAL	\$237,111,600.00			
RIGHT OF WAY COST				
INDUSTRIAL WATERFRONT PROPERTIES	2,362	UNIT	UNIT COST	
INDUSTRIAL NON-WATERFRONT PROPERTIES	1,077,000		\$14,000.00	PER WFF \$33,068,000.00
IMPROVEMENTS TO INDUSTRIAL PROPERTY @ 50% BUILD UP	62,500		\$6.88	PER SF \$7,409,760.00
IMPROVEMENTS TO COMMERCIAL PROPERTY @ 50% BUILD UP	306,120		\$48.00	PER SF \$3,000,000.00
			\$42.00	PER SF \$12,857,040.00
RIGHT OF WAY COST				\$43,477,760.00
Total Estimated Right of Way Cost				\$43,000,000.00

TOTAL PROJECT COSTS				
NEW BRIDGE CONSTRUCTION				
ROADWAY CONSTRUCTION				
INTERCHANGE CONSTRUCTION				
BRIDGE WIDENING				
RIGHT OF WAY COST				
TOTAL PROJECT COSTS				

ALTERNATIVE 2

(See Exhibit 4)

Horizontal Route Description

The bridge for Alternative 2 begins at the I-10/Texas Street interchange, and follows the existing I-10 route northeasterly. Alternative 2 alignment then shifts due east to cross over the Mobile Metro County Jail and spans the Mobile River Navigation Channel at a vertical clearance of 190 feet. After crossing over the ASPA/USACE Disposal Area the bridge ties into the I-10 Bayway approximately 0.75 mile east of the Wallace Tunnel. Alternative 2 would not pass through areas currently undeveloped by interstate roadways, but would pass over such areas.

Laneage Requirements and Overall Project Length

The results from the capacity analysis of the current traffic volume projections were used to determine laneage requirements for Alternative 2. A total of 1.06 miles is necessary for the transition to widen from eight lanes to twelve lanes on I-10 roadway. Widening would begin approximately 900 ft east of the overpass at the Broad Street Interchange and end at the Texas Street Interchange where the bridge will begin. The I-10 Bayway would be widened from where Alternative 2 merges into the Bayway and the US 98/I-10 interchange, a distance of approximately 6.54 miles. Four lanes would be added to the inside of the Bayway for a total of eight lanes.

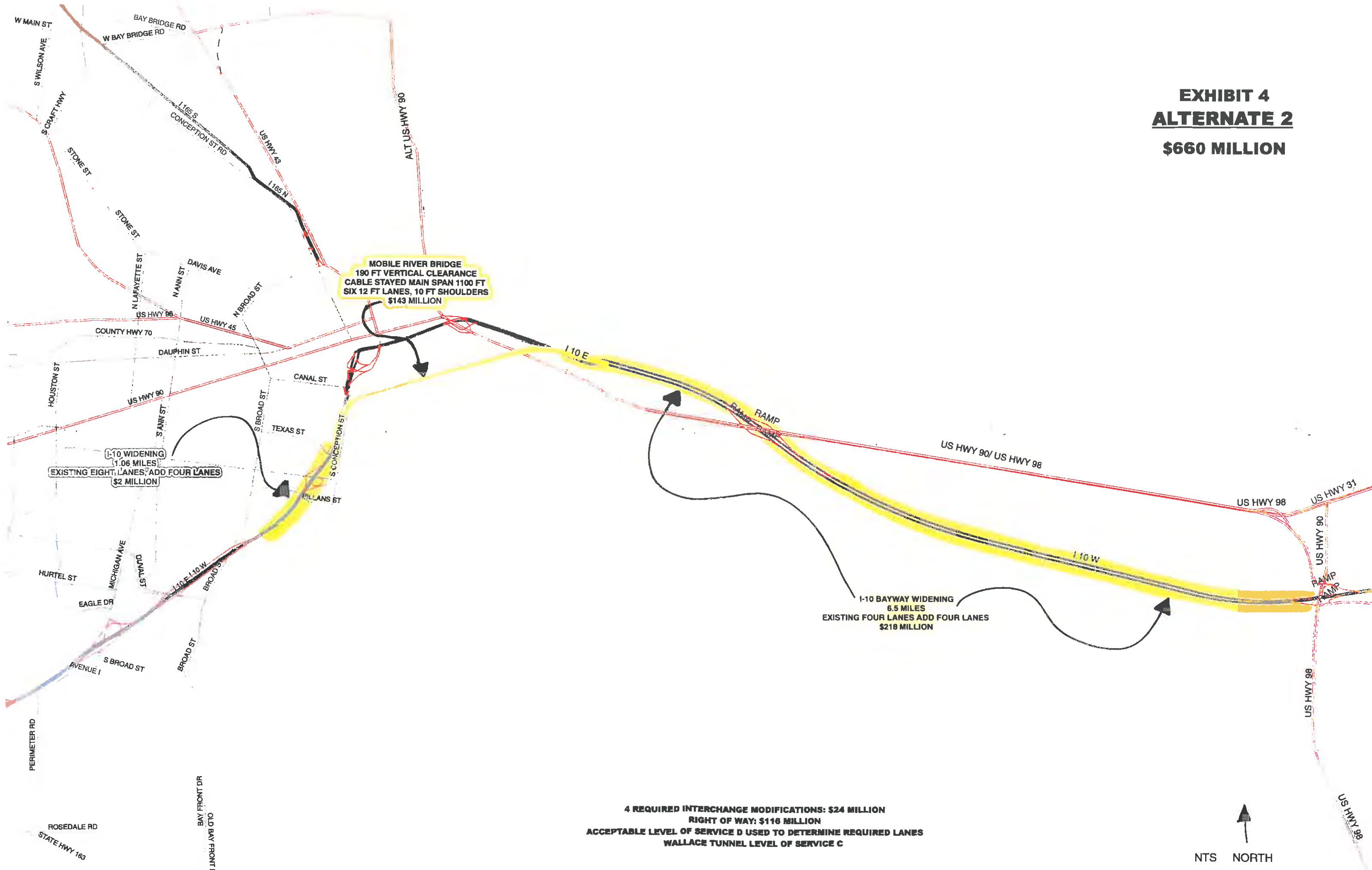
Vertical Description (Span over the Mobile River Navigation Channel)

The west bridge structure approaches would begin at the bank of the Mobile River in Mobile County at Conception Street near the Canal Street/I-10 interchange and span over the Mobile River Navigation Channel. The vertical geometry was designed utilizing a minimum vertical clearance of 190 feet over the navigation channel and a maximum grade of 4%. Based on these criteria, the approach structures would begin at approximately 5500 feet east and west of the navigation channel to achieve required vertical clearance. Based upon the width of the Mobile River Navigation Channel (600 feet), the main span skew length for Alternative 2 would be 1,100 feet with side spans of 550 feet. Studies performed as part of prior work developed in the Environmental Assessment indicated that the optimum length of side spans for a cable-stayed bridge was 60% of the main span length. According to this criteria, the side spans of Alternative 2 would not be of optimum length for a cable-stayed bridge.

Required Interchanges

The existing interstate roadway and bridge structure along I-10 would be widened as part of the proposed project. Therefore, existing interchanges within the area to be widened would have to be removed, modified, and rebuilt. Four interchanges currently exist within the area to be widened as part of Alternative

**EXHIBIT 4
ALTERNATE 2
\$660 MILLION**



MOBILE RIVER BRIDGE
190 FT VERTICAL CLEARANCE
CABLE STAYED MAIN SPAN 1100 FT
SIX 12 FT LANES, 10 FT SHOULDERS
\$143 MILLION

I-10 WIDENING
1.06 MILES
EXISTING EIGHT LANES, ADD FOUR LANES
\$2 MILLION

I-10 BAYWAY WIDENING
6.5 MILES
EXISTING FOUR LANES ADD FOUR LANES
\$218 MILLION

4 REQUIRED INTERCHANGE MODIFICATIONS: \$24 MILLION
RIGHT OF WAY: \$118 MILLION
ACCEPTABLE LEVEL OF SERVICE D USED TO DETERMINE REQUIRED LANES
WALLACE TUNNEL LEVEL OF SERVICE C

NTS NORTH

2; therefore, it was assumed that four interchanges would be modified for this alternative.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate shown in **Table 3** for Alternative 2.

- Bridge Construction
 - Cable Stayed Mobile River Bridge (190' clearance)
 - Six lanes, 12' wide, 10' shoulders inside and outside- per current traffic volume projections
 - Main Span =1100'
 - Symmetrical Side Spans=550'
 - Approach Structures
 - Unit Costs recommended by subconsultant, refer to **Section II Table 1**
 - I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-per current traffic volume projections
 - Widened from proposed tie in to US 98 Interchange
 - \$110.00 per square foot per ALDOT Bridge Bureau
- Roadway Construction
 - I-10 Widening
 - Existing eight lanes, add four lanes (two in each direction) – per current traffic volume projections
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction
 - Interchanges
 - Four assumed required interchanges
 - Assumption: Estimate \$6 million per existing interchange to be modified
- Right of Way
 - 2005 Right-of-Way Cost Information used for unit cost - **Section II Cost Description and Referenced Charts**
 - 1996 Land Appraisal Estimates used for guide for land improvement costs and Metro Jail Cost – **Section II Cost Description and Referenced Charts**

- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts-** Additional Overhead:
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 2 would involve 1.06 miles of I-10 roadway widening, 6.54 miles of I-10 Bayway widening, and approximately 4 interchange modifications in areas that have been previously developed by interstate roadway. Alternative 2 would impact the Mobile Metro County Jail and the ASPA/USACE Disposal Area. Alternative 2 appears to be a practical alternative. Analysis of the horizontal and vertical geometrics indicated that Alternative 2 could meet the technical requirements for an interstate highway.

Alternative 2 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Widening	1.06
Miles of Interstate Bridge Widening	6.54
Interchange Modifications	5
Cost Estimate Summary (\$million)	
Roadway Costs	2
New Bridge Costs	143
Bridge Widening Costs	218
Interchange/Other Costs	24
20% Additional Overhead	78
20% Contingency	78
Right of Way Costs	116
ALTERNATIVE 2 ESTIMATED CONSTRUCTION COST	660

**TABLE 3
ALTERNATIVE 2 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
 I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
 ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
 UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 2 - MAINSPAN = 1100'				
NEW BRIDGE CONSTRUCTION				
NEW CABLE STAYED BRIDGE CONSTRUCTION: MOBILE RIVER BRIDGE WITH 190' VERTICAL CLEARANCE OVER SHIP CHANNEL SIX LANES @ 12' WIDTH WITH 10' SHOULDERS				
NEW APPROACH STRUCTURES COST/SF	\$87.50	cost recommended by EarthTech for new construction		
NEW BRIDGE DECK COST/SF (includes deck, cables, towers & piers, footings)	\$232.50	cost recommended by EarthTech for new construction		
STRUCTURE WIDTH (FT)	112			
APPROACH STRUCTURE LENGTH (FT)	8770			
BRIDGE DECK LENGTH (FT)	2200			
NEW BRIDGE CONSTRUCTION TOTAL	\$143,234,000.00			
ROADWAY CONSTRUCTION				
ALDOT PRELIMINARY COST ESTIMATE CHART DATA ALABAMA ZONE VI FLAT TERRAIN				
I-10 WIDENING: EXISTING 8 LANES (4 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION)				
ALDOT COST DESCRIPTION: 4 LANES NEW CONSTRUCTION				
GRADE AND DRAIN				
FACTOR	1			
COST/MILEX1000	470.00			
FACTORED COST/MILEX1000	470.00			
MILES	1.06			
G&D COST	\$498,200.00			
BASE AND PAVE				
FACTOR	1			
COST/MILEX1000	1,400.00			
FACTORED COST/MILEX1000	1,400.00			
MILES	1.06			
B&P COST	\$1,484,000.00			
I-10 WIDENING SUBTOTAL	\$1,982,200.00			
INTERCHANGE CONSTRUCTION				
ASSUMPTION: COST/INTERCHANGE	\$6,000,000.00	FOR EXISTING INTERCHANGE MODIFICATIONS		
Virginia Street and I-10	1			
Texas Street and I-10	1			
US HWY 90/US HWY 98 and I-10	1			
US HWY 98 and I-10	1			
TOTAL REQUIRED INTERCHANGES	4			
REQUIRED INTERCHANGE SUBTOTAL	\$24,000,000.00			
BRIDGE WIDENING				
BAYWAY WIDENING: EXISTING 4 LANES (2 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION) FOR A TOTAL WIDTH OF 57.5'				
BRIDGE WIDENING (FOUR 12' LANES)				
COST/SF	\$110.00	PER ALDOT BRIDGE BUREAU		
LENGTH WIDENED (MILES)	6.54	MEASURED IN CAD		
AREA WIDENED	1985544			
BRIDGE WIDENING COST	\$218,409,840.00			
BAYWAY WIDENING SUBTOTAL	\$218,409,840.00			
RIGHT OF WAY COST				
INDUSTRIAL WATERFRONT PROPERTIES	3,350	UNIT COST	\$14,000.00	PER WFF \$49,700,000.00
INDUSTRIAL NON-WATERFRONT PROPERTIES (INCLUDING WETLANDS AND SPOIL SITES)	820,000	UNIT COST	\$6.88	PER SF \$5,641,600.00
IMPROVEMENTS TO INDUSTRIAL PROPERTY @ 50% BUILD UP	102,000	UNIT COST	\$48.00	PER SF \$4,896,000.00
IMPROVEMENTS TO COMMERCIAL PROPERTY @ 60% BUILD UP	250,000	UNIT COST	\$42.00	PER SF \$10,500,000.00
MOBILE METRO JAIL COST (ACTUAL COST)				\$20,608,695.00
IMPROVEMENTS TO JAIL (@120% INCREASE SINCE CONSTRUCTION)				\$24,730,434.00
RIGHT OF WAY COST				\$116,076,729.00
Total Estimated Right of Way Cost				\$116,000,000.00

ALTERNATIVE 3

(See Exhibit 5)

Horizontal Route Description

The Alternative 3 bridge begins east of the I-10/Texas Street interchange relatively perpendicular to the location of the Texas Street Recreation Center, and follows the existing I-10 route northeasterly. The Alternative 3 alignment then shifts due east to cross over the Canal Street/I-10 interchange and spans the Mobile River Navigation Channel at a vertical clearance of 190 feet, then ties to the I-10 Bayway approximately 0.25 miles east of the Wallace Tunnel. Prior to merging with the existing I-10 Bayway, Alternative 3 continues its path to cross near, but not over, the ASPA/USACE Disposal Site. Alternative 3 proposed route does not pass through areas currently undeveloped by interstate roadways, but would pass over such areas.

Laneage Requirements and Overall Project Length

The results from the capacity analysis of the current traffic volume projections were used to determine the laneage requirements for Alternative 3. A total of 1.06 miles is necessary for the transition to widen from eight lanes to twelve lanes on I-10 roadway. Widening would begin approximately 0.36 miles east of the overpass at the Broad Street Interchange and end at the Texas Street Recreation Center where the bridge would begin. The I-10 Bayway would be widened from where Alternative 3 merges into the Bayway to the US 98/I-10 interchange, a distance of approximately 7.38 miles. Four lanes would be added to the inside of the Bayway for a total of eight lanes.

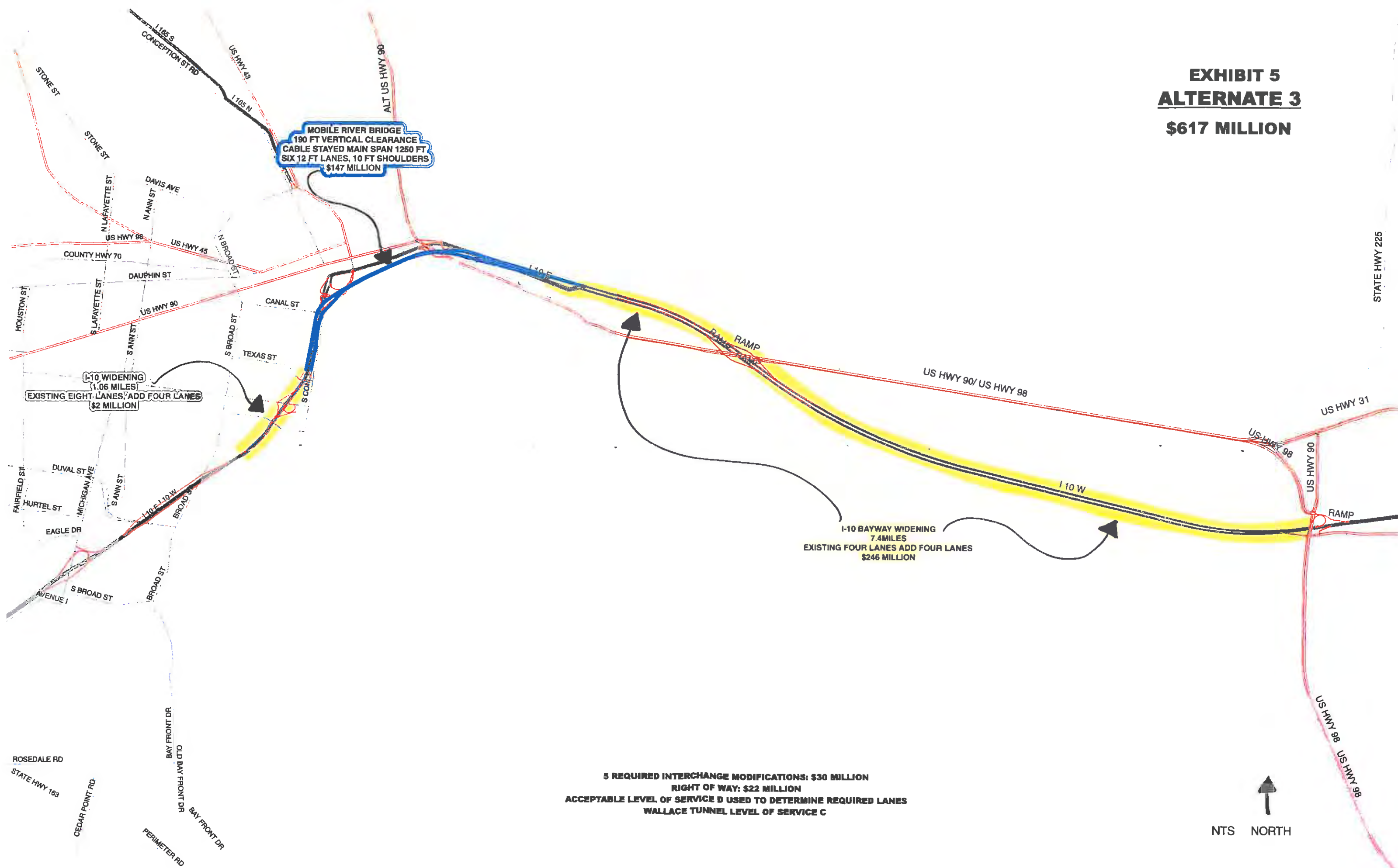
Vertical Description (Span over the Mobile River Navigation Channel)

The west bridge structure approaches would begin at the bank of Mobile River in Mobile County at Canal Street and span over the Mobile River Navigation Channel. The vertical geometry was designed utilizing a minimum vertical clearance of 190 feet over the navigation channel and a maximum grade of 4%. Based on these criteria, the approach structures would begin approximately 5,500 feet east and west of the navigation channel to achieve required vertical clearance. Based upon the width of the Mobile River Navigation Channel (600 feet), the main span skew length for Alternative 3 would be 1,250 feet with asymmetrical side spans of 475/575 feet. Studies performed as part of prior work developed in the Environmental Assessment indicated that the optimum length of side spans for a cable-stayed bridge was 60% of the main span length. According to this criteria, the side spans of Alternative 3 would not be of optimum length for a cable-stayed bridge.

Required Interchanges

The existing interstate roadway and bridge structure along I-10 would be widened as part of the proposed project. Therefore, existing interchanges within the area to be widened would have to be removed, modified, and rebuilt. Five

**EXHIBIT 5
ALTERNATE 3
\$617 MILLION**



5 REQUIRED INTERCHANGE MODIFICATIONS: \$30 MILLION
RIGHT OF WAY: \$22 MILLION
ACCEPTABLE LEVEL OF SERVICE D USED TO DETERMINE REQUIRED LANES
WALLACE TUNNEL LEVEL OF SERVICE C



interchanges currently exist within the area to be widened as part of Alternative 3; therefore, it was assumed that five interchanges would be modified for this alternative.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate in **Table 4** for Alternative 3.

- Bridge Construction
 - Cable Stayed Mobile River Bridge (190' clearance)
 - Six lanes, 12' wide, 10' shoulders inside and outside- per current traffic volume projections
 - Main Span =1250'
 - Asymmetrical Side Spans=475'/575'
 - Approach Structures
 - Unit Costs recommended by subconsultant, refer to **Section II Table 1**
 - I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-per current traffic volume projections
 - Widened from proposed tie in to US 98 Interchange
 - \$110.00 per square foot per ALDOT Bridge Bureau
- Roadway Construction
 - I-10 Widening
 - Existing eight lanes, add six lanes (three in each direction) – per current traffic volume projections
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction
 - Interchanges
 - Five assumed required interchanges
 - Assumption: Estimate \$6 million per existing interchange to be modified
- Right of Way
 - 2005 Right-of-Way Cost Information used for unit cost - **Section II Cost Description and Referenced Charts**
- Contingencies
 - 20% contingency added to subtotal

- ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts-** Additional Overhead
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 3 would involve 1.06 miles of I-10 roadway widening, 7.38 miles of I-10 Bayway widening, and approximately five interchange modifications in areas that have been previously developed by interstate roadway. Alternative 3 appears to be a practical alternative. Analysis of the horizontal and vertical geometrics indicated that Alternative 3 could meet the technical requirements for an interstate highway.

Alternative 3 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Widening	1.06
Miles of Interstate Bridge Widening	7.38
Interchange Modifications	5
Cost Estimate Summary	
	(\$million)
Roadway Costs	2
New Bridge Costs	147
Bridge Widening Costs	246
Interchange/Other Costs	30
20% Additional Overhead	85
20% Contingency	85
Right of Way Costs	22
ALTERNATIVE 3 ESTIMATED CONSTRUCTION COST	617

**TABLE 4
ALTERNATIVE 3 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 3 - MAINSPAN = 1250'				
NEW BRIDGE CONSTRUCTION				
NEW CABLE STAYED BRIDGE CONSTRUCTION: MOBILE RIVER BRIDGE WITH 190' VERTICAL CLEARANCE OVER SHIP CHANNEL SIX LANES @ 12' WIDTH WITH 10' SHOULDERS				
NEW APPROACH STRUCTURES COST/SF	\$87.50		cost recommended by EarthTech for new construction	
NEW BRIDGE DECK COST/SF (includes deck, cables, towers & piers, footings)	\$240.00		cost recommended by EarthTech for new construction	
STRUCTURE WIDTH (FT)	112			
APPROACH STRUCTURE LENGTH (FT)	8870			
BRIDGE DECK LENGTH (FT)	2300			
NEW BRIDGE CONSTRUCTION TOTAL	\$146,790,000.00			
ROADWAY CONSTRUCTION				
ALDOT PRELIMINARY COST ESTIMATE CHART DATA ALABAMA ZONE VI FLAT TERRAIN				
I-10 WIDENING: EXISTING 8 LANES (4 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION) ALDOT COST DESCRIPTION: 4 LANES NEW CONSTRUCTION				
GRADE AND DRAIN				
FACTOR		1		
COST/MILEX1000		470.00		
FACTORED COST/MILEX1000		470.00		
MILES		1.06		
G&D COST		\$498,200.00		
BASE AND PAVE				
FACTOR		1		
COST/MILEX1000		1,400.00		
FACTORED COST/MILEX1000		1,400.00		
MILES		1.06		
B&P COST		\$1,484,000.00		
I-10 WIDENING SUBTOTAL		\$1,982,200.00		
INTERCHANGE CONSTRUCTION				
ASSUMPTION: COST/INTERCHANGE	\$6,000,000.00		FOR EXISTING INTERCHANGE MODIFICATIONS	
Virginia Street and I-10		1		
Texas Street and I-10		1		
Canal Street and I-10		1		
US HWY 90/US HWY 98 AND I-10		1		
US HWY 98 and I-10		1		
TOTAL REQUIRED INTERCHANGES		5		
REQUIRED INTERCHANGE SUBTOTAL	\$30,000,000.00			
BRIDGE WIDENING				
BAYWAY WIDENING: EXISTING 4 LANES (2 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION) FOR A TOTAL WIDTH OF 57.5'				
BRIDGE WIDENING (FOUR 12' LANES)				
COST/SF		\$110.00	PER ALDOT BRIDGE BUREAU	
LENGTH WIDENED (MILES)		7.38	MEASURED IN CAD	
AREA WIDENED		2240568		
BRIDGE WIDENING COST	\$246,482,480.00			
BAYWAY WIDENING SUBTOTAL	\$246,482,480.00			
RIGHT OF WAY COST				
INDUSTRIAL WATERFRONT PROPERTIES		1,495	\$14,000.00	PER WFF \$20,930,000.00
INDUSTRIAL NON-WATERFRONT PROPERTIES		42,600	\$6.88	PER SF \$293,088.00
IMPROVEMENTS TO COMMERCIAL PROPERTY @ 80% BUILD UP		0	\$48.00	PER SF \$0.00
IMPROVEMENTS TO INDUSTRIAL PROPERTY @ 50% BUILD UP		10,000	\$42.00	PER SF \$420,000.00
			RIGHT OF WAY COST	\$21,843,088.00
			Total Estimated Right of Way Cost	\$22,000,000.00

RIGHT OF WAY COST				
INDUSTRIAL WATERFRONT PROPERTIES		1,495	\$14,000.00	PER WFF \$20,930,000.00
INDUSTRIAL NON-WATERFRONT PROPERTIES		42,600	\$6.88	PER SF \$293,088.00
IMPROVEMENTS TO COMMERCIAL PROPERTY @ 80% BUILD UP		0	\$48.00	PER SF \$0.00
IMPROVEMENTS TO INDUSTRIAL PROPERTY @ 50% BUILD UP		10,000	\$42.00	PER SF \$420,000.00
			RIGHT OF WAY COST	\$21,843,088.00
			Total Estimated Right of Way Cost	\$22,000,000.00

ALTERNATIVE 4- THE TUNNEL

(See Exhibit 6)

Design documentation from the existing Wallace Tunnel under the Mobile River, which would be similar to Alternative 4, was utilized as a guide for the assumptions made in this analysis and cost estimate. The Wallace Tunnel design documentation included in Section II contains a narrative and plans with quantities and cost documentation.

Horizontal Route Description

The route proposed for Alternative 4 begins approximately 0.5 miles east of the overpass at the Broad Street Interchange to follow the existing I-10 route northeasterly and shift due east to begin to downgrade at between Augusta Street and Charleston Avenue., The tunnel then continues on a downgrade until the navigation channel is reached. When clear of the navigation channel limits, an upgrade to reach existing ground elevations would begin. In order to vertically clear and tie into the I-10 Bayway, the tunnel would be required to reach at grade elevations southwest of US Hwy 90/US Hwy 98 and adjacent to the ASPA/USACE Disposal Site on the northwest side. Alternative 4 would pass through and under areas currently undeveloped by interstate roadway.

Laneage Requirements and Overall Project Length

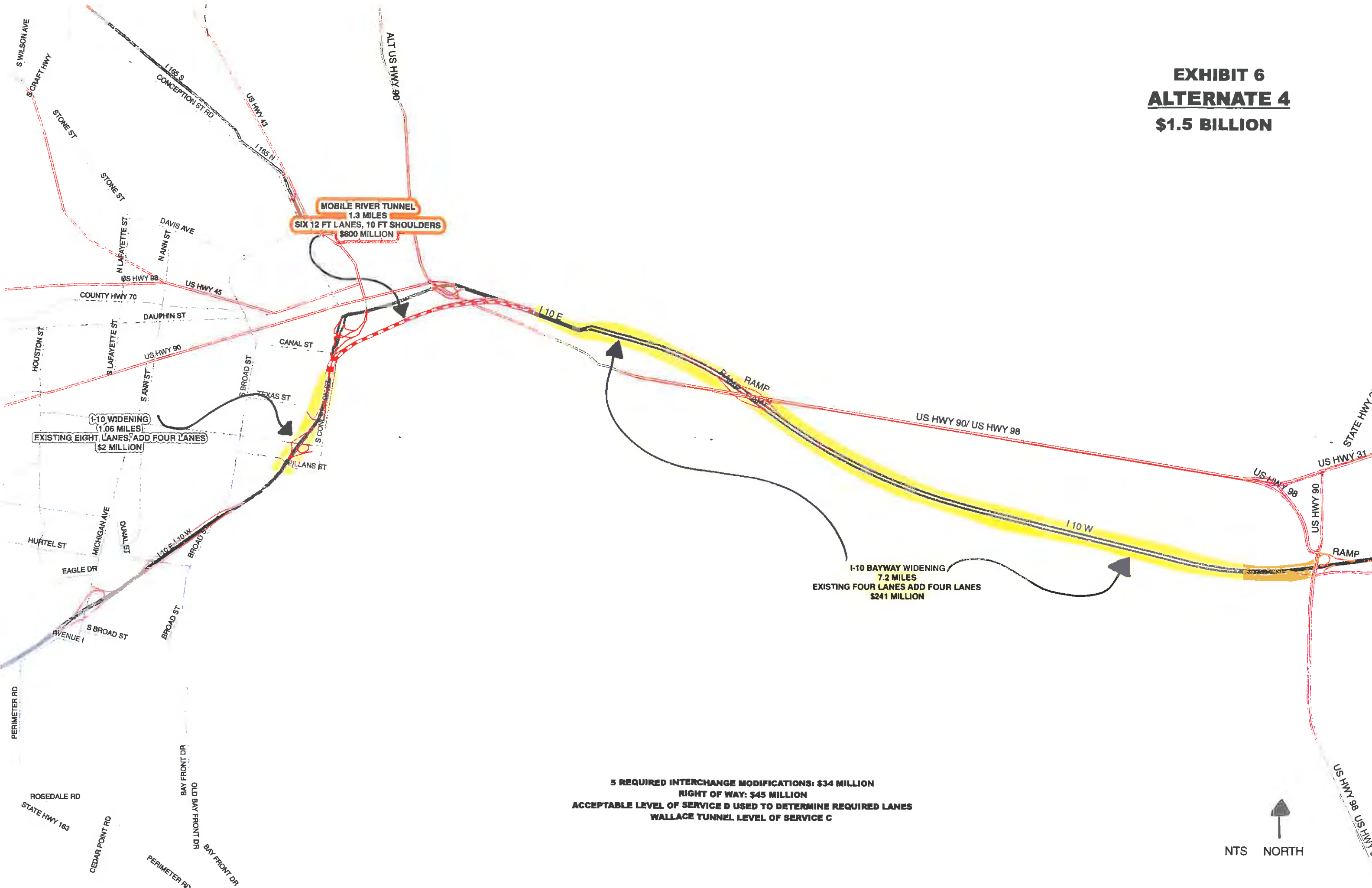
Since the alternative follows a path similar to Alternatives 1, 2, and 3, it was assumed that the capacity analysis of the current traffic volume projections would be essentially the same for Alternative 4 and were therefore used to determine the laneage requirements for Alternative 4. Based on these results, the new tunnel would have six lanes. A total of 1.06 miles is necessary for the transition to widen from eight lanes to twelve lanes on I-10 roadway. Widening would occur approximately 0.5 miles east of the overpass at the Broad Street Interchange to where the tunnel begins its downgrade near Canal Street. The I-10 Bayway would be widened from the point where Alternative 4 merges with the I-10 Bayway near Addsko Road and Battleship Parkway to the US 98/I-10 interchange, a distance of approximately 7.21 miles. Four lanes would be added to the inside of the Bayway for a total of eight lanes.

Vertical Description (Tunneling under the Mobile River Navigation Channel)

The tunnel alternative location would be approximately 0.24 mile south of the Wallace Tunnel between proposed Alternatives 3 and 9. Alternative 4 would pass under the navigation channel at a current depth of approximately 40 feet for a width of 600 feet. After taking into account tunnel height, wall thickness, and minimum cover, the actual tunnel depth required would be greater than 40 feet.

The existing four-lane Wallace Tunnel is 40 feet high at a depth of 42 feet below the surface. The Wallace Tunnel has an additional 5 feet of minimum cover for a

**EXHIBIT 6
ALTERNATE 4
\$1.5 BILLION**



**5 REQUIRED INTERCHANGE MODIFICATIONS: \$34 MILLION
RIGHT OF WAY: \$45 MILLION
ACCEPTABLE LEVEL OF SERVICE D USED TO DETERMINE REQUIRED LANES
WALLACE TUNNEL LEVEL OF SERVICE C**



total depth of 47 feet to the top of the tunnel arch. It can be assumed that an increase in width for a new six-lane tunnel would require an increase in wall thickness. A 10% increase in height was applied to estimate a tunnel height of 45 feet at a depth of 40 feet (plus 5 feet cover) from the top of the tunnel arch to the bottom of the channel. Therefore, a total depth of 90 feet below the surface would be required.

For economics and driver safety, AASHTO states that tunnel lengths should be as short as practical on tangent, and design criteria should not differ materially from those used for grade separated structures (2001 Green Book, p. 357). To obtain the shortest tunnel length, a maximum grade of 5% was used to develop the length required to reach a depth of 90 feet below the surface as well as to minimize right-of-way impacts. Calculations determined that a 5% grade, a distance of 2,000 feet west of the navigation channel, and a distance of 2,000 feet east of the navigation channel would be required.

Impacts/Conflicts Due to the Construction of the Tunnel

A 2,000' radial area was developed on mapping to determine the limits for the possible location of a tunnel that would meet grade change requirements within the respective radial area depending upon where the horizontal alignment would tie to existing ground. Tunneling techniques in coastal Alabama generally require trenching along the alignment which results in the demolition of any obstructions. Consequently, a significant portion of downtown Mobile, including portions of the Down by the Bay Neighborhood District, would be impacted by the trench excavation that would be required to construct a new tunnel. One should note that it would be necessary to further investigate the best technique to use for handling I-10 roadway traffic during construction under the existing travel way. Additionally, the impacts to and the handling of river traffic and CSX Railroad traffic during tunnel construction needs further evaluation. Various construction methodologies could be used to lessen the impacts. Such research would be done during preliminary design, which is beyond the scope of this evaluation.

The following lists of conflicts/impacts are likely for the currently proposed location of a new tunnel as well as any shift north or south of the proposed location within the radial distance:

At Proposed Location:

- Impact to I-10 traffic operations during tunnel construction
- Operations of River traffic during tunnel construction
- Canal Street Interchange with I-10 (reconfiguration of interchange)
- CSX Railroad Traffic operations during tunnel construction
- Bender Ship Building Offices
- Mobile Landing Cruise Terminal
- Harrison Brothers Ship Building and Repair
- Addesco Road
- Dunlap Drive

- US Hwy 90/US Hwy 98
- I-10 Interchange at US Hwy 90/US Hwy 98 (reconfiguration of interchange)

South of Proposed Location:

- Local streets
- Commercial facilities
- Mobile County Metro Jail
- Bender Marine and Ship Building
- Alabama Ship Yard
- Pinto Pass
- Atlantic Marine

North of Proposed Location:

- Local streets
- Residences
- Mobile Civic Center
- I-10 Interchange at Wallace Tunnels (reconfiguration of interchange)
- Forte Conde Village
- CSX Railroad
- Water Street Interchange (reconfiguration of interchange)
- Mobile County Courthouse
- Government Plaza
- Mobile Convention Center
- Adams Mark Hotel
- Mobile Landing Cruise Terminal (recently constructed)
- Bankhead Tunnel

Required Interchanges

The existing interstate roadway and bridge structure along I-10 would be widened as part of the proposed project. Therefore, existing interchanges within the area to be widened would have to be removed, modified, and rebuilt. Five interchanges currently exist within the area to be widened as part of Alternative 4; therefore, it was assumed that five interchanges would be rebuilt for this alternative.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate in **Table 5** for Alternative 4.

- Tunnel Construction
 - Tunnel under Mobile River Ship Channel (45' vertical clearance)
 - Six lanes, 12' wide, 10' shoulders inside and outside-
 - Alternative 4 Tunnel length =6700'

- Wallace Tunnel Cost with adjustments made for additional length, width, and inflation (See **Section II Cost Description**)
 - Length adjustment factor =1.57
 - 4271' Wallace Tunnel Length / 6700' Alternative 4 Tunnel Length = 1.57
 - Width adjustment factor = 1.62
 - 65' width in Wallace Tunnel / 107' width in Alternative 4 Tunnel = 1.62
 - Adjustment for inflation
 - Assumption: inflation of 5% per year compounded according to average CPI factor for concrete and steel from 1972 to current
- Wallace Tunnel Construction Costs and Original Project Description See **Exhibit 21** for unit cost derivation
- Disposal of Dredged Material
 - Assumption: Material that is dredged shall be disposed of at a Corps of Engineers approved disposal area
 - Dike construction and weir construction using a 20 ft. lift
 - Trench width = 150 ft
- I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-per current traffic volume projections
 - Widened to proposed tie in to US 98 Interchange
 - \$110.00 per square foot per ALDOT Bridge Bureau
- Roadway Construction
 - I-10 Widening
 - Existing eight lanes, add four lanes (two in each direction) for a distance of 1.06 miles– per current traffic volume projections
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts**
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction
 - Interchanges
 - Five assumed required interchanges
 - Assumption: Estimate \$6 million per existing interchange to be modified

- Assumption: Estimate \$10 million per existing interchange to be rebuilt and reconfigured-(Canal Street Interchange)
 - Right of Way
 - 2005 Right-of-Way Cost Information used for unit cost– **Section II Cost Description and Referenced Charts**
- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts- Additional Overhead**
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 4 would involve 1.06 miles of I-10 roadway widening, 7.21 miles of I-10 Bayway widening, and approximately five interchange modifications in areas that have been previously developed by interstate roadway. The proposed improvements would also involve areas that have not previously been impacted by interstate facilities. Alternative 4 will severely impact areas where a construction trench would be required. After reviewing the geometrics and practical considerations of Alternative 4, it was determined that the alternative could meet geometric standards for an interstate highway. The tunnel alternative imposes significant impacts to existing infrastructure and disruptions to traffic throughout the proposed area, requires an extended construction time with potential impacts to navigation during construction, and requires special construction techniques (trenching).

Alternative 4 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Widening	1.06
Miles of Interstate Bridge Widening	7.21
Interchange Modifications	5
Cost Estimate Summary (\$million)	
Roadway Costs	2
New Tunnel Costs	798
Bridge Widening Costs	241
Interchange/Other Costs	34
20% Additional Overhead	215
20% Contingency	215
Right of Way Costs	45
ALTERNATIVE 4 ESTIMATED CONSTRUCTION COST	1550

**TABLE 5
ALTERNATIVE 4 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS

ALTERNATIVE 4 - TUNNEL ALTERNATE		
Adjustment for Increase in Project Length		
Wallace Tunnel		
Wallace Tunnel Construction Cost (July 1972)	\$47,465,425.22	
Wallace Tunnel Project Length	4271'	
Wallace Tunnel Unit Cost (July 1972)	\$11,113.42	PER LNF
Alternate 4 Mobile River Tunnel		
Alternate 4 Project Length	6700'	(1.57 times original length)
Alternate 4 Construction Cost with length adjustment	\$74,459,914.00	Representative of year 1972
Adjustment for Additional Width		
Wallace Tunnel Lanes and Shoulders	68'	INSIDE WIDTH ON EXISTING TUNNEL (TOTAL FOR BOTH DIRECTIONS)
Alternate 4 Mobile River Tunnel Lanes and Shoulders	107'	SIX 12' LANES WITH 10' OUTSIDE AND 6' INSIDE SHOULDERS
Adjustment Factor for Additional Lanes and Shoulders	1.62	
Alternate 4 Construction Cost with width adjustment	\$76,951,522.71	Representative of year 1972
Adjustment for Inflation		
Alternate 4 Cost w/ Length and Lane Adjustments (1972)	\$151,411,436.71	
Inflated 2005 Cost (5% per year compounded)	\$784,376,533.00	Assumed an average inflation of 5% per year compounded to represent an average CPI factor for concrete and construction materials from 1972 to current year
TUNNEL CONSTRUCTION COST	\$764,376,533.00	
DISPOSAL OF DREDGED MATERIAL		
ASSUMPTION: DREDGED MATERIAL SHALL BE DISPOSED OF AT A CORPS OF ENGINEERS APPROVED DISPOSAL AREA. COSTS ARE FOR 20 FT LIFT AND INCLUDE DIKE CONSTRUCTION AND WEIR CONSTRUCTION.		
DREDGED LENGTH =	6700'	(LENGTH OF PROPOSED TUNNEL)
DREDGED DEPTH =	90'	(40' SHIP CHANNEL DEPTH + 5' COVER + 45' ASSUMED TUNNEL HEIGHT)
DREDGED WIDTH =	150'	(ASSUMED FROM 1.8 TIMES WALLACE TUNNEL WIDTH)
DREDGED VOLUME =	3,350,000	CUBIC YARDS
DIKE CONSTRUCTION COST PER CY =	\$10.00	
DIKE CONSTRUCTION SUBTOTAL =	\$33,500,000.00	
WEIR CONSTRUCTION ESTIMATE =	\$100,000.00	
DISPOSAL OF DREDGED MATERIAL SUBTOTAL	\$33,600,000.00	
BRIDGE WIDENING		
BAYWAY WIDENING: EXISTING 4 LANES (2 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION) (57.5' WIDE)		
		BRIDGE WIDENING (FOUR 12' LANES)
COST/SF	\$110.00	PER ALDOT BRIDGE BUREAU
LENGTH WIDENED (MILES)	7.21	MEASURED IN CAD
AREA WIDENED	2188856	
BRIDGE WIDENING COST	\$240,785,160.00	
INTERCHANGE CONSTRUCTION		
ASSUMPTION: COST/INTERCHANGE \$6,000,000.00 FOR EXISTING INTERCHANGE MODIFICATIONS		
Virginia Street and I-10	1	
Canal Street and I-10	1	\$10 MILLION FOR CANAL STREET INTERCHANGE DUE TO REQUIRED RECONSTRUCTION AND RECONFIGURATION
Texas Street and I-10	1	
US HWY 90/US HWY 98 and I-10	1	
US HWY 98 and I-10	1	
TOTAL REQUIRED INTERCHANGES	5	
REQUIRED INTERCHANGE SUBTOTAL	\$34,000,000.00	
ROADWAY CONSTRUCTION		
ALDOT PRELIMINARY COST ESTIMATE CHART DATA ALABAMA ZONE VI FLAT TERRAIN		
I-10 WIDENING: EXISTING 8 LANES (4 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION)		
FACTOR	1	
COST/MILEX1000	470.00	
FACTORED COST/MILEX1000	470.00	
MILES	1.06	
G&D COST	\$498,200.00	
		BASE AND PAVE
FACTOR	1	
COST/MILEX1000	1,400.00	
FACTORED COST/MILEX1000	1,400.00	
MILES	1.06	
B&P COST	\$1,484,000.00	
I-10 WIDENING TOTAL	\$1,982,200.00	

ALTERNATIVES 5 AND 6

(See Exhibits 7 and 8)

Horizontal Route Description

The route proposed for Alternatives 5 and 6 begin at the I-65/I-10 interchange, follow I-65 north to the I-165 connector which would be extended over the existing Bay Bridge Road, span across the Mobile River Navigation Channel via the Cochrane Bridge, and tie into the I-10 Bayway via a bridge alongside Alternate US Hwy 90. Both alternatives would pass over disposal areas adjacent to Alternate US Hwy 90. Alternative 6 would also pass over the Blakeley Island disposal areas prior to tying into the Bayway. The alternatives would pass through areas currently undeveloped by interstate facilities, and would require a substantial amount of right-of-way for virtually the entire length of the proposed route.

Alternatives 5 and 6 propose to route I-10 and I-165 traffic to the Cochrane-Africatown (Cochrane) Bridge and Bay Bridge Road, neither of which are designed to meet interstate standards. As a result, the Cochrane Bridge would require substantial improvements to bring the eastern approach structures to interstate design standards, and the construction of an additional structure connecting Cochrane Bridge to both the I-10 Bayway and I-165 interstate bridge would be necessary. Bay Bridge Road and Alternate US Hwy 90 would remain open to local traffic to provide access to businesses and communities along these roadways.

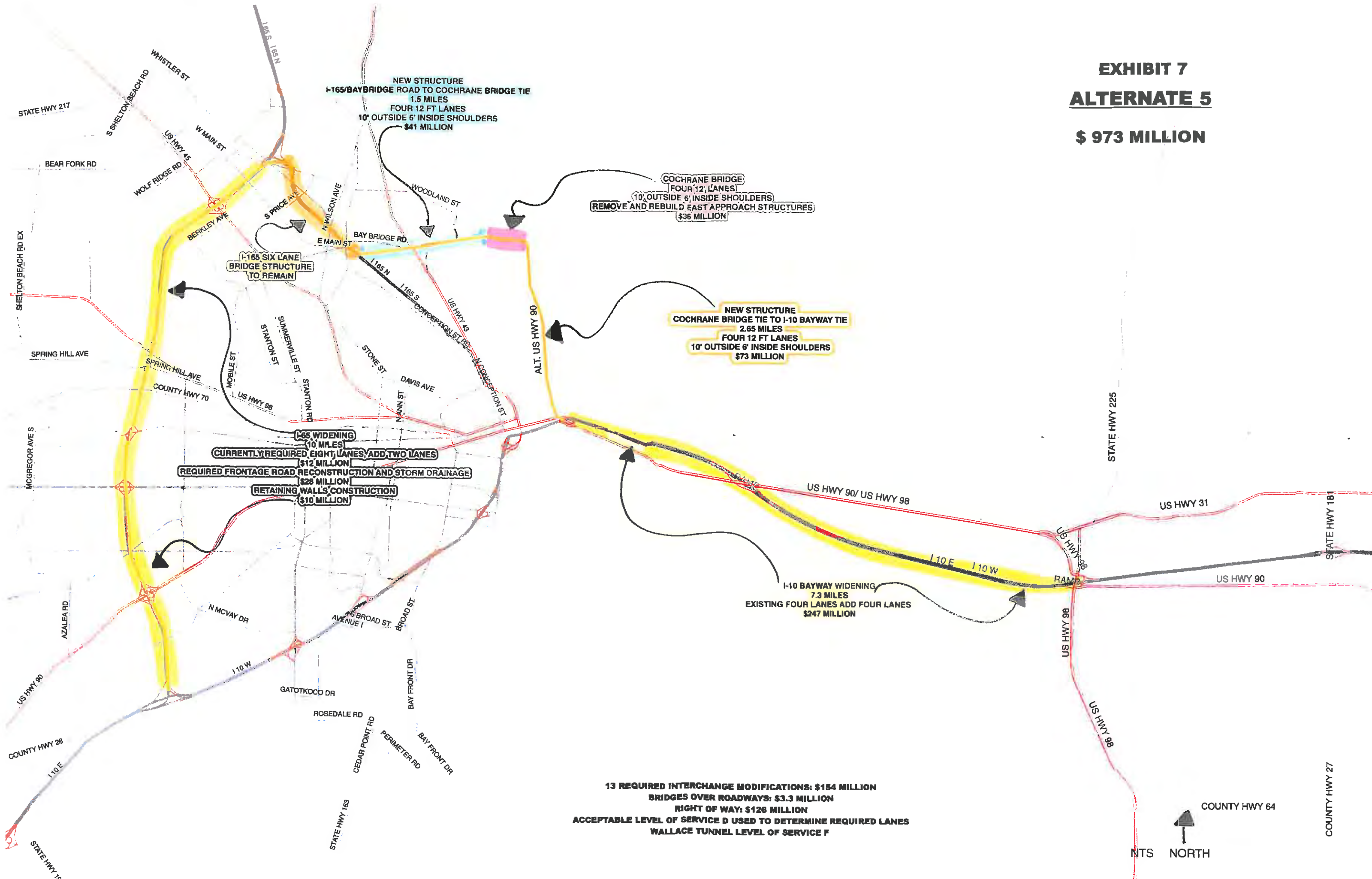
Laneage Requirements and Overall Project Length

The traffic projections analyzed by the South Alabama Regional Planning Commission (SARPC) for 2030 traffic projections along I-165 and I-65 were used to determine the respective laneage requirements for the northern bridge routes, Alternatives 5, 6, and 11. According to modeling and the traffic volume projections provided by South Alabama Regional Planning Commission, the existing four lanes of the Cochrane Bridge would be adequate for the traffic distribution with the northern bridge route. With this in mind, it was assumed that the structures connecting to the Cochrane Bridge to this transportation system would also be adequate with four lanes. Analysis also showed that the existing six lanes on I-165 would be more than sufficient to carry the projected peak volumes. However, four additional lanes for a total of ten lanes from the I-10/I-65 interchange to the I-65/I-165 interchange would be necessary to provide the necessary capacity on I-65 with the Northern Route.

Vertical Description (Span over the Mobile River Navigation Channel)

With the existing Cochrane Bridge main span remaining in place, the vertical clearance over the Mobile Ship Channel would continue at 140 feet. However, the existing eastbound approaches would be removed and reconstructed with

EXHIBIT 7
ALTERNATE 5
\$ 973 MILLION



I-165 SIX LANE
 BRIDGE STRUCTURE
 TO REMAIN

NEW STRUCTURE
 I-165/BAY BRIDGE ROAD TO COCHRANE BRIDGE TIE
 1.5 MILES
 FOUR 12 FT LANES
 10' OUTSIDE 6' INSIDE SHOULDERS
 \$41 MILLION

COCHRANE BRIDGE
 FOUR 12' LANES
 10' OUTSIDE 6' INSIDE SHOULDERS
 REMOVE AND REBUILD EAST APPROACH STRUCTURES
 \$36 MILLION

NEW STRUCTURE
 COCHRANE BRIDGE TIE TO I-10 BAYWAY TIE
 2.65 MILES
 FOUR 12 FT LANES
 10' OUTSIDE 6' INSIDE SHOULDERS
 \$73 MILLION

I-65 WIDENING
 10 MILES
 CURRENTLY REQUIRED EIGHT LANES, ADD TWO LANES
 \$12 MILLION
 REQUIRED FRONTAGE ROAD RECONSTRUCTION AND STORM DRAINAGE
 \$28 MILLION
 RETAINING WALLS CONSTRUCTION
 \$10 MILLION

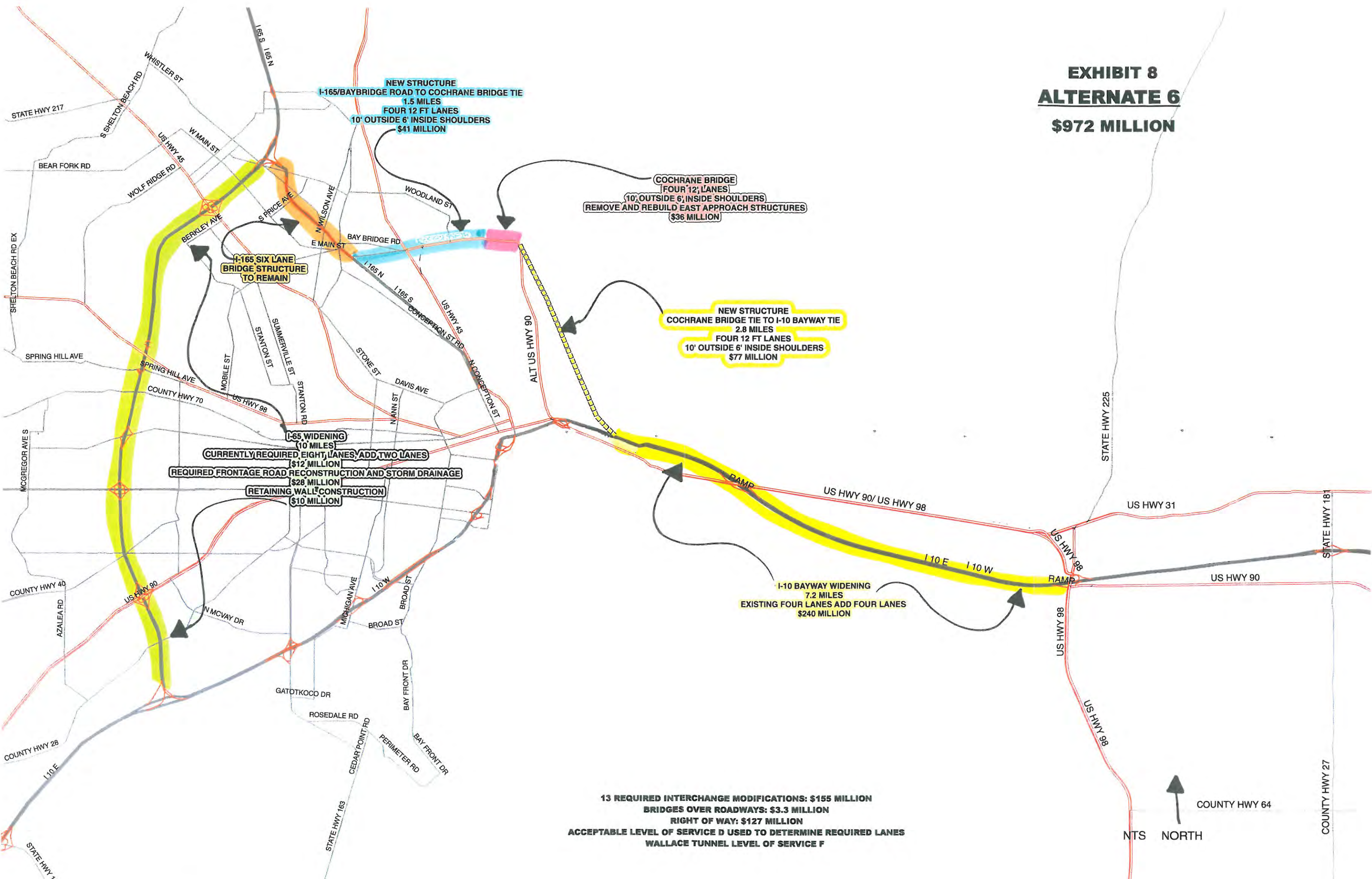
I-10 BAYWAY WIDENING
 7.3 MILES
 EXISTING FOUR LANES ADD FOUR LANES
 \$247 MILLION

13 REQUIRED INTERCHANGE MODIFICATIONS: \$154 MILLION
 BRIDGES OVER ROADWAYS: \$3.3 MILLION
 RIGHT OF WAY: \$126 MILLION
 ACCEPTABLE LEVEL OF SERVICE D USED TO DETERMINE REQUIRED LANES
 WALLACE TUNNEL LEVEL OF SERVICE F



COUNTY HWY 27

**EXHIBIT 8
ALTERNATE 6
\$972 MILLION**



**NEW STRUCTURE
I-165/BAYBRIDGE ROAD TO COCHRANE BRIDGE TIE
1.5 MILES
FOUR 12 FT LANES
10' OUTSIDE 6' INSIDE SHOULDERS
\$41 MILLION**

**COCHRANE BRIDGE
FOUR 12' LANES
10' OUTSIDE 6' INSIDE SHOULDERS
REMOVE AND REBUILD EAST APPROACH STRUCTURES
\$36 MILLION**

**NEW STRUCTURE
COCHRANE BRIDGE TIE TO I-10 BAYWAY TIE
2.8 MILES
FOUR 12 FT LANES
10' OUTSIDE 6' INSIDE SHOULDERS
\$77 MILLION**

**I-165 SIX LANE
BRIDGE STRUCTURE
TO REMAIN**

**I-65 WIDENING
10 MILES
CURRENTLY REQUIRED EIGHT LANES, ADD TWO LANES
\$12 MILLION
REQUIRED FRONTAGE ROAD RECONSTRUCTION AND STORM DRAINAGE
\$28 MILLION
RETAINING WALL CONSTRUCTION
\$10 MILLION**

**I-10 BAYWAY WIDENING
7.2 MILES
EXISTING FOUR LANES ADD FOUR LANES
\$240 MILLION**

**13 REQUIRED INTERCHANGE MODIFICATIONS: \$155 MILLION
BRIDGES OVER ROADWAYS: \$3.3 MILLION
RIGHT OF WAY: \$127 MILLION
ACCEPTABLE LEVEL OF SERVICE D USED TO DETERMINE REQUIRED LANES
WALLACE TUNNEL LEVEL OF SERVICE F**

NTS NORTH
COUNTY HWY 64

adequate 70 mph horizontal curvature. The grade would also be adjusted to tie to the proposed new interstate structures running on basic tangent parallel to Alternate US Hwy 90 and Bay Bridge Road.

Required Interchanges

The existing interstate roadway and bridge structure along I-65 within the proposed routes for Alternative 5 and 6 would be widened as part of this project. Therefore, all of the existing interchanges within the area to be widened would be removed, modified, and rebuilt. Based upon the existing number of interchanges and the proposed intersections required to maintain access to Bay Bridge Road and Alternate US Hwy 90, it was assumed that 13 interchanges would be modified for Alternatives 5 and 6.

Cost Estimate

The following outline summarizes the items used to determine the cost estimates in **Tables 6 and 7** for Alternatives 5 and 6.

- Bridge Construction
 - Upgrade Existing Cochrane Bridge to Interstate Standards
 - Remove existing east approach structures
 - Unit costs recommended by Earth Tech
 - Rebuild new east approach structures
 - Existing four lanes, 12' wide, 10' shoulders outside and 6' inside
 - I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-per current traffic volume projections
 - Widened from proposed tie in to US 98 Interchange
 - \$110.00 per square foot per ALDOT Bridge Bureau
 - New Interstate Bridge
 - Four lanes 12' wide, 10' shoulders outside and 6' inside
 - Proposed to connect I-165 Bridge to Cochrane Bridge and Cochrane Bridge to I-10 Bayway
 - ALDOT Estimated Bridge Costs **Section II Cost Description and Referenced Charts**
 - Bridges over Roadways
 - Assumption of one grade separation required per every three mile segment of roadway
 - ALDOT Preliminary Cost Chart- **Section II Cost Description and Referenced Charts**
- Roadway Construction
 - I-65 Widening

- Existing six lanes, add four lanes (two in each direction)
 - Incremental costs *not to be included* in the total estimated cost
 - Widening of first two lanes currently required because of existing traffic volumes
 - 1/3 interchange costs
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 2 lane new construction
- Relocation of Frontage Roads
- Assume: Two lane frontage roads on east and west sides of I-65 to be relocated due to the widening of I-65.
 - Storm Drainage
 - Curb and Gutter Section
 - On frontage roads on east and west sides of I-65
 - Storm Drain Inlets
 - Assume: One inlet every 100 feet (left and right side)
 - On both frontage roads along I-65
 - Storm Drain Pipes
 - On both frontage roads along I-65 on one side
 - Assumption: Cross drain at each inlet 28 ft in length
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain for an Urban Section
 - Base and Surface (4" surface) for an Urban Section
 - Urban Section curb and gutter, storm drain pipe, and inlets (for frontage road reconstruction only)
- Interchanges
- Assumed: Thirteen required interchanges
 - Assumed: Estimated cost per existing interchange modification varies as follows:
 - I-65/I-10 - \$25 million
 - I-65/Government Street – \$10 million.
 - I-65/Airport Blvd - \$20 million
 - I-65/Dauphin Street - \$15 million
 - I-65/Springhill Ave and Moffett - \$75 million (combination of two interchanges)
 - I-65/US 45 - \$15 million
 - I-65/I-165 - \$10 million

- I-165/Bay Bridge Road - \$40 million
 - Local Interchange/Ramp at ALT US HWY 90 - \$10 million
 - I-10/US HWY 98 - \$6 million
 - I-10/US 90/98 - \$6 million
- Retaining wall construction
 - Assumption: Required on east and west sides of I-65 for 75% length of widening
 - Assumption: Interchange locations not included in the 75% construction length
 - Assumption: Required 30 ft retaining wall along I-65 in front of Prichard Stadium
 - Assumption: \$300.00/cy unit cost for concrete construction of standard ALDOT 7' and 30' retaining wall
- Right of Way
 - ALDOT Preliminary Cost Estimate Chart for Right of Way in Urban Areas- **Section II Cost Description and Referenced Charts**
 - Right of way also necessary for relocation of frontage roads for both east and west sides of I-65
 - Used right-of-way estimates determined by ALDOT along I-65 widening segment-**Section II Cost Description and Referenced Charts**
- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts**-Additional Overhead
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Analysis of the geometric features of Alternatives 5 and 6 indicate that both could be constructed to comply with interstate standards, thus technically and geometrically feasible. Alternatives 5 and 6 require additional right-of-way acquisition associated with the widening of I-65 and frontage road relocation, the construction of a significant length of retaining walls along I-65, the construction of two new interstate bridge structures, and extensive modifications to several major interchanges.

Alternative 5 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Widening	10
Miles of Interstate Bridge and Widening	12.5
Interchange Modifications	13
Cost Estimate Summary	(\$million)
Roadway Costs	31
Bridge Removal and Rebuild Costs	36
Bridge Construction and Widening Costs	364
Storm Drainage Costs	9
Interchange/Retaining Walls Cost	165
20% Additional Overhead	121
20% Contingency	121
Right of Way Costs	126
ALTERNATIVE 5 ESTIMATED CONSTRUCTION COST	973

Alternative 6 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Widening	10
Miles of Interstate Bridge and Widening	12.4
Interchange Modifications	13
Cost Estimate Summary	(\$million)
Roadway Costs	31
Bridge Removal and Rebuild Costs	36
Bridge Construction and Widening Costs	362
Storm Drainage Costs	9
Interchange/Retaining Wall Costs	165
20% Additional Overhead	121
20% Contingency	121
Right of Way Costs	127
ALTERNATIVE 6 ESTIMATED CONSTRUCTION COST	972

**TABLE 6
ALTERNATIVE 5 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 5 - MAINSPAN=715'	
BRIDGE REMOVAL AND REBUILD	
UPGRADE COCHRANE BRIDGE: MODIFICATION OF RADI AND GRADE OF EAST APPROACH STRUCTURES ON COCHRANE BRIDGE	
	REMOVE EXISTING BRIDGE EASTERN APPROACHES
COST/LF	\$443.00
EASTERN APPROACH LIN FT REMOVED (measured in CAD)	3245
BRIDGE REMOVAL COST	\$1,437,535
REMOVE EASTERN APPROACH SPANS SUBTOTAL	\$1,437,535
	UPDATE EASTERN APPROACHES FOR COCHRANE BRIDGE, FOUR 12' LANES WITH 10' OUTSIDE AND 6' INSIDE SHOULDERS
APPROACH STRUCTURES COST PER SF	\$67.50
WIDTH OF APPROACH STRUCTURE (FT)	80
LENGTH OF NEW EASTERN APPROACH STRUCTURE FT	4868
NEW APPROACH STRUCTURES SF	389440
REBUILD EASTERN APPROACHES SUBTOTAL	\$34,076,000
REMOVE AND REBUILD EASTERN APPROACH SUBTOTAL	\$35,513,535
ROADWAY CONSTRUCTION	
ALABAMA ZONE VI FLAT TERRAIN	
I-65 WIDENING: CURRENTLY REQUIRED 8 LANES (4 IN EACH DIRECTION) ADD 2 LANES (1 IN EACH DIRECTION)	
ALDOT COST DESCRIPTION: 2 LANES NEW CONSTRUCTION	
	GRADE AND DRAIN
FACTOR	1
COST/MILE X \$1000	320.00
FACTORED COST/MILE X \$1000	320.00
LENGTH (MILES)	10 appx. distance from I-165 to I-10 interchange
G&D COST	\$3,200,000
	BASE AND PAVE
FACTOR	1
COST/MILE X \$1000	900.00
FACTORED COST/MILE X \$1000	900.00
LENGTH (MILES)	10 appx. distance from I-165 to I-10 interchange
B&P COST	\$9,000,000
I-65 WIDENING SUBTOTAL	\$12,200,000
FRONTAGE ROAD RECONSTRUCTION	
ALDOT COST DESCRIPTION: 2 LANES NEW CONSTRUCTION	
ASSUMPTION: FRONTAGE ROADS TO BE RELOCATED IN BOTH DIRECTIONS ALONG I-65. THOSE IN THE VICINITY OF INTERCHANGES ARE INCLUDED IN THE COST PER INTERCHANGE, THUS THE FRONTAGE ROAD RELOCATION COSTS ARE APPX. 75% OF TOTAL FRONTAGE ROAD	
GRADE AND DRAIN	
URBAN SECTION	
UNIT COST PER SY	25.00 PER SY
LENGTH (FT)	79200 75% of distance of both frontage roads along I-65 to be rebuilt
WIDTH (FT)	24
G&D COST	\$5,280,000
BASE AND SURFACE (4" SURFACE)	
URBAN SECTION	
UNIT COST PER SY	65.00 PER SY
LENGTH (FT)	79,200 75% of distance of both frontage roads along I-65 to be rebuilt
WIDTH (FT)	24
B&S COST	\$13,728,000
TOTAL FRONTAGE ROAD RECONSTRUCTION	\$19,008,000
STORM DRAINAGE CONSTRUCTION	
FRONTAGE ROAD CURB AND GUTTER	
DISTANCE (FT)	158400 75% of distance on both sides of both frontage roads along I-65
UNIT COST (PER LF)	\$15.00 PER LF
CURB AND GUTTER SUBTOTAL	\$2,376,000 IN BOTH DIRECTIONS ALONG I-65
FRONTAGE ROAD STORM DRAIN INLETS	
ASSUMPTION: INLETS REQUIRED PER 100 FT ON BOTH SIDES OF THE FRONTAGE ROADS IN EACH DIRECTION ALONG I-65	
FRONTAGE ROAD DISTANCE = 75% OF ACTUAL FRONTAGE ROADS ALONG I-65.	
DISTANCE (FT)	158400 75% of distance on both sides of both frontage roads along I-65
UNIT COST (EACH)	\$1,700.00 EACH
QUANTITY OF INLETS REQUIRED	1584 for both frontage roads
STORM DRAIN INLET SUBTOTAL	\$2,692,800
FRONTAGE ROAD STORM DRAIN PIPES	
ASSUMPTION: DRAIN PIPE REQ'D ON ONE SIDE OF FRONTAGE ROADS ALONG I-65 IN BOTH DIRECTIONS.	
AT EACH INLET, A 28" CROSS DRAIN WILL BE REQ'D	
FRONTAGE ROAD DISTANCE = 75% OF ACTUAL FRONTAGE ROADS ALONG I-65.	
STORM DRAIN PIPE LENGTH (FT)	39600 75% of distance on one side of both frontage roads along I-65.
CROSS DRAIN PIPE LENGTH (FT)	11088 cross drain length for one frontage road along I-65
TOTAL STORM DRAIN PIPE LENGTH (FT)	101376 for both frontage roads
UNIT COST (LF)	\$40.00 PER LF
STORM DRAIN PIPE SUBTOTAL	\$4,055,040
FRONTAGE ROAD G&D/B&S SUBTOTAL	\$19,008,000
FRONTAGE ROAD STORM DRAINAGE SUBTOTAL	\$9,123,840
I-65 FRONTAGE ROAD SUBTOTAL	\$28,131,840

**TABLE 7
ALTERNATIVE 6 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
 I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
 ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
 UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 6 - MAINSPAN=715'	
BRIDGE REMOVAL AND REBUILD	
UPGRADE COCHRANE BRIDGE: MODIFICATION OF RADI AND GRADE OF EAST APPROACH STRUCTURES ON COCHRANE BRIDGE	
	REMOVE EXISTING BRIDGE EASTERN APPROACHES
COST/LF	\$443
EASTERN APPROACH LIN FT REMOVED (measured in CAD)	3245
BRIDGE REMOVAL COST	\$1,437,535
REMOVE EASTERN APPROACH SPANS SUBTOTAL	\$1,437,535
	UPDATE EASTERN APPROACHES FOR COCHRANE BRIDGE, FOUR 12' LANES WITH 10' OUTSIDE AND 6' INSIDE SHOULDERS
APPROACH STRUCTURES COST PER SF	\$67.50
WIDTH OF APPROACH STRUCTURE (FT)	80
LENGTH OF NEW EASTERN APPROACH STRUCTURE FT	4868
NEW APPROACH STRUCTURES SF	389440
REBUILD EASTERN APPROACHES SUBTOTAL	\$34,076,000
REMOVE AND REBUILD EASTERN APPROACH SUBTOTAL	\$35,513,535
ROADWAY CONSTRUCTION	
ALABAMA ZONE VI FLAT TERRAIN	
I-65 WIDENING: CURRENTLY REQUIRED 8 LANES (4 IN EACH DIRECTION) ADD 2 LANES (1 IN EACH DIRECTION)	
ALDOT COST DESCRIPTION: 2 LANES NEW CONSTRUCTION	
	GRADE AND DRAIN
FACTOR	1
COST/MILE X \$1000	320.00
FACTORED COST/MILE X \$1000	320.00
LENGTH (MILES)	10 appx distance on I-65 from I-165 to I-10 interchange
G&D COST	\$3,200,000
	BASE AND PAVE
FACTOR	1
COST/MILE X \$1000	900.00
FACTORED COST/MILE X \$1000	900.00
LENGTH (MILES)	10 appx distance on I-65 from I-165 to I-10 interchange
B&P COST	\$9,000,000
I-65 WIDENING SUBTOTAL	\$12,200,000
FRONTAGE ROAD RECONSTRUCTION:	
ALDOT COST DESCRIPTION: 2 LANES NEW CONSTRUCTION	
ASSUMPTION: FRONTAGE ROADS TO BE RELOCATED IN BOTH DIRECTIONS ALONG I-65. THOSE IN THE VICINITY OF INTERCHANGES ARE INCLUDED IN THE COST PER INTERCHANGE, THUS THE LENGTH OF FRONTAGE ROAD RELOCATION ARE APPX. 75% OF TOTAL FRONTAGE ROAD	
<u>GRADE AND DRAIN</u>	
URBAN SECTION	
UNIT COST PER SY	25.00 PER SY
LENGTH (FT)	79200 75% of distance of both frontage roads along I-65 to be rebuilt
WIDTH (FT)	24
G&D COST	\$5,280,000
<u>BASE AND SURFACE (4" SURFACE)</u>	
URBAN SECTION	
UNIT COST PER SY	65.00 PER SY
LENGTH (FT)	79,200 75% of distance of both frontage roads along I-65 to be rebuilt
WIDTH (FT)	24
B&P COST	\$13,728,000
TOTAL FRONTAGE ROAD RECONSTRUCTION	\$19,008,000
STORM DRAINAGE CONSTRUCTION	
FRONTAGE ROAD CURB AND GUTTER	
DISTANCE (FT)	158400 75% of distance on both sides of both frontage roads along I-65
UNIT COST (PER LF)	\$16.00 PER LF
CURB AND GUTTER SUBTOTAL	\$2,376,000 IN BOTH DIRECTIONS ALONG I-65
FRONTAGE ROAD STORM DRAIN INLETS	
ASSUMPTION: INLETS REQUIRED PER 100 FT ON BOTH SIDES OF THE FRONTAGE ROADS IN EACH DIRECTION ALONG I-65	
FRONTAGE ROAD DISTANCE = 75% OF ACTUAL FRONTAGE ROADS ALONG I-65.	
DISTANCE (FT)	158400 75% of distance on both sides of both frontage roads along I-65
UNIT COST (EACH)	\$1,700.00 EACH
QUANTITY OF INLETS REQUIRED	1584 for both frontage roads
STORM DRAIN INLET SUBTOTAL	\$2,692,800
FRONTAGE ROAD STORM DRAIN PIPES	
ASSUMPTION: DRAIN PIPE REQ'D ON ONE SIDE OF FRONTAGE ROADS ALONG I-65 IN BOTH DIRECTIONS.	
AT EACH INLET, A 28" CROSS DRAIN WILL BE REQ'D	
FRONTAGE ROAD DISTANCE = 75% OF ACTUAL FRONTAGE ROADS ALONG I-65.	
STORM DRAIN PIPE LENGTH (FT)	39,600 75% of distance on one side of both frontage roads along I-65.
CROSS DRAIN PIPE LENGTH (FT)	11088 cross drain length for one frontage road along I-65
TOTAL STORM DRAIN PIPE LENGTH (FT)	101376 for both frontage roads
UNIT COST (LF)	\$40.00 PER LF
STORM DRAIN PIPE SUBTOTAL	\$4,055,040
FRONTAGE ROAD G&D/B&S SUBTOTAL	\$19,008,000
FRONTAGE ROAD STORM DRAINAGE SUBTOTAL	\$8,123,840
I-65 FRONTAGE ROAD SUBTOTAL	\$28,131,840

ALTERNATIVE 7

(See Exhibit 9)

Horizontal Route Description

Alternative 7 consists of basic tangent sections with slight horizontal curves. The route begins midway between the Michigan Avenue and Dauphin Island Parkway interchanges with I-10, and follows a new interstate roadway due east to cross Broad Street. The Alternative 7 bridge begins to span Mobile Bay as an elevated structure (referred to as the New Bayway) over the Mobile River Navigation Channel at a vertical clearance of 190 feet, and ties with existing I-10 Bayway east of the Mid-Bay interchange. Prior to crossing over the Mobile River Navigation Channel, Alternative 7 would be aligned along the south side of the McDuffie Coal Terminal owned and operated by the Alabama State Port Authority. Alternative 7 proposed route would pass through and over neighborhoods and wetland areas currently undeveloped by interstate roadways.

Laneage Requirements and Overall Project Length

The same projected traffic and capacity requirements for the other alternatives were assumed to determine laneage requirements for Alternative 7. The 6 miles of new bayway for Alternative 7 would carry six lanes of interstate traffic (three lanes in each direction).

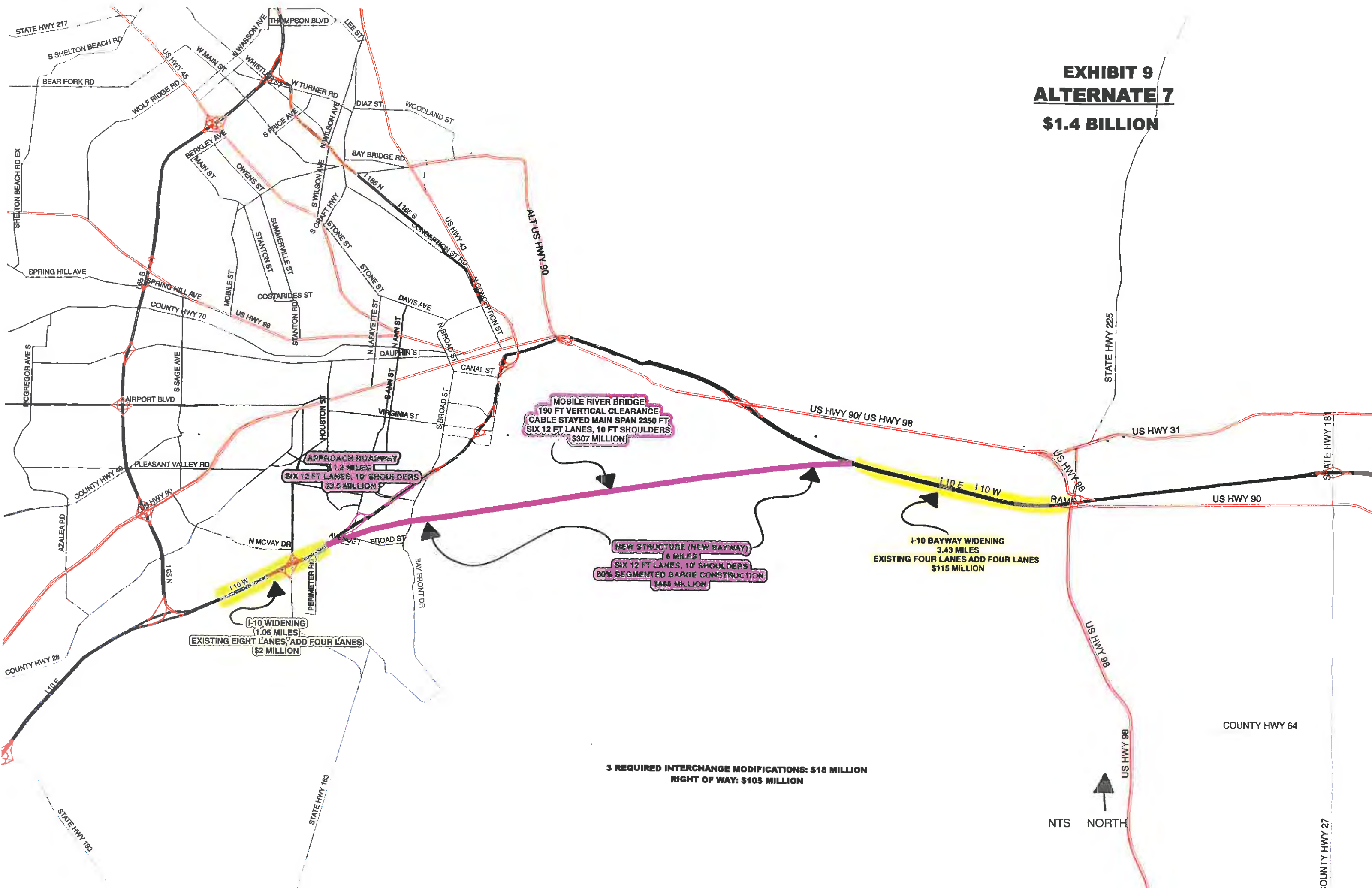
As a part of Alternative 7, the existing I-10 roadway would be widened by four lanes for a total of twelve lanes. A total of 1.06 miles is necessary for the transition to widen from eight lanes to twelve lanes on I-10 roadway. Widening would begin approximately 1.2 miles east of the I-10/I-65 Interchange and end midway between the Dauphin Island Parkway interchange where the bridge begins. Approach roadway would carry traffic for 1.3 miles to the proposed approach structures. The existing I-10 Bayway would be widened from where Alternative 7 ties into the Bayway to the US 98/I-10 interchange, a distance of approximately 3.43 miles. Four lanes would be added to the inside of the Bayway for a total of eight lanes.

To construct the New Bayway for Alternative 7, end-on construction methods using segmented barges would be required for depths less than 3 feet, approximately 80% of the length of the 6 mile structure.

Vertical Description (Span over the Mobile River Navigation Channel)

The west bridge structure approaches would begin at the bank of southeast Mobile County east of Broad Street to span the Mobile River Navigation Channel. The width of the Mobile River Navigation Channel at the location where Alternative 7 would span the navigation channel is unique because authorized turning basins exist and would require a substantial increase in the length of the main bridge span. A 1,500-foot by 1,500-foot by 55-foot turning basin was

**EXHIBIT 9
ALTERNATE 7
\$1.4 BILLION**



COUNTY HWY 27

authorized by the Water Resource Development Act of 1986 as a component of improvements to the Mobile Harbor Project. The turning basin would be located on the east side of the navigation channel (**See Exhibit 2**). In order to provide adequate horizontal and vertical clearance of the navigation channel and the turning basin, a cable-stayed bridge with a 2,350-foot horizontal clearance and a 190-foot vertical clearance would be required. The main span length of the bridge would be almost twice the maximum span of other alternatives being evaluated. Optimum side spans of 1,410 feet would be required for a cable-stayed bridge length of almost one mile. A bridge of this magnitude would represent a major engineering challenge and would be very expensive. A shift in the bridge location to the south to avoid the authorized turning basin would require spanning an authorized 4,000-foot by 750-foot by 55-foot anchorage area which would require a horizontal clearance of 1,600 feet which would also have excessive costs. Any shift further to the south would impact Brookley Airport.

Required Interchanges

The existing interstate roadway and bridge structure along I-10 within the Alternative 7 route would be widened as part of the proposed project. Therefore, existing interchanges within the area to be widened would have to be removed, modified, and rebuilt. Three interchanges currently exist within the area to be widened as part of Alternative 7; therefore, it was assumed that three interchanges would be modified for this alternative.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate shown in **Table 8** for Alternative 7.

- Bridge Construction
 - New Cable Stayed Mobile River Bridge (190' clearance)
 - Three lanes, 12' wide, 10' shoulders inside and outside- per current traffic volume projections
 - Main Span =2350'
 - Symmetrical Side Spans=1410'
 - Approach Structures
 - Unit Costs recommended by Earth Tech, refer to **Section II Cost Description and Referenced Charts**
 - New Bayway Construction
 - Six lanes 12' wide, 10' shoulders outside and inside per current traffic volume projections
 - Segmented Barge Methods for 80% structure length
 - Proposed to diverge from I-10 Interstate Roadway near DIP Interchange to tie into I-10 Bayway east of Midbay Interchange.
 - ALDOT Estimated Bridge Costs **Section II Cost Description and Referenced Chart**

- I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-per current traffic volume projections
 - Widened from proposed tie in to US 98 Interchange
 - \$110.00 per square foot per ALDOT Bridge Bureau
- Roadway Construction
 - I-10 Widening
 - Existing eight lanes, add four lanes (two in each direction) – Per prior work completed in Environmental Assessment
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts**
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction
 - Approach Roadway
 - Six lanes new construction (from I-10 diverge to proposed bridge approaches beginning)
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts**
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction multiplied by the factor for 6 lane
 - Interchanges
 - Three required interchanges
 - Assumption: Estimate \$6 million per existing interchange to be modified
- Right of Way
 - 2005 Right-of-Way Cost Information used for unit cost– **Section II Cost Description and Referenced Charts**
- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts- Additional Overhead**
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 7 involves 1.06 miles of I-10 roadway widening, 6 miles of new interstate bayway, 3.43 miles of I-10 Bayway widening, and approximately 3 interchange modifications in areas that have not been previously developed by

interstate roadway. Analysis of the Alternatives' geometric features indicates that Alternative 7 could meet the interstate standards. While the alternative could be designed to meet interstate standards, the new Bayway bridge would require a main span of 2,350 feet, which is more than twice the main span lengths of other alternatives being considered.

Alternative 7 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Widening	1.06
Miles of New Interstate Roadway	1.3
Miles of Interstate Bridge and Widening	9.43
Interchange Modifications	3
Cost Estimate Summary	
	(\$million)
Roadway Costs	5.5
New Bridge Construction and Widening Costs	907
Interchanges	18
20% Additional Overhead	186
20% Contingency	186
Right of Way Costs	105
ALTERNATIVE 7 ESTIMATED CONSTRUCTION COST (\$ billion)	1.41

**TABLE 8
ALTERNATIVE 7 COST ESTIMATE**

VOLKERT PROJECT NO. 911500.10
 I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
 ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
 UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 7 - MAINSPAN = 2350'		
NEW BRIDGE CONSTRUCTION		
NEW BRIDGE CONSTRUCTION: CABLE STAYED BRIDGE OVER SHIP CHANNEL WITH NEW I-10 BAYWAY SIX LANES @ 12' WIDTH WITH 10' SHOULDERS		
CABLE STAYED BRIDGE		
NEW BRIDGE DECK COST/SF (includes deck, cables, towers & piers, footings)	\$530.00	cost recommended by EarthTach for new construction
STRUCTURE WIDTH (FT)	112	
BRIDGE DECK LENGTH (FT)	5170	MEASURED IN CAD
NEW CABLE STAYED BRIDGE CONSTRUCTION TOTAL	\$306,891,200	
NEW I-10 BAYWAY CONSTRUCTION LENGTH (MILES)	6	MEASURED IN CAD
NEW I-10 BAYWAY CONVENTIONAL CONSTRUCTION		
20% BRIDGE LENGTH (MILES)	1.2	20% OF NEW BAYWAY LENGTH
BRIDGE WIDTH (FT)	112	
COST/SF	\$90.00	
NEW BAYWAY CONVENTIONAL CONST. SUBTOTAL	\$63,866,880	
NEW I-10 BAYWAY SEGMENTAL BARGE CONSTRUCTION METHODS		
SEGMENTAL BARGE CONSTRUCTION COST/SF	\$148.50	
80% OF BRIDGE LENGTH MILES	4.8	80% OF NEW BAYWAY LENGTH
BRIDGE WIDTH (FT)	112	
AREA SF (NEW BRIDGE LENGTH*WIDTH)	2838528	
NEW BAYWAY SEGMENTAL BARGE SUBTOTAL	\$421,521,408	
ROADWAY CONSTRUCTION		
ALABAMA ZONE VI FLAT TERRAIN		
I-10 WIDENING: EXISTING 8 LANES (4 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION)		
ALDOT COST DESCRIPTION: 4 LANES NEW CONSTRUCTION		
GRADE AND DRAIN		
FACTOR	1	
COST/MILEX1000	470.00	
FACTORED COST/MILEX1000	470.00	
MILES	1.08	
G&D COST	\$498,200	
BASE AND PAVE		
FACTOR	1	
COST/MILEX1000	1,400.00	
FACTORED COST/MILEX1000	1,400.00	
MILES	1.08	
B&P COST	\$1,484,000	
I-10 WIDENING SUBTOTAL	\$1,982,200	
APPROACH ROADWAY: SIX LANES NEW CONSTRUCTION FROM I-10 TO PROPOSED BRIDGE STRUCTURE		
ALDOT COST DESCRIPTION: 4 LANES NEW CONSTRUCTION X FACTOR FOR 6 LANES		
GRADE AND DRAIN		
FACTOR	1.3	
COST/MILEX1000	470.00	
FACTORED COST/MILEX1000	611.00	
MILES	1.3	
G&D COST	\$794,300	
BASE AND PAVE		
FACTOR	1.5	
COST/MILEX1000	1,400.00	
FACTORED COST/MILEX1000	2,100.00	
MILES	1.3	
B&P COST	\$2,730,000	
APPROACH ROADWAY SUBTOTAL	\$3,524,300	
INTERCHANGE CONSTRUCTION		
ASSUMED COST/INTERCHANGE	\$8,000,000.00	FOR EXISTING INTERCHANGE MODIFICATION
I-10 AND HWY 163	1	
ALT 7 AND BROAD STREET	1	
I-10 AND HWY 98	1	
TOTAL REQUIRED INTERCHANGES	3	
REQUIRED INTERCHANGE SUBTOTAL	\$18,000,000	

ALTERNATIVE 8

(See Exhibit 10)

Horizontal Route Description

Alternative 8 follows a route similar to that of Alternative 7 with a New Bayway shifted northerly. The bridged route begins approximately at the Broad Street interchange to follow a new interstate roadway due east. It crosses over Broad Street, spans the Mobile River Navigation Channel at a vertical clearance of 190 feet, spans across Mobile Bay as a 5.3-mile elevated structure (referred to as the new bayway), and ties into the I-10 Bayway east of the Mid-Bay interchange. Alternative 8 would pass over wetland areas currently undeveloped by interstate bridges.

Laneage Requirements and Overall Project Length

The same projected traffic and capacity requirements for the other alternatives was assumed to determine laneage requirements for Alternative 8. The 5.3 miles of new bayway for Alternative 8 would carry six lanes of interstate traffic (three lanes in each direction).

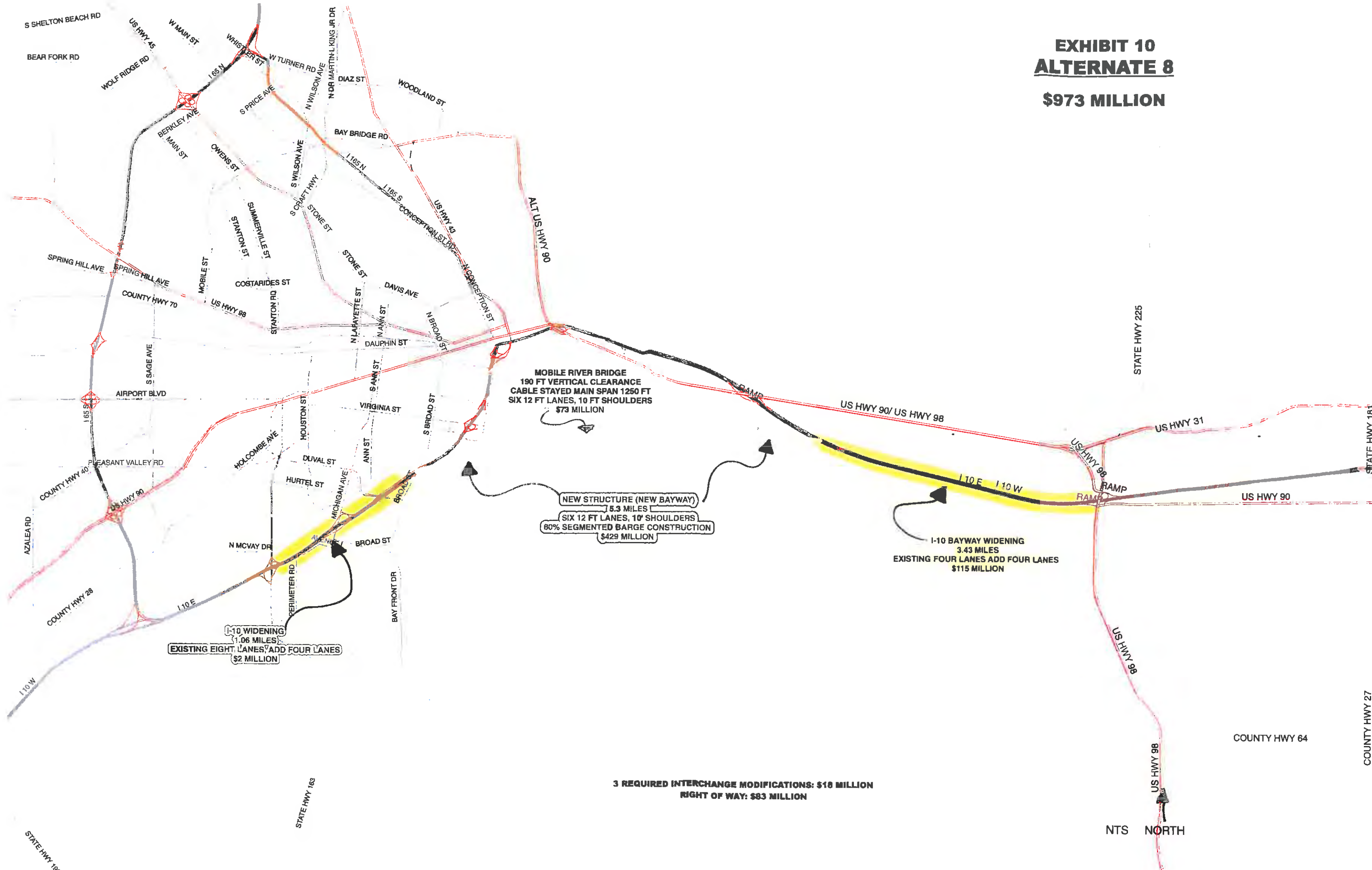
As a part of Alternative 8, the existing I-10 roadway would be widened by four lanes for a total of twelve lanes. A total of 1.06 miles is necessary for the transition to widen from eight lanes to twelve lanes. Widening would occur approximately from the Dauphin Island Parkway interchange to the Broad Street Interchange where the bridge would begin. The I-10 Bayway would be widened from where Alternative 8 ties into the Bayway to the US 98/I-10 interchange, a distance of approximately 3.43 miles. Four lanes would be added to the inside of the Bayway for a total of eight lanes.

To construct the New Bayway for Alternative 8, end-on construction methodology using segmented barges would be required for depths less than 3 feet, which represents approximately 80% of the new 5.3-mile Bayway structure.

Vertical Description (Span over the Mobile River Navigation Channel)

The west bridge structure approaches would begin at the Broad Street/I-10 interchange and would span the Mobile River Navigation Channel at a vertical clearance of 190 feet. The vertical geometry was designed utilizing a minimum vertical clearance of 190 feet over the navigation channel and a maximum grade of 4%. Based on these criteria, the approach structures would begin approximately 5,500 feet east and west of the navigation channel to achieve required vertical clearance. Based upon the width of the Mobile River Navigation Channel (700 feet), the main span skew length for Alternative 8 would be 1,250 feet with symmetrical side spans of 725 feet. Prior studies completed as part of the Environmental Assessment indicated that the optimum length of side spans for a cable-stayed bridge was 60% of the main span length. According to this criteria, the side spans of Alternative 8 would be optimal for cable-stayed bridges.

**EXHIBIT 10
ALTERNATE 8
\$973 MILLION**



**3 REQUIRED INTERCHANGE MODIFICATIONS: \$18 MILLION
RIGHT OF WAY: \$83 MILLION**

NTS NORTH

Required Interchanges

The existing interstate roadway and bridge structure along I-10 would be widened as part of the proposed project. Therefore, existing interchanges within the area to be widened would have to be removed, modified, and rebuilt. Three interchanges currently exist within the area to be widened as part of Alternative 8; therefore, it was assumed that three interchanges would be modified for Alternative 8.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate shown in **Table 9** for Alternative 8.

- Bridge Construction
 - New Cable Stayed Mobile River Bridge (190' clearance)
 - Three lanes, 12' wide, 10' shoulders inside and outside- per current traffic volume projections
 - Main Span =1250'
 - Symmetrical Side Spans=725'
 - Approach Structures
 - Unit Costs recommended by Earth Tech, refer to **Section II Cost Descriptions and Referenced Charts**
 - New Bayway Construction
 - Six lanes 12' wide, 10' shoulders outside and inside - per current traffic volume projections
 - Segmented Barge Methods for 80% bridge length
 - Proposed to diverge from I-10 Interstate Roadway near Broad Street Interchange to tie into I-10 Bayway east of Midbay Interchange.
 - ALDOT Estimated Bridge Costs **Section II Cost Description and Referenced Charts**
 - I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-per current traffic volume projections
 - Widened from proposed tie in to US 98 Interchange
 - \$110.00 per square foot per ALDOT Bridge Bureau
- Roadway Construction
 - I-10 Widening
 - Existing eight lanes, add four lanes (two in each direction) – per current traffic volume projections
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts**
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction

- Interchanges
 - Three assumed required interchanges
 - Assumption: Estimate \$6 million per existing interchange to be modified
- Right of Way
 - 2005 Right-of-Way Cost Information used for unit cost– **Section II Cost Description and Referenced Charts**
- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts- Additional Overhead**
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 8 involves 1.06 miles of I-10 interstate roadway widening, 5.3 miles of new bayway, 3.43 miles of I-10 Bayway widening, and approximately three interchange modifications in areas that have been previously undeveloped by interstate roadway. While Alternative 8 could meet the geometric requirements for an interstate facility, an entirely new Bayway Structure would be required south of the existing I-10 Bayway.

Alternative 8 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Widening	1.06
Miles of Interstate Bridge and Widening	9.24
Interchange Modifications	3
Cost Estimate Summary	
	<i>(\$million)</i>
Roadway Costs	2
New Bridge Construction and Widening Costs	616
Interchanges	18
20% Additional Overhead	127
20% Contingency	127
Right of Way Costs	83
ALTERNATIVE 8 ESTIMATED CONSTRUCTION COST	973

**TABLE 9
ALTERNATIVE 8 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 8 - MAINSPAN =1250'				
NEW BRIDGE CONSTRUCTION				
NEW BRIDGE CONSTRUCTION: CABLE STAYED BRIDGE OVER SHIP CHANNEL WITH NEW I-10 BAYWAY SIX LANES @ 12' WIDTH WITH 10' SHOULDERS				
CABLE STAYED BRIDGE				
NEW BRIDGE DECK COST/SF (includes deck, cables, towers & piers, footings)	\$240.00		cost recommended by EarthTech for new construction	
STRUCTURE WIDTH (FT)	112			
BRIDGE DECK LENGTH (FT)	2700		MEASURED IN CAD	
NEW CABLE STAYED BRIDGE CONSTRUCTION TOTAL	\$72,576,000.00			
NEW I-10 BAYWAY CONSTRUCTION LENGTH (MILES)				
NEW I-10 BAYWAY CONVENTIONAL CONSTRUCTION	5.3		MEASURED IN CAD	
20% BRIDGE LENGTH (MILES)	1.06		20% OF NEW BAYWAY LENGTH	
BRIDGE WIDTH (FT)	112			
COST/SF	\$90.00			
NEW BAYWAY BRIDGE CONSTRUCTION SUBTOTAL	\$56,415,744			
SEGMENTAL BARGE CONSTRUCTION				
SEGMENTAL BARGE CONSTRUCTION COST/SF	\$148.50			
BRIDGE WIDTH (FT)	112			
80% BRIDGE LENGTH MILES	4.24		80% OF NEW BAYWAY LENGTH	
AREA SF (BRIDGE LENGTH*WIDTH)	2,507,366			
SEGMENTAL BARGE CONSTRUCTION SUBTOTAL	\$372,343,910			
ROADWAY CONSTRUCTION				
ALABAMA ZONE VI FLAT TERRAIN				
I-10 WIDENING: EXISTING 8 LANES (4 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION)				
ALDOT COST DESCRIPTION: 4 LANES NEW CONSTRUCTION				
GRADE AND DRAIN				
FACTOR	1			
COST/MILEX1000	\$470.00			
FACTORED COST/MILEX1000	611.00			
MILES	1.06			
G&D COST	\$647,660.00			
BASE AND PAVE				
FACTOR	1			
COST/MILEX1000	1,400.00			
FACTORED COST/MILEX1000	1,400.00			
MILES	1.06			
B&P COST	\$1,484,000.00			
I-10 WIDENING SUBTOTAL	\$2,131,660.00			
INTERCHANGE CONSTRUCTION				
ASSUMED COST/INTERCHANGE	\$6,000,000.00		FOR EXISTING INTERCHANGE MODIFICATION	
I-10 AND DUVAL	1			
ALT 8 AND BROAD STREET	1			
I-10 AND HWY 98	1			
TOTAL REQUIRED INTERCHANGES	3			
REQUIRED INTERCHANGE SUBTOTAL	\$18,000,000.00			
BRIDGE WIDENING				
BAYWAY WIDENING: EXISTING 4 LANES (2 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION)				
BRIDGE WIDENING FOUR 12' LANES				
COST/SF	\$110.00		PER ALDOT BRIDGE BUREAU	
LENGTH WIDENED (MILES)	3.43		MEASURED IN CAD	
AREA WIDENED	1041348		(MILES OF BAY BRIDGE MEASURED IN CAD* FOUR 12' LANES)	
BRIDGE WIDENING COST	\$114,548,280.00			
BAYWAY WIDENING SUBTOTAL	\$114,548,280.00			
RIGHT OF WAY COST				
INDUSTRIAL WATERFRONT PROPERTIES	2,027	\$14,000.00	PER WFF	\$28,378,000.00
INDUSTRIAL NON-WATERFRONT PROPERTIES	2,211,385	\$6.88	PER SF	\$15,214,328.80
IMPROVEMENTS TO INDUSTRIAL PROPERTY @ 50% BUILD UP	827,075	\$48.00	PER SF	\$39,699,600.00
RIGHT OF WAY COST				\$83,291,928.80
Total Estimated Right of Way Cost				\$83,000,000.00

ALTERNATIVE 9

(See Exhibit 11)

Horizontal Route Description

The bridge for Alternative 9 begins approximately 450' east of the I-10/Texas Street interchange, and follows the existing I-10 route northeasterly. The Alternative 9 route then shifts due east to cross over the Canal Street interchange and spans the Mobile River Navigation Channel at a vertical clearance of 190 feet. The bridge then ties into the I-10 Bayway approximately 0.75 mile east of the Wallace Tunnel. Prior to merging with the existing I-10 Bayway, Alternative 9 continues its path to avoid the ASPA/USACE Disposal Site.

Alternative 9 would not pass through areas currently undeveloped by interstate roadways, but does pass over such areas.

Laneage Requirements and Overall Project Length

Alternative 9 follows a path similar to that of Alternatives 1, 2, and 3. Results from capacity analysis of current projected traffic volumes were used to determine the laneage requirements for Alternative 9. A total of 1.06 miles of I-10 roadway would be widened by four lanes for a total of twelve lanes. Widening would begin approximately 900 ft east of the overpass at the Broad Street Interchange and end at the I-10/Texas Street Interchange where the bridge begins. The I-10 Bayway would be widened from the point where Alternative 9 merges with the Bayway to the US 98/I-10 interchange, a distance of approximately 7.15 miles. Four lanes would be added to the inside of the Bayway for a total of eight lanes.

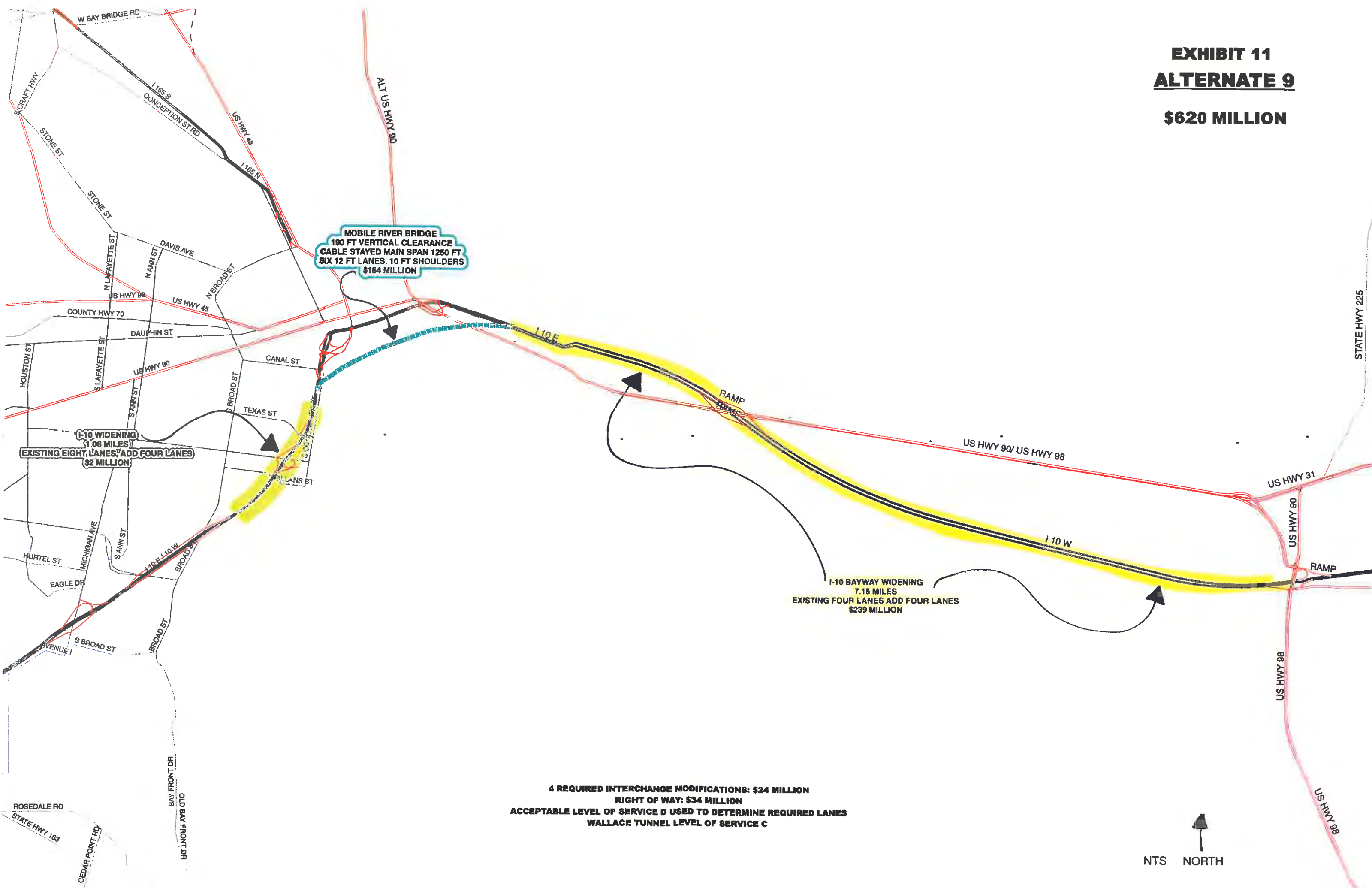
Vertical Description (Span over the Mobile River Navigation Channel)

The west bridge structure approaches would begin at the bank of the Mobile River in Mobile County west of Canal Street and span the Mobile River Navigation Channel. The vertical geometry was designed utilizing a minimum vertical clearance of 190 feet over the navigation channel and a maximum grade of 4%. Based on these criteria, the approach structures would begin approximately 5,500 feet east and west of the navigation channel to achieve required vertical clearance. Based upon the width of the Mobile River Navigation Channel (600 feet), the main span skew length for Alternative 9 would be 1,250 feet with symmetrical side spans of 725 feet each. Prior studies performed during the completion of the work associated with the Environmental Assessment indicated that the optimum length of side spans for a cable-stayed bridge was 60% of the main span length. According to this criteria, the side spans of Alternative 9 would be of optimum length for cable stayed bridges.

Required Interchanges

The existing interstate roadway and bridge structure along I-10 would be widened as part of the proposed project. Therefore, existing interchanges within the area to be widened would have to be removed, modified, and rebuilt. Four

EXHIBIT 11
ALTERNATE 9
\$620 MILLION



interchanges currently exist within the area to be widened as part of Alternative 9; therefore, it was assumed that four interchanges would be modified for this alternative.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate for Alternative 9 as shown in **Table 10**.

- Bridge Construction
 - Cable Stayed Mobile River Bridge (190' clearance)
 - Six lanes, 12' wide, 10' shoulders inside and outside- per current traffic volume projections
 - Main Span =1250'
 - Symmetrical Side Spans=725'
 - Approach Structures
 - Unit Costs recommended by Earth Tech, refer to **Section II Cost Description and Referenced Charts**
 - I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-per current traffic volume projections
 - Widened from proposed tie in to US 98 Interchange
 - \$110.00 per square foot per ALDOT Bridge Bureau
- Roadway Construction
 - I-10 Widening
 - Existing eight lanes, add four lanes (two in each direction) – per current traffic volume projections
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction
 - Interchanges
 - Four assumed required interchanges
 - Assumption: Estimate \$6 million per existing interchange to be modified
 - Right of Way
 - 2005 Right-of-Way Cost Information used for unit cost - **Section II Cost Description and Referenced Charts**
-
- Contingencies
 - 20% contingency added to subtotal

- ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts-** Additional Overhead
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 9 involves 1.06 miles of I-10 roadway widening, 7.15 miles of I-10 Bayway widening, and approximately four interchange modifications in areas that have been previously developed by interstate roadway. Alternative 9 appears to be a practical alternative. Analysis of the horizontal and vertical geometrics indicates that Alternative 9 could meet the technical requirements for an interstate highway.

Alternative 9 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Widening	1.06
Miles of Interstate Bridge and Widening	7.15
Interchange Modifications	4
Cost Estimate Summary (\$million)	
Roadway Costs	2
New Bridge Construction and Widening Costs	392
Interchanges	24
20% Additional Overhead	84
20% Contingency	84
Right of Way Costs	34
ALTERNATIVE 9 ESTIMATED CONSTRUCTION COST	620

**TABLE 10
ALTERNATIVE 9 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 9 - MAINSPAN = 1250'				
NEW BRIDGE CONSTRUCTION				
NEW CABLE STAYED BRIDGE CONSTRUCTION: MOBILE RIVER BRIDGE WITH 190' VERTICAL CLEARANCE OVER SHIP CHANNEL SIX LANES @ 12' WIDTH WITH 10' SHOULDERS				
NEW APPROACH STRUCTURES COST/SF		\$87.50	cost recommended by EarthTech for new construction	
NEW BRIDGE DECK COST/SF (includes deck, cables, towers & piers, footings)		\$240.00	cost recommended by EarthTech for new construction	
STRUCTURE WIDTH (FT)		112		
APPROACH STRUCTURE LENGTH (FT)		8270	MEASURED IN CAD	
BRIDGE DECK LENGTH (FT)		2700	MEASURED IN CAD	
NEW BRIDGE CONSTRUCTION TOTAL		\$153,622,000		
ROADWAY CONSTRUCTION				
ALABAMA ZONE VI FLAT TERRAIN				
I-10 WIDENING: EXISTING 8 LANES (4 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION) ALDOT COST DESCRIPTION: 4 LANES NEW CONSTRUCTION				
GRADE AND DRAIN				
FACTOR		1		
COST/MILEX1000		470.00		
FACTORED COST/MILE X1000		470.00		
MILES		1.06		
G&D COST		\$498,200		
BASE AND PAVE				
FACTOR		1		
COST/MILEX1000		1,400.00		
FACTORED COST/MILEX1000		1,400.00		
MILES		1.06		
B&P COST		\$1,484,000		
I-10 WIDENING SUBTOTAL		\$1,982,200		
INTERCHANGE CONSTRUCTION				
ASSUMED COST/INTERCHANGE		\$6,000,000.00	FOR EXISTING INTERCHANGE MODIFICATION	
I-10 AND TEXAS STREET		1		
I-10 AND VIRGINIA STREET		1		
I-10 AND US HWY 98/ US HWY 90		1		
I-10 AND US HWY 98		1		
TOTAL REQUIRED INTERCHANGES		4		
REQUIRED INTERCHANGE SUBTOTAL		\$24,000,000		
BRIDGE WIDENING				
BAYWAY WIDENING: EXISTING 4 LANES (2 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION) FOR A TOTAL WIDTH OF 57.5'				
BRIDGE WIDENING FOUR 12' LANES				
COST/SF		\$110.00	PER ALDOT BRIDGE BUREAU	
LENGTH WIDENED (MILES)		7.15	MEASURED IN CAD	
AREA WIDENED		2170740	(MILES OF BAY BRIDGE MEASURED IN CAD* FOUR 12' LANES)	
BRIDGE WIDENING COST		\$238,781,400		
BAYWAY WIDENING SUBTOTAL		\$238,781,400		
RIGHT OF WAY COST				
INDUSTRIAL WATERFRONT PROPERTIES	UNIT	960	\$14,000.00	PER WFF \$13,440,000
INDUSTRIAL NON-WATERFRONT PROPERTIES		771,370	\$6.88	PER SF \$5,307,026
IMPROVEMENTS TO INDUSTRIAL PROPERTY @ 50% BUILD UP		155,485	\$48.00	PER SF \$7,463,280
IMPROVEMENTS TO COMMERCIAL PROPERTY @ 60% BUILD UP		179,112	\$42.00	PER SF \$7,522,704
RIGHT OF WAY COST				\$33,733,010
Total Estimated Right of Way Cost				\$34,000,000

ALTERNATIVE 10

(See Exhibit 12)

Horizontal Route Description

Alternative 10 is proposed to begin approximately 12 miles west of the I-65/I-10 interchange, and follows a new interstate route south toward Dauphin Island to span the Intracoastal Canal at the Mississippi Sound with a vertical clearance of 73 feet. The Alternative would remain an elevated structure shifting eastward to span the Mobile Harbor Entrance Channel at a vertical clearance of 190 feet. The structure would then run along the Fort Morgan Peninsula, parallel to State Road 180 for its second crossing of the Intracoastal Waterway in Baldwin County with a 73 foot vertical clearance. At State Road 59, Alternative 10 would move northerly through rural Foley, Summerdale, Robertsdale, and Loxley and would tie back into I-10 due north of the intersection of US Hwy 90 and County Road 87.

Laneage Requirements and Overall Project Length

Assuming the same projected capacity and laneage requirements as the other alternatives, 41 miles of new interstate roadway and 30 miles of new interstate structure for Alternative 10 would carry six lanes of interstate traffic (three lanes in each direction) through previously uninterrupted communities, neighborhoods, and rural areas in south Mobile and Baldwin Counties.

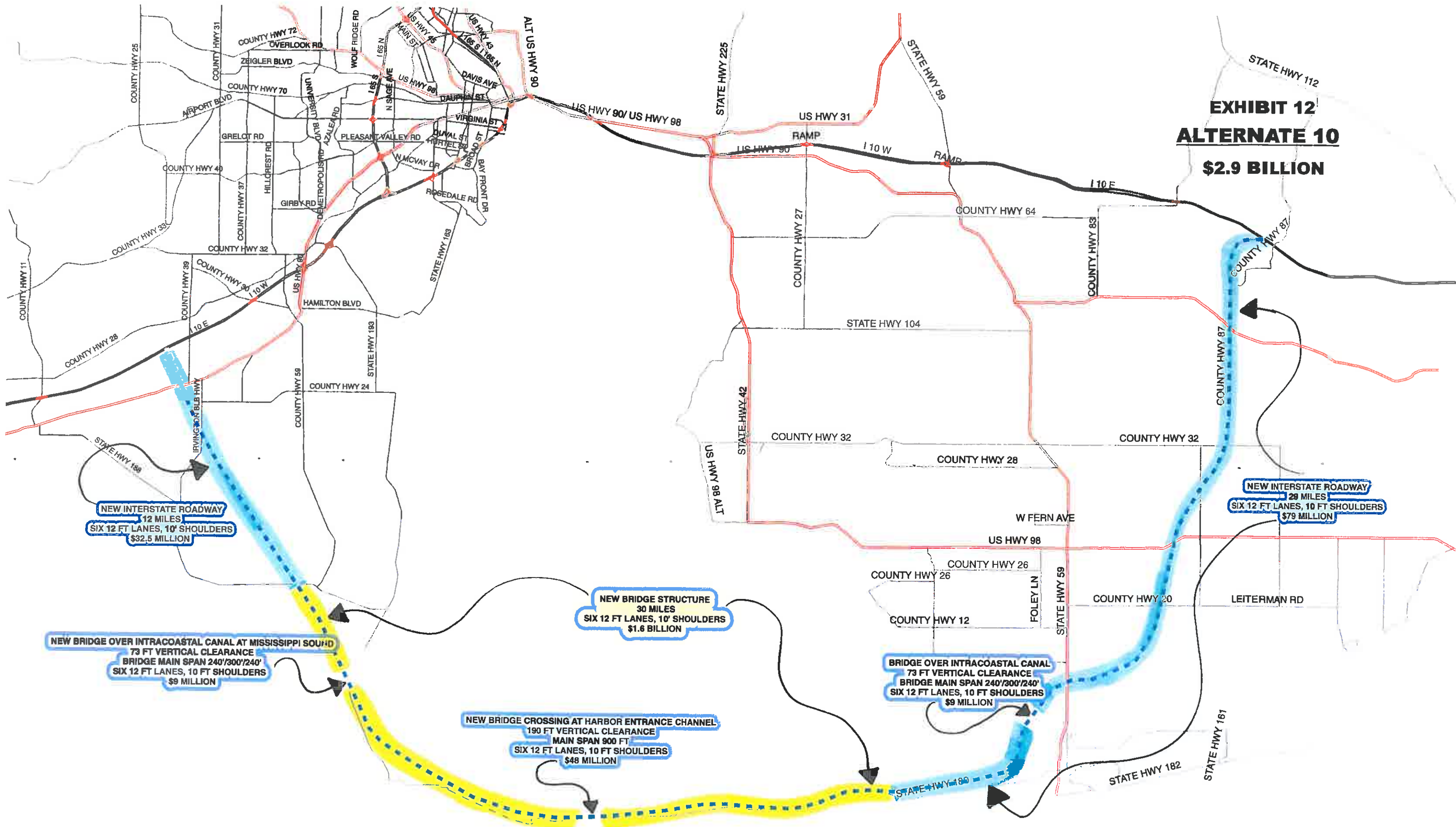
Vertical Description (Spans over the Intracoastal Waterway)

The path proposed for Alternative 10 requires two crossings of the Intracoastal Waterway at the Mississippi Sound and at Baldwin County near Gulf Shores along the Fort Morgan Peninsula. The clearances required for this waterway are 73 feet vertically and 300 feet horizontally. With a main span length of 300 feet, the symmetrical side spans would be 240 feet on either side of both structures. The clearances could certainly be met for both crossings without exceeding the maximum grade requirements.

Vertical Description (Span over the Mobile Harbor Entrance Channel)

The west bridge structure approaches would begin at a distance midway between the Mississippi Sound and the Mobile Harbor Entrance Channel. The channel width of the Harbor Channel Entrance is currently 600 feet, as the Water Resource Development Act of 1986 authorized the widening of the Mobile Harbor Entrance Channel to 700 feet. Therefore, the current main span length of the crossing was estimated to be 900 feet with side spans of 540 feet. The side spans would be of optimum length for a cable-stayed bridge according to criteria developed as part of the prior work completed in the Environmental Assessment which indicated that desirable side spans for cable-stayed bridges should be 60% of the main span length. The required vertical clearance over the Mobile Harbor Entrance Channel would be 190 feet and could be met with a grade of less than 1%. The east bridge approaches were assumed to end at the crossing of the structure with State Road 59.

EXHIBIT 12
ALTERNATE 10
\$2.9 BILLION



NEW INTERSTATE ROADWAY
 12 MILES
 SIX 12 FT LANES, 10' SHOULDERS
 \$32.5 MILLION

NEW INTERSTATE ROADWAY
 29 MILES
 SIX 12 FT LANES, 10 FT SHOULDERS
 \$79 MILLION

NEW BRIDGE STRUCTURE
 30 MILES
 SIX 12 FT LANES, 10' SHOULDERS
 \$1.6 BILLION

NEW BRIDGE OVER INTRACOASTAL CANAL AT MISSISSIPPI SOUND
 73 FT VERTICAL CLEARANCE
 BRIDGE MAIN SPAN 240'/300'/240'
 SIX 12 FT LANES, 10 FT SHOULDERS
 \$9 MILLION

BRIDGE OVER INTRACOASTAL CANAL
 73 FT VERTICAL CLEARANCE
 BRIDGE MAIN SPAN 240'/300'/240'
 SIX 12 FT LANES, 10 FT SHOULDERS
 \$9 MILLION

NEW BRIDGE CROSSING AT HARBOR ENTRANCE CHANNEL
 190 FT VERTICAL CLEARANCE
 MAIN SPAN 900 FT
 SIX 12 FT LANES, 10 FT SHOULDERS
 \$48 MILLION

10 ASSUMED CONSTRUCTED INTERCHANGES: \$102 MILLION
RIGHT OF WAY: \$274 MILLION
BRIDGES OVER ROADWAYS: \$13.6 MILLION



Required Interchanges

The existing interstate roadway along I-10 and I-65 will remain undisturbed. Therefore, the only modification to an existing interchange would likely occur at the I-10/I-65 interchange. However, since the proposed new interstate roadway for Alternative 10 will travel through areas previously undeveloped by interstate facilities, new interchanges will be required at various local roadway crossings. Due to the uncertainty of the number of required interchanges along this route, one interchange per every four miles of roadway was assumed and compared to the number of major crossing arterials. The larger of the two results was used to determine the number of potentially required interchanges. Based on this analysis, it was determined that one interchange per every four miles would require the construction of 10 new interchanges.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate given in **Table 11** for Alternative 10.

- Bridge Construction
 - Cable Stayed Mobile River Bridge (190' clearance)
 - Over Mobile Harbor Entrance Channel
 - Six lanes, 12' wide, 10' shoulders inside and outside-
 - Main Span =900'
 - Symmetrical Side Spans=540'
 - Approach Structures
 - Unit Costs recommended by Earth Tech, refer to **Section II Cost Description and Referenced Charts**
 - Crossings over Intracoastal Waterway (73' vertical clearance)
 - Over Mississippi Sound and Intracoastal Waterway in Baldwin County
 - Six lanes, 12' wide, 10' shoulders inside and outside-
 - Main Span =300'
 - Symmetrical Side Spans=240'
 - Approach Structures
 - Bridges over Roadways
 - Assumption of one grade separation required per each three miles of roadway
 - Fourteen assumed bridges over roadways
 - ALDOT Preliminary Cost Chart- **Section II Cost Description and Referenced Charts**
- Roadway Construction
 - New Interstate Roadway

- New construction of six 12' wide lanes with 10' shoulders inside and outside
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction multiplied by the factor for 6 lane
 - Interchanges
 - Assumption: Use conservative of two values:
 - one interchange per every 4 miles of roadway
 - one interchange per every major crossing arterial
 - Ten assumed required interchanges: conservative assuming one interchange per every four miles
 - Assumption: Estimate \$10 million per new interchange construction
- Right of Way
 - ALDOT Preliminary Cost Estimate for Right of Way in Urban and Rural Areas -**Section II Cost Description and Referenced Charts**
 - Assumed 50% Urban, 50% Rural Areas
 - Assumption to multiply cost by a factor of 1.5 for six lanes
 - Alternative 10 Right of Way has 200% Contingency due to the high value properties impacted through Dauphin Island and Baldwin County.
- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts**- Additional Overhead
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Analysis of the horizontal and vertical geometrics indicates that Alternative 10 could meet the technical requirements for an interstate highway. However, with 10 new required interchanges and 70 miles of new interstate through areas previously undisturbed by interstate development and sensitive coastal areas, Alternative 10 does not appear to be a practical or economical alternative.

Alternative 10 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of New Interstate	41
Miles of Interstate Bridge	30
New Interchange Construction	10
Cost Estimate Summary	
	<i>(\$million)</i>
Roadway Costs	111
New Bridge Construction Costs (\$billion)	1.68
Interchanges	102
20% Additional Overhead	379
20% Contingency	379
Right of Way Costs	274
ALTERNATIVE 10 ESTIMATED CONSTRUCTION COST (\$billion)	2.93

**TABLE 11
ALTERNATIVE 10 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
 I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
 ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
 UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 10- MAINSPAN=900'		
ROADWAY CONSTRUCTION		
ALABAMA ZONE VI FLAT TERRAIN		
NEW INTERSTATE: NEW CONSTRUCTION OF 6 LANES (3 IN EACH DIRECTION)		
ALDOT COST DESCRIPTION: 4-LANE NEW CONSTRUCTION * FACTOR FOR 6 LANES		
GRADE AND DRAIN		
FACTOR		1.3
COST/MILE X \$1000		470.00
FACTORED COST/MILE X \$1000		611.00
LENGTH (MILES)		40.80 MEASURED ON PROJECT MAP
G&D COST		\$24,928,800
BASE AND PAVE		
FACTOR		1.5
COST/MILE X \$1000		1,400.00
FACTORED COST/MILE X \$1000		2,100.00
LENGTH (MILES)		40.80 MEASURED ON PROJECT MAP
B&P COST		\$85,680,000
NEW INTERSTATE SUBTOTAL		\$110,608,800
NEW BRIDGE CONSTRUCTION		
NEW BRIDGE CONSTRUCTION: BRIDGE SPAN 240'/300'/240' WITH 73' VERTICAL CLEARANCE OVER INTRACOASTAL WATERWAY		
SIX LANES 12' WIDTH WITH 10' SHOULDERS		
APPROACH STRUCTURES COST/SF	\$90.00	
APPROACH STRUCTURES LENGTH (MILES)	8.12	measured on project map
APPROACH STRUCTURES SF	4801843.2	length * 112' width
APPROACH STRUCTURE SUBTOTAL	\$432,165,888.00	
TOTAL MAIN SPAN COST/SF	\$100.00	
TOTAL MAIN SPAN LENGTH FT	1560	780 span x 2 crossings of intracoastal canal
TOTAL MAIN SPAN SF	174,720	length x 112' width
TOTAL MAIN SPAN SUBTOTAL	\$17,472,000	
INTRACOASTAL WATERWAY CROSSINGS SUBTOTAL	\$449,637,888	
NEW BRIDGE CONSTRUCTION: MAINSPAN = 900' WITH 200' VERTICAL CLEARANCE OVER MOBILE HARBOR ENTRANCE CHANNEL		
SIX LANES 12' WIDTH WITH 10' SHOULDERS		
APPROACH STRUCTURES COST/SF	\$90.00	
APPROACH STRUCTURES LENGTH (MILES)	22	measured on project map from Dauphin Island to Gulf Shores
APPROACH STRUCTURES SF	13009920	length from Dauphin Island to Gulf Shores * 112' width
APPROACH STRUCTURE SUBTOTAL	\$1,170,892,800	
TOTAL MAIN SPAN COST/SF	\$215.00	(sf cost as determined by EarthTech for main span)
TOTAL MAIN SPAN LENGTH FT	1980	
TOTAL MAIN SPAN SF	221,760	length x 112' width
TOTAL MAIN SPAN SUBTOTAL	\$47,678,400	
MOBILE HARBOR ENTRANCE CHANNEL BRIDGE TOTAL	\$1,218,571,200	
BRIDGES OVER ROADWAYS		
ASSUMPTION: ONE GRADE SEPARATION PER EACH THREE MILES OF ROADWAY		
BRIDGE LENGTH = 500', BRIDGE WIDTH= 40'		
COST/SF	\$50.00	1999 Preliminary Cost Estimate Chart
LENGTH OF ROADWAY (MILES)	40.80	
ASSUMED BRIDGES OVER ROADWAYS	13.60	
BRIDGES OVER ROADWAYS COST	\$13,600,000	

ALTERNATIVE 11

(See Exhibit 13)

Horizontal Route Description

Alternative 11 begins approximately 12 miles west of the I-65/I-10 interchange, to follow a new interstate route northward crossing through the intersection of County Highway 39 and County Highway 40. Here, Alternative 11 will shift northwesterly through the intersection with Airport Boulevard and County Highway 39 to follow County Highway 25 to its intersection with Tanner Williams Road where the route turns east/northeast until it crosses with US Highway 98. Then, the new interstate route travels eastward to tie into the I-65/I-165 interchange. From the I-65/I-165 interchange to the I-10 Bayway, Alternative 11 follows the same route proposed for Alternatives 5 and 6. The connecting structures from I-165 to the Cochrane Bridge, modifications to the Cochrane Bridge eastern approaches, and connecting structures from the Cochrane Bridge to the I-10 Bayway for Alternatives 5 and 6 are also required for Alternative 11. Refer to the relevant text in this report for Alternatives 5 and 6 for additional information on the shared route with Alternative 11.

Laneage Requirements and Overall Project Length

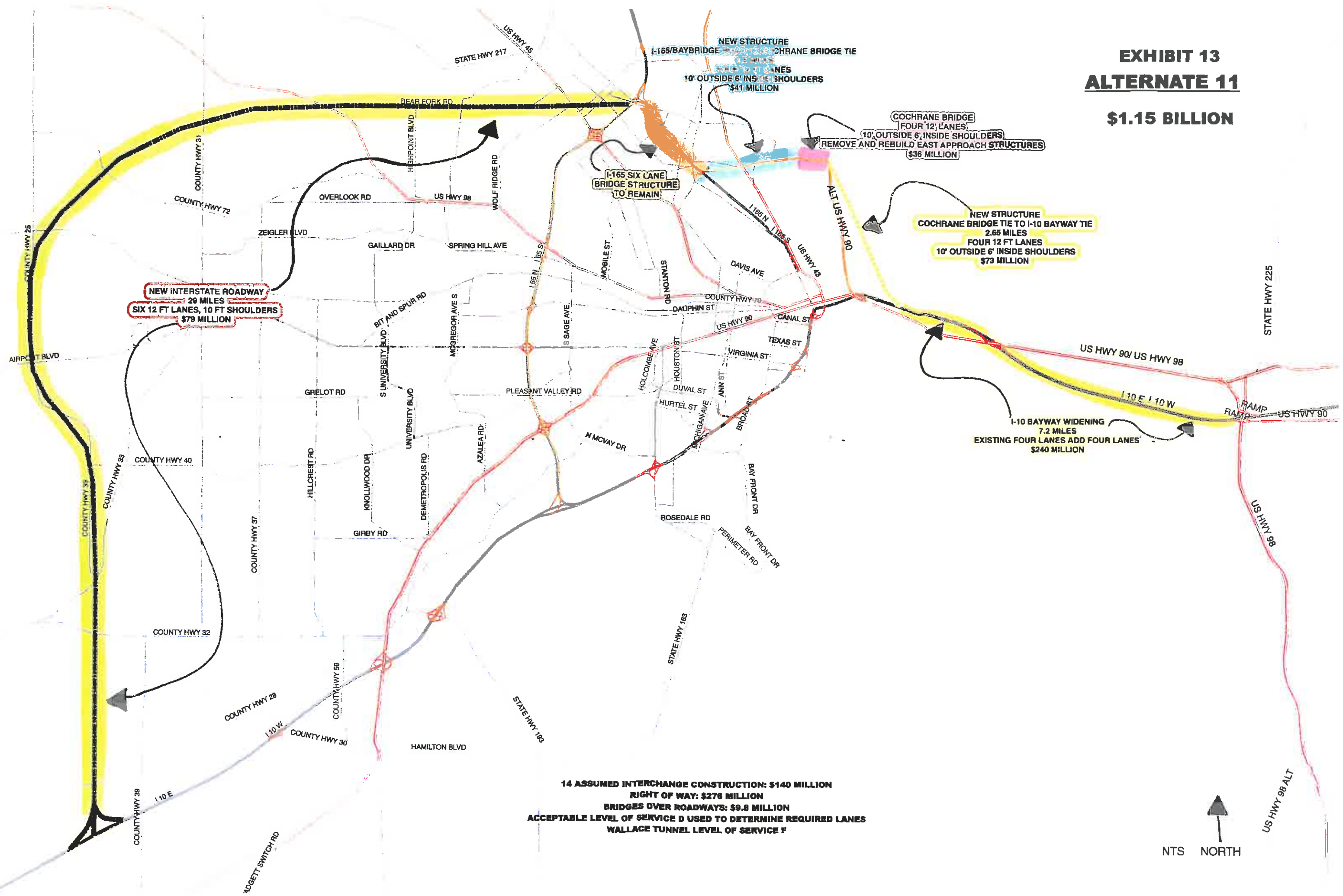
The same projected capacity and laneage requirements of the other alternatives were assumed for Alternative 11. Approximately 29 miles of new interstate roadway would carry six lanes of interstate traffic (three lanes in each direction) through currently uninterrupted neighborhoods and communities in both rural and urban areas in west and north Mobile County.

Required Interchanges

Interchange modifications required for Alternative 11 include the existing interchange modifications necessary for Alternatives 5 and 6. Additionally, since the new interstate roadway proposed for Alternative 11 will travel through areas previously undisturbed by interstate facilities, new interchanges will be required at various local roadway crossings. Due to the uncertainty of the number of required interchanges along this route, one interchange per every four miles of roadway was assumed and compared to the number of major arterial crossings. The larger of the two results was used to determine the number of potentially required interchanges. With an estimated 8 required new interchanges and 6 existing interchanges from Alternatives 5 and 6, an estimated 14 interchanges will be required for Alternative 11.

**EXHIBIT 13
ALTERNATE 11**

\$1.15 BILLION



14 ASSUMED INTERCHANGE CONSTRUCTION: \$140 MILLION
RIGHT OF WAY: \$276 MILLION
BRIDGES OVER ROADWAYS: \$9.8 MILLION
ACCEPTABLE LEVEL OF SERVICE D USED TO DETERMINE REQUIRED LANES
WALLACE TUNNEL LEVEL OF SERVICE F



Cost Estimate

The following outline summarizes the items used to determine the cost estimate shown in **Table 12** for Alternative 11.

- Bridge Construction
 - Upgrade Existing Cochrane Bridge to Interstate Standards
 - Remove and Rebuild existing eastern approach structures
 - Four lanes , 12' wide, 10' shoulders inside and 6 ft outside
 - I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-per current traffic volume projections
 - \$110.00 per square foot per ALDOT Bridge Bureau
 - New Interstate Bridge
 - Four lanes 12' wide, 10' shoulders inside and 6 ft outside
 - Proposed to connect I-10 Bayway to Cochrane Bridge and Cochrane Bridge to I-165 Bridge
 - ALDOT Estimated Bridge Costs **Section II Cost Description and Referenced Charts**
 - Bridges over Roadways
 - Assumption of one grade separation required per each three miles of roadway
 - Ten assumed bridges over roadways
 - ALDOT Preliminary Cost Chart- **Section II Cost Description and Referenced Charts**
- Roadway Construction
 - New Interstate Roadway
 - New construction six lanes
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction multiplied by the factor for 6 lane
 - Interchanges
 - Assumption: Use conservative of two values:
 - one interchange per every 4 miles of roadway
 - one interchange per every major crossing arterial
 - Seven assumed required interchanges: conservative assuming one interchange per every major crossing arterial

- Assumption: Estimate \$10 million per new interchange construction
 - Seven additional interchanges from shared route with Alternatives 5/6
 - Fourteen required interchanges
 - Assumption: Estimate \$10 million per new interchange construction

- Right of Way
 - ALDOT Preliminary Cost Estimate Chart for Right of Way in Urban Areas - **Section II Cost Description and Referenced Charts**
 - Assumption: 50% urban areas, 50% rural areas
 - Assumption: multiply cost by a factor of 1.5 for six lanes
 - Alternative 11 Right of Way has 200% Contingency

- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart -**Section II Cost Description and Referenced Charts**- Additional Overhead
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 11 involves the construction of 14 interchanges, 30 miles of new interstate through areas previously undisturbed by interstate development, and structures required from Alternatives 5 and 6. Analysis of the horizontal and vertical geometrics indicated establishes that Alternative 11 could meet the technical requirements for an interstate highway. Extensive additional right-of-way would be required through west Mobile County and along Bay Bridge Road.

Alternative 11 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of New Interstate Roadway	29
Miles of Interstate Bridge Construction and Widening	11
Interchange Modifications and New Construction	14
Cost Estimate Summary	(\$million)
Roadway Costs	79
Bridge Removal and Rebuild Costs	36
Bridge Construction and Widening Costs	368
Interchanges	140
20% Additional Overhead	125
20% Contingency	125
Right of Way Costs	276
ALTERNATIVE 11 ESTIMATED CONSTRUCTION COST (\$billion)	1.15

**TABLE 12
ALTERNATIVE 11 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 11-MAINSpan = 715'	
ROADWAY CONSTRUCTION	
ALABAMA ZONE VI FLAT TERRAIN	
NEW INTERSTATE: NEW CONSTRUCTION OF 6 LANES (2 IN EACH DIRECTION)	
ALDOT COST DESCRIPTION: 4-LANE NEW CONSTRUCTION * FACTOR FOR 6 LANES	
GRADE AND DRAIN	
FACTOR	1.3
COST/MILE X\$1000	470.00
FACTORED COST/MILE X \$1000	611.00
LENGTH (MILES)	29.3 MEASURED ON PROJECT MAP
G&D COST	\$17,902,300
BASE AND PAVE	
FACTOR	1.5
COST/MILE X\$1000	1,400.00
FACTORED COST/MILE X \$1000	2,100.00
LENGTH (MILES)	29.3 MEASURED ON PROJECT MAP
B&P COST	\$61,530,000
NEW INTERSTATE SUBTOTAL	\$79,432,300
INTERCHANGE CONSTRUCTION	
APPX. COST/INTERCHANGE	\$10,000,000.00 FOR PROPOSED NEW INTERCHANGE CONSTRUCTION
USE CONSERVATIVE NUMBER OF REQUIRED INTERCHANGES FROM ASSUMING ONE INTERCHANGE PER EVERY MAJOR CROSSING ARTERIAL AND ONE INTERCHANGE PER EVERY FOUR MILES	
ASSUMPTION: ONE INTERCHANGE PER EVERY MAJOR CROSSING ARTERIAL	
I-10 AND ALT 11	1
ALT 11 AND AIRPORT	1
ALT 11 AND US 98	1
ALT 11 AND SHELTON BEACH ROAD	1
ALT 11 AND HWY 70	1
ALT 11 AND HWY 45	1
INTERCHANGES FROM ALT 5	7
ALT 11 AND I-65	1
TOTAL REQUIRED INTERCHANGES	14 ASSUMING ONE INTERCHANGE PER EVERY MAJOR CROSSING ARTERIAL
ASSUMPTION: ONE INTERCHANGE/EVERY FOUR MILES	
MILES OF ROADWAY	29.3
TOTAL REQUIRED INTERCHANGES	7
INTERCHANGES FROM ALTERNATE 6	7
TOTAL REQUIRED INTERCHANGES	14 ASSUMING ONE INTERCHANGE PER EVERY FOUR MILES
REQUIRED INTERCHANGE SUBTOTAL	\$140,000,000 USE ASSUMPTION ONE INTERCHANGE PER EVERY FOUR MILES
NEW BRIDGE CONSTRUCTION	
SINCE ALTERNATE 11 CONNECTS TO THE PROPOSED ALTERNATE 6, COSTS FROM ALTERNATE 6 SHOULD BE ADDED	
NEW BRIDGE COSTS SHARED WITH ALTERNATE 6	
NEW BRIDGE COST	\$118,609,920 STRUCTURE FROM I-165 TO COCHRANE BRIDGE TO I-10 BAYWAY
BRIDGES OVER ROADWAYS	
ASSUMPTION: ONE GRADE SEPARATION PER EACH THREE MILES OF ROADWAY	
BRIDGE LENGTH = 500', BRIDGE WIDTH= 40'	
COST/SF	\$50.00 1999 Preliminary Cost Estimate Chart
LENGTH OF ROADWAY (MILES)	29.3
ASSUMED BRIDGES OVER ROADWAYS	9.77
BRIDGES OVER ROADWAYS COST	\$9,770,000
BRIDGE REMOVAL AND REBUILD	
SINCE ALTERNATE 11 CONNECTS TO THE PROPOSED ALTERNATE 6, COSTS FROM ALTERNATE 6 SHOULD BE ADDED	
BRIDGE REMOVAL AND REBUILD COSTS SHARED WITH ALTERNATE 6	
BRIDGE REMOVE AND REBUILD COST	\$35,513,535 REMOVE AND REBUILD COCHRANE BRIDGE APPROACH STRUCTURES

ALTERNATIVE 12

(See Exhibit 14)

Horizontal Route Description

Alternative 12 begins at the location of the I-10/I-65 interchange, follows a new interstate route southward across Dog River, shifts east/southeast to cross State Highway 163 where it becomes an elevated structure (to be referred to as the New Bayway). Following a northeasterly path across the Mobile River Navigation Channel, Alternative 12 ties to the existing I-10 Bayway, and ends at the US 98/I-10 interchange.

Laneage Requirements and Overall Project Length

The same projected capacity and laneage requirements of the other alternatives were assumed for Alternative 12. Therefore, the estimated 3.4 miles of new interstate roadway and 9 miles of new interstate structure would carry six lanes of interstate traffic (three lanes in each direction) through previously uninterrupted communities in areas of southeast Mobile County.

To construct the New Bayway for Alternative 12, end-on construction methods using segmented barges would be required for depths less than 3 feet, approximately 40% of the length of the 9-mile structure.

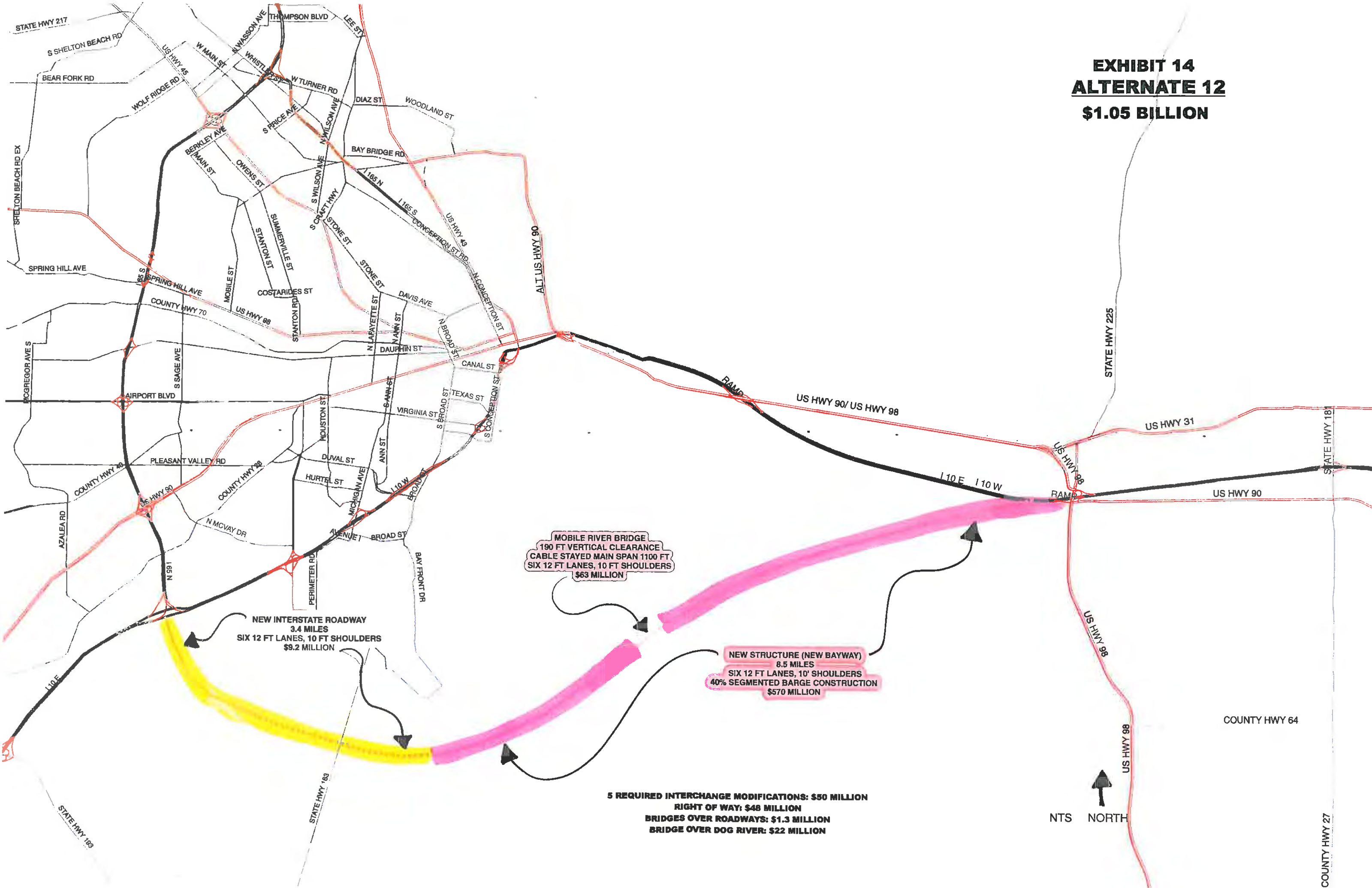
Vertical Description (Span over the Mobile River Navigation Channel)

The west bridge structure approaches were assumed to begin at the bank of Mobile Bay in southeast Mobile County at State Highway 163 to pass over Mobile Bay beginning at an elevation of approximately 25 feet. Based upon the existing 400 feet wide Mobile River Navigation Channel (authorized to be widened to 550 feet), the main span skew length would be 1,100 feet with side spans of 660 feet each. The side spans would be of optimum length for a cable-stayed bridge based on criteria developed as part of prior work completed in the Environmental Assessment which indicates that desirable side spans for cable-stayed bridges should be 60% of the main span length. The required vertical clearance over the Mobile River Navigation Channel would be 190 feet and could be met with a constant bridge grade of less than 1%. The east bridge approaches were assumed to end at the point where Alternative 12 ties into the I-10 Bayway at the US 98 Interchange.

Required Interchanges

The existing interstate roadway along I-10 and I-65 will remain as exists. Therefore, the only interchange modifications to existing interchanges would be the I-10/I-65 interchange and the US Highway 98/I-10 interchange. As with other alternatives requiring the construction of new interstate roadway, the number of required interchanges was determined from the larger of the two values stemming from one interchange per every four roadway miles and the number of major arterial crossings. Since Alternative 12 crosses over 9 miles of waterway

**EXHIBIT 14
ALTERNATE 12
\$1.05 BILLION**



MOBILE RIVER BRIDGE
190 FT VERTICAL CLEARANCE
CABLE STAYED MAIN SPAN 1100 FT
SIX 12 FT LANES, 10 FT SHOULDERS
\$63 MILLION

NEW INTERSTATE ROADWAY
3.4 MILES
SIX 12 FT LANES, 10 FT SHOULDERS
\$9.2 MILLION

NEW STRUCTURE (NEW BAYWAY)
8.5 MILES
SIX 12 FT LANES, 10' SHOULDERS
40% SEGMENTED BARGE CONSTRUCTION
\$570 MILLION

5 REQUIRED INTERCHANGE MODIFICATIONS: \$50 MILLION
RIGHT OF WAY: \$48 MILLION
BRIDGES OVER ROADWAYS: \$1.3 MILLION
BRIDGE OVER DOG RIVER: \$22 MILLION

NTS NORTH

COUNTY HWY 27

(roughly 75% of the total route length), a lesser amount of five new interchanges were determined to be required.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate shown in **Table 13** for Alternative 12.

- Bridge Construction
 - New Cable Stayed Mobile River Bridge (190' clearance)
 - Three lanes, 12' wide, 10' shoulders inside and outside- per current traffic volume projections
 - Main Span =1100'
 - Symmetrical Side Spans=660'
 - Approach Structures
 - Unit Costs recommended by Earth Tech, refer to **Section II Cost Description and Referenced Charts**
 - New Bayway Construction
 - Six lanes 12' wide, 10' shoulders outside and inside **per current traffic volume projections**
 - Segmented Barge Methods for 40% of structure length
 - Proposed to begin at State Hwy 163 to end at Baldwin County US 98
 - ALDOT Estimated Bridge Costs **Section II Cost Description and Referenced Charts**
 - Bridges over Roadways
 - Assumption of one grade separation required per each three miles of roadway
 - One assumed bridge over roadways
 - ALDOT Preliminary Cost Chart- **Section II Cost Description and Referenced Charts**
- Roadway Construction
 - New Interstate Roadway
 - New construction of six 12' wide lanes with 10' shoulders inside and outside
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction multiplied by the factor for 6 lane
 - Interchanges
 - Assumption: Use conservative of two values:
 - one interchange per every 4 miles of roadway

- one interchange per every major crossing arterial
 - Five assumed required interchanges- conservative assuming one interchange per every major crossing arterial
 - Assumption: Estimate \$10 million per new interchange construction
- Right of Way
 - ALDOT Preliminary Cost Estimate Chart for Right of Way in Urban Areas - **Section II Cost Description and Referenced Charts**
 - Assumption to multiply cost by a factor of 1.5 for six lanes
 - Alternative 12 Right of Way has 300% Contingency due to high value property along Dog River Frontage
- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Descriptions and Referenced Charts- Additional Overhead**
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Analysis of the horizontal and vertical geometrics indicates that Alternative 12 could meet the technical requirements for an interstate highway. However, due to its location south of the Brookley Airport, Alternative 12 has a more unique feature to consider. According to Federal Aviation Authority (FAA) criteria, the maximum height of a structure in the runway approach at this distance is approximately 120 feet. Obviously, a bridge with a 190-foot vertical clearance and pylons that would rise to a height of 490 feet would not meet the FAA criteria for objects affecting navigable airspace. Therefore, applicable permits from the FAA could not be obtained. For this reason, Alternative 12 should not be considered a practical alternative.

Alternative 12 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of New Interstate Roadway	3.4
Miles of Interstate Bridge Construction	9
Interchange Modifications and New Construction	5
Cost Estimate Summary	(\$million)
Roadway Costs	9.2
Bridge Construction	656
Interchanges	50
20% Additional Overhead	143
20% Contingency	143
Right of Way Costs	48
ALTERNATIVE 12 ESTIMATED CONSTRUCTION COST (\$billion)	1.05

**TABLE 13
ALTERNATIVE 12 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 12- MAINSPAN=1100			
ROADWAY CONSTRUCTION			
ALABAMA ZONE VI FLAT TERRAIN			
NEW INTERSTATE: NEW CONSTRUCTION OF 8 LANES (3 IN EACH DIRECTION) ALDOT COST DESCRIPTION: 4-LANE NEW CONSTRUCTION * FACTOR FOR 6 LANES			
	GRADE AND DRAIN		
FACTOR			1.3
COST/MILE X \$1000			470.00
FACTORED COST/MILE X \$1000			611.00
LENGTH (MILES)			3.4 MEASURED ON PROJECT MAP
G&D COST			\$2,077,400.00
	BASE AND PAVE		
FACTOR			1.5
COST/MILE X \$1000			1,400.00
FACTORED COST/MILE X \$1000			2,100.00
LENGTH (MILES)			3.4 MEASURED ON PROJECT MAP
B&P COST			\$7,140,000.00
NEW INTERSTATE SUBTOTAL			\$9,217,400
INTERCHANGE CONSTRUCTION			
ASSUMED COST/INTERCHANGE	\$10,000,000.00	FOR PROPOSED NEW INTERCHANGE CONSTRUCTION	
I-10 AND ALT 12			1
ALT 12 AND I-10/I-65			2
ALT 12 AND HWY 98			1
ALT 12 AND HWY 163			1
TOTAL REQUIRED INTERCHANGES			5
REQUIRED INTERCHANGE TOTAL COST	\$50,000,000		
NEW BRIDGE CONSTRUCTION			
BRIDGES OVER ROADWAYS			
ASSUMPTION: ONE GRADE SEPARATION PER EACH THREE MILES OF ROADWAY BRIDGE LENGTH = 500', BRIDGE WIDTH= 40'			
COST/SF			\$50.00
LENGTH OF ROADWAY (MILES)			3.40
ASSUMED BRIDGES OVER ROADWAYS			1.13
BRIDGES OVER ROADWAYS COST			\$1,130,000
NEW BRIDGE CONSTRUCTION: NEW BAYWAY CONSTRUCTION WITH 190' VERTICAL CLEARANCE OVER MOBILE RIVER SHIP CHANNEL			
CABLE STAYED BRIDGE			
MAIN SPAN COST/SF	\$232.00	(sf cost as determined by EarthTech for main span)	
MAIN SPAN LENGTH FT	2420		
MAIN SPAN SF	271,040	112' width *(main span + side spans of nominal 60% main span length)	
MAIN SPAN SUBTOTAL	\$62,881,280.00		
NEW CABLE STAYED BRIDGE SUBTOTAL			\$62,881,280
NEW I-10 BAYWAY CONSTRUCTION LENGTH			8.5 MEASURED IN CAD
NEW I-10 BAYWAY CONVENTIONAL CONSTRUCTION			
BRIDGE LENGTH (MILES)			5.1 60% OF NEW BAYWAY LENGTH
BRIDGE WIDTH (FEET)			112
COST/SF			\$90.00
NEW BAYWAY BRIDGE CONVENTIONAL CONST.			\$271,434,240
SEGMENTAL BARGE CONSTRUCTION			
SEGMENTAL BARGE CONSTRUCTION COST/SF	\$148.50		
AREA SF (BRIDGE LENGTH*WIDTH)	2,010,624	40% OF BAYWAY LENGTH	
SEGMENTAL BARGE CONSTRUCTION SUBTOTAL	\$298,577,664		
NEW BRIDGE CONSTRUCTION: BRIDGE OVER DOG RIVER			
RIVER BRIDGE COST/SF	\$75.00		
APPX. SPAN LENGTH (MILES)	0.5		
RIVER BRIDGE SF	\$295,680.00	112' width * span over Dog River (appx. 0.5 miles)	
DOG RIVER BRIDGE TOTAL	\$22,176,000		
RIGHT OF WAY COST			
ASSUMPTION: 100% URBAN ROADWAY, 300% CONTINGENCY ADDED TO RIGHT OF WAY SUBTOTAL DUE TO HIGH VALUE RESIDENTIAL PROPERTIES ALONG DOG RIVER FRONTAGE			
4-LANE URBAN ROADWAY * FACTOR FOR 8 LANES			
COST/MILE	\$2,720,000.00		
ASSUMED FACTOR FOR 8 LANES	1.3		
FACTORED COST/MILE	\$3,536,000.00		
LENGTH (MILES)	3.40	NEW INTERSTATE ROADWAY LENGTH	
URBAN RIGHT OF WAY COST	\$12,022,400.00		
	RIGHT OF WAY COST		\$12,022,400
	300% CONTINGENCY		\$36,067,200
	Total Estimated Right of Way Cost		\$48,000,000

ALTERNATIVE 13

(See Exhibit 15)

Horizontal Route Description

Alternative 13 follows a path similar to that of Alternative 12 as it begins at the I-10/I-65 interchange to follow a new interstate route southward crossing over Dog River to then shift east/southeast to cross State Highway 163 where the new interstate roadway will become an elevated structure (to be referred to as the New Bayway). However, the New Bayway will follow a more southeasterly path across the Mobile River Navigation Channel than that of Alternative 12. As Alternative 13 crosses State Highway 42, the easterly route transforms to interstate roadway to cross at the intersection of State Highway 104 and County Highway 27 to shift north/northeast to cross with County Highway 64 and State Highway 59 before tying with I-10 approximately two miles west of the interchange with Highway 59.

Laneage Requirements and Overall Project Length

The same projected capacity and laneage requirements for the other alternatives were used for Alternative 13. The estimated 16 miles of new interstate roadway and 10 miles of new interstate structure (the New Bayway) would carry six lanes of interstate traffic (three lanes in each direction) through currently uninterrupted neighborhoods and communities, such as Fairhope and Loxley, in areas of southwest Baldwin County.

To construct the New Bayway for Alternative 13, end-on construction methods using segmented barges would be required for depths less than 3 feet, approximately 25% of the length of the 10-mile structure.

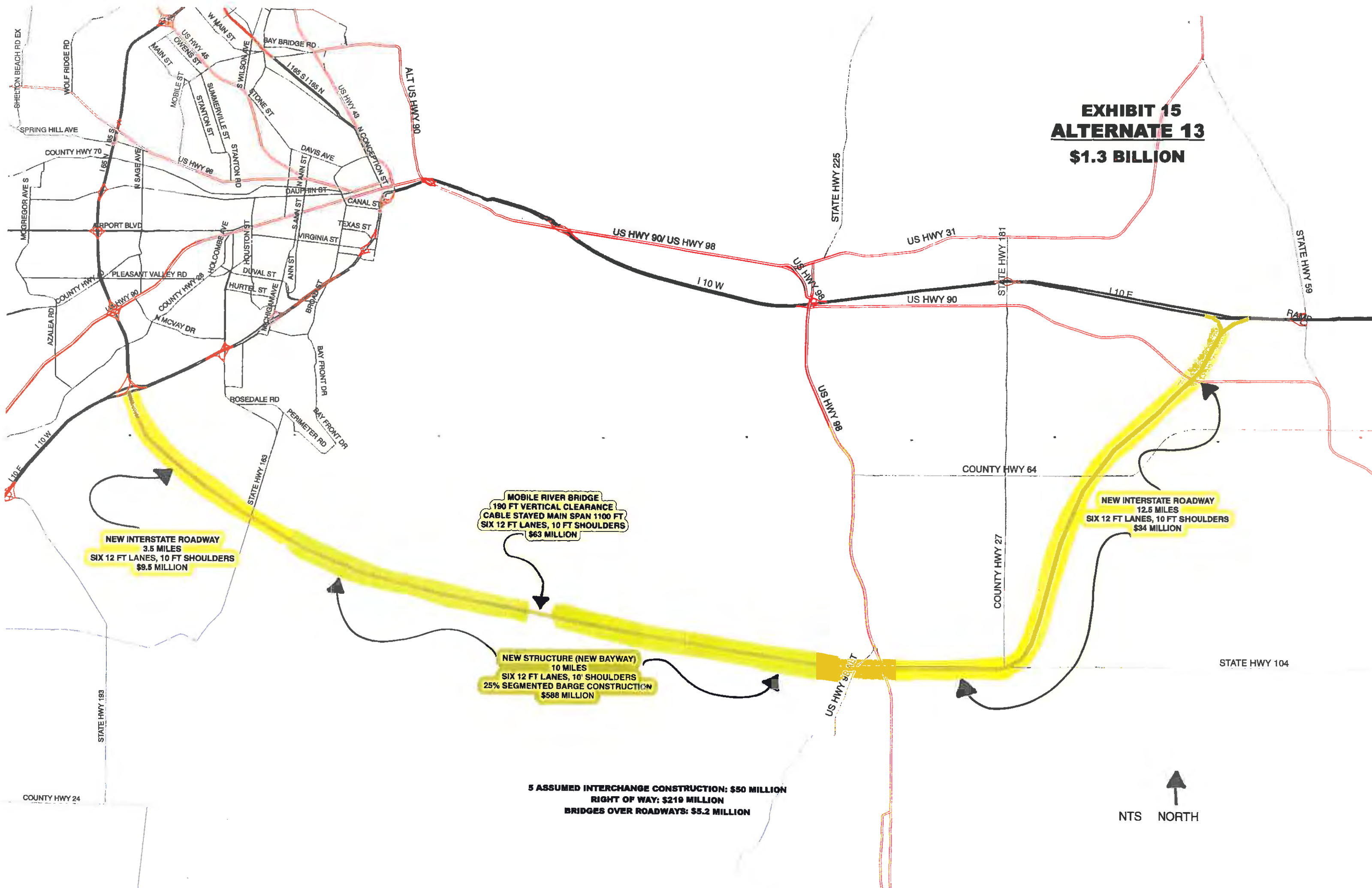
Vertical Description (Span over the Mobile River Navigation Channel)

The west bridge structure approaches would begin at the bank of southeast Mobile County at State Highway 163 and span Mobile Bay beginning at an elevation of approximately 25 feet. Based upon the channel existing 400 feet width of the Mobile River Navigation Channel (authorized to be widened to 550 feet) main span skew length was estimated to be 1,100 feet with optimum side spans of 660 feet each. The side spans would be of optimum length for cable-stayed bridges based upon criteria developed in the 1996 Feasibility which indicated that the desirable length of side spans for cable-stayed bridges was 60% of the main span length. The required vertical clearance over the Mobile River Navigation Channel would be 190 feet. This vertical clearance could be met with a constant bridge grade of less than 1%. The east bridge approaches were assumed to end at the bank of Mobile Bay in southwest Baldwin County near Scenic Route US Highway 98.

Required Interchanges

The existing interstate roadway along I-10 and I-65 will remain as is; therefore, the only modifications to existing interchanges would likely be at the I-10/I-65 interchange and the I-10/State Highway 59 interchange. As assumed for all

**EXHIBIT 15
ALTERNATE 13
\$1.3 BILLION**



NEW INTERSTATE ROADWAY
3.5 MILES
SIX 12 FT LANES, 10 FT SHOULDERS
\$9.5 MILLION

MOBILE RIVER BRIDGE
190 FT VERTICAL CLEARANCE
CABLE STAYED MAIN SPAN 1100 FT
SIX 12 FT LANES, 10 FT SHOULDERS
\$63 MILLION

NEW STRUCTURE (NEW BAYWAY)
10 MILES
SIX 12 FT LANES, 10' SHOULDERS
25% SEGMENTED BARGE CONSTRUCTION
\$588 MILLION

NEW INTERSTATE ROADWAY
12.5 MILES
SIX 12 FT LANES, 10 FT SHOULDERS
\$34 MILLION

5 ASSUMED INTERCHANGE CONSTRUCTION: \$50 MILLION
RIGHT OF WAY: \$219 MILLION
BRIDGES OVER ROADWAYS: \$5.2 MILLION



alternatives with new proposed interstate roadway, the number of required interchanges was determined from the larger of the two values stemming from one interchange per every four roadway miles and the number of major arterial crossings. Five new interchanges were determined to be required.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate as shown in **Table 14** for Alternative 13.

- Bridge Construction
 - New Cable Stayed Mobile River Bridge (190' clearance)
 - Three lanes, 12' wide, 10' shoulders inside and outside-
 - Main Span =1100'
 - Symmetrical Side Spans=660'
 - Approach Structures
 - Unit Costs recommended by Earth Tech, refer to **Section II Cost description and Referenced Charts**
 - New Bayway Construction
 - Six lanes 12' wide, 10' shoulders outside and inside
 - Segmented Barge Methods for 25% of structure length
 - ALDOT Estimated Bridge Costs **Section II Cost Description and Referenced Charts**
 - Bridges over Roadways
 - Assumption of one grade separation required per each three miles of roadway
 - Five assumed bridge over roadways
 - ALDOT Preliminary Cost Chart- **Section II Cost Description and Referenced Charts**
- Roadway Construction
 - New Interstate Roadway
 - New construction of six 12' wide lanes with 10' shoulders inside and outside-per current traffic volume projections
 - ALDOT Preliminary Cost Estimate Chart (**Section II Cost Description and Referenced Charts**)
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction multiplied by the factor for 6 lane
 - Interchanges
 - Assumption: Use conservative of two values:
 - one interchange per every 4 miles of roadway
 - one interchange per every major crossing arterial

- Five assumed required interchanges: conservative assuming one interchange per every major crossing arterial
 - Assumption: Estimate \$10 million per new interchange construction
 - Right of Way
 - ALDOT Preliminary Cost Estimate Chart for Right of Way in Urban Areas - **Section II Cost Description and Referenced Charts**
 - Assumption to multiply cost by a factor of 1.5 for six lanes
 - Alternative 13 Right of Way has 300% Contingency due to high value property in the Eastern Shore and in Fairhope.
- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts**- Additional Overhead
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 13 involves five new interchanges, 10 miles of new interstate structure, and 16 miles of new interstate roadway through areas previously undisturbed by interstate facilities. Additionally, further evaluation is needed to determine if Alternative 13 could meet FAA criteria for objects affecting navigable airspace since it would be located south of Brookley Airport.

Analysis of the horizontal and vertical geometrics indicates that Alternative 13 could meet the technical requirements for an interstate highway.

Alternative 13 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of New Interstate Roadway	16
Miles of Interstate Bridge Construction	10
Interchange Modifications and New Construction	5
Cost Estimate Summary	
	(\$million)
Roadway Costs	42
Bridge Construction	678
Interchanges	50
20% Additional Overhead	154
20% Contingency	154
Right of Way Costs	219
ALTERNATIVE 13 ESTIMATED CONSTRUCTION COST (\$billion)	1.3

**TABLE 14
ALTERNATIVE 13 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 13- MAINSPAN=1100'	
ROADWAY CONSTRUCTION ALABAMA ZONE VI FLAT TERRAIN	
NEW INTERSTATE: NEW CONSTRUCTION OF 6 LANES (3 IN EACH DIRECTION) ALDOT COST DESCRIPTION: 4-LANE NEW CONSTRUCTION * FACTOR FOR 6 LANES	
FACTOR	GRADE AND DRAIN
COST/MILE X \$1000	1.3
FACTORED COST/MILE X \$1000	470.00
LENGTH (MILES)	611.00
G&D COST	15.5 MEASURED ON PROJECT MAP
	\$9,470,500.00
FACTOR	BASE AND PAVE
COST/MILE X \$1000	1.5
FACTORED COST/MILE X \$1000	1,400.00
LENGTH (MILES)	2,100.00
B&P COST	15.5 MEASURED ON PROJECT MAP
	\$32,550,000.00
NEW INTERSTATE SUBTOTAL	\$42,020,500
INTERCHANGE CONSTRUCTION	
ASSUMED COST/ INTERCHANGE	\$10,000,000.00 FOR PROPOSED NEW INTERCHANGE CONSTRUCTION
I-13 AND I-10	1
ALT 13 AND HWY 98	1
ALT 13 AND HWY 163	1
ALT 13 AND HWY 42	1
ALT 13 AND I-10	1
TOTAL REQUIRED INTERCHANGES	5
REQUIRED INTERCHANGE TOTAL COST	\$50,000,000
NEW BRIDGE CONSTRUCTION	
BRIDGES OVER ROADWAYS ASSUMPTION: ONE GRADE SEPARATION PER EACH THREE MILES OF ROADWAY BRIDGE LENGTH = 500', BRIDGE WIDTH= 40'	
COST/SF	\$50.00 1999 Preliminary Cost Estimate Chart
LENGTH OF ROADWAY (MILES)	15.50
ASSUMED BRIDGES OVER ROADWAYS	5.17
BRIDGES OVER ROADWAYS COST	\$5,170,000
NEW BRIDGE CONSTRUCTION: NEW BAYWAY CONSTRUCTION WITH 190' VERTICAL CLEARANCE OVER MOBILE RIVER SHIP CHANNEL SIX LANES @ 12' WIDTH WITH 20' SHOULDERS CABLE STAYED BRIDGE	
MAIN SPAN COST/SF	\$232.00 (sf cost as determined by EarthTech for main span)
MAIN SPAN LENGTH (FT)	2420
MAIN SPAN SF	271,040 width *(main span + side spans of nominal 50% main span length)
MAIN SPAN SUBTOTAL	\$62,881,280.00
CABLE STAYED BRIDGE SUBTOTAL	\$62,881,280
NEW I-10 BAYWAY CONSTRUCTION LENGTH (MILES)	9.5 MEASURED IN CAD
NEW I-10 BAYWAY CONVENTIONAL CONSTRUCTION	
BRIDGE LENGTH (MILES)	7.125 75% OF NEW BAYWAY LENGTH
BRIDGE WIDTH	112 FT
COST/SF	\$90.00
NEW I-10 BAYWAY CONVENTIONAL SUBTOTAL	\$379,209,600
SEGMENTAL BARGE CONSTRUCTION	
SEGMENTAL BARGE CONSTRUCTION COST/SF	\$148.50
BRIDGE WIDTH	112 FT
AREA SF (BRIDGE LENGTH*WIDTH)	1,404,480 25% OF NEW BAYWAY LENGTH
SEGMENTAL BARGE CONSTRUCTION SUBTOTAL	\$208,565,280
NEW BRIDGE CONSTRUCTION: BRIDGE OVER DOG RIVER	
RIVER BRIDGE COST/SF	\$75.00 1999 ALDOT Cost Estimate Chart
APPX. SPAN LENGTH (MILES)	0.5
RIVER BRIDGE SF	295680 width * span over Dog River (appx. 0.5 miles)
DOG RIVER BRIDGE TOTAL	\$22,176,000
RIGHT OF WAY COST	
ASSUMPTION: 100% URBAN ROADWAY, 300% CONTINGENCY ADOPTED TO RIGHT OF WAY SUBTOTAL DUE TO HIGH VALUE RESIDENTIAL AND COMMERCIAL PROPERTIES IN THE EASTERN SHORE AND IN FAIRHOPE	
4-LANE URBAN ROADWAY * FACTOR FOR 6 LANES	
COST/MILE	\$2,720,000.00
ASSUMED FACTOR FOR 6 LANES	1.3
FACTORED COST/MILE	\$3,536,000.00
MILES	15.50 NEW INTERSTATE LENGTH
URBAN RIGHT OF WAY COST	\$54,808,000.00
RIGHT OF WAY COST	\$54,808,000
300% CONTINGENCY	\$164,424,000
Total Estimated Right of Way Cost	\$219,000,000

ALTERNATIVE 14

(See Exhibit 16)

Horizontal Route Description

The bridge for Alternative 14 is proposed to begin at the 1-10/Broad Street interchange, span the Mobile River Navigation Channel to south Pinto Island, then travel north through Atlantic Marine facilities, turning east to tie to the I-10 Bayway. Prior to merging with the existing I-10 Bayway, Alternative 14 continues its path to clip the northwest corner of the ASPA/USACE Disposal Site.

Alternative 14 would pass through wetland areas, such as Pinto Pass, which have been previously undisturbed by interstate roadways.

Laneage Requirements and Overall Project Length

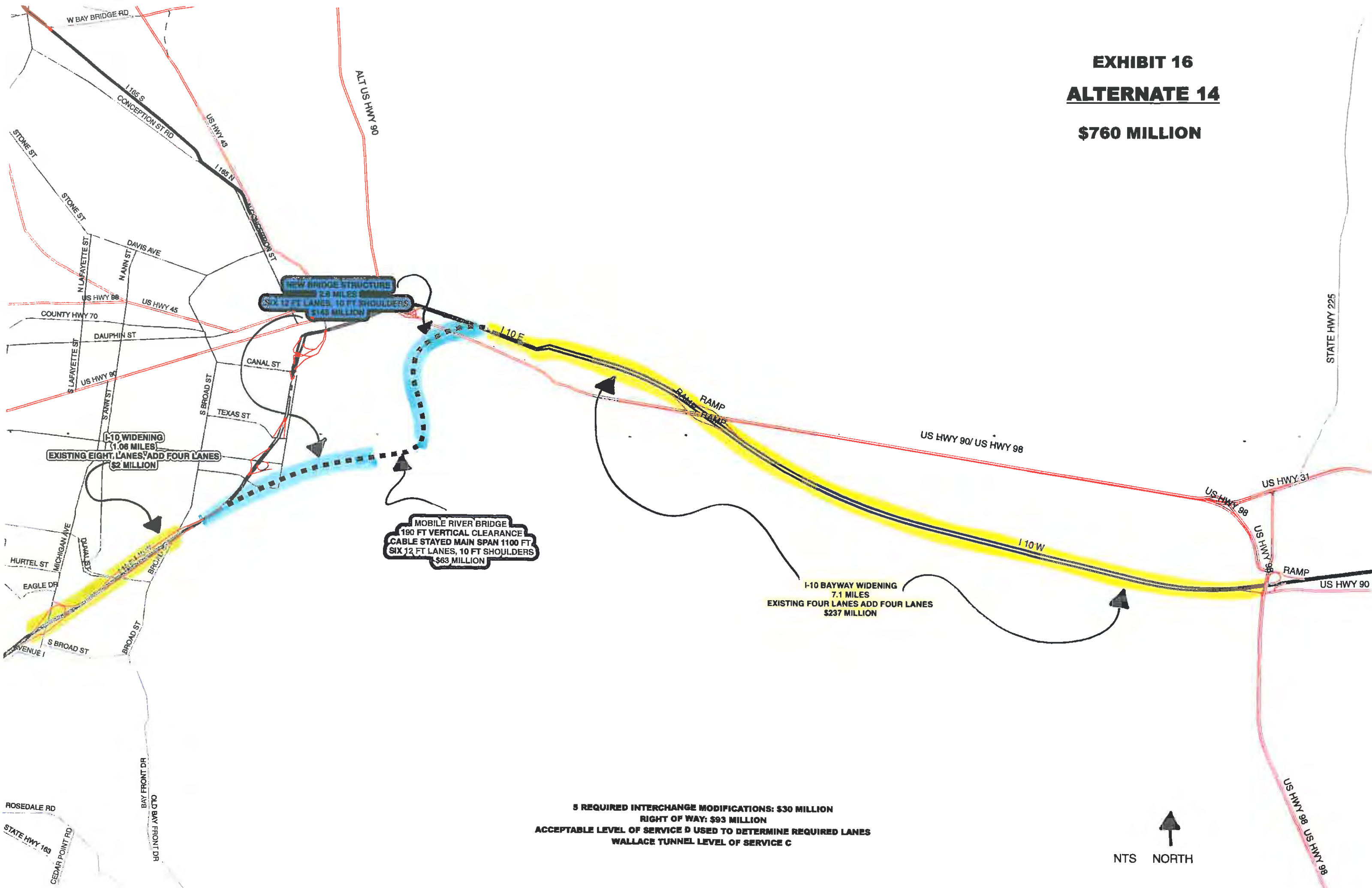
Because Alternative 14 follows a path within the same corridor as Alternatives 1, 2, and 3, it was assumed that the results from the capacity analysis of the current projected traffic volumes would essentially be the same, and were therefore used to determine laneage requirements for Alternative 14. A total of 1.06 miles is necessary for the transition to widen from eight lanes to twelve lanes on I-10 roadway. Widening would begin approximately 1000 ft east of the overpass at the Dauphin Island Parkway Interchange and end at the Broad Street Interchange where the bridge would begin. The I-10 Bayway would be widened from the point where Alternative 14 merges with I-10 Bayway to the US 98/I-10 interchange, a distance of approximately 7.1 miles. Four lanes would be added to the inside of the Bayway for a total of eight lanes.

Vertical Description (Span over the Mobile River Navigation Channel)

The west bridge structure approaches would begin at the bank of southeast Mobile County midway between the I-10 interchanges with Broad Street and the crossing of South Carolina Street to pass over the waters of the Mobile Ship Channel. The vertical geometry was designed utilizing a minimum vertical clearance of 190 feet over the navigation channel and a maximum grade of 4%. Based on these criteria, the approach structures would begin approximately 5,500 feet east of the navigation channel, but due to the terrain, would remain elevated to the tie-in location with I-10 Bayway for an approximate distance of 6,800 feet. Based upon the channel width of the Mobile River Navigation Channel (700 feet), the main span skew length for Alternative 14 was determined to be 1,100 feet with symmetrical side spans of 660 feet. The side spans would be of optimum length for a cable-stayed bridge based upon criteria developed in prior work completed in the Environmental Assessment which indicated that the desirable length of side spans for cable-stayed bridge should be 60% of the main span length.

A more detailed design of this alternative could indicate that the "S" curve path desired in this alternative may not provide adequate transition for superelevation. In addition, the horizontal curvature may possibly require a posting a speed limit of less than 70 miles per hour, as a minimal horizontal radius was used to best

EXHIBIT 16
ALTERNATE 14
\$760 MILLION



5 REQUIRED INTERCHANGE MODIFICATIONS: \$30 MILLION
RIGHT OF WAY: \$93 MILLION
ACCEPTABLE LEVEL OF SERVICE D USED TO DETERMINE REQUIRED LANES
WALLACE TUNNEL LEVEL OF SERVICE C



depict this proposed alternative route. Undesirable for a cable stayed bridge, horizontal radius any larger could slightly interfere with the cables attaching to the side spans.

Required Interchanges

The existing interstate roadway and bridge structure along I-10 will be widened within as part of the proposed project. Therefore, existing interchanges within the area to be widened would have to be removed, modified, and rebuilt. Five interchanges currently exist within the area that would be widened as part of Alternative 14. Therefore, it was assumed that five interchanges would be modified.

Cost Estimate

The following outline summarizes the items used to determine the cost estimate given in **Table 15** for Alternative 14.

- Bridge Construction
 - Cable Stayed Mobile River Bridge (190' clearance)
 - Six lanes, 12' wide, 10' shoulders inside and outside
 - Main Span =1100'
 - Symmetrical Side Spans=660'
 - Approach Structures
 - Unit Costs recommended by Earth Tech, refer to **Section II Cost Description and Referenced Charts**
 - New Bridge Structure
 - Six lanes 12' wide, 10' shoulders inside and outside-
 - Structure that would pass over Pinto Pass to tie to I-10 Bayway
 - ALDOT Estimated Bridge Costs -**Section II Cost Description and Referenced Charts**
 - I-10 Bayway Widening
 - Existing four lanes 12' wide; add four lanes 12' wide (two in each direction)-Per current traffic volume projections
 - \$110.00 per square foot per ALDOT Bridge Bureau
- Roadway Construction
 - I-10 Widening
 - Existing eight lanes, add four lanes (two in each direction) – per current traffic volume projections
 - ALDOT Preliminary Cost Estimate Chart -**Section II Cost Description and Referenced Charts**
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction

- Interchanges
 - Assumption: modifications required at existing interchanges affected by proposed route.
 - Five assumed required interchanges
 - Assumption: Estimate \$10 million per interchange
- Right of Way
 - 2005 Right-of-Way Cost Information used for unit cost- **Section II Cost Description and Referenced Charts**
- Contingencies
 - 20% contingency added to subtotal
 - ALDOT Preliminary Cost Estimate Chart - **Section II Cost Description and Referenced Charts**- Additional Overhead
 - 5% Mobilization, 2% Engineering Controls, and 13% E&I = 20% additional overhead on construction subtotal.

Summary and Conclusions

Alternative 14 involves 1.06 miles of I-10 roadway widening, 3.25 miles of new interstate bridge structure, 7.1 miles of I-10 Bayway widening, and approximately five interchange modifications in wetland areas that have not been previously developed by interstate roadway. Alternative 14 appears to be a practical alternative. Analysis of the horizontal and vertical geometrics indicates that Alternative 14 could possibly meet the technical requirements for an interstate highway, but a more detailed study would be necessary to form a more definite conclusion.

Alternative 14 Summary	
Horizontal and Vertical Geometry Compliance	Yes
Miles of Interstate Roadway Widening	1.06
Miles of Interstate Bridge Widening and Construction	9.75
Interchange Modifications and New Construction	5
Cost Estimate Summary	
	(\$million)
Roadway Costs	2
Bridge Widening and Construction	445
Interchanges	30
20% Additional Overhead	95
20% Contingency	95
Right of Way Costs	93
ALTERNATIVE 14 ESTIMATED CONSTRUCTION COST	760

**TABLE 15
ALTERNATIVE 14 COST ESTIMATE**

VOLKERT PROJECT NO. 911600.10
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
ALTERNATIVES SCREENING - STEP 4 - ESTIMATED CONSTRUCTION COSTS
UNIT COSTS TAKEN FROM ALDOT PRELIMINARY COST ESTIMATE CHART UNLESS OTHERWISE NOTED

ALTERNATIVE 14- MAINSPAN=1100'				
ROADWAY CONSTRUCTION				
ALABAMA ZONE VI FLAT TERRAIN				
I-10 WIDENING: EXISTING 8 LANES (4 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION)				
ALDOT COST DESCRIPTION: 4 LANES NEW CONSTRUCTION				
GRADE AND DRAIN				
FACTOR		1		
COST/MILE X \$1000		470.00		
FACTORED COST/MILE X \$1000		470.00		
LENGTH (MILES)		1.06	MEASURED ON PROJECT MAP	
G&D COST		\$498,200.00		
BASE AND PAVE				
FACTOR		1		
COST/MILE X \$1000		1,400.00		
FACTORED COST/MILE X \$1000		1,400.00		
LENGTH (MILES)		1.06	MEASURED ON PROJECT MAP	
B&P COST		\$1,484,000.00		
NEW INTERSTATE SUBTOTAL		\$1,982,200		
INTERCHANGE CONSTRUCTION				
ASSUMED COST/INTERCHANGE	\$6,000,000.00	FOR EXISTING INTERCHANGE MODIFICATION		
I-10 AND BROAD STREET	1			
ALT 14 AND US HWY 31	1			
ALT 14 AND I-10	1			
I-10 AND HWY 31	1			
I-10 AND US HWY 98	1			
TOTAL REQUIRED INTERCHANGES	5			
INTERCHANGE TOTAL COST	\$30,000,000			
NEW BRIDGE CONSTRUCTION				
NEW BRIDGE CONSTRUCTION: NEW BAYWAY CONSTRUCTION WITH 190' VERTICAL CLEARANCE OVER MOBILE RIVER SHIP CHANNEL				
SIX LANES 12' WIDE WITH 20' SHOULDERS				
APPROACH STRUCTURES COST/SF	\$87.50	(sf cost as determined by EarthTech for approaches)		
APPROACH STRUCTURES LENGTH (MILE)	2.8	measured on project map		
APPROACH STRUCTURES SF	1655808	length of approaches * 112' width		
APPROACH STRUCTURE SUBTOTAL	\$144,883,200.00			
MAIN SPAN COST/SF	\$232.00	(sf cost as determined by EarthTech for main span)		
MAIN SPAN LENGTH FT	2420			
MAIN SPAN SF	271,040	112' width *(main span + side spans of nominal 60% main span length)		
MAIN SPAN SUBTOTAL	\$62,881,280.00			
SHIP CHANNEL BRIDGE TOTAL	\$207,764,480			
BRIDGE WIDENING				
BAY BRIDGE WIDENING: EXISTING 4 LANES (2 IN EACH DIRECTION) ADD 4 LANES (2 IN EACH DIRECTION) FOR A TOTAL WIDTH OF 57.5'				
COST/SF	\$110.00	PER ALDOT BRIDGE BUREAU		
LENGTH WIDENED (MILES)	7.1			
AREA WIDENED	2155560	(MILES OF BAY BRIDGE MEASURED IN CAD* FOUR 12' LANES)		
BRIDGE WIDENING COST	\$237,111,600			
RIGHT OF WAY COST				
INDUSTRIAL WATERFRONT PROPERTIES	420	\$14,000.00	PER WFF	\$5,880,000
INDUSTRIAL NON-WATERFRONT PROPERTIES	3,152,740	\$6.88	PER SF	\$21,690,851
IMPROVEMENTS TO INDUSTRIAL PROPERTY @ 50% BUILD UP	1,359,808	\$48.00	PER SF	\$65,270,760
			RIGHT OF WAY COST	\$92,841,611
			Total Estimated Right of Way Cost	\$93,000,000

RIGHT OF WAY COST				
INDUSTRIAL WATERFRONT PROPERTIES	420	\$14,000.00	PER WFF	\$5,880,000
INDUSTRIAL NON-WATERFRONT PROPERTIES	3,152,740	\$6.88	PER SF	\$21,690,851
IMPROVEMENTS TO INDUSTRIAL PROPERTY @ 50% BUILD UP	1,359,808	\$48.00	PER SF	\$65,270,760
			RIGHT OF WAY COST	\$92,841,611
			Total Estimated Right of Way Cost	\$93,000,000

SECTION I SUMMARY

The purpose of Step Two was to study the conceptual designs of each of the fourteen alternatives for technical and practical feasibility. With respect to compliance with AASHTO geometric standards for interstate highways, the alternatives were graphically interpreted as depicted on the project maps. A map of each proposed alternative was used to interpret the basic horizontal and vertical geometry characteristics. If the alternative could be designed to meet the geometric standards for interstate highways, then the alternative was considered technically feasible. The practical considerations were based upon comparing the physical routes of each alternative, the areas through and over which the alternatives would pass, the overall project length and laneage requirements, and complications associated with constructability.

The purpose of Step Four was to evaluate the estimated costs associated with the construction of all fourteen alternatives. Using the current Preliminary Cost Estimate Chart provided by the Alabama Department of Transportation and unit costs for the construction of a new cable stayed Mobile River Bridge recommended by Earthtech, a construction cost estimate was developed that includes the construction and widening of roadway and bridge structures, the construction of storm drainage along frontage roads, and acquisition of right of way (unless land appraisal values were available). Where preliminary unit costs were not provided by ALDOT or recommended subconsultants, assumptions were made to develop a reasonable unit cost to apply using expertise and sound engineering judgment.

Analysis of the technical requirements for each alternative suggests that all fourteen alternative alignments could be designed to meet the design criteria set by AASHTO for interstates. As the practicality for each alternative will vary from individual to individual, this report has not suggested the practical feasibility for any of the alternatives, but has noted the relative information to be used to develop an opinion of practical feasibility.

The combined results from Steps Two and Four along with the Alternative Screening Evaluation Report conclusions for each of the fourteen alternatives will be released to the general public at the Public Involvement Meeting to be held in the near future. The public opinion stated at the public meeting will form the basis for selection of alternatives to study further in the Environmental Impact Statement.

SECTION II COSTS DESCRIPTION AND REFERENCED CHARTS

Section II of the Geometric Analysis and Cost Estimate Report in Appendix F is formatted by the individual items of which were evaluated for estimating costs. The tabulation of these itemized preliminary construction costs, the resources used, and assumptions made to obtain these estimates are broken down as outlined below:

I. Bridge Construction Costs

A. Mobile River Bridge Construction Costs

1. Approach Structures
2. Cable Stayed Bridge Deck
3. Six lanes 12' wide with 10' shoulders
4. Unit costs provided by Earth Tech-**See Exhibit 17**

B. I-10 Bayway Widening Costs

1. Existing four 12' wide lanes (two in each direction) add four lanes (two in each direction)
2. \$110.00 per square foot per ALDOT Bridge

C. Additional Structure Costs

1. New Bayway Construction Costs (Alternatives 7, 8, 12, and 13)
 - a. Six 12' wide lanes with 10' shoulders outside and inside (Assumption: equivalent laneage as that determined from analysis of current traffic volume projections)
 - b. Segmented barge construction used for depths less than 3 feet and conventional techniques with construction from floating barges used for depths greater than 3 feet
 - c. ALDOT Estimated Bridge Costs – **See Exhibit 19**
2. New Interstate Bridge Construction Costs (Alternatives 5, 6, 10, and 11)
 - a. Four 12' wide lanes with 10' /6' shoulders
 - b. ALDOT Estimated Bridge Costs - **See Exhibit 19**
3. Bridges Over Roadways and Other Navigational Channels
 - a. Bridges over roadways
 - 1) Assumption: one grade separation over roadways per every three miles of roadway for Alternatives 5, 6, 10, 11, 12, and 13)
 - 2) Assumed bridge length = 500'
 - 3) Assumed bridge width = 40'
 - b. Bridges over other navigational channels
 - 1) Dog River (Alternative 12, and 13)
 - 2) Intracoastal Waterway (Alternative 10)

c. ALDOT Estimated Bridge Costs- **See Exhibit 19**

4. Removal of Structures

- a. Cochrane Bridge Eastern Approaches (Alternatives 5, 6, and 11)
- b. Unit cost for Removal of Cochrane Bridge Eastern Approaches
 - 1) Assumption: ALDOT Bridge removal cost + 316% increase for complexity involved with this sensitive removal

5. Tunnel Construction Costs

- a. Wallace Tunnel Cost with adjustments made for additional length, width, and inflation
 - 1) Length adjustment factor =1.57
 - o 4271' Wallace Tunnel Length / 6700' Alternative 4 Tunnel Length = 1.57
 - 2) Width adjustment factor = 1.62
 - o 66' width in Wallace Tunnel / 107' width in Alternative 4 Tunnel = 1.62
 - 3) Adjustment for inflation
 - o Assumption: average CPI factor from 1972 to current for concrete and steel construction materials applied to determine an average inflation of 5% per year compounded
- b. Wallace Tunnel Construction Costs and Original Project Description **See Exhibit 21** for unit cost derivation
- c. Disposal Costs of Dredged Material
 - 1) Assumed a Corps of Engineers approved disposal area is to be used for disposal of material
 - 2) Trench width = 150 ft
 - 3) Dike construction costs (\$10/cy)
 - 4) Weir construction (\$100,000)

II. Roadway Construction Costs

A. I-10 Widening Costs

- o Existing eight lanes (four in each direction), add four lanes (two in each direction)
- o ALDOT Preliminary Cost Estimate Chart –**See Exhibit 18**
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction

B. New Interstate Roadway Construction Costs (Alternatives 10, 11, 12, and 13)

- New construction of six 12' wide lanes with 10' shoulders
(Assumption: equivalent laneage as that determined for the Mobile River Bridge in Alternatives 1-3)
- ALDOT Preliminary Cost Estimate **See Exhibit 18**
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 4 lane new construction x factor for 6 lane

C. I-65 Widening Costs (Alternatives 5 and 6)

- Existing six 12' wide lanes (three in each direction), add four lanes (two in each direction)
 - First two lanes to be widened as an incremental measure
 - Incremental costs not to be considered in the final estimated cost
 - Next two lanes to be widened as a result of the increase in traffic from the Northern Bridge Route
 - Include these costs in the final estimated cost
 - Widening results in the need to shift the east and west frontage roads, fill in ditches, and construct retaining walls on both sides of I-65 as well as a wall in front of Prichard Stadium
- ALDOT Preliminary Cost Estimate - **See Exhibit 18**
 - Grade and Drain: Zone VI, Flat Terrain
 - Base and Pave: Zone VI, 2 lane new construction

D. Relocation of Frontage Roads (Alternatives 5 and 6)

- Existing two 12 ft lanes on each side of I-65
- Shift due to I-65 widening of second two lanes
- Storm drainage construction proposed on both sides of both frontage roads
 - Curb and gutter
 - Storm drain Inlets
 - Assumption: one inlet every 100 feet on each side of the frontage road
 - Storm drain pipe
 1. Along both frontage roads
 2. Assumption: 28 ft cross drain at each inlet
- Cost included in final estimated cost-not considered an incremental cost
- ALDOT Preliminary Cost Estimate - **See Exhibit 18**
 - Grade and Drain for an Urban Section
 - Base and Surface (4" surface) for an Urban Section
 - Urban Section: Curb and Gutter, Storm Drain, and Inlets

E. Retaining Wall Costs (Alternatives 5 and 6)

1. Required on both east and west sides along widened segment of I-65.
2. Assumption: Interchanges do not require a retaining wall, retaining wall length = 75% of widened segment length
3. Assumption: Wall height = 7 feet
4. Assumed 30 ft wall required in front of Prichard Stadium
5. Unit cost assumed \$300.00 per cubic yard
6. ALDOT standard 7 ft. and 30 ft. retaining wall

F. Interchanges

- Assumption: one new interchange construction per every 4 miles of roadway or one interchange for every major crossing arterial – use most conservative
 - Alternatives 7,8,10,11,12,13
- Modifications to existing interchanges where physically affected by the alternative along I-65 and I-10
 - Alternatives 1-6, 9, 14
- Assumption: cost of \$10 million per new interchange construction \$6 million per existing interchange to be modified. The cost per interchange to be modified along I-65 for Alternatives 5 and 6 varies.

III. Right of Way Costs

- A. 2005 Right-of-Way Cost Information – **See Exhibit 22**
 - a. Used for unit cost for Alternatives 1-4, 7, 8, 9, and 14.
 - b. Industrial Waterfront cost (with 100% contingency) = \$14,000 per waterfront foot (per WFF)
 - c. Industrial Non-waterfront cost (with 100% contingency) = \$6.88 per square foot
 - d. Residential (Down by the Bay Neighborhood) cost (with 50% contingency) = \$9.00 per square foot
- B. ALDOT Preliminary Cost Estimate Chart for Right of Way in Urban and Rural Areas **Exhibit 18** (Alternatives 5, 6, and 10-13)
- C. Right of Way has 100% Contingency for Alternatives 5, and 6, a 200% contingency for Alternative 10 and 11, and 300% contingency for Alternatives 12 and 13
- D. The right of way costs along I-65 widening for Alternatives 5 and 6 developed by ALDOT are included in the referenced charts section of this report. –**See Exhibit 23**

IV. Contingencies

- A. 20% contingency added to construction subtotal
- B. ALDOT Preliminary Cost Estimate Chart -**See Exhibit 18**
 - a. Additional Overhead= 20% to construction subtotal

- i. 5% Mobilization,
- ii. 2% Engineering Controls
- iii. 13% E&I

I Bridge Construction Costs

A. Mobile River Bridge Construction

Six lanes (three in each direction), 12' wide with 10' inside and 10' outside shoulders in each direction as previously determined in 1996 Feasibility Study.

Each alternative is unique as it spans across the navigation channel, and the construction cost of each alternative differs accordingly. The approach structures are defined as the structures that rise up to the cable-stayed main span in both directions. The bridge deck, or main span, consists of the entire cable-stayed section across the navigation channel (including the side spans). The main span length is dependent upon the skew across the ship channel and location of the crossing as the channel width varies as shown in **Exhibit 1**. Also included in the main span length are the side spans which are desirable at 60% of the main deck length for a cable stayed bridge.

As shown in Exhibit 17, the approximate square footage cost for the main bridge spans vary with length and symmetry.

B. I-10 Bayway Widening

Existing four lanes (two in each direction) 12' wide, add four lanes (two in each direction) 12' wide as previously determined in prior work completed in the Environmental Assessment.

The distance of widening for the existing I-10 Bayway varies for each alternative as it is determined from the point where the proposed alternative ties into the existing bridge to the location of the I-10/ Daphne US 98 Interchange.

The ALDOT Bridge Bureau has recommended a unit cost for bridge widening of \$110.00 per square foot.

C. New Bayway Construction

Proposed bridge with six lanes (three in each direction) 12' wide with 10' inside shoulders and 10' outside shoulders per assumption that the laneage would be equivalent to that determined in the for the new Mobile River Bridge projected traffic volumes, as the new bayway would serve approximately the same traffic.

The length of the proposed bayway will be determined from the location where the new bridge diverges from the I-10 roadway to the point where the proposed

bridge ties into the existing I-10 Bayway. The main span length across the Mobile River Ship Channel is located within the span of the New I-10 Bayway across Mobile Bay.

As shown on the Project map and contents in **Exhibits 2 and 2A**, the new bayway construction will be required for Alternatives 7, 8, 12, and 13.

Included in the construction cost of a new bayway is the cost for the construction methodology utilized. End on construction with segmental barges has been selected as the preferred method of construction in locations where water depths are less than the required 3 feet. Because of this depth requirement, a percentage of bridge length requiring the use segmented barges for each alternative was determined. The remainder of the structure length would be constructed using conventional methods. The square footage cost for the conventional construction has been extracted from the latest ALDOT Estimated Bridge Cost **Exhibit 19** at \$90.00/sf. For segmental barge techniques, an increase to conventional methods of 65% was recommended for a unit cost of \$148.50/sf.

D. New Interstate Bridge Construction Costs

Four lanes (two in each direction) 12' wide with 10' /6' shoulders as determined from traffic volumes provided by SARPC. The results and volumes obtained from the SARPC traffic study were used to determine the projected capacity requirements.

The length of the proposed new interstate bridge will be determined from the location where the new bridge diverges from I-165 to tie to the main span of Cochrane Bridge then to the I-10 Bayway

As illustrated on the Project map and contents in **Exhibits 6, 7 and 13**, the new interstate bridge construction will be required for Alternatives 5, 6, and 11.

The \$90.00 per square foot cost for the new construction has been taken from the most current ALDOT Estimated Bridge Cost as shown in **Exhibit 19**.

E. Bridge Over Roadways and Other Navigational Channels

The apparent crossings over navigational routes that have been considered are those over Dog River (Alternative 12 and 13), over the Intracoastal Waterway (Alternative 10), and the Mobile Harbor Entrance Channel (Alternative 10). Any other additional navigational crossings have been considered minor and have not been recognized as requiring bridging.

The unit costs have been taken from the latest ALDOT Preliminary Cost Estimate Chart, included in **Exhibit 18** for the crossings of Dog River and the Intracoastal Waterway. Alternative 10 with its two crossings over the Intracoastal Waterway,

will require a vertical clearance of 73' with spans of 240'/300'/240'. The unit cost shown in **Exhibit 17** for Alternative 10 has been used for the unit costs for the crossing of the Mobile Harbor Entrance Channel as these crossings require structures with the same properties of the Mobile River Bridge.

To form a basis for an approximate estimate for grade separations over roadways, it was assumed that one grade separation would be provided per each three miles of roadway. The unit cost for bridges over roadways was taken from the small bridges unit cost shown in **Exhibit 18** ALDOT Preliminary Cost Estimate.

F. Removal of Structures

The removal of structures refers to the removal of existing bridge structures located in the path of the proposed alternative. Of particular interest in this study is the removal of the Cochrane Bridge eastern approaches for Alternatives 5, 6, and 11. The unit cost for removing the old bridge approaches was recommended to be increased by 316% over that in ALDOT Preliminary Cost Estimate. This drastic inflation of cost is due to the complexity involved in removing the approaches with the cable stayed main span remaining in place. A unit cost of \$443/LF was applied to the measured length of the existing Cochrane Bridge eastern approaches to be removed.

G. Tunnel Construction Costs

Treated as an independent construction of its own, the tunnel construction costs were derived from the 1972 Wallace Tunnel construction costs found in **Exhibit 21**. As Alternative 4 differs from the Wallace Tunnel primarily with an increased length from 4271' to 6700' as well as additional laneage from 4 lanes to 6 lanes and additional shoulders from zero to 10 ft, the construction costs for the Wallace Tunnel were adjusted by factors accordingly. With an increase in project length from 4271' to 6700', a factor of 1.57 was applied to the Wallace Tunnel construction cost. The increase in lanes and addition of shoulders increases the width from 65 feet to 107 feet, resulting in another adjustment factor of 1.62. The length and width adjusted cost was then inflated by an assumed 5% per year compounded to reflect current to date costs. The 5% inflation per year was developed from an average CPI factor for concrete and steel construction materials from 1972 to current.

Assumptions were made for the tunneling costs to include dredging, but not disposal. Disposal site was assumed to be the same as that for Choctaw Point, thus only the costs for dike and weir construction were considered. The dike construction unit cost is \$10 per cubic yard, to be calculated from the 150 ft wide trench necessary for the length of the tunnel construction. A lump sum \$100,000 was assumed for the weir construction.

II. Roadway Construction Costs

A. I-10 Widening Costs

Existing eight lanes (four in each direction), add four lanes (two in each direction) for a distance of 1.06 miles needed to transition from eight lanes to twelve lanes.

The 1.06 mile distance required to transition to the additional laneage along the I-10 Interstate Roadway was assumed to be consistent for each applicable alternative. Hence, the point of widening for the I-10 Interstate Roadway was assumed to begin 1.06 miles ahead of the point where the grade separation to the proposed Mobile River Bridge begins.

The not current ALDOT Preliminary Cost Estimate Chart shown in **Exhibit 18** was used to determine unit costs for both base and pave and grade and drain. Located in Zone VI with flat terrain and 4 lane new construction lanes, the grade and drain per mile cost x \$1000 was found to be \$470, while base and pave per mile cost x \$1000 was at \$1400.

B. New Interstate Roadway Construction Costs

New construction of six 12' wide lanes with 10' shoulders
(Assumption: equivalent laneage as that determined for the Mobile River Bridge)

Measured from the project map and displayed in **Exhibits 9, 12, 13, 14, and 15**, the distance for new interstate roadway was found for Alternatives 7, 10, 11, 12, and 13. Using the ALDOT Preliminary Cost Estimate unit costs for Zone VI with flat terrain and 4 lane new construction x factor for 6 lanes, the grade and drain per mile cost x \$1000 was found to be \$611, while base and pave per mile cost x \$1000 was at \$2100.

C. I-65 Widening Costs

Existing six 12' wide lanes (three in each direction), add four lanes (two in each direction) as determined from 2030 traffic volumes found in the following section provided by SARPC

As illustrated on the Project map and contents of Exhibits 7 and 8, the I-65 Interstate Roadway widening will be required for Alternatives 5 and 6.

Currently, I-65 requires the addition of two lanes, thus the cost associated with such will not be included in the estimate in the Alternative Screening Report. As an incremental cost taken from ALDOT Preliminary Cost estimate for 2 lanes

new construction, I-65 will be widened by 2 lanes to the outside. Also included in the incremental cost was an assumed 1/3 interchange cost.

As a result of the Northern Bridge Route, I-65 will require two lanes, additional to the incremental lanes, to be widened to the outside. The widening will result in relocating the existing two lane frontage roads to the north and south of the widened I-65 to maintain the traffic on these frontage roads.

The ALDOT Preliminary Cost Estimate Chart shown in **Exhibit 18** was used to determine unit costs for both base and pave and grade and drain. Located in Zone VI with flat terrain and 2 lane new construction, the grade and drain per mile cost x \$1000 was found to be \$320, while base and pave per mile cost x \$1000 was at \$900.

D. Relocation of Frontage Roads

As previously mentioned, the frontage roads on both north and south sides of I-65 will be required to be relocated due to the widening of I-65 by two lanes on each side for Alternatives 5, 6, and 11. To be included in the final estimated cost not as an incremental cost, the latest ALDOT Preliminary Cost Estimate Chart shown in **Exhibit 18** was used to determine unit costs for both base and surface (4" surface) and grade and drain. Located in an urban section, the proposed 2 lane frontage road reconstruction has a grade and drain cost per square yard of \$25.00 and base and surface (4" surface) cost per square yard of \$65.00. Also proposed with the relocation of frontage roads is the construction of storm drainage. To be introduced to the system are curb and gutter, storm drain inlets and pipes on both frontage roads along the proposed I-65 widening. Preliminary assumptions for the frontage road drainage include storm drain inlets with cross drains 28 ft in length per every 100 feet.

The unit costs for the new structures were taken from the Urban Section in the most recent ALDOT Preliminary Cost Estimate Chart.

E. Retaining Wall Construction

As previously mentioned, retaining walls on both east and west sides of I-65 will be required due to the second widening of I-65 from 8 lanes to 10 lanes for Alternatives 5, 6, and 11. The cost will be included in the final estimated cost, not as an incremental cost. As ALDOT Preliminary Cost Estimate Chart does not recommend a unit cost for retaining walls, the cost for the walls was assumed at \$300.00 per cubic yard.

An assumed wall height of 7 feet along both sides of I-65 and 30 feet in front of Prichard Stadium was used to help determine the quantity of material from the ALDOT standard wall details.

Interchanges were assumed to not require a retaining wall, thus an estimated retaining wall length would be approximately 75% of widened segment length.

For instance, I-65 is widened for a distance of 10 miles, thus the retaining wall length required on one side of I-65 would be 7.5 miles.

F. Interchanges

Interchanges are located along existing interstate highways for controlled access require modifications to those impacted by construction. New interchanges are required by new interstate roadway projects. In general, interchanges involve an order of complexity that is measured with configuration studies involving bridging over roadways or ramps, removal of existing structures to be modified, signing, base and pave, grade and drain, etc.

Preliminary estimates of the number of interchanges to be proposed or modified was based primarily on a number of assumptions. For Alternatives 1, 2, 3, 4, 5, 6, and 9, the interchanges assumed to be modified were simply counted as those existing and located within the alternative proposed alignment. However, for Alternatives 7, 8, 10, 11, 12, and 13, the number of interchanges must be estimated due to the uncertainty involved. Practically, interchanges are located no less than 1 mile apart, but no more than 7 miles apart in an urban setting. On average, it was assumed that interchanges would be located at one per every four miles. The number of interchanges projected to be required was compared to the number resulting from one interchange per every four miles.

Conservatively, the larger of the two was used as the assumed number of interchanges.

As ALDOT Preliminary Cost Estimate Chart does not include a unit cost for interchanges, a cost of \$10 million each was estimated for the construction of new interchanges and \$6 million per existing interchange to be modified. However, the costs vary for the existing interchanges along I-65 impacted by widening from the northern bridge routes. This assumed cost includes removal of existing structures (if necessary), additional signing, additional bridging construction at the interchange, base and pave and grade and drain.

III. Right of Way Costs

The right of way costs are considered as the most uncertain estimates in this stage of analysis. Using the available mapping an approximate right of way area was measured for Alternatives 1-4, 7-9 and 14 which follow comparative paths. The 2005 right-of-way unit costs provided in **Exhibit 22** were applied to determine the estimated right-of-way costs for the Alternatives 1-4, 7-9, and 14. For Alternatives 5 and 6, ALDOT developed a preliminary estimate as shown in **Exhibit 23** for the widening along I-65 from I-10 to I-165. The right of way costs for the remainder of the Alternatives 5, 6, 10, 11, 12, and 13 were estimated using the ALDOT Preliminary Cost Estimate Chart Right of Way in Urban and Rural areas with 2 lanes and/or 4 lanes assuming a factor of 1.5 for additional laneage if applicable.

Due to their location, it was assumed that Alternatives 5, 6, 12, and 13 were 100% urban areas. However, Alternatives 10 and 11 follow paths that lead to the assumption that the areas were 50% urban and 50% rural. It is important to note that these right of way cost do not include water bodies.

Because of the uncertainty involved in predicting future right of way and land costs, a 100% contingency was applied to the right of way subtotal for Alternatives 5 and 6. However, a 200% contingency was added to the right of way estimated for Alternative 10 and 11, and 300% contingency to Alternatives 12, and 13.

IV. Contingencies

A contingency of 20% and additional overhead of 20% was added to each of the alternative's construction cost subtotals. As presented in the ALDOT Preliminary Cost Estimate Chart in **Exhibit 18**, an additional overhead of 2% engineering controls, 5% mobilization, and 13% E&I is recommended to be applied for a total additional overhead of 20% to each alternative's construction cost.

REFERENCED CHARTS

The referenced charts of this report include all resources used to develop each of the individual cost estimates. Listed below and included in the following pages are the references used in this Appendix:

**EXHIBIT 17: BRIDGE DECK AND APPROACH STRUCTURE UNIT
COST CHART**

EXHIBIT 18: 1999 ALDOT PRELIMINARY COST ESTIMATE CHART

EXHIBIT 19: 2005 ALDOT ESTIMATED BRIDGE COSTS

EXHIBIT 20: 1996 ALDOT PRELIMINARY COST ESTIMATE CHART

**EXHIBIT 21: WALLACE TUNNEL PROJECT DESCRIPTION AND
COST ESTIMATE**

EXHIBIT 22: 2005 RIGHT-OF-WAY COST INFORMATION

**EXHIBIT 23: PRELIMINARY COST ESTIMATE FOR I-65 WIDENING
FROM I-10 TO I-165 DEVELOPED BY ALDOT**

EXHIBIT 17: BRIDGE DECK AND APPROACH STRUCTURE SQUARE FOOTAGE COST

ALTERNATIVE	SIDE SPAN LENGTH (FEET)	MAIN SPAN LENGTH (FEET)	SIDE SPAN LENGTH (FEET)	TOTAL MAIN SPAN UNIT LENGTH (FEET)	BRIDGE DECK COST (includes deck, cables, towers & piers, and footings)		APPROACH STRUCTURE COST
					per square foot	per linear foot of unit width	
					1	500	
2	550	1100	550	2200	\$ 232.50	\$ 0.1057	
3	475	1250	575	2300	\$ 240.00 (base cost)	\$ 0.1043	
4	-	-	-	-		-	
5	430	715	430	1575	\$ 215.00	\$ 0.1365	\$87.50/sf
6	430	715	430	1575	\$ 215.00	\$ 0.1365	
7	1410	2350	1410	5170	\$ 530.00	\$ 0.1025	
8	725	1250	725	2700	\$ 240.00	\$ 0.0889	
9	725	1250	725	2700	\$ 240.00	\$ 0.0889	
10	540	900	540	1980	\$ 215.00	\$ 0.1086	
11	430	715	430	1575	\$ 215.00	\$ 0.1365	
12	660	1100	660	2420	\$ 232.00	\$ 0.0959	
13	660	1100	660	2420	\$ 232.00	\$ 0.0959	
14	660	1100	660	2420	\$ 232.00	\$ 0.0959	

NOTE: COSTS FOR MAIN STRUCTURE PROVIDED BY EARTH TECH

9/18/89

EXHIBIT 18

Preliminary Cost Estimate Chart (English)

ZONE	GRADE AND DRAIN PER MILE COST X \$1000						BASE AND PAVE PER MILE COST X \$1000	
	2 LANE NEW CONSTRUCTION			4 LANE NEW CONSTRUCTION			2 LANE NEW CONSTRUCTION	4 LANE NEW CONSTRUCTION
	F	R	H	M	F	R	H	M
I	580	850	1180	1500	850	1280	1760	2380
II	520	710	1000	1220	740	1030	1420	1810
III	440	550	850	1000	550	850	1000	1260
IV	470	730	1050	1300	700	1050	1380	1770
V	300	610	820	950	500	870	1120	1420
VI	320	520	750	850	470	780	1000	1260

FLAT TERRAIN
 HOLLOW TERRAIN
 HILLY TERRAIN
 MOUNTAINOUS TERRAIN

SIGNING
 INTERCHANGE (URBAN INTERSTATE)
 INTERCHANGE (RURAL INTERSTATE)
 INTERSECTION (4 LANE X 4 LANE)
 INTERSECTION (4 LANE X 2 LANE)
 INTERSECTION (2 LANE X 2 LANE)

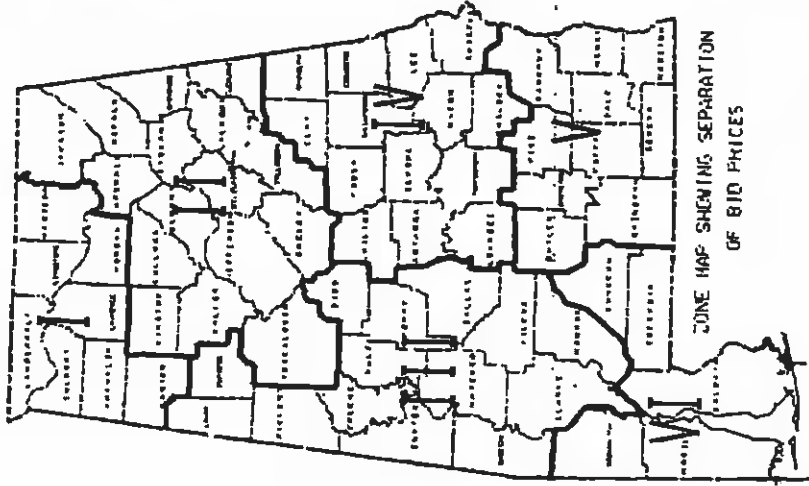
TRAFFIC HANDLING
 5 LANE (WIDEN TO ONE SIDE)
 5 LANE (WIDEN SYMMETRICAL)
 4 LANE (2 LANES EXISTING)
 EXISTING INTERSECTION
 CROSSOVERS
 NEW LOCATION INTERSECTION
 ADVANCE WARNING SIGNS

UTILITY COST*
 2 LANE RURAL
 2 LANE URBAN
 4 LANE RURAL
 4 LANE URBAN

RIGHT OF WAY COST**
 2 LANE RURAL
 2 LANE URBAN
 4 LANE RURAL
 4 LANE URBAN

UTILITY COST ESTIMATES FROM UTILITY SECTION
 * FROM COSTS ESTIMATED FROM THE ROW BUREAU
 IF TIME IS A FACTOR, JUST USE THE ABOVE DATA

ADDITIONAL OVERHEAD (add to subtotal for total construction cost)
 2% ENGINEERING CONTROLS
 13% E & I
 PRELIMINARY ENGINEERING IS 10% OF TOTAL CONSTRUCTION COST
 BREAKDOWN FOR P.E. 3% FOR CORRIDOR STUDY
 5% FOR GRADE AND DRAIN PLANS
 7% FOR BASE AND PAVE PLANS



URBAN SECTION
 BASE & SURFACE (4" SURFACE) \$65 YD²
 GRADE AND DRAIN \$25 YD²
 CURB AND GUTTER \$15 L.F.
 SIDEWALK \$28 YD²
 STORM DRAIN \$40 L.F.
 INLETS \$1,700 EA
 BASE (O.M.L.Y) \$20 YD²
 1" SURFACE (OVERLAY) \$10 YD²
 8" CONCRETE PAVEMENT \$30 YD²
 BORROW (IN PLACE) \$14 YD²
 SIGNALIZED INTERSECTION \$110,000 EA
 (20' BACK OF CURB OR BACK EDGE OF SIDEWALK)
 10' BACK OF CURB

FACTOR FOR:
 6 LANE OLD 1.3 X 4 LANE OLD COST
 8 LANE BHP 1.8 X 4 LANE BHP COST
 8 LANE OLD 1.8 X 4 LANE OLD COST
 8 LANE BHP 1.8 X 4 LANE BHP COST

RAILROADS
 SIGNALS \$110,000 EA
 CROSSING SURFACE \$726 T.F.
 RELOCATE TRACK \$200 T.F.
 SWITCHES \$1,500 EA
 R.R. BRIDGE OVER ROADWAY \$2,100 L.F.

BRIDGES
 SMALL \$50 FT²
 RIVER \$75 FT²
 HIGH LEVEL \$140 L.F.
 REMOVE OLD BRIDGE \$32 FT²
 DETOUR (28' WIDE) \$30 YD²
 R/P R/P

SECONDARY ROADS
 GRADE AND DRAIN \$120,000 MI
 BASE AND PAVE \$85,000 MI
 GRAVEL OVERLAY \$5 YD²
 BASE AND PAVE OFF SITE DETOUR \$16 YD²
 TRAVELWAY \$8 YD²
 SHOULDERS \$4 YD²
 REMOVE PAVEMENT 2% G.D.B./P COST
 REMOVE DETOUR

EXHIBIT 19

ALDOT ESTIMATED BRIDGE COSTS - 2005					
SPAN LENGTH	PIER HEIGHT	ALIGNMENT	GIRDER TYPE	COST / SF	GDR. DEPTH
< 45'	< 30'	TAN - 10 DEG. CURVE	AASHTO T - I	\$ 44.00	2.3
< 45'	< 30'	> 10 DEG. CURVE	STEEL W-BEAM	\$ 50.00	3.0'
45' - 60'	< 30'	TAN - 10 DEG. CURVE	AASHTO T - II	\$ 50.00	3.0'
45' - 60'	< 30'	> 10 DEG. CURVE	STEEL W-BEAM	\$ 56.00	3.0'
60' - 80'	< 30'	TAN - 10 DEG. CURVE	AASHTO T - III	\$ 56.00	3.8'
60' - 80'	< 30'	> 10 DEG. CURVE	STEEL W-BEAM	\$ 63.00	3.0'
80' - 100'	< 30'	TAN - 5 DEG. CURVE	BT - 54	\$ 63.00	4.5'
80' - 100'	< 30'	> 10 DEG. CURVE	STEEL PL GDR.	\$ 75.00	4.0'
100' - 120'	< 40'	TAN - 3 DEG. CURVE	BT - 63	\$ 69.00	5.3'
100' - 120'	< 40'	> 3 DEG. CURVE	STEEL PL GDR.	\$ 81.00	5.0'
100' - 120'	< 40'	> 3 DEG. CURVE	CONCRETE BOX	\$ 88.00	6.0'
100' - 120'	40' - 60'	TAN - 3 DEG. CURVE	BT - 63	\$ 75.00	5.3'
100' - 120'	40' - 60'	> 3 DEG. CURVE	STEEL PL GDR.	\$ 88.00	5.0'
100' - 120'	40' - 60'	> 3 DEG. CURVE	CONCRETE BOX	\$ 94.00	6.0'
120' - 140'	40' - 60'	TAN - 3 DEG. CURVE	BT - 72	\$ 81.00	6.0'
120' - 140'	40' - 60'	> 3 DEG. CURVE	STEEL PL GDR.	\$ 94.00	6.0'
120' - 140'	40' - 60'	> 3 DEG. CURVE	CONCRETE BOX	\$ 98.00	6.0'
140' - 180'	60' - 80'	TAN	CONC. SPLICE GDR.	\$ 94.00	6.5**
140' - 180'	60' - 80'	ALL	STEEL PL GDR.	\$ 100.00	6.5'
140' - 180'	60' - 80'	ALL	CONCRETE BOX	\$ 100.00	6.5'
180' - 200'	80' - 100'	TAN	CONC. SPLICE GDR.	\$ 100.00	6.5**
180' - 200'	80' - 100'	ALL	STEEL PL GDR.	\$ 106.00	7.0'
180' - 200'	80' - 100'	ALL	CONCRETE BOX	\$ 106.00	8.0'
200' - 250'	80' - 100'	TAN	CONC. SPLICE GDR.	\$ 106.00	6.5**
200' - 250'	80' - 100'	ALL	STEEL PL GDR.	\$ 113.00	9.0'
200' - 250'	80' - 100'	ALL	CONCRETE BOX	\$ 113.00	9.0'
250' - 300'	80' - 100'	ALL	STEEL PL GDR.	\$ 125.00	12.0'
250' - 300'	80' - 100'	ALL	CONCRETE BOX	\$ 125.00	8.0**
300' - 350'	80' - 120'	ALL	STEEL PL GDR.	\$ 144.00	16.0'
300' - 350'	80' - 120'	ALL	CONCRETE BOX	\$ 144.00	10.0**
350' - 400'	80' - 120'	ALL	STEEL PL GDR.	\$ 156.00	12.0**
350' - 400'	80' - 120'	ALL	CONCRETE BOX	\$ 156.00	10.0**

* MID-SPAN DEPTH OF HAUNCED GIRDER

* DEPTH AT SUPPORT 1.5 TO 2 TIMES MID-SPAN DEPTH

EXHIBIT 20

PRELIMINARY COST ESTIMATE CHART (ENGLISH)

FEBRUARY 17, 1995

GRADE & DRAIN (COST PER MILE X \$1000)														BASE & PAVE (COST PER MILE X \$1000)							
ZONE	2-LANE				2-LANE				4-LANE				4-LANE ADD 2 LANES				2-LANE	2-LANE	4-LANE	4-LANE ADD 2 LANE	
	NEW CONSTRUCTION				RECONSTRUCTION				NEW CONSTRUCTION				RECONSTRUCT & EXISTING LANE				NEW CONSTRUCTION	RECONSTRUCT EXISTING 2 LN	NEW CONSTRUCTION	RECONSTRUCT 2 EXISTING LN	
	F	R	H	M	F	R	H	M	F	R	H	M	F	R	H	M	F	R	H	M	
I	502	731	1089	1250	464	611	731	916	731	1094	1521	2072	554	928	1369	1558	1087	835	1964	1741	
II	435	609	859	1056	418	502	609	731	609	896	1322	1854	454	758	1196	1322	979	730	1949	1530	
III	370	464	731	858	335	404	464	532	464	731	1125	1531	370	570	1000	1056	869	646	1539	1330	
IV	404	625	907		370	502	611		592	907	1193		464	768	1065		1022	782	1839	1616	
V	335	532	790		327	435	532		487	790	1056		404	638	952		891	674	1616	1415	
VI	268	435	683		268	370	442		404	683	950		335	546	837		782	601	1211	1217	
ADDITIONAL OVERHEAD 2 X FOR ENGINEERING CONTROLS 5 X FOR MOBILIZATION 13 X FOR E & J 7.5 X FOR PRELIMINARY ENGINEERING BREAKDOWN FOR P.E. 0.5 X FOR CORRIDOR STUDY 5 X FOR GRADE & DRAIN 2 X FOR BASE & PAVE UTILITY ADJUSTMENTS FROM UTILITY SECTION RIGHT-OF-WAY FROM ROW BUREAU IF TIME IS A FACTOR USE THE FOLLOWING				BRIDGES SMALL RIVER HIGH LEVEL REMOVE OLD BRIDGE DETOUR (26' WIDE) BRIDGE WIDENING RIP RAP				RAILROADS SIGNALS CROSSING SURFACE (DOUBLE FOR DOUBLE TRACK) RELOCATE TRACK SWITCHES RR BRIDGE				URBAN SECTION BASE & SURFACE (4' SURFACE) GRADE & DRAIN CURB & GUTTER SIDEWALK STORM DRAIN INLETS REMOVE SLOPE PAVEMENT (RAISED MEDIUM) REMOVE CURB & GUTTER REMOVE DRCP INLET BASE (ONLY) C SURFACE (ADDITIONAL) B CONCRETE PAVEMENT MACHINE CURB VALLEY GUTTER (4' WIDE) BORROW (IN-PLACE) SIGNALIZED INTERSECTION				FACTORS FOR 5 LN (G&D) 0.9 X X 4 LN COST 5 LN (B&P) 1.1 X X 4 LN COST 6 LN (G&D) 1.3 X X 4 LN COST 6 LN (B&P) 1.5 X X 4 LN COST 8 LN (G&D) 1.6 X X 4 LN COST 8 LN (B&P) 1.9 X X 4 LN COST					
UTILITY COST - per mile 2-LN RURAL \$ 84,000 4-LN RURAL \$ 210,000 2-LN URBAN \$ 126,000 4-LN URBAN \$ 525,000				SECONDARY ROADS GRADE & DRAIN BASE & PAVE SOIL AGGREGATE SURFACE (GRAVEL ROAD)				G & D - 2' BACK OF CURB OR BACK EDGE OF SIDE WALK B & P - 1 1/2' BACK OF CURB				SIGNING COST INTERCHANGE (URBAN INTERSTATE) \$ 226,000 INTERCHANGE (RURAL INTERSTATE) \$ 58,000 INTERSECTION (4-LANE X 4-LANE) \$ 32,000 INTERSECTION (4-LANE X 2-LANE) \$ 26,000 INTERSECTION (2-LANE X 2-LANE) \$ 16,000									
RIGHT-OF-WAY - per mile 2-LN RURAL \$ 394,000 4-LN RURAL \$ 630,000 2-LN URBAN \$ 1,260,000 4-LN URBAN \$ 2,363,000				REMOVAL OF PAVEMENT \$ 3.20/SY. REMOVAL OF DETOUR 2 % G.D.B. & P				NOTE: ADD 5.0 % PER YEAR FOR SETTING UP FUTURE PMS COST													
GUARD RAIL GUARD RAIL - \$ 13.80/LF. TYPE 10 ANCHOR - \$ 7.35/EA TYPE 8 ANCHOR - \$ 6.30/EA. TYPE 13 ANCHOR - \$ 12.60/EA				SEE ATTACHED SHEET FOR ZONE LOCATION																	
X - FLAT TERRAIN H - HILLY TERRAIN R - ROLLING TERRAIN M - MOUNTAINOUS																					

MOBILE RIVER TUNNEL

INTERSTATE HIGHWAY 10 MOBILE, ALABAMA

OWNER

ALABAMA HIGHWAY DEPARTMENT
in cooperation with the
UNITED STATES DEPARTMENT OF
TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

DESIGN ENGINEER

PALMER AND BAKER ENGINEERS, INC.

CONTRACTOR

MOBILE TUNNEL CONSTRUCTORS
a joint venture of
WINSTON BROS. COMPANY
ATLAS CONSTRUCTION CO. LIMITED
THE FOUNDATION COMPANY OF CANADA LIMITED

CONSTRUCTION SUPERVISION

PALMER AND BAKER ENGINEERS, INC.
for the
STATE OF ALABAMA
HIGHWAY DEPARTMENT

DESCRIPTION OF THE PROJECT

GENERAL — The Mobile River Tunnel is a vital link of Interstate Highway 10 spanning the southern breadth of North America from the Atlantic Ocean at Jacksonville, Florida to the Pacific Ocean at Los Angeles, California. It provides for 4-lanes of travel through twin tubes, with the two eastbound lanes physically separated from those accommodating westbound vehicles. It is a trench-type tunnel with poured-in-place arch sections at each end.

The over-all length of the tunnel from grade point to grade point is 4,271 feet, and the length of the tunnel between portals is 3,000 feet. The vertical roadway clearance at the curb is 16' - 3" and from the center of the roadway to the top of the arch is 23 feet.

TUNNEL SECTIONS — The tunnel section consists of the steel cylinder which serves as both water-proofing and form and is to be lined with heavily reinforced concrete to provide the strength ring. The outer steel sheathing serves as a form for the unreinforced tremie concrete which protects the tubes and provides negative bouyancy. The over-all assembly of each of the seven tunnel sections is 80.5 feet wide, 40 feet high, 346 long and weighs over 20 thousand tons.

The sections are being fabricated off-site and will be essentially completed to a point where they are practically at zero bouyancy. With their ends closed by temporary bulkheads, they will be floated into position and, by adding ballast, lowered into their final position on a prepared saddle. Ballasting will then be completed and the sections joined successively together by hydraulic jacks, which will partially seal the joint by pulling a steel lip onto a rubber gasket. The outside of this joint will then be enclosed in tremie concrete and the final seal made on the inside after the temporary bulkheads are removed. The continuity of the structure will be established by welding between the two tubes and the strength ring completed. The trench will then be backfilled, the tunnel finished and the electrical and mechanical systems installed.

VENTILATION — The tunnel will be ventilated from two buildings, one on each river bank straddling the tunnel, using the longitudinal method of pulling air through the stacks of the ventilation buildings and discharging it at the portals. Six axial flow fans in each building will supply air for five stages of ventilation demand based on actual traffic volume. These stages will be controlled by (1) a program clock; (2) a traffic volume computer; and (3) by carbon monoxide analyzers. Manual override control will be provided in case of need.

POWER SUPPLY — Electric power for the tunnel will be supplied by Alabama Power Company through two 22,000 volt sources, one from the east of Mobile and the other from sources along the west bank of the river. A system of automatic transfer from one source to the other is provided in case of power failure. A 500 KW auxiliary generator within the tunnel will take over automatically in the unlikely event that both power sources fail. This generator will provide power for all essential services but, as an added stand-by, a bank of storage batteries will provide adequate lighting for the entire structure.

LIGHTING — Roadway lighting is comprised of continuous rows of fluorescent fixtures with four stages of illumination sufficient to line the tunnel with levels of light as required by varying intensity of outside light. Lighting is based on 50 mph design speed and intensities are such as to ease the transition from bright sunlight into the tunnel. This will be aided by darkening the entrance ramp walls and paving so as to absorb bright exterior light and by lining the tunnel walls and ceiling with light-colored tile to gain maximum interior lighting efficiency.

PUMPS — All drains from the tunnel roadway are piped into enclosed sumps under each roadway at mid-channel, the lowest point of the tunnel. Sparkproof pumps, driven by totally enclosed motors, pump from these sumps to storm sewers near the east ventilation building. The sumps are separated so that a fire in one roadway will not affect the other roadway. All drains from the open ramps are connected to sumps at each portal where sparkproof pumps will pump to the storm drains. All sumps are protected by an automatic self-contained foam or sprinkler system actuated by a temperature rate of rise release located in each sump. Pumps in every case have a stand-by to take over the job if number one fails, and to take turns with number one to balance maintenance. The operation of all pumps is automatic.

TRAFFIC CONTROL & OPERATION — Actual command of operation is automatic throughout, but within the control room located in the east ventilation building an operator will be on continuous duty with a panel before him recording every phase of the operation. He will even have fourteen television screens monitoring every foot of roadway in the two tubes. Also, he will have a selective public address system over which he can speak to drivers in any specific area, thereby assuring immediate command. Sound pickups within the tunnel will alert him to any out of the ordinary situation.

Traffic will be directed through the tunnel by lane control signal lights that may be actuated by the operator as dictated by conditions. A continuous traffic patrol will be maintained by police on motor tricycles, replacing the old station guards.

SPECIAL FEATURES — There will be five connecting passageways between the two tubes so as to provide for safe evacuation of persons in case of accident or fire and so that firemen may operate from a position of safety in the unaffected tube.

Within these passageways all emergency controls are centralized such as hose valves, portable fire extinguishers, telephones and fire alarms.

The ventilation system of each tube is designed for manual reversing so as to extract smoke and fumes in case of fire. Also, automatically operated sprinkler systems with fog nozzles are to be located in each air duct near the normal fan discharge to cool the air being extracted, and thus protect the fans and motors from heat damage.

STATISTICAL DATA

Contract Price - \$47,465,425.22

Completion Date - July 4, 1972

Total Construction Time - 1000 Calendar Days

STRUCTURAL QUANTITIES

Excavation	—	1,575,000 cubic yards
Backfill	—	1,292,000 cubic yards
Reinforced Concrete	—	147,830 cubic yards
Tremie Concrete	—	73,300 cubic yards
Reinforcing Steel	—	14,430,000 pounds
Steel Plate	—	18,215,600 pounds
Ceramic Tile	—	3,033,000 pieces

PUMPS

East Portal	—	Four at 1300 gpm
West Portal	—	Four at 1600 gpm
Mid-Channel	—	Four at 250 gpm

VENTILATION

East Ventilation Building	—	Six 84-Inch Axial Flow Fans
West Ventilation Building	—	Six 84-Inch Axial Flow Fans
Maximum Air Demand:		
Upgrade	—	300 cfm per linear foot
Sag Curve	—	225 cfm per linear foot
Downgrade	—	170 cfm per linear foot
Total air supplied to each tube	—	700,000 cfm

LIGHTING

Stage 1 - Night Interior	—	6 Foot-candles
Stage 2 - Day Interior	—	17 Foot-candles
Stage 3 - Day Entrance (overcast)	—	53 Foot-candles
Stage 4 - Day Entrance (bright)	—	88 Foot-candles



www.volkert.com

April 20, 2005

107 Saint Francis Street
Suite 9008
Mobile, Alabama 36602-3309
Phone 251.432.6735
Fax 251.432.0248
row@volkert.com

Mr. Paul Griggs
Project Manager
Volkert & Associates
3809 Moffett Road
Mobile, AL. 36618

Re: Mobile River Bridge

Dear Sir:

Pursuant to your request, our staff has conducted a market study for the proposed Mobile River Bridge project. Sales in the surrounding area included industrial waterfront, industrial and residential properties associated with the Down The Bay Community.

After analyzing the enclosed sales it is my opinion that the estimated per unit costs for the above mentioned vacant land categories listed above are as follows:

Industrial waterfront:	\$ 7,000/WFF + 100% contingency = \$14,000/WFF
Industrial (non waterfront)	\$ 150,000/Ac + 100% contingency = \$300,000/Ac
	\$ 3.44/sf + 100% contingency = \$6.88/sf
Residential	\$ 6.00/sf + 50% contingency = \$9.00/sf

Contingency percentages have been added in an attempt to cover possible severance damages, increase in property values, court costs and accompanying fees.

These sales were employed in a general sense for estimation purposes and this report is not to be construed as an appraisal of specific properties.

Yours truly,

Larson Edge
Vice President Property Acquisition Services

COPY -
FILE (1)
PAUL (1)
CARAH (3)
MISSI (1)
SKEETER (1)
RESENYAR (1)

Office Locations:

Mobile, Birmingham, Foley, Alabama • New Orleans, Louisiana • Gainesville, Orlando, Pensacola, Tampa, Florida
Dalton, Georgia • Chattanooga, Tennessee • Alexandria, Virginia • Washington, D.C.

April 20, 2005

Mr. Paul Griggs
Project Manager
Volkert & Associates
3809 Moffett Road
Mobile, AL. 36618

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Vice President Property Acquisition Services

Industrial Sales - Waterfront

Sale No. 1

Location: Located north of Mobile, south of Cochran-Africatown Bridge on east side of Mobile River. 900' of water frontage along Mobile River.

Date of Sale: 09-27-2001
Grantor: Eastside Properties
Grantee: Cooper Marine and Timberlands Corp.
Consideration: \$5,000,000
Price per S. F: \$6.75 sf +/-
Price per Acre: \$294,118
Price per WFF: \$5,555
Land Size: Approx 17 acres (According to deed description and tax map)
WFF: 900'
DBK/PG: 5042/0808

Sale No. 2

Location: Located east of Mobile, directly over the Bankhead tunnel and adjacent to property for the George Wallace Tunnel. East side of Mobile River.

Date of Sale: 04-28-2000
Grantor: Mobile River Properties and Robin Herndon, III
Grantee: Austal USA
Consideration: \$1,750,000
Price per S. F: \$4.02 +/-
Price per Acre: \$175,000
Price per WFF: \$1,590
Land Size: Approx 10 Acres +/-
WFF: 1100' +/-
DBK/PG: 4830/577
Remarks: Purchased by Austal USA, cooperative venture with Bender Shipyard. Property is currently improved with a Metal building used in fabricating aluminum boats. Frontage along Mobile River.

Sale No. 3

Location: Located on west side of Mobile River just south of and adjacent to I-10 Tunnel. Water frontage along Mobile River.

Date of Sale: 04-03-1996
Grantor: Scoville Properties, Inc.
Grantee: City of Mobile
Consideration: \$2,790,000
Price per S. F: \$17.41 sf +/-
Price per Acre: \$758,152
Price per WFF: \$3,207
Land Size: Approx 3.68 acres +/-
WFF: 870'
DBK/PG: 4346/1082

Remarks: Bordered on west by CSX Railroad. Industrial site sale in the area closest to the Convention Center and impacted by its commercial significance.

Sale No. 4

Location: Approx ¼ miles south of Cochran-Africatown Bridge on Hwy 90. East side of Mobile River.

Date of Sale: 01-22-2001
Grantor: Paktank Atlantic Co.
Grantee: Vopak Terminal
Consideration: \$1,700,000
Price per S. F.: \$1.39
Price per Acre: \$60,714
Price per WFF: \$1,308
Land Size: 28 +/- Acres
WFF: 1300'
DBK/PG: 4923/854
Remarks: Includes boat dock

Sale No. 5

Location: Approx ¼ miles south of Cochran-Africatown Bridge on Hwy 90.
East side of Mobile River. Part of Sale No. 4

Date of Sale: 03-19-2002
Grantor: Argain, LLC.
Grantee: Eagle Asphalt
Consideration: \$2,400,000
Price per S. F.: \$5.51
Price per Acre: \$240,000
Price per WFF: \$3,310
Land Size: 10 +/- Acres
WFF: 725'
DBK/PG: 5137/1184
Remarks: Identified as Lot #2 Argain Subdivision. Includes boat dock.

Sale No. 6

Location: Approx ¾ miles south of Cochran-Africatown Bridge on Hwy 90.
East side of Mobile River. Sale No. 5

Date of Sale: 5-7-2003
Grantor: Eagle Asphalt
Grantee: Puerto Los Caballeros
Consideration: \$1,623,500
Price per S. F.: \$3.73
Price per Acre: \$162,350
Price per WFF: \$2,240
Land Size: 10 +/- Acres
WFF: 725'
DBK/PG: 5482/217
Remarks: Identified as Lot #2 Argain Subdivision. Includes boat dock

Sale No. 7

Location: Approx $\frac{3}{4}$ miles south of Cochran-Africatown Bridge on Hwy 90.
East side of Mobile River. Sale No. 5

Date of Sale: 2-28-2005
Grantor: Puerto Los Caballeros
Grantee: Valero Marketing
Consideration: \$3,150,000
Price per S. F.: \$7.23
Price per Acre: \$315,000
Price per WFF: \$4,345
Land Size: 10 +/- Acres
WFF: 725'
DBK/PG: 5482/217
Remarks: Identified as Lot #2 Argain Subdivision. Includes boat dock

Sale No. 8

Location: West side of Mobile River south Of I-10. On Water Street south of
Eslava Street intersection

Date of Sale: 8-28-03
Grantor: NPT Corporation
Grantee: Thomas Bender
Consideration: \$1,600,000
Price per S. F.: \$29.86
Price per Acre: \$1,300,813
Price per WFF: \$7,767
Land Size: 1.23 +/- Acres
WFF: 206'
DBK/PG: 5445/1971
Remarks: Includes boat dock

Industrial Sales

Sale No. 1

Location: Dunlap Drive above and slightly to the north of Bankhead Tunnel.
Date of Sale: 9-15-04
Grantor: Robin Herndon, III & T. C. Weller
Grantee: Melvin E. Pierce
Consideration: \$65,000
Price per S. F.: \$1.94
Price per Acre: \$84,500
Land Size: 33,336 +/- SF
DBK/PG: 5674/260

Sale No. 2

Location: Eastern ROW of Cochran Causeway north of Bankhead Tunnel.
Date of Sale: 4-4-2003
Grantor: Blakely 12, LLC
Grantee: Davenport Properties, LLC
Consideration: \$80,000
Price per S. F.: \$0.66
Price per Acre: \$28,777
Land Size: 2.78 Acres +/-
DBK/PG: 5340/1415

Sale No. 3

Location: Virginia St., east of CSX railroad at vacted Water Street intersection. Southeast of I-10.
Date of Sale: 1-15-2002
Grantor: Bender Shipbuilding & Repair
Grantee: Mobile River Terminal Co., Inc.
Consideration: \$192,500
Price per S. F.: \$3.40
Price per Acre: \$148,076
Land Size: 1.3 Ac +/-
DBK/PG: 5101/288

Sale No. 4

Location: On Dunlap Road above Bankhead Tunnel.
Date of Sale: 5-6-2004
Grantor: Atlantic Ala Property Holding
Grantee: Austal USA.
Consideration: \$120,000
Price per S. F.: \$2.30
Price per Acre: \$100,000
Land Size: 1.2 Ac +/-
DBK/PG: 5585/1808

Sale No. 5

Location: On Dunlap Road above Bankhead Tunnel.
Date of Sale: 7-29-03
Grantor: Oscar Lipscomb
Grantee: Radcliff Economy marine.
Consideration: \$80,000
Price per S. F.: \$1.33
Price per Acre: \$57,971
Land Size: 1.38 Ac +/-
DBK/PG: 5429/507

Down the Bay Community

After identifying the market area, vacant land sales were sought from several sources believed to be reliable. Due to the built up status of the market area no vacant land sales were found. Improved sales were then considered using the Mobile County Tax Assessor's values for Market Value and Land Value. A relationship was then extracted to arrive at a percentage of the Market Value attributed to the land as if vacant. This percentage was then applied to the sales price to arrive at the Estimated Land Value (ELV). The size of the site was obtained and using the ELV the Estimated Square Foot value (Est sf). As illustrated in the chart below an increase in land values is occurring reflecting the market area's acceptance in the Mobile, AL real estate market.

#	Street	Sales \$	DOS	Lot SF	ELV	Est sf
1057	Savannah	\$131,000	11/30/2004	6000	\$36,680	\$6.11
604	Eslava	\$110,000	10/28/2004	4900	\$29,700	\$6.06
219	Dearborn	\$125,000	7/30/2004	6365	\$33,750	\$5.30
256	Lawrence	\$207,000	7/27/2004	5500	\$31,050	\$5.65
511	Eslava	\$265,000	6/18/2004	7370	\$39,750	\$5.39
208	Cedar St	\$145,000	4/15/2004	4635	\$26,100	\$5.63
654	Monroe	\$108,000	1/30/2004	6490	\$27,000	\$4.16
212	Dearborn	\$89,900	10/27/2003	4158	\$21,576	\$5.19
159	Warren	\$154,000	10/15/2003	4530	\$20,020	\$4.42
219	Dearborn	\$121,000	7/31/2003	6365	\$32,670	\$5.13
509	Eslava	\$178,900	7/17/2003	6600	\$35,780	\$5.42
154	Dearborn	\$154,900	4/20/2003	5100	\$21,686	\$4.25
214	Cedar St	\$145,850	11/15/2002	5459	\$21,877	\$4.01
511	Eslava	\$215,500	10/18/2002	7370	\$32,325	\$4.39
604	Eslava	\$99,900	5/29/2002	4900	\$26,973	\$5.50
256	Lawrence	\$210,000	5/15/2002	5500	\$31,500	\$5.73
554	Eslava	\$99,500	4/27/2001	3960	\$17,916	\$4.52
212	Dearborn	\$90,500	8/31/2000	4158	\$21,720	\$5.22
506	Eslava	\$84,000	7/24/2000	4730	\$21,000	\$4.44



VOLKERT

& ASSOCIATES, INC.

April 26, 2005

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Mr. Paul Griggs
Project Manager
Volkert & Associates
3809 Moffett Road
Mobile, AL. 36618

VOLKERT-MOBILE

APR 27 2005

107 Saint Francis Street
Suite 9008
Mobile, Alabama 36602-3309
Phone 251.432.6735
Fax 251.432.0248
row@volkert.com

Re: Mobile River Bridge

Dear Sir:

Pursuant to your second request, our staff has conducted a cost study of various types of improvements located in the area of the proposed Mobile River Bridge project. Costs were based on Average Single Family Residences, Commercial, Industrial and Waterfront and Jail and Correctional improvements for the period of time encompassing 1996 to present. Our source for the cost estimates is Marshall Valuation Services of which we maintain partial histories of prior cost estimates.

After analyzing the data it is my opinion that the estimated increase in costs for the above mentioned improvement categories listed above are as follows:

IMPROVEMENT TYPE	Annual Estimated Average Increase	Total Estimated Increase	Estimated Improvement Costs w/100% Contingency
Single Family Residence	3.0%	30%	60%
Commercial	4.0%	40%	40%
Industrial	3.0%	30%	60%
Jail & Correctional	6%	60%	120%

Contingency percentages have been added in an attempt to cover possible severance damages, increase in material and fuel costs, court costs and accompanying fees.

These estimates were employed in a general sense for estimation purposes and this report is not to be construed as an appraisal of specific properties.

Yours truly,

Larson Edge
Vice President Property Acquisition Services

Office Locations:

Mobile, Birmingham, Foley, Alabama • New Orleans, Louisiana • Gainesville, Orlando, Pensacola, Tampa, Florida
Dalton, Georgia • Chattanooga, Tennessee • Alexandria, Virginia • Washington, D.C.

APPENDIX G
PUBLIC INVOLVEMENT SUMMARY

**ALABAMA DEPARTMENT
OF
TRANSPORTATION**



**PROJECT NO. DPI-0030 (005)
I-10 MOBILE RIVER CROSSING**

SECTION C

SUMMARY

The Public Involvement Meetings generated great interest. There were **170** registrants, of whom **20** were ALDOT and Consultant personnel in the Mobile meeting, and **113** registrants, of whom **27** were ALDOT and Consultant personnel in the Spanish Fort meeting. **217** comment sheets were received from the Mobile meeting, and **87** comment sheets were received from the Spanish Fort meeting by the ten business day deadline. The "Mobile Register" newspaper and two TV stations (TV-5 and TV-15) attended the meetings.

A summary of the comment sheet responses is shown on the next sheet.

SUMMARY

- Are you in favor of the proposed project?

<u>Mobile County</u>		<u>Baldwin County</u>		<u>Total</u>	
Yes (145)	No (14)	Yes (95)	No (6)	Yes (240)	No (20)

- Do you feel the proposed project will benefit the traveling public?

<u>Mobile County</u>		<u>Baldwin County</u>		<u>Total</u>	
Yes (147)	No (12)	Yes (95)	No (6)	Yes (242)	No (18)

- How often do you use the I-10 Bayway? Mobile County.

Daily (27) Weekly (88) Monthly (30) Other (17)

- How often do you use the I-10 Bayway? Baldwin County.

Daily (63) Weekly (25) Monthly (12) Other (2)

- Which alternative do you prefer?

Alternative	#	<u>Mobile County</u>	<u>Baldwin County</u>	<u>Total</u>
Alternative #1		32	11	43
Alternative #2		47	21	68
Alternative #3		32	27	59
Alternative #4		9	0	9
Alternative #5		42	13	55
Alternative #6		36	12	48
Alternative #7		1	3	4
Alternative #8		1	5	6
Alternative #9		60	30	90
Alternative #10		1	2	3
Alternative #11		67	12	79
Alternative #12		1	2	3
Alternative #13		1	6	7
Alternative #14		9	4	13
None		5	7	12

Note: Some comments included multiple preferences.

SECTION C

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Alternative #1		32	11	43
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#3		32	27	59
#4		9	0	9
#5		42	13	55
#6		36	12	48
#7		1	3	4
#8		1	5	6
#9		60	30	90
#10		1	2	3
#11		67	12	79
#12		1	2	3
#13		1	6	7
#14		9	4	13
None		5	7	12

Note: Some comments included multiple preferences.

APPENDIX C:
AIR DRAFT CLEARANCE
REPORT

I-10 Mobile River Bridge Determination of Appropriate Air Draft Clearance

Project DPI-0030(005)
I-10 Mobile River Bridge and Bayway Widening
Mobile and Baldwin Counties, Alabama

December 2012

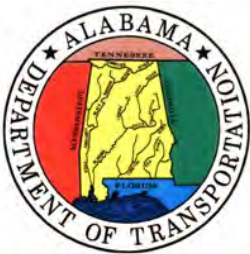


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Appendix A – Correspondence

List of Acronyms

ADABB	Air Draft Analysis on the Bayonne Bridge
ADC	Air Draft Clearance
ALDOT	Alabama Department of Transportation
ASPA	Alabama State Port Authority
BCR	Benefit to Cost Ratio
CCL	Carnival Cruise Lines
EA	Environmental Assessment
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
I-10	Interstate 10
KTMH	Keel-to-Mast Height
MACC	Mobile Area Chamber of Commerce
MHW	Mean High Water
MRB	Mobile River Bridge
MRBMEIA	Mobile River Bridge Maritime Economic Impact Analysis
NCL	Norwegian Cruise Lines
PANYNJ	Port Authority of New York and New Jersey
PC	Panama Canal
RCL	Royal Caribbean Cruise Lines
TEU	Twenty-Foot Equivalent Unit
USCG	U.S. Coast Guard
USACE	U.S. Army Corps of Engineers

1.0 INTRODUCTION

The determination of the appropriate Air Draft Clearance (ADC) for the proposed I-10 Mobile River Bridge (MRB) represents an important decision with both short and long term implications for the maritime industry in Mobile, Alabama. The ADC of the bridge will establish a constraint to the passage of vessels upstream of the proposed bridge in the future. This constraint will have an effect on the maritime industry, including limitations on the cruise industry by restricting the size of vessel that can use facilities upstream of the bridge. The size of a cruise ship calling on the Alabama Cruise Terminal has a direct impact on the potential profitability of the cruise industry in Mobile.

ADC can be defined as the vertical dimension of a vessel's Keel-to-Mast Height (KTMH) plus a vertical space for to allow passage below the lowest bridge deck component (**Figure 1**). ADC can be affected by such factors as tides, mean high water (MHW), vessel drafts, channel depths, river stage, and sea level rises. Several other factors influence ADC, including weather (temperature, fog, wind speed and direction, and precipitation), currents, salinity, ship traffic (passing), day or night operations, tug assistance, etc. The acceptable ADC, including safety clearance, should consider adverse conditions rather than ideal physical or operating conditions.

A 190-foot ADC was established in the Feasibility Study conducted for the proposed I-10 MRB project in 1997. The Alabama Department of Transportation (ALDOT) approved the 190-foot ADC in 2000, and the Federal Highway Administration (FHWA) approved the Environmental Assessment (EA) with a 190-foot ADC in 2003. Since completion of the Feasibility Study and receipt of these approvals, conditions related to the size and types of ships using the Port of Mobile have changed, and a fresh look at the appropriate ADC is warranted. Major changes in conditions along the Mobile River since 2003 include the construction and opening of the Alabama Cruise Terminal, a \$30 million facility, and the resulting emergence of the cruise ship industry in Mobile; the Mobile Container Terminal, a \$300 million world-class intermodal container terminal; the major expansion of the Austal shipbuilding facilities; and the sale of both Bender Shipbuilding & Repair

Company, Inc., and Atlantic Marine, Inc. (see **Figure 2**).

The purpose of this analysis is to document existing conditions that may affect a determination regarding an appropriate ADC for the proposed I-10 MRB; to evaluate current and projected trends in vessel sizes, types, and shapes; and to determine an appropriate ADC that would allow the Port of Mobile to remain competitive in the cruise industry, container and cargo shipping industry, and other maritime industries that currently operate or may choose to locate along the Mobile River in the future. A bridge permit from the U.S. Coast Guard (USCG) required for construction. The USCG will determine if the bridge, “allows reasonable needs of navigation” (USACE, 2012).

Various resources and studies are utilized in this analysis to illustrate the following points:

- 1) ADC can be a constraint to maritime industries;
- 2) Bridges in other ports around the U.S. are being raised to increase ADC to accommodate taller ships;
- 3) The City of Mobile is pursuing a cruise ship class with a 207-foot ADC;
- 4) Cruise ships can navigate with less than their preferred 15-foot clearance (some as low as 5 feet);
- 5) Container and cargo ships can navigate with a minimum of 3 feet of clearance;
- 6) Trends in vessel size indicate that ships will continue to get larger in the future; and
- 7) Various types of vessels and cargo may traverse to port facilities upstream of the proposed I-10 MRB in the future.

2.0 EXISTING CONDITIONS

At present, there are no vertical restrictions over the Mobile Harbor Navigation Channel south of the Cochrane-Africatown USA Bridge (Cochrane Bridge) across the northern portion of the harbor. The Cochrane Bridge, located upstream of the 40-foot deep portion of the Mobile Harbor Federal Navigation Channel, has an ADC of 140 feet over MHW (**Figure 2**).

The Federal Mobile Harbor Navigation Channel is authorized for a navigation depth of -55 feet by the Water Resources Development Act of 1986, to Mile 1, one mile south (downstream) of Mile 0. Mile 0 is the Bankhead Tunnel. The navigation depth upstream of Mile 1 is -40 feet. The Bankhead and I-10 Wallace Tunnels under the Mobile River constrain the channel depth to -40 feet at their respective locations (see **Figure 2**).

3.0 PROPOSED I-10 MRB ALTERNATIVES

Four Alternatives (A, B, B', and C) are currently being considered for the I-10 MRB. The locations of these alternatives are shown on **Figure 2**. All four of the alternatives would be located between Mile 0 and Mile 1 over the 40-foot-deep navigation channel. All four alternatives would affect the class of cruise ship that could use the Alabama Cruise Terminal located on the west side of the Mobile River (see **Figure 2**).

4.0 EFFECT OF ADC ON MOBILE MARITIME INDUSTRY

The primary issue associated with identifying an appropriate air draft clearance for the proposed I-10 Mobile River Bridge centers around the need to accommodate cruise ships at the Alabama Cruise Terminal. Secondary concerns include future port development and accommodation of cargo/container ships, as well as government marine vessels.

4.1 Effect of ADC on Cruise Industry

Three primary cruise lines operate in the South Atlantic/Gulf Coast markets: Carnival Cruise Lines (CCL), Norwegian Cruise Lines (NCL), and Royal Caribbean Cruise Lines (RCL). These three lines currently have 57 vessels in service or soon to be in service and range in size from 848 to 1,181 feet long with air drafts between 150 and 208 feet. The current trend in cruise ship design is to develop longer cruise vessels without corresponding increases in air draft (Martin, 2012).

In 2000, the City of Mobile and Mobile Area Chamber of Commerce formed the Cruise Industry Task Force to recruit a major cruise line to the Port of Mobile. The Task Force is comprised of various stakeholders and representatives with a vested interest in the viability of the Port of Mobile. In 2002, the City of Mobile was successful in recruiting CCL to call on the Port of Mobile, conducting a series of “trial” runs to determine whether the demand for cruise ships departing from Mobile would make the commitment to have Mobile as a port of call worth the investment. The trial cruises were successful, and, in 2004, the City invested approximately \$30 million in the development of a new cruise terminal along the Mobile River. As the only cruise terminal in Alabama, the facility is appropriately named the Alabama Cruise Terminal. Additional investments totaling nearly \$15 million were also made for the dock area that supports the terminal (**Appendix A**, MACC letter to ALDOT, April 3, 2012).

From 2004 through October 2011, CCL operated continuous cruise service from the Alabama Cruise Terminal. In 2007, the Port of Mobile was Carnival’s “Port of the Year” (Alabama Cruise Terminal website, 2010). The initial cruise ship in Mobile was the Holiday, which has an air draft of approximately 157 feet and accommodates approximately 1,452 passengers and 660 crew members. The Holiday was profitable and successful during its operation, which ended in 2008, when the Elation began calling on the Port of Mobile. The Elation is a Fantasy-class ship which has an air draft of approximately 177 feet and accommodates approximately 2,052 passengers and 920 crew members. The cruises, which included multi-day cruises to the Western

Caribbean, were frequently sold out and have been noted by Carnival Cruise Lines as being profitable (**Appendix A**, MACC letter to ALDOT, April 3, 2012).

Due to market conditions in Mexico and high fuel prices, Carnival Cruise Lines decided to discontinue cruise service from the Port of Mobile (**Appendix A**, MACC letter to ALDOT, April 3, 2012). The last cruise to sail from Mobile occurred in October 2011.

The Cruise Industry Task Force (CITF), along with officials from the City of Mobile and an independent consultant to the City of Mobile, is optimistic about the likelihood of the cruise industry returning to the Alabama Cruise Terminal at some point in the near future. According to the Mobile Area Chamber of Commerce, the City is “actively pursuing all of the major cruise lines that currently work out of the Gulf” as well as “several who have an interest to establish new services in the Gulf region.” In addition, it is possible that CCL will choose to return to Mobile rather than allow its competitors to dominate the proven profitable market that is served by the Alabama Cruise Terminal. Letters from the City of Mobile and the Mobile Area Chamber of Commerce are contained in **Appendix A** of this report.

By letter dated March 23, 2012, Mayor Samuel Jones noted that the “repositioning of ships leaving a temporary vacancy in a port is not at all unusual in the cruise industry.” Mayor Jones also stated that “replacing the ship is a process which may take time but in the end will result in the reestablishment of the cruise industry in Mobile” (**Appendix A**, City of Mobile letter, March 23, 2012). As a result, the determination of an appropriate air draft clearance for the proposed I-10 MRB should take into consideration the long-term accommodation of existing and future cruise ships. Efforts made by the City’s consultant responsible for recruiting cruise industry to Mobile indicate that a major cruise line has stated that they are interested in further discussions with Mobile about placing one of its current ships within a market that would include Mobile once its new ships are in service at other larger ports.

4.1.1 Clearance Required for Safe Passage

With regard to adequate clearance for safe passage of cruise ships beneath a bridge, the U.S. Coast Guard (USCG) does not specify a minimum clearance. The decision whether or not to attempt passage under a bridge is left to the vessel master's decision. Cruise lines have indicated a preference for a 15-foot clearance; however, depending upon the circumstances, the master of a vessel may accept a clearance of less than 15 feet. Coordination with the Jacksonville Port Authority indicated that the CCL's Fascination, which passes under the Dames Point Bridge in Jacksonville, Florida, has operated with a \pm 5-foot clearance for the last decade (Jacksonville Port Authority, 2011). This example shows that CCL is currently operating cruise ships with much less than a preferred 15-foot clearance.

The CCL Fantasy-class Elation, which called on Mobile until October 2011, is 855 feet long, has an air draft of 177 feet, and carries 2,052 passengers and 920 crew members. Cruise ships typically have a water draft between 25 and 30 feet. Elation has a water draft of 25 feet, 9 inches. The Elation used the Pier C Turning Basin or the Three-Mile Creek Turning Basin to turn around (see **Figure 2**). The Freedom, a CCL Conquest-class cruise ship, is 953 feet long, has a draft of 27 feet, and has an air draft of 207 feet. This vessel carries 2,974 passengers and 1,150 crew members. The City of Mobile and CITF believe a Conquest-class cruise ship, or its equivalent, is the next logical cruise ship for Mobile (**Appendix A**, MACC letter to ALDOT, April 3, 2012).

Figure 3 illustrates the clearance for the Elation and the Freedom with an I-10 MRB with an ADC of 215 feet. The Freedom could require special conditions and likely tug assistance to turn around in the Three-Mile Creek Turning Basin. The Harbormaster for the ASPA stated that the ships that have a length of approximately 950 feet (similar to the Freedom) could likely turn in the Three-Mile Creek Turning Basin. He noted that container ships, 965 feet long, turned two to three times a week in the Three-Mile Creek Turning Basin prior to completion of the Pinto Island Turning Basin (**Appendix A**, Terry Gilbreath, Harbormaster, email to N.D. "Skeeter" McClure, Volkert, Inc., March

3, 2011).

As shown on **Figure 3**, the clearance for the Elation at the edge of the channel (greatest restriction) would be 38 feet with a 215-foot ADC. The clearance for the Freedom would be 8 feet. Because of the four percent grade of the proposed I-10 MRB, the maximum ADC at the center of the navigation channel would be 220 feet, providing a greater clearance for ships traveling near the center of the navigation channel (**Figure 3**). If the Freedom navigated in the middle third of the 600-foot navigation channel, it would have a clearance of approximately 13 feet.

The minimum clearance for the current cruise ship, Elation, would be 13 feet with a 190-foot ADC. Cruise ships with larger air drafts, such as the Freedom which has a 207-foot air draft, could not pass under a bridge with a 190-foot ADC, even under ideal conditions.

Incremental ADCs between 190 feet and 215 feet would not allow sufficient clearance for larger cruise ships to call on the Alabama Cruise Terminal. For example, the clearance for a cruise ship such as the Freedom at the edge of the channel for a bridge with an ADC of 210 feet would be only 3 feet ($210' - 207' = 3$). However, an ADC of 215 feet would provide a clearance of 8 feet ($215' - 207' = 8$), which is greater than the clearance the Fascination currently has under the Dames Point Bridge.

Measures to monitor air gaps and assist in safe passage of vessels under obstructions have been developed and implemented and could be installed on the proposed I-10 MRB should they be deemed necessary. The National Oceanic and Atmospheric Administration (NOAA) PORTS has installed air gap sensors on bridges to assist vessel masters in knowing the clearance between the water surface and the bridge. These sensors have been placed on various bridges through the U.S. (including the Dames Point Bridge in Jacksonville, Florida; the Bayonne Bridge and the Verrazzano Narrows Bridge in New York; the Crescent City Connection and the Huey P. Long Bridge in New

Orleans; and the Gerald Desmond Bridge in Long Beach, California) to monitor air gaps in conjunction with tide levels and currents. These sensors assist bar pilots and vessel operators in navigating under vertical obstructions (NOAA, 2011).

4.1.2 Cruise Ship Fleets

The Mobile Area Chamber of Commerce has noted the necessity to provide an air draft clearance of 215 feet to accommodate cruise ships that would have up to 207-foot air drafts. In their April 3, 2012 letter, the Mobile Area Chamber of Commerce stated that, prior to the economic decline resulting in CCL's repositioning their ships to a different market, the cruise line indicated that they had plans to bring a Conquest-class cruise ship (with a 207-foot air draft) to the Alabama Cruise Terminal. By letter dated April 3, 2012, the Mobile Area Chamber of Commerce states, "Our option to handle those ships goes away, along with most of our chances to participate in the cruise industry, if we do not have the minimum height of 215 feet" (**Appendix A**). Based on past market experiences in the cruise industry and trends in cruise ship designs and sizes, it is reasonable and prudent to anticipate that the types of ships that will call on the Port of Mobile in the future would be comparable in size and class to the Conquest class.

The types and sizes of cruise ships currently in service that could be reasonably expected to call on the Port of Mobile have air drafts ranging from approximately 150 feet to 210 feet (**Table 1**). Discussions between the Mobile Area Chamber of Commerce and cruise lines indicate that a bridge with a 215-foot air draft clearance would be a "safe and approved clearance" to allow the operation of cruise ships (**Appendix A**, MACC letter to ALDOT, March 20, 2012).

Table 1: Cruise Ships that could call on the Alabama Cruise Terminal

Cruise Line	Class	Vessel	Year in Service	Length (feet)	Air Draft (feet)	Passengers	Crew
CCL	Conquest	Conquest	2002	953	207	2,974	1,150
CCL	Conquest	Freedom	2006	952	207	2,974	1,150
CCL	Conquest	Glory	2003	953	207	2,974	1,150
CCL	Conquest	Liberty	2005	952	207	2,974	1,160
CCL	Conquest	Valor	2004	953	207	2,974	1,180
CCL	Destiny	Destiny	1996	892	208	2,642	1,040
CCL	Destiny	Triumph	1999	893	208	2,758	1,100
CCL	Destiny	Victory	2000	893	208	2,758	1,100
CCL	Fantasy	Ecstasy	1991	855	177	2,052	920
CCL	Fantasy	Elation	1998	855	177	2,052	920
CCL	Fantasy	Fantasy	1990	855	177	2,052	920
CCL	Fantasy	Fascination	1994	855	177	2,052	920
CCL	Fantasy	Imagination	1995	855	177	2,052	920
CCL	Fantasy	Inspiration	1996	855	177	2,052	920
CCL	Fantasy	Paradise	1998	855	177	2,052	920
CCL	Fantasy	Sensation	1993	855	177	2,052	920
CCL	Holiday	Celebration	1987	733	161	1,486	670
CCL	Holiday	Holiday	1985	728	157	1,452	660
CCL	Spirit	Legend	2002	963	172	2,124	930
CCL	Spirit	Miracle	2004	963	172	2,124	934
CCL	Spirit	Pride	2001	963	172	2,124	930
CCL	Spirit	Spirit	2001	960	172	2,124	930
NCL		Norwegian Crown	1988	616	134	1,052	461
NCL		Norwegian Dawn	2002	965	171	2,244	1,100
NCL		Norwegian Dream	1993	754	150	2,100	700
NCL		Norwegian Jewel	2005	965	171	2,376	1,154
NCL		Norwegian Majesty	1992	679	147	1,462	570
NCL		Norwegian Pearl	2006	965	171	2,466	1,010
NCL		Norwegian Spirit	1998	880	189	1,996	965
NCL		Norwegian Star	2001	965	171	2,244	1,100
NCL		Norwegian Sun	2001	848	180	2,002	950
NCL		Norwegian Wind	1993	754	150	1,730	700
RCL	Mega	Majesty of the Seas	1992	880	173	2,356	812

Cruise Line	Class	Vessel	Year in Service	Length (feet)	Air Draft (feet)	Passengers	Crew
RCL	Mega	Monarch of the Seas	1991	880	173	2,390	858
RCL	Mega	Sovereign of the Seas	1988	880	173	2,292	840
RCL	Radiance	Brilliance of the Seas	2001	963	174	2,110	859
RCL	Radiance	Jewel of the Seas	2004	963	174	2,110	859
RCL	Radiance	Radiance of the Seas	2001	963	174	2,112	857
RCL	Radiance	Serenade of the Seas	2003	963	174	2,110	891
RCL	Vision	Enchantment of the Seas	1997	917	164	1,950	760
RCL	Vision	Grandeur of the Seas	1996	917	164	1,950	760
RCL	Vision	Legend of the Seas	1995	867	164	1,804	726
RCL	Vision	Rhapsody of the Seas	1997	915	171	1,998	765
RCL	Vision	Splendour of the Seas	1996	867	164	1,804	720
RCL	Vision	Vision of the Seas	1998	915	171	2,000	742
RCL	Voyager	Adventure of the Seas	2001	1,020	208	3,114	1,185
RCL	Voyager	Explorer of the Seas	2000	1,021	208	3,114	1,185
RCL	Voyager	Mariner of the Seas	2003	1,021	208	3,114	1,185
RCL	Voyager	Navigator of the Seas	2002	1,021	208	3,114	1,185
RCL	Voyager	Voyager of the Seas	1999	1,021	208	3,114	1,176
RCL		Empress of the Seas	1990	692	152	1,602	668
RCL		Freedom of the Seas	2006	1,112	210	3,600	1,360

CCL = Carnival Cruise Line; RCL = Royal Caribbean Cruise Line; NCL = Norwegian Cruise Line

Source: Martin, 2010

As shown in **Table 1**, a bridge with a 215-foot ADC could accommodate nearly all of the cruise ships likely to call on Mobile. It is noted that those ships that are greater than 1,000 feet in length may require special measures to turn (such as backing down the Mobile River to the Pinto Island Turning Basin), but the ships would not be precluded from passing under the proposed I-10 MRB based on ADC.

4.1.3 Economic Benefits of Cruise Industry

There are numerous benefits for increasing the ADC from 190 feet to 215 feet, including safety, fewer constraints on future utilization of the navigation channel, and potential economic benefits to the region. According to the City of Mobile, cruise service from Mobile attracted an average of approximately 182,000 passengers per year. Passenger and crew spending contributed nearly \$13 million to the local economy and nearly \$142 million throughout the state of Alabama in 2010 (**Appendix A**, City of Mobile letter to ALDOT, March 23, 2012). These economic impacts clearly demonstrate the need for the Port of Mobile to remain competitive in the cruise industry, as well as the City's need to pay off the debt incurred in constructing the Alabama Cruise Terminal.

An analysis was conducted to determine the potential monetary benefits associated with an ADC that could accommodate a larger cruise ship, such as the Freedom from the Conquest class compared to a Fantasy-class ship such as the Elation, which called on Mobile until October 2011.

Table 2 shows the increase in potential economic benefits for the Freedom compared to the Elation. Available draft, an ADC of 215 feet, and existing turning basin dimensions would accommodate the Freedom, if a business decision were made to use this size ship. The projected increase in potential benefits could not be realized if a bridge with an ADC of 190 feet were constructed.

Table 2: Increase in Economic Benefits between a Fantasy Class (FC) and Conquest Class (QC) Cruise Ship in Mobile

Ship	Passengers	Crew	Total Jobs	Economic Impact Category			
				(\$ million per year)			
				Total Income and Consumption	State/Local Taxes	Local Purchases	Value to Regional Economy
Elation (FC)	2,052	920	607	24.1	2.3	6.4	32.9
Freedom (QC)	2,974	1,150	778	29.6	2.9	8.4	40.9
Increase	922	230	171	5.5	0.6	2.0	8.0

Source: Martin, 2010 and 2011

The \$8.0 million for potential value to the regional economy represents the annual net benefits for being able to accommodate the larger cruise ship. The benefits are the same for all four Build Alternatives. While an ADC of 190 feet or 210 feet could accommodate a number of ships, including some cruise ships, these ADCs are not preferred. Constructing a bridge with an ADC that would not accommodate a Conquest-class or similar size ship would prevent the local, state, and regional economy from realizing the potential economic benefits quantified in **Table 2**.

4.2 Effects of ADC on Container Ships/Marine Cargo Activity

A secondary consideration in determining an appropriate ADC is the ability to accommodate container and cargo ships that currently call on the Port of Mobile and those that are projected to call on the Port of Mobile.

The Port of Mobile is also home to public and private marine cargo terminals located along the Mobile River. The ASPA’s public terminals include 27 general cargo and container berths that handled 2.8 million tons of forest products, steel, frozen poultry, and other cargo in 2009. The ASPA also operates a bulk material handling plant that handled 0.7 million tons of coal and iron ore in 2009 and McDuffie Terminals which handled 16.1 million tons of coal in 2009. A total of 766 vessels called on the Port of Mobile in 2009. Private terminals along the Mobile River include the Alabama Bulk Terminal, Gulf Coast Asphalt, Plains Oil Terminal,

Mobile Marine Terminal, Mobile River Terminal, Shell Chemical, Trigeant, and Vulcan Materials, among others. These private terminals handle bulk products, such as ore, coke, and petroleum. A total of 669 vessels called on private terminals in 2011 (**Appendix A**, ASPA letter to ALDOT, April 18, 2012).

According to information provided by Captain Terry Gilbreath, Harbormaster, a total of 1,443 vessels called on the Port of Mobile in 2011 (ASPA, 2012b). As shown in **Table 3**, the Port of Mobile has seen a steady increase in vessel usage since 2009 (when a global decrease in shipping occurred).

Table 3: Vessels Calling on the Port of Mobile

Year	Total Vessels in Port
2011	1,443
2010	1,368
2009	1,351
2008	1,571
2007	1,368

Source: ASPA, 2012b (Appendix A)

An expansion of the Panama Canal (PC) is currently underway that will allow larger ships to transit the PC. The expansion is scheduled to be complete in 2015. Container ships are being designed to take advantage of the PC expansion. A February 2012 publication prepared by the National Association of Development Organizations with support from the Federal Highway Administration, entitled, “Freight Transportation and Economic Development: Planning for the Panama Canal Expansion,” emphasizes the need for ports to be prepared for the potential of larger vessels (NADO, 2012).

An article from the January 2010 Alabama Seaport outlines the ASPA’s strategy to capitalize on the expansion. Jimmy Lyons, Director and CEO of the ASPA, stated, “We have been laying the groundwork to take advantage of the Panama Canal expansion for quite some time. We opened the Mobile Container Terminal and secured funding for a new turning basin with our eyes to the south and the Far East. The Port of

Mobile is strategically positioned to be a key player in trade through the canal” (Alabama Seaport, 2010).

The article includes the dimensions of the Post-Panamax container vessels. The Mobile Harbor Navigation Channel and turning basin near the Mobile Container Terminal (renamed APM Terminal Mobile) currently have a depth of 45 feet and could be deepened to their authorized depth of 55 feet. Economic and environmental studies would be required to justify any increase of the depth of the navigation channel beyond 45 feet. The PC expansion would allow vessels to have a 50-foot draft. For various reasons, ships do not always load to take advantage of this maximum draft capacity (USACE, 2012). For example, container ships could light load to accommodate the existing 45-foot channel in the Mobile Harbor.

It should be noted that while the ASPA expects vessels from the PC to call on the Port of Mobile, vessels from other parts of the world that are not restricted to the 201-foot ADC of the PC may also choose to call on the Port of Mobile. Therefore, it is important to consider the potential heights of vessels that may originate from other parts of the world in the determination of an appropriate ADC for the proposed I-10 MRB.

In February 2011, Maersk Line signed a contract with a Korean shipbuilding firm for ten 18,000 twenty-foot equivalent unit (TEU) container ships. These ships will be 1,312 feet long with a KTMH of 239.5 feet and an ADC of approximately 189.5 feet (assuming a 50-foot draft). While these very large ships are not expected to call on the Port of Mobile, they illustrate the overall trend for larger container ships. In addition, as larger container ships come into the fleet, there is a cascading effect. Smaller ships that are replaced by larger, newer ships are assigned to smaller ports, such as Mobile. Cascading typically increases average vessel size for each trade service (USACE, 2012).

The U.S. Army Corps of Engineers (USACE), New York District, conducted an Air Draft

Analysis on the existing Bayonne Bridge (ADABB) for the Port Authority of New York and New Jersey (PANYNJ) (USACE, 2009). The ADABB and its results are used in this analysis to provide background information on issues involved and assisted in formulating an approach to identify an appropriate ADC for a proposed new bridge over a navigation channel that does not currently have ADC constraints. The USACE utilized the Emma Maersk, with a TEU capacity of 12,508, for the ADABB for the PANYNJ. This container ship has a length of 1,306 feet and a KTMH of 251 feet. The ADC for this ship, assuming a 50-foot draft, would be 201 feet. The ADC of the proposed jacked-up or new replacement for the Bayonne Bridge is 215 feet, providing a clearance of 14 feet from the top of the ship to the vertical height of the bridge. This ship is used as a surrogate for this analysis to demonstrate ADC requirements associated with larger container ships. It is recognized that while this ship would not be able to turn in the turning basins in the Mobile Harbor at this time, other container ships that may choose to call on the Port of Mobile in the future could have similar height and draft dimensions and shorter lengths than the Emma Maersk. **Figure 4** shows the Emma Maersk under an I-10 MRB with an ADC of 215 feet.

A new larger turning basin (Pinto Island Turning Basin) was recently constructed at approximately Mile 2 across from the Mobile Container Terminal (APM Terminal Mobile) (see **Figure 2**). The Pinto Island Turning Basin measures 1,175 feet by 715 feet. The new turning basin can turn ships up to 1,100 feet long. This turning basin currently has a navigation depth of 45 feet. It is authorized to be deepened to 55 feet, if needed and justified should ships with larger drafts begin to call on the Port of Mobile. Energy efficiency, fuel consumption, and emission reductions are drivers toward larger ships. Navigation features will tend to be improved and expanded to accommodate larger vessels as they become available if economically justified. For example, the ASPA and the USACE are currently evaluating modifications to the Pinto Island Turning Basin to increase the length of ships that can be turned and to improve the ability to turn larger ships efficiently.

By resolution dated June 24, 2008, the Alabama State Port Authority (ASPA), advocated the following regarding ADC for the I-10 MRB: “In the event a new bridge is to be constructed over the Mobile River, then the new bridge should have a vertical clearance of at least 215 feet, but no less than 195 feet.” A 215-foot ADC would accommodate container ships expected to call on the Port of Mobile while also allowing high air draft cruise ships to pass underneath the bridge. By letter dated January 11, 2012, Mr. Jimmy Lyons confirmed that the position of ASPA has not changed (**Appendix A**).

Additional coordination with the ASPA specifically addressing the ADC issues and turning basin dimensions provides insight on the ASPA’s views on the ADC. In an e-mail dated March 3, 2011, Captain Terry Gilbreath, Harbormaster, stated: “As for the air draft, the ASPA will support the higher the better. It may be a hundred years before another bridge is built crossing the Mobile River and we have no idea what vertical clearance needs will be at that point, but we would support the proposed vertical clearance of 215 feet” (**Appendix A**, ASPA email , March 3, 2011).

In a letter dated April 18, 2012, Captain Gilbreath provided additional background information on his experience with ports and navigation features, as well as explaining his role as Harbormaster for the Port of Mobile. In closing, he reaffirmed that, in the future, many ships will require a vertical clearance of at least 215 feet (**Appendix A**).

4.3 Government Vessel Activity

The U.S. Navy and the USCG were contacted for their views regarding potential impacts of bridge heights on government vessels that might call on the Port of Mobile. Each agency indicated that the vessels that would potentially call on Mobile for repair or port-of-call activities would not be impacted by the proposed ADC (Martin, 2012).

In addition, the Navy was contacted to determine if there were restrictions for placement of a bridge near a shipbuilding company constructing Navy vessels. Austal

USA began operations on the east bank of the Mobile River in 1999, and its operations have expanded considerably in the last decade. Austal now occupies three specific parcels of land involved in the fabrication, assembly, and final outfitting of high speed aluminum vessels for the U.S. Navy: a 115-acre site, 300 feet off-river, encompassing the Module Manufacturing Facility; a 15-acre site on the Mobile River encompassing the Assembly Bay Yard; and a 35-acre site along the Mobile River to the south encompassing the new Outfitting Yard. Austal's business plan projects that its employment will increase from 1,800 to over 4,000 personnel between 2010 and 2014 (Martin, 2012).

In 2008, the Navy awarded Austal a contract to build 10 Joint High Speed Vessels. The Navy Long Range Shipbuilding Plan is to build 41 of these vessels over the 30-year span of the Plan. In 2010, the Navy awarded Austal a contract to build 10 Littoral Combat Ships. The Navy Long Range Plan is to build 55 of these vessels. These programs establish a long-term steady prospect to provide vessels to the Navy on a continuing basis. The Navy has stated there currently are no Federal Regulations that would prevent a shipyard located under or in proximity to a bridge from bidding on or being awarded a Navy contract (Martin, 2012). The Littoral Combat Ships being constructed by Austal are approximately 417 feet long, with a 111-foot air draft clearance, and a 14.7-foot draft (Austal, 2012). The proposed 215-foot ADC of the proposed I-10 MRB would not affect the passage of Littoral Combat Ships from Austal's facilities to the Gulf of Mexico and is not expected to restrict vessels currently under contract or those expected to be constructed by Austal.

5.0 COMPARISON OF ADC CONSTRAINTS FOR OTHER PORTS

The Port of Mobile competes with and will continue to compete with the Ports of New Orleans, Savannah, Charleston, and Tampa, which currently have bridges and ADC constraints. The Port of Mobile also competes with ports that do not have ADC constraints, such as Gulfport and Houston. **Table 4** shows height obstructions to port facilities by bridges at various large ports handling container and cargo ships. In

addition, the ports of New Orleans, Jacksonville, and Tampa accommodate cruise ships. Knowing the height restrictions that exist at other ports with which the Port of Mobile competes, as well as those with which it does not currently compete, assists in the determination of an appropriate ADC to keep the Port of Mobile competitive and economically vital by accommodating as many vessels as possible while providing safe and efficient movement of people and goods via I-10. The fact that ports in Long Beach and New York/New Jersey are willing to expend substantial amounts of money to raise existing bridges to accommodate larger ships indicates that ports recognize the need to remain competitive in the shipping market.

Table 4: Port Facilities with Significant Height Obstructions to Large Ships

Location	Obstruction	Height of Restriction (MHW)
San Francisco/Oakland	Golden Gate Bridge	225 feet
Oakland	Oakland Bay Bridge	220 feet
New York & New Jersey	Verrazano Narrows Bridge	219 feet
Panama Canal	Bridge of the Americas	201 feet
Los Angeles	Vincent Thomas Bridge	185 feet
Savannah	Talmadge Bridge	185 feet
Charleston *	Arthur Ravenel, Jr. Bridge	185 feet
Jacksonville *	Dames Point Bridge (Napoleon Bonaparte Broward Bridge)	175 feet
Tampa *	Sunshine Skyway Bridge	175 feet
New Orleans	Crescent City Connection (most downstream bridge on MS River)	170 feet
Long Beach	Gerald Desmond Bridge	156 feet**
New York & New Jersey	Bayonne Bridge	151 feet***

Source: USACE, 2009

* Southeastern bridges were added to table for comparison purposes.

** Scheduled to be increased to 200 feet

*** Scheduled to be increased to 215 feet

6.0 BENEFIT TO COST ANALYSIS FOR 190' ADC vs. 215' ADC

An ADC of 190 feet was previously proposed for the I-10 MRB prior to the construction of the Alabama Cruise Terminal and the APM Terminal Mobile. As shown on **Figures 5, 6, and 7**, a bridge with an ADC of 190 feet would severely limit the passage of tall ships. An ADC of 190 feet cannot accommodate a CCL Conquest-class cruise ship.

6.1 Preliminary Construction Cost

Table 5 shows a cost comparison between an I-10 MRB with an ADC of 190 feet and an ADC of 215 feet. The maximum increase in bridge cost is 3.6% for a 25-foot increase in ADC.

Table 5: Cost Comparison of I-10 MRB at 190-Foot ADC and 215-Foot ADC

<u>Alternative</u>	<u>190 feet</u> (\$ million)	<u>215 feet</u> (\$ million)	<u>Increase</u> (\$ million)	<u>% Increase</u>
A	640.3	661.4	21.1	3.3
B	646.5	669.6	23.1	3.6
B'	647.9	671.2	23.3	3.6
C	659.0	677.9	18.9	2.9

6.2 Benefit to Cost Ratio (BCR)

For this analysis, the increase in construction cost to increase the ADC from 190 feet to 215 feet for the four alternatives was converted to an average annual cost using a Present Value Worth Equations Formula Analysis Calculator. A project life of 50 years was assumed with an interest rate of 4.125%, the 2011 PL-566 Water Resource Discount Rate prescribed for USACE Benefit to Cost Ratio (BCR) calculations. **Table 6** contains the results of the BCR analysis.

Table 6: Benefit to Cost Ratio (BCR) for a Bridge with an Increase in ADC from 190 Feet to 215 Feet

Alternative	Incremental Construction Cost (\$M)	Average Annual Cost (\$M)	Average Annual Benefits (\$M)¹	BCR	Net Benefits (\$M)²
A	21.1	1.00	8.0	8.0	7.0
B	23.1	1.10	8.0	7.3	6.9
B'	23.3	1.11	8.0	7.2	6.9
C	18.9	0.90	8.0	8.9	7.1

¹ See **Table 2**

² Average Annual Benefits minus Average Annual Cost

A BCR ranging from 7.2 to 8.9 demonstrates a strong positive economic incentive for an ADC of 215 feet. The potential net benefit (\$6.9 to \$7.1 million per year) also supports the higher ADC from a regional economic viewpoint.

The BCR calculated above only considers the potential benefits associated with a larger cruise ship. Other economic benefits will likely accrue due to the 215-foot ADC that would further increase the positive economic impacts to the region.

7.0 ADDITIONAL COORDINATION RELATED TO ADC

Coordination with the USCG has been ongoing throughout the development of the proposed project. The USCG has not provided any indication that they would object to the 215-foot ADC. The USCG has indicated that the proposed bridge should not have a vertical clearance less than that of the Cochrane-Africatown Bridge, which has an ADC of 140 feet. The USCG was provided two packages of information on the proposed bridge on June 24, 2003 and May 22, 2008. In addition, USCG participated in Public Involvement and Agency coordination meetings that presented the proposed I-10 Mobile River Bridge with an ADC of 215 feet, as follows:

Meeting	Date
Public Involvement Meeting	September 2, 2010
Agency Coordination Meeting	February 2, 2012
Section 106 Consulting Parties Meeting	July 26, 2012

Additional coordination was conducted regarding bridge safety clearances required by USCG in November 30, 2012.

The Federal Aviation Administration (FAA) was invited by the FHWA to serve as a Cooperating Agency on the development of the EIS for the proposed project. The FAA declined the invitation to serve as a Cooperating Agency and indicated that permits would be required for the proposed bridge related to lighting requirements for the tops of the bridge pylons. The RSA Tower, with height of 745 feet, is located in close proximity to the proposed bridge. The top of the proposed bridge pylons would be approximately 515 feet high and would not be located within flight paths.

8.0 SUMMARY AND CONCLUSIONS

At present, the Mobile Harbor Navigation Channel has no vertical restrictions downstream of the Cochrane-Africatown Bridge. The proposed I-10 MRB represents a

decision with long-term implications. Two ADCs, 190 feet and 215 feet were evaluated. The difference in cost is approximately 3.6 percent. The ADC of a bridge becomes a constraint that can limit the passage of vessels and suppress economic efficiency and growth of maritime enterprises as well as compromising economic viability and the economic vitality of these enterprises. The ADC can also present safety considerations that can be exacerbated during adverse conditions. Adequate protection of vessels, passengers/crews, and the bridge from possible collisions, damage, and threats to human lives represents an important consideration.

An ADC of 190 feet would create serious restrictions and safety concerns for tall ships, particularly cruise ships with air drafts ranging up to 210 feet, which are being actively pursued by the City of Mobile and are expected to return to Mobile. An ADC of 215 feet would accommodate a cruise ship of the CCL Conquest class (2,974 passengers) (or similar size ship) with a clearance of 8 feet. An ADC of 190 feet would not accommodate larger cruise ships or container ships. A BCR analysis for increasing the ADC from 190 feet to 215 feet for cruise ships demonstrated potential BCR from 7.2 to 8.9 and net benefits from \$6.9 to \$7.1 million per year, depending upon the alternative. Potential economic benefits resulting from larger cruise ships being able to call on the Alabama Cruise Terminal would be lost if the ADC was 190 feet.

As demonstrated by projects occurring at the PANYNJ and the Port of Long Beach, ship sizes are increasing, and existing bridges that restrict navigation are being replaced or modified, at high costs, to achieve greater ADCs. The Bayonne Bridge will be raised from an ADC of 151 feet to 215 feet for an estimated cost of \$1.5 billion at the PANYNJ, and the ADC of the Gerald Desmond Bridge will be increased from 156 feet to 200 feet for an estimated cost of \$800 million at the Port of Long Beach. The need to raise the proposed I-10 MRB in the future to accommodate larger ships can be avoided by providing an adequate ADC when it is initially constructed.

Based upon the potential to preclude future navigation options for taller cruise ships

and other marine vessels, safety considerations, a relatively small investment cost, and a high BCR, an ADC of 215 feet is justified for the I-10 MRB. An ADC of 215 feet would allow the Port of Mobile to remain competitive in the cruise industry and container cargo shipping with other ports that are unobstructed, such as Gulfport and Houston, as well as those that are currently obstructed, such as New Orleans, Savannah, Charleston, Jacksonville, and Tampa.

Based upon this analysis and coordination with the ASPA, City of Mobile, Mobile Area Chamber of Commerce, and other maritime interests, it has been demonstrated that an ADC of 215 feet is ideal to maintain and promote the economic viability of the maritime industries, especially the cruise industry, now utilizing the Mobile Harbor Navigation Channel. An ADC of 215' also eliminates impediments to future growth and expansion of these maritime industries.

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FIGURES

I-10 MOBILE RIVER BRIDGE DESCRIPTION OF BRIDGE, SHIP, AND NAVIGATION FEATURES FOR AIR DRAFT CLEARANCE 215 FEET

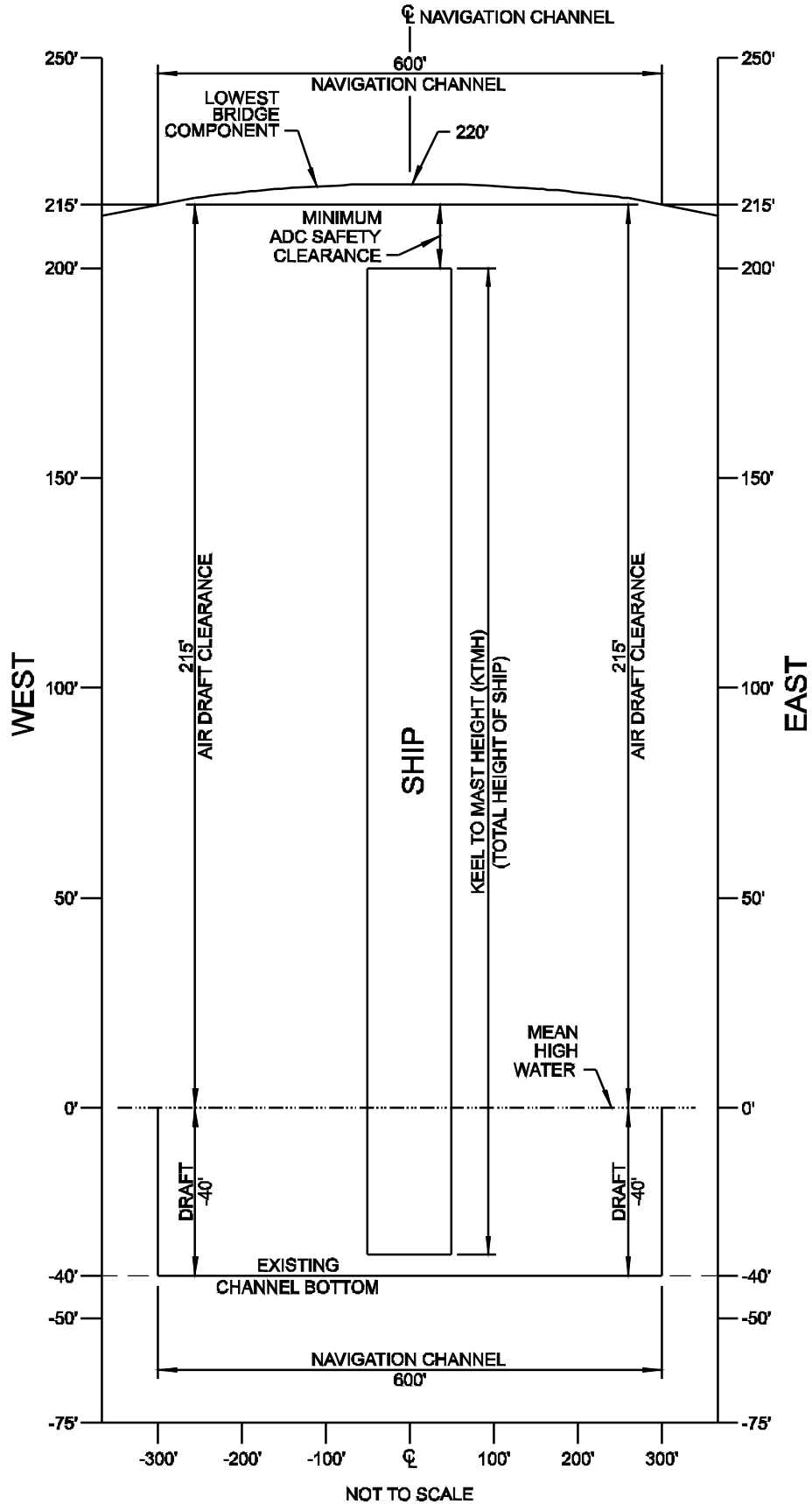


FIGURE 1



Note: This map is for presentation use only and not to be used for construction purposes.



Legend	
— Alternate A	— Alternate C
— Alternate B	— Alternative B Prime

I-10 Mobile River Bridge Alternatives and Mobile Harbor Navigation Features
Figure 2

I-10 MOBILE RIVER BRIDGE 215 FEET AIR DRAFT CLEARANCE FOR TWO CARNIVAL CRUISELINE SHIPS

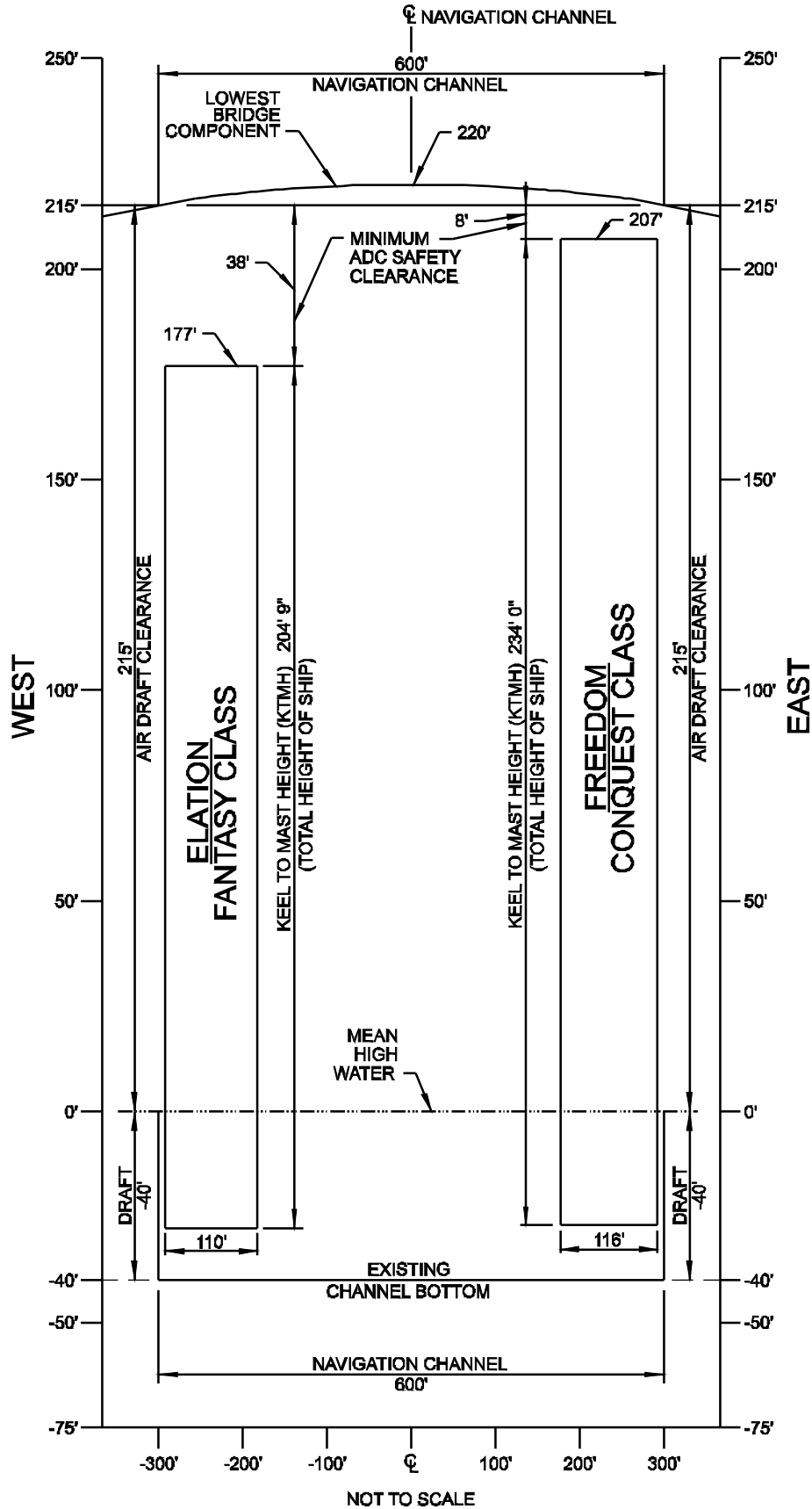


FIGURE 3

**I-10 MOBILE RIVER BRIDGE
215 FEET AIR DRAFT CLEARANCE FOR
12,508 TEU CONTAINER SHIP EMMA MAERSK**

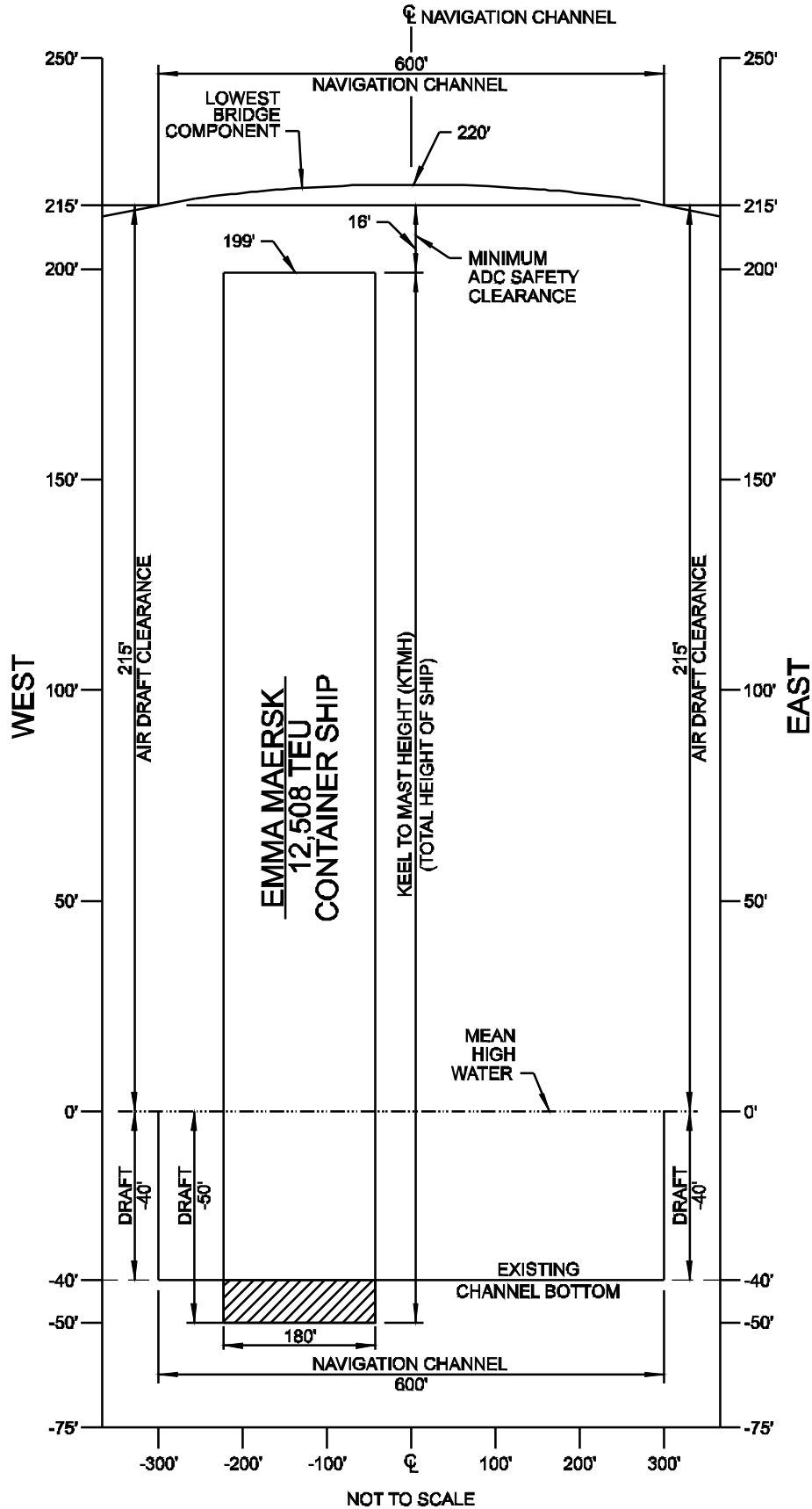


FIGURE 4

**I-10 MOBILE RIVER BRIDGE
DESCRIPTION OF BRIDGE, SHIP, AND NAVIGATION FEATURES
FOR AIR DRAFT CLEARANCE 190 FEET**

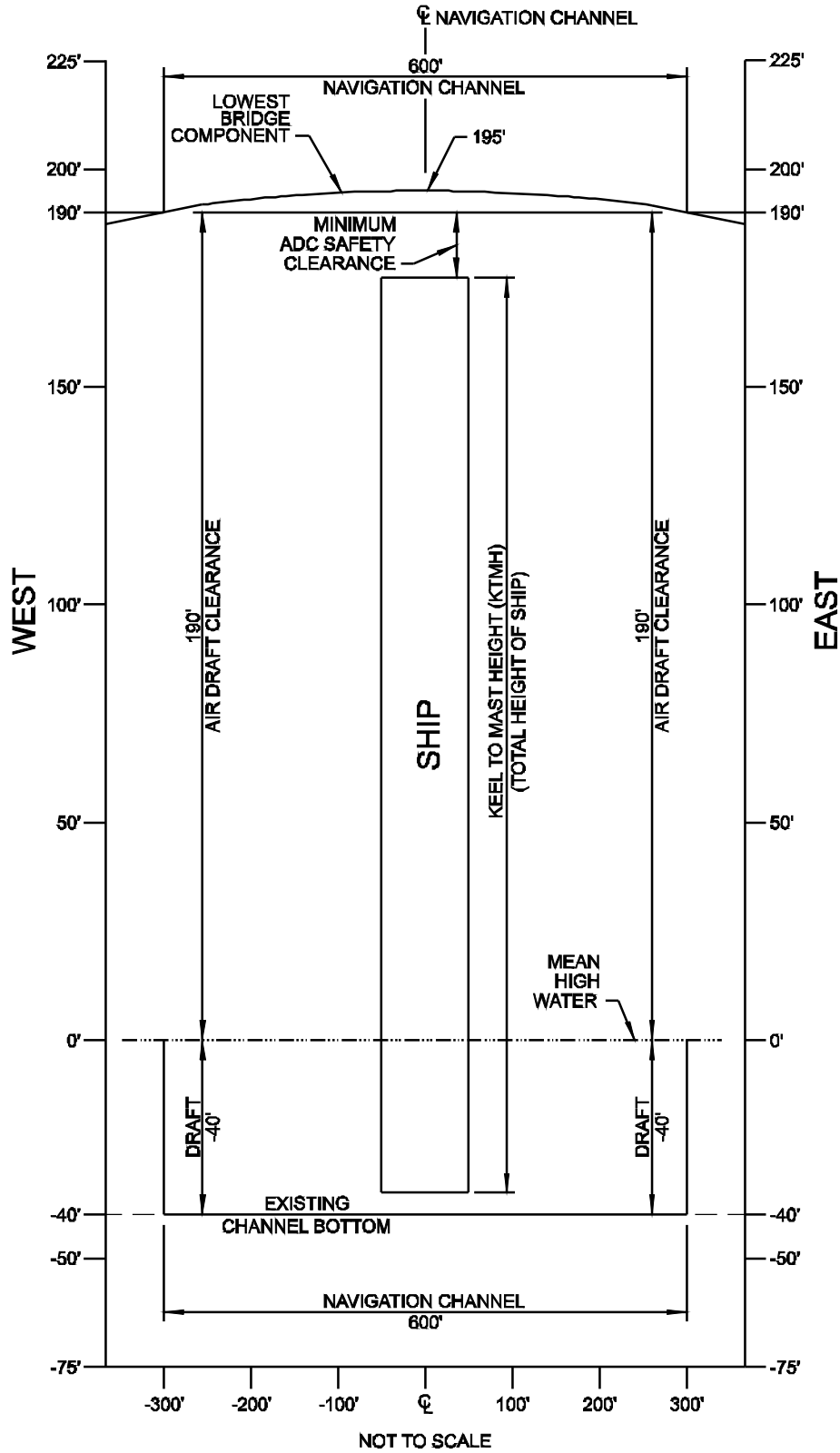


FIGURE 5

I-10 MOBILE RIVER BRIDGE
 190 FEET AIR DRAFT CLEARANCE FOR
 TWO CARNIVAL CRUISELINE SHIPS

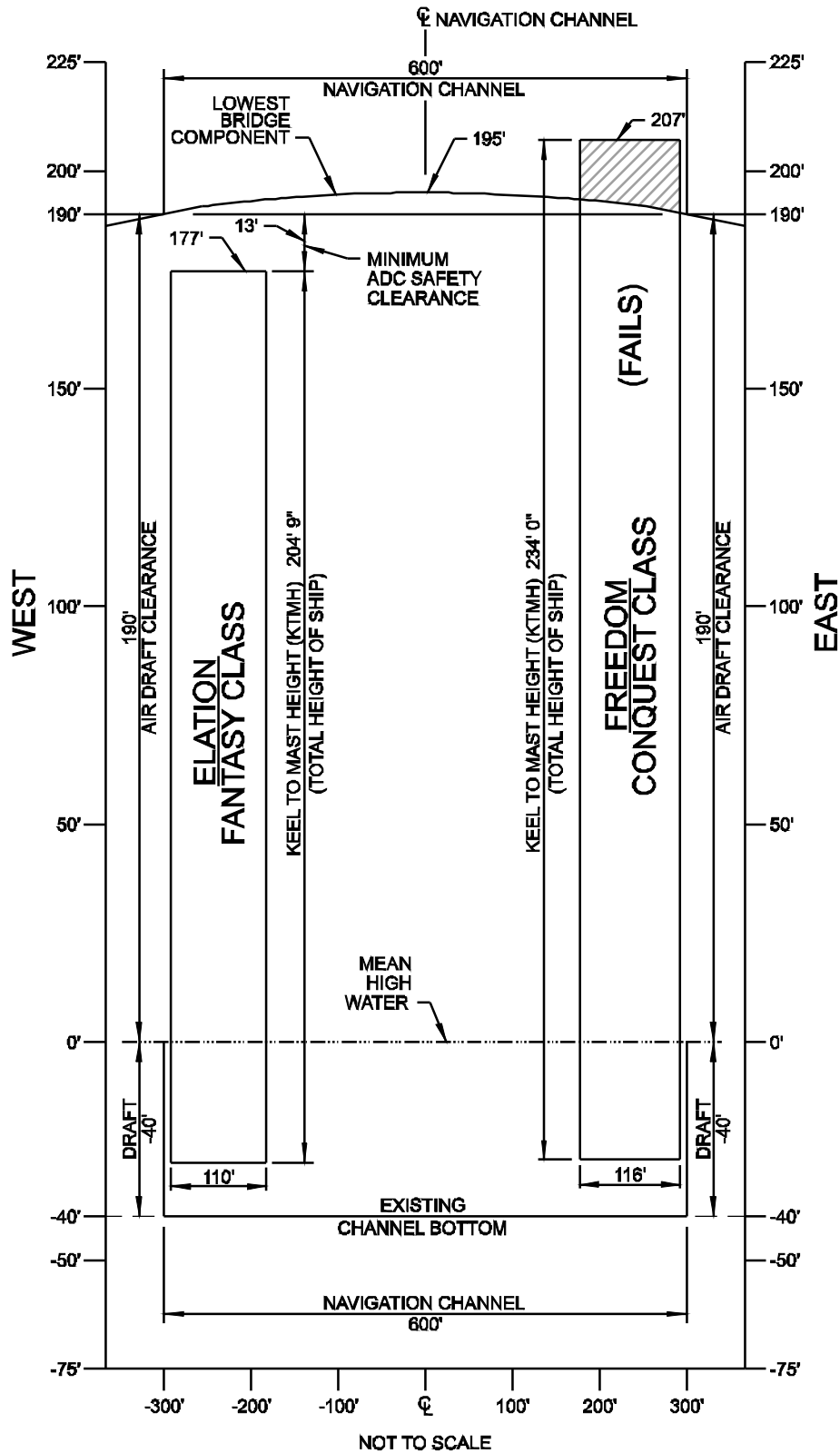


FIGURE 6

I-10 MOBILE RIVER BRIDGE
 190 FEET AIR DRAFT CLEARANCE FOR
 12,508 TEU CONTAINER SHIP EMMA MAERSK

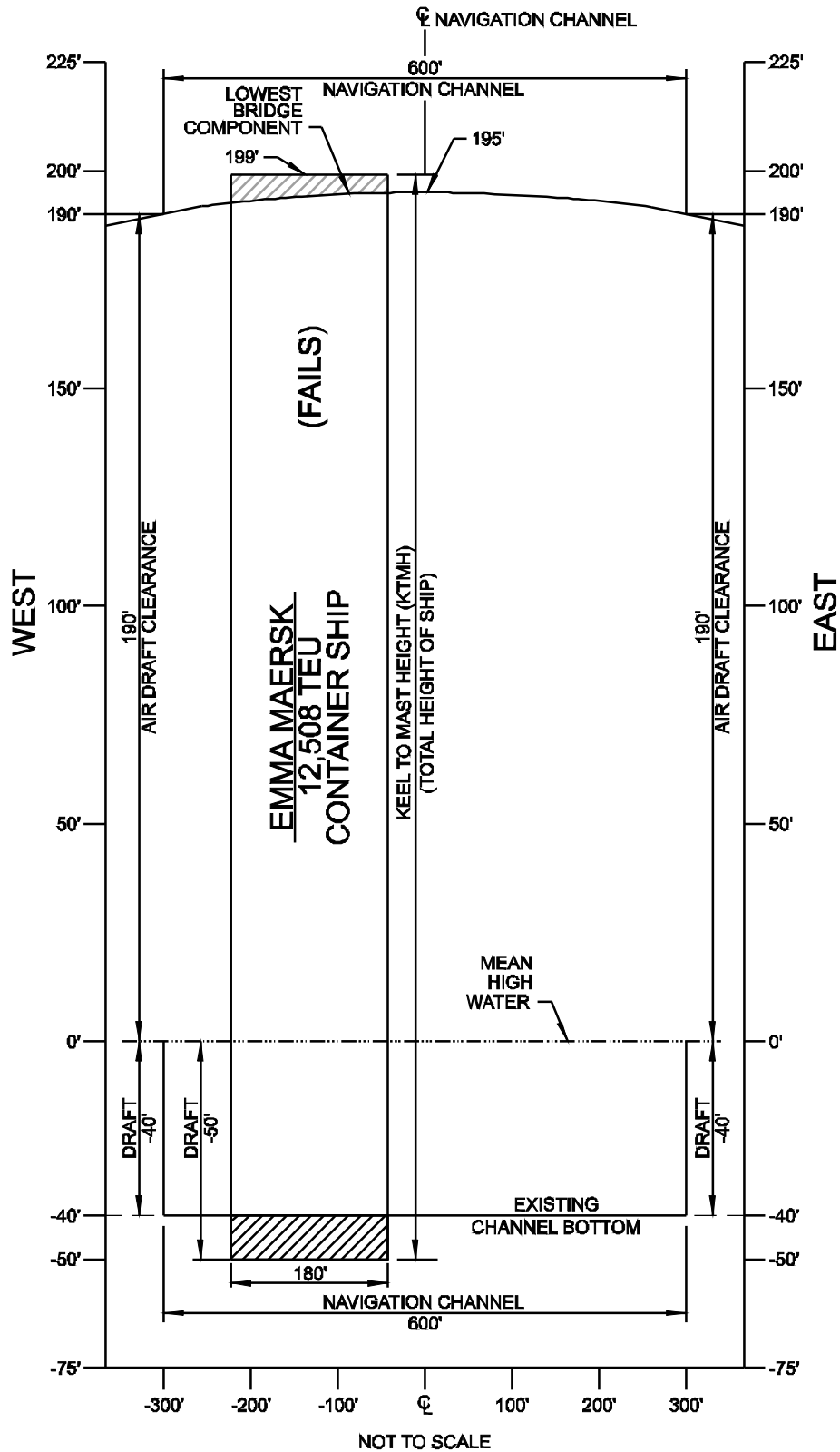


FIGURE 7

APPENDIX A CORRESPONDENCE

Skeeter McClure

From: Terry Gilbreath [tgilbreath@asdd.com]
Sent: Thursday, March 03, 2011 9:06 AM
To: McClure, N. D. (Skeeter)
Cc: Buddy Covington; Missi Shumer; david webber; Kenny Nichols; Smitty Thorne; Jimmy Lyons; Judith Adams; Jerald Kichler; Bob Harris
Subject: RE: Air Draft Clearance (ADC) Evaluation for I-10 Mobile River Bridge(MRB)

Good morning Skeeter,

We presently have the CARNIVAL ELATION using the Port of Mobile on a frequent scheduled basis. The ELATION is 855 feet long, 103 feet wide and carries about 28 feet of draft. She turns most of the time in the River C turning basin which is just off our C pier and if there is congestion or adverse atmospheric conditions, she will turn in the Three Mile Creek turning basin which is just below the Cochran Bridge. The turn at Three Mile Creek turning basin would require that there be no ships at either the Plains Terminal or Vulcan Terminal. Because of the configuration of her azimuthal pod engines and bow thrusters, she does not normally require a tug, but may have one standing by if the atmospheric conditions are adverse. I believe that turning the ship in the new Mobile turning basin would be our last resort as the ship would not want to back up or down the river. The Master of the ship, in consult with the bar pilot onboard, will have the final say, but don't believe that the ship would want to back up or down the river for a distance of over one nautical mile.

So, to answer your questions:

1. The Conquest Class could turn in the Three Mile Creek turning basin. We bring in 965 foot container ships that presently turn near Mobile Container Terminal but prior to the new turning basin would turn at Three Mile Creek turning basin. This was completed 2 -3 times a week for over a year. The turn in Three Mile Creek turning basin required close coordination with the Plains Terminal (on the west side of the turning basin) and the Vulcan Terminal (on the east side of the turning basin). If a big ship is turning at Three Mile Creek, we cannot have a ship at either of those two terminals. I would have to keep close eye on departure and arrival dates and times at those terminals and coordinate with the pilots to minimize delays to any vessel. We only had a couple of times that there was a conflict and we were able to work out equitable solutions for all involved with minimal delay.
2. It depends on atmospheric conditions and types of engines on the Conquest class, but they may not require a tug at all. If the current is really strong or excess winds, the pilot may order up a couple of tugs as standby.
3. We now turn 965 foot container ships in the new lower turning basin several times per week. I don't believe the pilots (or the Cruise Companies) would be real fond of either backing up the river or backing down the river for a little more than one nautical mile.
4. Same as answer #2, except that if the ship was backing up or down the river, they would more than likely take a couple of extra tug for control.

As for the air draft, the Alabama State Port Authority will support the higher the better. It may be a hundred years before another bridge is built crossing the Mobile River and we have no idea what vertical clearance needs will be at that point, but we would support the proposed vertical clearance of 215 feet.

Let me know if you need any additional assistance.

Best regards,

Terry D. Gilbreath

Harbor Master
Captain, U. S. Coast Guard (Retired)
Alabama State Port Authority
Office: (251) 441-7074
Cell: (251) 510-7399
<http://www.asdd.com/>

From: McClure, N. D. (Skeeter) [mailto:smcclure@volkert.com]
Sent: Wednesday, March 02, 2011 9:32 AM
To: Terry Gilbreath

Cc: Buddy Covington; Missi Shumer; david webber; Kenny Nichols
Subject: Air Draft Clearance (ADC) Evaluation for I-10 Mobile River Bridge(MRB)

Captain Gilbreath:

I spoke with you on 2/23/11 on the above subject. The Carnival Cruise Line currently uses a Fantasy class cruise ship in Mobile. We are evaluating the next larger class cruise ship of Carnival Cruise Lines, the Conquest class, in our ADC evaluation. The dimensions I have are: Length 953 ft, Air Draft 207 ft, Draft 27 ft. I have the following questions for you:

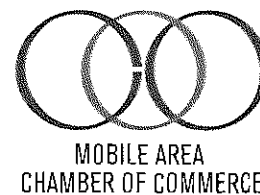
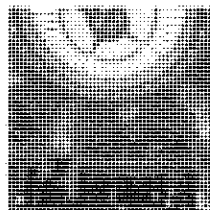
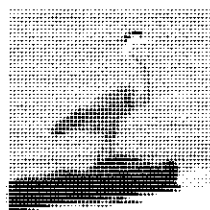
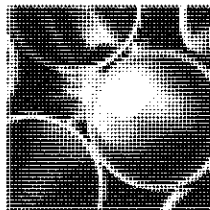
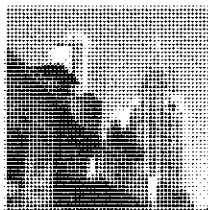
1. Can this size ship turn in the Turning Basin downstream of the Cochrane Bridge?
2. If so, are special accommodations or tug assistance required?
3. Can this size ship turn in the new Turning Basin near Pinto Island and back up to the Cruise terminal?
4. If so, are special accommodations or tug assistance required?

Also, I would appreciate any observations or recommendations you may have regarding an adequate ADC for the I-10 MRB. Please call me at 342-1070 if you want to discuss this matter. Thank you in advance for your consideration and input.

Best Regards! Skeeter

N.D. "Skeeter" McClure, IV, P.E., D.WRE
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March 20, 2012

Mr. Vince E. Calametti PE
Alabama Department of Transportation
1701 N. Beltline Highway
Mobile, AL 36618

Re: I-10 Mobile River Bridge Height

Gentlemen:

The Cruise Industry Task Force continues to work on recruiting one or more cruise lines to Mobile. Carnival Cruise Line sailed out of Mobile as a homeport for more than 7 years, before suspending service this past fall. Since then, representatives of the City of Mobile, The Task Force, and private firms have continued a dialogue that promises opportunities with one or more cruise lines in the future.

The City's commitment to the cruise industry is strongly and continually evidenced by those efforts and the \$32 million cruise terminal that sits ready and able to handle these future customers. That coupled with the successful numbers generated on past services (185,000 passengers per year) gives us great confidence in the future of cruising from Mobile.

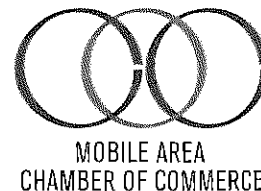
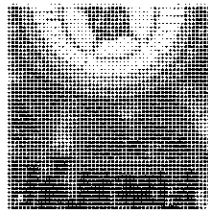
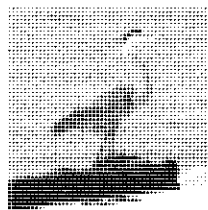
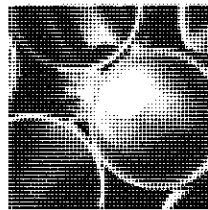
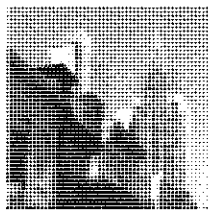
Carnival Cruise line, for example, still remains one of our main targets for a return to Mobile. If that effort is successful, their Conquest class vessels are the most likely long term ships to serve our markets. That class ship carries an air draft of approximately 208 feet. The U.S. Coast Guard has no set figure for clearance above the ship's actual height, only that the safety of the individual situation will rule. They recommend/prefer a 15 foot clearance. That would require up to 223 feet as ideal. Discussions with them have led us to believe that 215 feet (at mean high tide) would be a safe and approved clearance.

Based on the above, we believe that a minimum height of 215 feet is critical to the future of the cruise industry in Mobile. This is an industry that has worked here before, and we are confident, as market conditions evolve, will be here again.

Respectfully,

Michael Lee
Chairman
Cruise Industry Task Force

A-3



April 3rd, 2012

Mr. Vince E. Calametti PE
Alabama Department of Transportation
1701 N. Beltline Highway
Mobile, AL 36618

Re: I-10 Mobile River Bridge Height

Gentlemen:

Further to my letter of March 20th regarding the need for a minimum bridge height of 215 feet, I want to advise you of the efforts going into the recruitment of another cruise line for our city and state.

The Cruise Task Force was originally formed around 2000 to recruit a major cruise line to the Port of Mobile. The task force was and is currently composed of a cross section of organizations and shareholders in the maritime, tourism, economic development industries, and public officials. The group led efforts over several years to introduce our city to the industry, and to explore who might be a good fit for our market. After over 2 years of travels and meetings with the lines in Miami, Atlanta, and Seattle, in 2002 the City was successful in attracting a trial run of eight voyages by Carnival Cruise Lines. Those trials sold out quickly and convinced Carnival to homeport a year round ship in Mobile. That ship's success led eventually to replacement with two newer, larger ships during a run that lasted from 2004 to 2011. Making this possible was the City's investment of approximately \$30 million in a state of the art cruise terminal on the Mobile River (not including the approximate additional \$15 million spent on the dock area supporting the terminal).

Market conditions in Mexico, coupled with the extremely high price of fuel, caused Carnival to move our ship into a different market, sailing from Port Canaveral to the Bahamas and nearby islands. Currently, those markets are commanding a higher ticket price and require about half of the fuel consumption of the Mobile Mexico runs.

Carnival was quick to advise us that, even under these conditions, they had continued to make money in Mobile, attracting over 185,000 passengers per year. Their decision was a purely business one, in that the return was better in the other market, and that they had no competition at this time in Mobile. They believe that their passengers will simply move to New Orleans on their other ships, given no option.

These factors make us optimistic that the market will return to Mobile. Other lines have seen Carnival's success, and the number of passengers that chose to cruise from Mobile. And, by their own admission, the vessel was profitable in Mobile. The Cruise Task Force is actively pursuing all of the other major cruise lines that currently work out of the Gulf. We are also talking to several who have an interest to establish new services in the Gulf region. Some of the major players are well known, Royal Caribbean, Norwegian Caribbean, Princess, and MSC for example. All compete directly with Carnival, and have watched Mobile closely during the time Carnival operated here. Some have expressed strong interest and negotiations continue. Carnival is also another possibility, returning to Mobile rather than leaving it to its competitors.

A-4

Much is no doubt driven by market conditions as discussed above. But these are ever changing, particularly the fuel cost factor. With our city's large investment in infrastructure, the world class facility that represents, and our past history of success, we are confident that cruise ships will return to Mobile. Mobile was voted the "New Port of the Year" by the cruise industry leading publication, *Porthole Magazine*. The Mobile vessels were consistently rated 1st or 2nd in the Carnival fleet in customer satisfaction, do in no small part to convenient set up of the new Mobile terminal.

In the last few weeks and months, we have continued to meet with these large cruise lines and are very optimistic that, as more ships come into service (buildings have continued even during the downturn giving each line more ships that will need more ports of call). As I have said above, Carnival remains one of our major targets for all the reasons stated. They had already offered us a Conquest class vessel, as the next logical step above Mobile's past ships, before the downturn changed their plans. It is logical and prudent to assume that Mobile's cruise future will involve those vessels (with their 208 foot air draft). Our option to handle those ships goes away, along with most of our chances to participate in the cruise industry, if we do not have the minimum height of 215 feet.

Results may not be immediate. It could be another year or two before ships return to Mobile, if our past experience is any indication. But they will return, and will again be an important and long term part of our regional economy.

Respectfully,

Michael Lee
Chairman
Cruise Industry Task Force



April 18, 2012

Mr. Vince E. Calametti, P.E.
Alabama Department of Transportation
1701 Beltline Highway
Mobile, AL 36618

Dear Mr. Calametti,

As a follow up on a meeting that I had with Mr. Skeeter McClure and Mr. David Webber of Volkert, Inc on April 6, 2012, I am sending you this letter with additional information regarding the role of the Harbormaster in the Port of Mobile and information regarding number of vessels arriving at the Alabama State Port Authority for the last few years.

I was hired as the new Harbormaster for the Port of Mobile in August 2008 where I overlapped with the previous Harbormaster until January 2009 where I took over the position permanently. I had served previously in the U. S. Coast Guard for over 25 years having retired as a Captain. I had previously served a tour in Mobile from 1999 – 2002 as the Executive Officer of the Marine Safety Office and as such was the designated Alternate Federal Captain of the Port. I then served as the Federal Captain of the Port in Louisville, KY from July 2002 – July 2004 and then as Captain of the Port in Morgan City, LA from July 2004 until July 2007. I then served as the Budget and Personnel Director for the Eighth Coast Guard District in New Orleans, LA until my retirement in August 2008.

My role as Harbormaster for the port of Mobile is codified in the Alabama State Code Section 33-3-4

Harbor Master and deputy harbor masters - Appointment; duties.

...It shall be the duty of the Harbor Master with the assistance of his or her deputy harbor masters, subject to the supervision of the Alabama State Port Authority, to perform all the duties and render all the services imposed upon the port authority by this chapter and all similar duties and services pertaining to the harbor and port required by other laws to be done and performed by the port authority, and, subject to such supervision, to enforce all rules and regulations promulgated by the port authority pursuant to its police powers and its powers to maintain a general and special supervision over the harbor and port and all vessels and other watercraft in or about the harbor or port as set forth in this chapter or any other laws pertaining thereto...

Alabama State Port Authority · P. O. Box 1588 · Mobile, AL 36633-1588 · www.asdd.com

I work frequently with the local Coast Guard on issues of Waterways Management, emergency response, casualty investigations, Aids to Navigation and dredging. I am sure that I will be working with the local Coast Guard Waterways Division and the Coast Guard Bridge Administration in New Orleans on this bridge project as we move toward completion. I also work daily with the Mobile Maritime community from shipping agents to pilots to tug boat companies, etc. I expect to be in this job for several years and hope to be able to see the bridge project come to fruition.

One of my duties as Harbormaster is to keep track of all foreign flag vessels entering and exiting the Port of Mobile and we keep very detailed records of the same. Prior to the completion of the new turning basin near Pinto Island, we would have numerous large vessels that were doing cargo operations at McDuffie, the cruise terminal or the shipyard that would have to transit up the Mobile River and turn at the Three Mile Creek turning basin. The biggest ships that we have presently that turn at Three Mile Creek turning basin are large tank ships that are going to the Plains or Shell Terminal. Some of these ships have been 950 feet long by 158 feet wide. Since we have opened the new turning basin, the ships that are calling on McDuffie Island Coal Terminal, Pinto Island Terminal and the Mobile Container Terminal are able to turn in that location and would not be impacted by a new bridge since they would be turning below the bridge.

I have attached a table below that shows the number of ships making calls in the Port of Mobile and the number of vessels that use the ASDD docks and then other docks.

Year Total	Total Vessels in Port	Vessels at docks other than ASDD	Total vessels at ASDD
2011	1443	669	774
2010	1368	582	786
2009	1351	585	766
2008	1571	568	1003
2007	1368	443	925

The tables show that we are making steady increase in vessel usage since 2009 (which correlates to global decreases in shipping in that year). I believe that both the increases are attributable to the increases in traffic due to the new Container Terminal and also increase at our Pinto Island Terminal.

In regards to Air Draft Clearance requirements for the new bridge, the Alabama State Port Authority had stated “the new bridge should have a vertical clearance of at least 215 feet, but no less than 195 feet.” This statement is still correct and I firmly believe that in the next 100 years, you will find that some ships will require the 215 feet clearance and we should build the bridge to meet needs for the foreseeable future to include the turning of larger cruise ships in the port.

I look forward to working with you in the future and would glad to assist in this important project for the Mobile area.

Sincerely,



Terry D. Gilbreath
Captain, U. S. Coast Guard (Retired)
Harbormaster
Alabama State Port Authority



CITY OF MOBILE

March 23, 2012

SAMUEL L. JONES
MAYOR

Mr. John R. Cooper
Director
Alabama Department of Transportation
1409 Coliseum Drive
Montgomery, AL 36110

Re: Alabama Cruise Terminals/Proposed I-10 Mobile River Bridge

Dear Mr. Cooper:

I am writing to you regarding the impact that the height of the proposed bridge will have on the cruise industry in Mobile. Additionally, I wanted to let you know that even though we are currently without a ship, we are aggressively recruiting a replacement ship from any number of different cruise lines.

Maintaining and expanding cruise line service is a viable part of our strategic plan for Mobile. The last ship embarking from Mobile had a total passenger count per year of over 182,000. Passenger and crew spending to the local merchants totaled \$13,000,000.

This single ship contributed substantially to the State economy as well. Our economic benefit studies show that total expenditures related to the cruise industry throughout the State of Alabama reached \$142,000,000 in 2010. The spending by the cruise lines, their passengers and crew generated an estimated 2,380 jobs paying \$87,000,000 in wage income throughout the Alabama economy.

As for whether the cruise industry has gone dormant in Mobile, the answer is an emphatic "no". We have retained a consultant in the cruise industry to actively market Mobile. Only two weeks ago, he reported contacts with three cruise lines, one of which indicated that after additional ships now under construction came into service, there would be possibility of further discussions with Mobile about repositioning one of the current ships to a market that could include Mobile. The point being that we are not taking anything for granted. We are actively recruiting another ship and we do expect that to happen.

P. O. BOX 1827 • MOBILE, ALABAMA 36633-1827

OFFICE OF THE CITY COUNCIL
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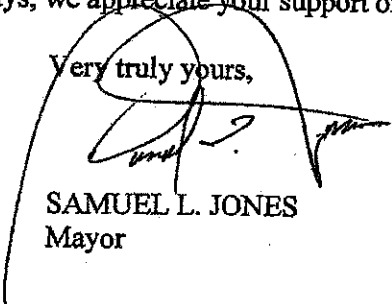
CITY CLERK
LISA C. LAMBERT

I should mention that the repositioning of ships leaving a temporary vacancy in a port is not at all unusual in the cruise industry. This has happened to other major U. S. cities. Replacing the ship is a process which may take time but in the end will result in the re-establishment of the cruise industry in Mobile.

I should also mention that we should look long term. We know that the type of ship that Mobile can currently handle requires the higher bridge elevation. We should also make you aware that with the success and growth of the facilities managed by the Alabama State Port Authority, expansion of the turning basins is inevitable and will result in the capability of larger ships, including cruise ships, using Mobile.

We would be happy to provide whatever other information you may require or answer any questions about this matter. As always, we appreciate your support of this community.

Very truly yours,



SAMUEL L. JONES
Mayor

SLJ/bb

L:\WPDocs\D023\P002\00023510.DOC

ALABAMA STATE PORT AUTHORITY



SECTION	INFO	ACTION	FILE
CONSULTANT			
SIGN			
LOCATION			
RIGHT-OF-WAY			
UTILITIES			

C:me

January 11, 2012

Mr. John R. Cooper
 Director
 Alabama Department of Transportation
 1409 Coliseum Boulevard
 Montgomery, Alabama 36110

SECTION	INFO	ACTION	FILE
DIV ENGINEER	<input checked="" type="checkbox"/>		
ADMINISTRATION			
CONSTRUCTION			
COUNTY TRANS			
DISTRICT ENGRS			
EQUIPMENT			
MAINTENANCE			
MATERIALS			
PLANNING			
SPECIAL PROJ			<input checked="" type="checkbox"/>

Dear John:

I want to extend my appreciation for your meeting with the business community to discuss the proposed Interstate 10 Bridge over the Mobile River. As you know, traffic, safety and projected utilization demands require an additional river crossing. The Alabama State Port Authority has been proactive in the Alabama Department of Transportation's study and design process, and the Port Authority is an ardent supporter of the department in bringing this project to an expedited conclusion. I think we would all agree alleviating our ongoing issues at this Interstate 10 choke point will benefit Alabama commerce and its economic vitality.

I have enclosed, as information, a copy of the Port Authority's Board of Directors' position and action regarding the proposed I-10 bridge, as well as a letter to your predecessor outlining key reasons for an expedited bridge project. My board, my staff and I stand ready to assist your department in moving this project forward. Should you have any questions, please do not hesitate to give me a call.

Sincerely,

James K. Lyons
 Director / Chief Executive Officer

Enclosure



**RESOLUTION NO. 2008-28
OF THE BOARD OF DIRECTORS OF
THE ALABAMA STATE PORT AUTHORITY
REGARDING NEW BRIDGE OVER MOBILE HARBOR**

WHEREAS, the Alabama State Port Authority (the "Authority") is an agency of the State of Alabama (the "State") with responsibility for the promotion, development, supervision, control, management and direction of the state docks and all harbors, seaports, and river ports within the State or its jurisdiction; and

WHEREAS, the operation and continued growth and development of the state docks facilities in the Port of Mobile (the "State Docks") is dependent upon the development of a new route over the Mobile River that will alleviate traffic through the Wallace Tunnel on I-10 as soon as possible (the "New Route"); and

WHEREAS, the operation and continued growth and development of the State Docks is further dependent upon the development of the New Route in a manner that will not adversely affect the operations of the State Docks or the maritime interests it serves; and

WHEREAS, consistent with the foregoing, the Director has recommended that a letter be sent in the form attached hereto as Exhibit A to all interested stakeholders, specifically including the Alabama Department of Transportation, expressing the Authority's position on the development of the New Route and urging that a final decision on such New Route be made as soon as possible so that construction of the New Route can be completed as soon as possible; and

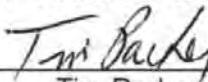
WHEREAS, the Legal and Planning Committee of the Board of Directors has concurred in the Director's recommendation and recommended approval thereof by the Board of Directors;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors hereby authorizes and directs the Director to send a letter to in the form attached hereto as Exhibit A to all interested stakeholders, specifically including the Alabama Department of Transportation, expressing the Authority's position on the development of the New Route and urging that a final decision on such New Route be made as soon as possible so that construction of the New Route can be completed as soon as possible and to take such action as is necessary to convey the Authority's position as expressed herein.

Done this 24th day of June, 2008 in Mobile, Alabama.

**ALABAMA STATE PORT AUTHORITY
BOARD OF DIRECTORS**

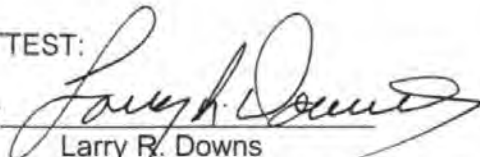
By _____



Tim Parker
Its Chairman

ATTEST:

By _____



Larry R. Downs
Its Secretary-Treasurer

EXHIBIT A

June 24, 2008

Mr. Duncan Joseph (Joe) McInnes
Director
Alabama Department of Transportation
1409 Coliseum Boulevard
Montgomery, Alabama 36610

Dear Joe:

For more than 10 years, Metropolitan Area Mobile has been debating possible solutions that would alleviate traffic on Interstate 10 via the Wallace Tunnel. The establishment of an additional route across the Mobile River is necessary to improve safety, eliminate congestion and expand surface infrastructure to accommodate Mobile's increased vehicular and freight movements along Interstate 10. The Alabama State Port Authority's utmost concern regarding the final placement of the proposed I-10 bridge over Mobile River is that any such placement does not impede waterborne commerce so important to the overall economy of our great state. As you are aware, the Port of Mobile statewide creates approximately 92,000 direct and indirect jobs with a tax impact of over \$356,000 annually generating \$10.3 billion in economic impact.

Since 2000, the Port Authority has invested hundreds of millions of dollars in seaport infrastructure to serve Alabama's growing economy. The \$300 million container terminal at Choctaw Point is the seaport's single largest investment since the state docks inception in 1928. The new container port will provide Alabama manufacturers and shippers with infrastructure and services essential to containerized shipping. Containerized shipping is vital to logistics and supply chain networks utilized by Alabama's automotive, aviation, durable goods, refrigerated and frozen foods, retail, and distribution business sectors. The new terminal will open this September and will be accompanied by significant increases in freight movements on both Interstate 10 and Interstate 65.

Today, the Port Authority's Board of Directors approved a Resolution urging the Alabama Department of Transportation to identify a new route over the Mobile River to alleviate traffic through Interstate 10 Wallace Tunnel. A copy of that Resolution has been enclosed for your review. We believe the best and most effective compromise on the placement of a bridge over the Mobile River would be for the Department of Transportation to take the following steps:

- a. Eliminate the proposed "Route C" from the project plans;
- b. Expeditiously review current data on the proposed northern route's capability to meet the project's stated purpose and need to alleviate congestion through the I-10 tunnel;
- c. Establish a new route that shall pass no farther north than "Route A and no farther south than "Route B" in the event that the suggested Northern Route fails to meet the purpose and need to alleviate congestion through the I-10 Tunnel.
- d. In the event a new bridge is to be constructed over Mobile River, then the new bridge should have a vertical clearance of at least 215 feet, but no less than 195 feet.
- e. In the event a new bridge is to be constructed over Mobile River, then the grade change on the approach should begin at least 300 ft. northward of the I-10 Virginia Street Exit.

McInnes/I-10 Bridge Letter
Page Two
June 24, 2008

The Port Authority's Board of Director's further encourages the Alabama Department of Transportation to expedite all necessary study and review, so that a new Interstate 10 Bridge route can be constructed.

The efficient movement of both goods and services can only serve Alabama's economic interests. The public seaport facilities, along with expanded and improved interstate and highway infrastructure, are essential to sustainable growth. We stand ready to support the Alabama Department of Transportation in its endeavor to resolve the congestion and safety issues at the Wallace Tunnel.

Sincerely,

James K. Lyons
Director & CEO



Bob Riley
Governor

ALABAMA DEPARTMENT OF TRANSPORTATION

1409 Coliseum Boulevard, Montgomery, Alabama 36130-3050



Joe McInnes
Transportation Director

June 24, 2003

Bridge Administration
Eighth Coast Guard District
Hale Hoggs Federal Building
500 Camp Street
New Orleans, LA 70130

Attention: Mr. David Frank

Re: Alabama Department of Transportation
Project: DPI-0030 (005), I-10 Mobile River Bridge
and Bayway Widening
Mobile and Baldwin Counties

Dear Sir:

Enclosed for your information is 3 copies of the Environmental Assessment for the subject project. This document is being forwarded for your information.

Sincerely,

Don T. Arkle, Chief
Design Bureau

By:

John Shill for
Alfredo Acoff, Coordinator
Environmental Technical Section

AA/JS/jn

Enclosures

cc: Mr. Ronnie Poiroux
Mr. Don Arkle
Mr. John Shill
ETS File

VOLKERT & ASSOCIATES, INC.



www.volkert.com

May 22, 2008

Mr. David Frank
Bridge Administrator
Eighth Coast Guard District
500 Poydras Street
Room 1313
New Orleans, Louisiana 70130-3310

3809 Moffett Road (36618)
P.O. Box 7434
Mobile, Alabama 36670-0434
251.342.1070
Fax 251.342.7962
volkert@volkert.com

Subject: Contract ID No. #205
Supplemental Agreement #3
Project Nos. DPI-0030(005)
I-10 Mobile River Bridge EIS
Mobile and Baldwin Counties
Volkert Project No. 911602.12

Dear Mr. Frank:

As you are aware, an Environmental Impact Statement (EIS) is currently being prepared for the proposed I-10 Mobile River Bridge and Bayway Widening EIS. At this time, three build alternatives are under consideration, one of which was evaluated in the approved Environmental Assessment (EA) for the subject project prior to its elevation to an EIS. The U.S. Coast Guard served as a Cooperating Agency on the EA for the proposed project and has agreed to continue to serve as a Cooperating Agency on the EIS (see enclosed letter dated October 5, 2005). Enclosed is a package of information regarding coordination with the U.S. Coast Guard to date, as well as some additional information regarding potential clearances and proposed pier and pylon locations for the proposed bridge.

We will continue to coordinate with the U.S. Coast Guard regarding clearance requirements, proposed pier and pylon locations, and other considerations related to the proposed I-10 Mobile River Bridge as the corridor study and EIS develops. We appreciate your interest in this project and look forward to receiving any comments on the information provided. Should you have any questions or comments, please contact Mr. Skeeter McClure or Mr. David Webber at (251) 342-1070.

Sincerely yours,
VOLKERT & ASSOCIATES, INC.

Buddy Covington
Environmental Manager

A-16

Office Locations:

Birmingham, Foley, Huntsville, Mobile, Alabama • Gainesville, Orlando, Pensacola, Tampa, Florida • Atlanta, Georgia • Collinsville, Illinois
Baton Rouge, Louisiana • D'Iberville, Mississippi • Raleigh, North Carolina • Chattanooga, Tennessee • Alexandria, Virginia • Washington, D.C.



Mobile Mayor Sam Jones, others headed to Miami to court cruise line

Published: Tuesday, July 19, 2011, 6:40 AM Updated: Tuesday, July 19, 2011, 6:40 AM



By **Robert McClendon, Press-Register**



This rendering shows GulfQuest, an interactive maritime museum under construction on the Mobile River waterfront at the foot of Government Street. Mobile Mayor Sam Jones is joining a group heading to Miami to try to recruit a new cruise line for the city. The group plans to tout the GulfQuest maritime museum, which they see as a vital part of their marketing arsenal. (Courtesy GulfQuest.org)

MOBILE, Alabama -- Mobile Mayor **Sam Jones** and a small contingent of tourism industry representatives will head to Miami Thursday to court a new cruise line for the city.

Jones declined through a spokeswoman to specify which line he and the others were targeting, citing "the competitive nature of the industry."

The Miami area serves as home to nearly all of the significant cruise companies.

They include Carnival Cruise Lines, Royal Caribbean International and Norwegian Cruise Line.

Carnival, which currently runs the Elation from the Alabama Cruise

Terminal, **announced earlier this year** that it would pull out of Mobile in October.

Joining Jones on the recruiting expedition will be David Randel, acting president of the **Mobile Bay Convention and Visitors Bureau**; Sheila Gurganus, manager of the Alabama Cruise Terminal; and Tony Davis, chief financial officer of PCH Hotels and Resorts, which owns two major downtown hotels.

Jones has said that the group hopes to tout the GulfQuest maritime museum, which they see as a vital part of their marketing arsenal.

Randel described the \$52 million museum as "the anchor" of the group's pitch.

A-17

This morning, the City Council will consider whether to issue \$3 million in new debt to complete funding for the museum construction, under way on the west bank of the Mobile River next to the Cruise Terminal.

A cruise industry insider contacted Monday by the Press-Register said that Mobile's effort to leverage the museum into a new cruise ship sounded like "a long shot."

"In today's market, there is one thing that cruise lines are focused on and that's cost, cost, cost," said Oivind Mathisen, editor and publisher of **Cruise Industry News**, a trade publication.

Cruise lines take into account the quality of a port city's tourism offerings, he said, but only in so far as they will help fill ships at a high ticket price.

'Every little bit helps'

When Carnival announced its intention to leave Mobile, it blamed the high fuel costs of sailing out of the northern Gulf of Mexico and an inability to raise ticket prices. The company said the decision had nothing to do with Mobile's appeal as a tourist destination.

Mathisen said that Norfolk, Va., is the only other American cruise city that he knows of that paired its terminal with an adjacent museum.

The Mobile museum is surely an asset, he said, but it's hard to say if it will actually contribute to the city's viability as a cruising port.

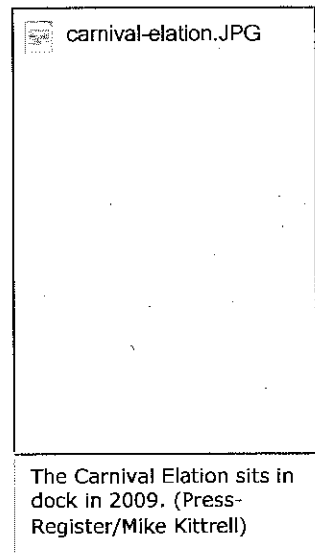
Robert Jumonville, director of the Port of New Orleans, offered a different perspective, however. The appeal of his city as a tourist destination has undoubtedly played a role in its success as a cruising port, he said.

Currently host to two cruise ships, the port is expecting to add two more ships this fall, one of which is the Elation.

"Every little bit helps," Jumonville said. "If you think it's an attraction to the U.S. traveling public, it will help."

Mobile borrowed \$21.2 million to buy the cruise terminal and build a new gangway. Unless the city finds another ship, it will face a \$2.25 million hole in its budget, a combination of lost parking revenues and continued debt service on the city-owned facility.

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Everything Alabama

Mayor: No deal for cruise line in Mobile

Published: Monday, October 03, 2011, 6:11 PM Updated: Monday, October 03, 2011, 7:02 PM



By **Dan Murtaugh, Press-Register**

MOBILE, Alabama -- Mayor Sam Jones just shot down a news report claiming that the city of Mobile has reached an agreement with Norwegian Cruise Lines to begin sailing out of the **Alabama Cruise Terminal** later this month.

"It is not true," Jones said. "I wish it was, but it's not."

Carnival Cruise Lines, the only tenant at the terminal, has announced it is **leaving** the Mobile market later this month.

Jones said the city is not even in negotiations with a cruise line. Jones made presentations to Norwegian and other cruise lines earlier this year in Miami. The next step would be for one of those lines to ask the city to submit a formal proposal that would be the starting point for negotiations, but that hasn't happened yet, Jones said.

"I'm optimistic they will, but as of today we have not heard from any of the folks we sent presentations out to," Jones said.

WPMI-TV15 published a **story** this afternoon, citing a restaurant owner and an unnamed source "inside city hall" who both said an agreement had been reached between the city and Norwegian.



(Press-Register/Elate Marcor)

The Alabama Cruise Terminal as seen on May 14, 2009.

Carnival began service from Mobile in 2004 with the 1,452-passenger Holiday. That ship, which was the smallest in Carnival's fleet, was consistently booked above the listed capacity.

Last year Carnival brought in the larger Fantasy, with a listed capacity of 2,052 passengers. In May, the company replaced the Fantasy with the Elation, which is the same size. The Elation is newer than the Fantasy but does not have all of the old ship's upgrades.

In March, Carnival announced that the Elation will move to New Orleans Oct. 22. There, it replaces a sister ship, the Ecstasy, that Carnival will move to Port Canaveral on Florida's Atlantic Coast.

City officials have been scrambling to find another cruise line to take Carnival's place, because parking revenue from cruise passengers pays down the \$25.9 million in debt remaining on the city-owned cruise terminal.

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Cruise ship leaves behind unknown economic impact in its wake

Published: Saturday, October 22, 2011, 8:55 AM Updated: Saturday, October 22, 2011, 2:14 PM



By **Dan Murtaugh, Press-Register**

MOBILE, Alabama -- When Carnival's Elation leaves the Alabama Cruise Terminal today, on the way to its new home in New Orleans, it will leave in its wake an economic impact in the millions of dollars.

The most obvious victim is the city of Mobile. The city owns the cruise terminal and uses proceeds from passenger parking to pay \$2 million a year in debt service.

Hotels will also feel an immediate impact. Cruise passengers booked 15,000 room nights a year, according to tourism officials.

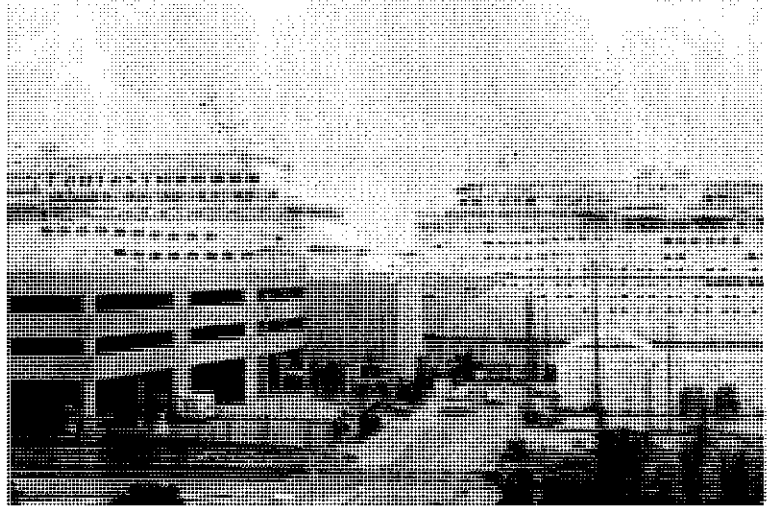
Some passengers and crew members also ate at restaurants, shopped at stores and visited attractions in Mobile, but how much money they spent is harder to know.

Elation will head to New Orleans, where it replaces a sister ship, Ecstasy, that Carnival will move to Port Canaveral on Florida's Atlantic Coast.

Carnival announced in March that it would leave the Mobile market, saying fuel costs for Gulf of Mexico cruises were more expensive than for Caribbean cruises and that trips from Mobile commanded below-average rates compared to other Gulf ports.

Alabama Real Estate Holdings, an arm of the Retirement Systems of Alabama, borrowed \$20 million to build the cruise terminal south of downtown Mobile in 2004 after Carnival announced it would home port a ship here.

In 2008, the city borrowed \$18.6 million to buy the terminal, then the next year paid \$2.6 million to build a



(Joshua Dahl/Correspondent)

The Carnival Elation passes the Carnival Fantasy as the Elation arrives at its new port, the Alabama Cruise Terminal, in Mobile, AL on Saturday, May 15, 2010.

new gangway for the terminal to allow a larger ship to dock there. Last year it paid \$970,000 for a pie-shaped parcel of land, about the size of a football field, at the corner of Government and Water streets for overflow parking from cruises.

City spokeswoman Barbara Drummond said the city will slash operating costs at the terminal when the cruise ship leaves, only spending as much as necessary to maintain the facility.

Mobile Mayor Sam Jones has lobbied other cruise companies to use the terminal, but so far has had no success. Drummond said that until another cruise ship comes to Mobile, the city may try to lease parking space to downtown businesses or use it for big events like Mardi Gras.

Parking revenue from the past year will cover the debt payment this fiscal year, she said. But if the city can't find new revenue streams from the terminal before next October, she said, it will have to dip into its general fund to pay off the building.

"It's 2013 when we'll be impacted financially," she said.

The impact will be more sudden for area hotels. David Randel, president of the Mobile Bay Convention & Visitors Bureau, said 15 hotels offer a stay-and-cruise package that lets customers leave their cars at the hotel during the cruise provided they stay the night before. The package gets about 15,000 takers a year, he said, and it was gaining in popularity.

"That's what personally hurts me the most," he said. "People were coming in a day early and starting to enjoy this great city."

Randel said many of the 900 crew members on board the ship also ventured into the city on the five-hour breaks they had between trips. Most of them took a bus out to Bel Air Mall, he said.

"They'd come back filled with packages," he said.

David Rasp, who owns the Royal Scam, the restaurant closest to the Cruise Terminal, said cruise customers had only a modest impact on his business.

"I'm not saying it's not going to have an effect," he said of the cruise ship departing, "I just don't know how measurable it's going to be."

The impact on other local attractions is similarly murky. According to data from University of South Alabama economics professor Semoon Chang, attendance is up by nearly 3,000 a month at the Gulf Coast Exploreum since Carnival arrived in October 2004, but it has dropped at both the USS Alabama Battleship Park and at Bellingrath Gardens.

Gretchen Faust Jaspering, who took over as executive director at the Exploreum earlier this month, said she

hadn't been there long enough to have a definitive view on the cruise ship's impact.

She did note, though, that when the Exploreum opened its Kangaroo Kraze exhibit last week, a few of the cruise ship employees decided to check it out.

"A couple of Australian dancers came over to get a taste of their home," she said.

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APPENDIX D:
ECONOMIC IMPACT
REPORT

**ECONOMIC IMPACT OF THE
PROPOSED I-10 BRIDGE ON
MOBILE SHIPYARD ACTIVITY
AND PORT OF MOBILE CARGO AND
CRUISE VESSEL OPERATIONS**

PROJECT DPI-0030(005)

UPDATE

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**ALABAMA DEPARTMENT OF
TRANSPORTATION**

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I. INTRODUCTION

Martin Associates was retained by Volkert, Inc., with the concurrence of the Alabama Department of Transportation (ALDOT), to assess the potential economic impact of a proposed I-10 Bridge across the Mobile River on the Port's shipyards and the potential impact of the proposed bridge on the Port of Mobile's vessel and cargo activity. That report was presented in September 2005. As part of the contract, Martin Associates was to reassess the potential bridge impacts at a later date during the project development. This current report addresses the reassessment of the bridge impacts. There have been changes to the design of the bridge since 2005 upon which the updated impacts are based. The original proposed I-10 bridge was planned with a 190 feet minimum vertical clearance beneath the bridge and the shipping channel below.¹ Three alternative bridge locations had been identified by Volkert, Inc. that are in proximity to the shipyards along the Mobile River. The bridge in the 2012 update is now planned with a 215 feet minimum vertical clearance beneath the bridge. In addition, the update includes a fourth alternative bridge location identified as B Prime (B'). The four alternative locations were approved by ALDOT and the Federal Highway Administration (FHWA). These alternative locations are shown in Exhibit 1.

¹ The bridge height indicates the distance between the mean high water surface at edge of the navigation channel to the bottom (lowest member) of the bridge directly above. The vertical clearance at mid-channel would be greater than 190 feet. The 190-foot height refers to the minimum air draft clearance over the mean high water (MHW) level in the navigation channel. The MHW elevation is +1.30 feet at Pier A, ASPA, based on NAVD 88 datum.

Exhibit 1 Alternative Bridge Locations



Source: Volkert, Inc.

Each of these locations could impact the operations of shipyards located in Mobile, as well as the cargo vessel and cruise activity at the marine terminals located within the Port of Mobile. It is the purpose of this study to re-identify the potential impact bridge construction will have on shipyard operations and cargo and cruise activity at the Port of Mobile, given the planned increased bridge height to 215 feet and the addition of the fourth bridge location alternative. As in the previous report, impacts will be quantified in terms of potential impacts on business levels at the shipyards and marine cargo and cruise terminals.

There have been significant changes in the shipyard industry in Mobile since 2005. The decline in the U.S. and world economies has impacted the shipyards' commercial vessel markets, although the military market has increased. This has led to the acquisition of two of the shipyards by larger entities and the expansion of Austal. The shipyard industry that could be impacted by the bridge construction consists of four shipyards. These are:

- Signal International purchased Bender Shipbuilding in January 2010 and will operate the shipyard under the name Signal Ship Repair. The purchase included all but a few small parcels that Bender operated in Mobile. Signal Ship Repair operates 4,000 feet of

waterfront on the west bank of the Mobile River and has two dry docks of 4,000 and 24,000 tons capacity, respectively. The shipyard will focus on repair, conversion, and construction services of marine vessels. Signal's work on offshore oil rigs will be focused at its shipyard in Pascagoula, MS. However, rig work may be performed in Mobile based on capacity and demand in Pascagoula. A separate property operated by Bender, Yard 9, on the east bank of the river downstream of the Cochrane Bridge and upstream of the four proposed I-10 bridge alternative locations was not acquired by Signal. This yard could potentially be used in the future to provide repair of marine vessels including offshore oil rigs.

- BAE Systems acquired the Atlantic Marine/Alabama Shipyard operations in Mobile, Moss Point, MS, Mayport and Jacksonville, FL in May 2010. Collectively the three shipyards will be called BAE Systems Southeast Shipyards. BAE System's (BAE) Mobile shipyard operates on 422 acres on the east bank of the Mobile River. This shipyard will focus on repair, conversion work, and construction of cargo vessels, cruise vessels and oil rigs. The acquisition did not include a 35-acre site at the northern portion of the former Atlantic Marine's facilities that includes yard's Panamax vessel slip. This site was designated as the Pinto Island Industrial Park and has been acquired by Austal as part of their expansion of facilities.
- Harrison Brothers is a full-service vessel repair facility on the east bank focusing on smaller commercial, government and recreational vessels. The yard operated two dry docks of 2,000 and 700 tons. In May 2012, Harrison Brothers announced that it was closing and was offering its land for lease and its equipment for sale.
- Austal USA began operations on the east bank of the Mobile River in 1999 and its operations have expanded considerably since the original study. Austal now occupies three specific parcels of land involved in the fabrication, assembly, and final outfitting of high speed aluminum vessels for the U.S. Navy: a 115-acre site 300 feet off-river, encompassing the Module Manufacturing Facility; a 15-acre site on the Mobile River encompassing the Assembly Bay Yard; and a 35-acre site along the Mobile River to the south encompassing the new Outfitting Yard (formally Pinto Island Industrial Park).

- The 115-acre fabricating complex contains a 370,000 ft² covered Module Manufacturing Facility (MMF1). An identical facility (MMF2) has been recently constructed. Other current and planned facilities on this site include an existing 76,000 ft² warehouse, a 102,000 ft² office complex that was opened in July 2012, and a funded 30,000 ft² building for the U.S. Navy that is under construction.
- Vessel modules constructed at the MMF1/MMF2 are transported over the road using specialized transporters to the Assembly area. There are currently three assembly bays. Bays 3 and 4 are 54,700 ft² and Bay 6 is 41,000 ft². A fourth 54,700 ft² bay (Bay 5) was completed in July 2012. An additional 54,700 ft² bay is planned to replace the smaller Bay 6.
- The 35-acre Outfit Yard (formally Pinto Island Industrial Park) was recently purchased to provide four protected berths for vessels undergoing the final outfitting, activation, trialing and delivery of the vessels. Three new bulkheads are planned as well as a 40,000 ft² outfitting building. Another 41,000 ft² Assembly Bay is also being considered for this site.

In 2008, the U.S. Navy awarded Austal a contract to build 10 Joint High Speed Vessels (JHSV). The Navy Long Range Shipbuilding Plan is to build 41 of these vessels over the 30-year span of the Plan. In 2010, the Navy awarded Austal a contract to build 10 Littoral Combat Ships (LCS). Austal is currently under contract with the U. S. Navy to build nine JHSVs under a 10-ship, \$1.6 billion contract and five Independence-variant LCS class ships, four of which are part of a 10-ship, \$3.5 billion contract. These programs establish a long-term steady prospect to provide vessels to the Navy on a continuing basis.

A key area of concern as to the potential impacts of the bridge on shipyard operations focuses on the vertical clearance height of the bridge of 215 feet, and the potential limitations on the type of vessels that can be serviced at the yards due to the air draft limitations. The air draft clearance of the bridge could limit the size of the potential market of vessels and rigs that could be serviced by the yards based on the air draft of the vessels and rigs. In addition, the actual location of the bridge could have a substantial impact on the operations of one or more of the yards, as the bridge pylons, support piers, and foundations could impact yard operations.

Measures will be taken during design and construction to minimize impacts and reduce disruptions to operations at these yards depending upon the selected alternative.

The location of the bridge could also impact the cruise and marine cargo activity at the Port of Mobile marine terminals. In 2011, the Port of Mobile had 1,443 vessel calls at public and private terminals; 804 calls were to public terminals. The public docks handled 25.1 million tons of bulk and general cargo including coal, containers, forest products, steel, and frozen poultry. The private terminals handled bulk commodities such as ore, coke, and petroleum products. Carnival Cruise Lines (CCL) provided three cruises every two weeks from the Mobile Alabama Cruise Terminal. In October 2011, CCL relocated its cruise operations to other Ports. The City of Mobile and others are actively recruiting a replacement cruise operation to utilize the existing facilities.

Currently, vessels calling at specific shipyard berths, dry and liquid bulk terminals, general cargo terminals, and the cruise terminal on the Mobile River must use the turning basin at Three-Mile Creek, approximately 2.5 miles north of the Bankhead and Wallace Tunnels if they cannot turn from their slip or dock. This is the turning basin that is generally used in the upper harbor to turn vessels. Vessels using the turning basin would have to pass beneath the proposed bridge and would potentially be impacted by the bridge height. The maximum size deep draft vessel that can be turned in this 1,000-foot-wide turning basin on a regular basis is 875 feet for cargo vessels and about 850 feet for cruise vessels.² CCL's *Elation*, a Fantasy Class vessel, has a length of 855 feet. Light drafted vessels (for example with a 25-foot draft or less) up to 950 feet in length; have turned in the basin by encroaching upon berthing areas on either side of the turning basin. However this turning cannot be performed if a tanker is berthed at the Plains Oil Terminal, adjacent to the turning basin. The proposed locations of the I-10 Bridge are to the south of the turning basin at Three-Mile Creek. A second turning basin has

² The Alabama State Docks' Harbor Master and Mobile Bar Pilots have stated 875-foot. is the greatest cargo vessel length that can be turned within the dimensions of the Three-Mile Creek Turning Basin at any given time and under any condition. In addition, they have stated cruise vessels of 850 feet, plus or minus 10 feet, is the greatest cruise vessel length that can be turned within the dimensions of the Three-Mile Creek Turning Basin at any given time and under any condition. The turning of longer vessels will require advanced planning. Further coordination with the Harbor Master in March 2011, indicated that 965 ft. container ships turned in the Three-Mile Creek Turning Basin 2 to 3 times a week prior to completion of the Pinto Island Turning Basin. He also stated that cruise ships of the CCL Conquest class (length 953 ft. and an air draft of 207 ft.) could turn in the Three-Mile Creek turning basin with prior planning and close coordination.

been constructed south of the potential bridge alternatives opposite McDuffie Island and APM Terminals Mobile. The width of this turning basin is 1,175 feet. The second turning basin built south of the proposed bridge would not be impacted by the I-10 Bridge. This basin, currently serves the APM Terminals Mobile and McDuffie Terminal. Vessels at the shipyards and at other marine terminals to the north and cruise ships would typically use the 1,000-foot turning basin at Three-Mile Creek if the use of a turning basin is required.

In the following chapter, the potential impacts on shipyard operations are identified, as are the potential limitations on the commercial marine cargo and cruise operations at the Port of Mobile cargo and cruise terminals. A discussion of the potential impact of a no-build scenario on the local roads is also included in this chapter. The impacts on shipyard operations and cargo and cruise commercial activity at the Port of Mobile are quantified in the final chapter.

This study included interviews, data sharing, and coordination activities with the maritime interests, the City of Mobile, the Alabama State Port Authority, the Mobile Area Chamber of Commerce, and Federal agencies.

II. POTENTIAL IMPACT OF BRIDGE CONSTRUCTION AND LOCATION ON SHIPYARD ACTIVITY AND CARGO AND CRUISE VESSELS ACTIVITY

The potential impacts of the proposed I-10 Bridge on the shipyard operations, and the commercial activity at the Port of Mobile (in terms of cargo and cruise activity) are presented in this chapter. The potential impacts are evaluated in terms of the impact of the height limitations on the types of vessels that can be handled at the shipyards, and also on the size of the vessels (with respect to air draft limitations) that are engaged in commercial activity at the Port of Mobile that must use the Three Mile Creek Turning Basin and would be impacted by the bridge location. In addition, the impact of the physical location of the bridge on shipyard operations is also discussed in this chapter.

A proposed bridge height (air draft) of 215 feet is used in the economic impact analysis. This height was developed in a study conducted by Volkert, Inc., for the Alabama Department of Transportation, in consultation with the Federal Highway Administration. Several sources indicate a minimum 15-foot clearance between the highest point of a vessel and the bridge height is commonly accepted. With regard to adequate clearance for safe passage of cruise ships beneath a bridge, the U.S. Coast Guard (USCG) does not specify a minimum clearance. The decision whether or not to attempt passage under a bridge is left to the vessel master's decision. Cruise lines have indicated a preference for a 15-foot clearance; however, depending upon circumstances, the master of a vessel may accept a clearance of less than 15 feet. Coordination with the Jacksonville Port Authority indicated that the CCL's *Fascination*, which passes under the Dames Point Bridge in Jacksonville, Florida, has operated with a \pm 5-foot clearance for the last decade. This example shows that CCL is currently operating cruise ships with much less than a preferred 15-foot clearance.

The CCL Fantasy-class *Elation*, which called on Mobile until October 2011, is 855 feet long, has an air draft of 177 feet, and carries 2,052 passengers and 920 crew members. Cruise ships typically have a water draft between 25 and 30 feet. *Elation* has a water draft of 25 feet, 9 inches. The *Elation* used the Pier C Turning Basin or the Three Mile Creek Turning Basin to turn around. The *Freedom*, a CCL Conquest-class cruise ship, is 953 feet long, has a draft of

27 feet, and has an air draft of 207 feet. This vessel carries 2,974 passengers and 1,150 crew members. The *Freedom* would have a minimum clearance of 8 feet under a 215-foot bridge. With consideration for an instrument to monitor air gaps and to assist in safe passage of vessels under obstructions, the air draft study determined a cruise ship with a 207-foot air draft could pass safely under a 215-foot bridge.

1. POTENTIAL IMPACT OF BRIDGE AIR DRAFT CLEARANCE

The potential bridge height (air draft) impacts could impact the ability of the shipyards to service the offshore oil rig market, as well as large cargo, military, and cruise vessels. The air draft is the height of the vessel measured from the baseline less the draft. The height limitation could also impact the size of the vessels (in terms of air draft) that would need to use the Three Mile Creek Turning Basin. Commercial cargo and cruise vessels calling at the Port of Mobile and requiring a 1,000-foot turning basin could be restricted from accessing the turning basin if they could not safely pass under the 215-foot clearance of the bridge.

1.1 Offshore Oil Rig Activity

The Gulf of Mexico offshore oil rig fleet was used to identify the potential size of the rig market for U.S. Gulf Coast shipyards in general and more specifically, the impact of a 215 ft. bridge height on the ability of Mobile shipyards to service these rigs. Air drafts of rigs in this market were identified to estimate the potential impact of the proposed bridge height on the BAE and Signal shipyards' abilities to service these rigs. Prior to its purchase by Signal International, Bender Shipbuilding performed oil rig work in its Yard 9 located approximately two miles north of the proposed alternative bridge locations shown earlier in Exhibit 1. Yard 9 was not included in the sale to Signal and may still perform oil rig repair work in the future. The BAE facilities are located just south of alternative bridge locations A, B, and B'. Alternative location C passes over a slip at the northern edge of the BAE property. The landside crossovers for B and B' are mostly over the Pinto Island Industrial Park (Austal). The Austal and Harrison yards do not perform work on offshore oil rigs although Harrison has pursued this market in the past.

Data collected from the Rig Zone website identified 242 oil rigs located in the Gulf of Mexico.³ Of these, 182 are in the U.S. waters and 60 are in Mexican waters. These numbers include active and inactive (cold stacked and ready stacked) rigs and do not include inland barge rigs. The barge rigs were excluded in this analysis since they are short in height and the proposed bridge height would not restrict their passage beneath it. Exhibit 2 shows the offshore rig fleet to consist of five categories of rigs.

Exhibit 2

Number and Type of Offshore Oil Rigs in the Gulf of Mexico

RIG TYPE	NUMBER IN GULF	SHARE OF GULF	NUMBER IN US	SHARE OF US	NUMBER IN MEXICO	SHARE OF MEXICO
JACK-UP	114	47.1%	84	46.2%	30	50.0%
PLATFORM	87	36.0%	61	33.5%	26	43.3%
SEMISUBMERSIBLE	25	10.3%	21	11.5%	4	6.7%
DRILL SHIP	10	4.1%	10	5.5%		
SUBMERSIBLE	6	2.5%	6	3.3%		
TOTAL	242		182		60	

Source: Martin Associates/Rig Zone

As the exhibit shows, jack-up rigs account for nearly half the rigs in the Gulf of Mexico followed by platforms with 36% of the market and semisubmersibles with 10%. The shares of rig types in U.S. waters are similar.

Rig air draft data for 132 of the 182 rigs in U.S. waters (72%) was obtained from rig owner/operators, the Rig Zone, or estimated by Martin Associates from the data received from both sources. Exhibit 3 summarizes the share of these rigs that would be excluded from passing under a 215 ft. bridge across the Mobile River.

³ www.rigzone.com

Exhibit 3

Shares of Oil Rigs That Cannot Pass Beneath a 215-foot Bridge

RIG TYPE	AIR DRAFTS > 200 FT. (15 FT. CLEARANCE)	AIR DRAFTS > 210 FT. (5 FT. CLEARANCE)
JACK-UP	78.6%	39.3%
PLATFORM	0.0%	0.0%
SEMISUBMERSIBLE	77.8%	56.0%
DRILL SHIP	100.0%	80.0%
SUBMERSIBLE	66.7%	33.3%
TOTAL	43.9%	24.2%

Source: Rig owners/operators, Rig Zone, and Martin Associates

The exhibit shows that with a 15 ft. clearance, the distance between the highest point of a vessel and the bridge height, the majority of the offshore oil rigs, with the exception of platforms, will not be able to pass beneath the bridge.⁴ With a 5 ft. decrease in clearance (or ballasting by 5 ft.), the share of rigs not capable of passing beneath the bridge does not change. This is based on the number of rig air drafts at 205 ft. or less identified in the U.S. Gulf market. With a 10 ft. decrease in clearance the number of vessels 210 ft. or less capable of passing beneath the bridge increases 35%.

The height limitation of the bridge appears to impact jack-ups, semisubmersibles, submersibles, and drill ships. Ballasting rigs and partially lowering the legs of jack-ups can reduce rig air draft; however, the height of these rigs would still exceed the bridge restrictions. The length of jack-up legs is as great as 700 ft. The average height of jack-up rigs identified in this analysis is 357 ft., the average air draft of a drill ship is 311 ft., the average air draft of a semisubmersible is 274 ft. and the average height of a submersible is 225 ft. Based on these air drafts, the Port of Mobile shipyards would be excluded from 44% of the U.S. Gulf of Mexico offshore rig fleet if the rigs had to pass beneath the bridge. The shipyards would then have to compete with other Gulf Coast shipyards for the remaining offshore rig market. Rig work can be and has been conducted elsewhere in Mobile Bay south of the proposed bridge alternatives and

⁴ There is no U.S. Coast Guard regulation that sets a minimum required clearance for vessels passing beneath bridges. The vessels' owners/operators or representatives (ship captains) make the ultimate decision.

is expected to continue should the proposed bridge be built. However, specialized shipyard infrastructure and repair operations, such as dry docking, cannot now be completed in these other areas of Mobile Bay and may not be transferable even with considerable investment.

The demand for rig repair work in shipyards varies by type of work to be performed and the frequency the work is routinely performed. Routine maintenance on offshore rigs does not necessarily require the rigs to be moved to shipyards for the work to be completed. Some of this work can be performed on-site in the Gulf. Required 5-year inspection surveys can also be conducted at sea. The rig work that does require a shipyard is mostly on an as-needed basis.

A survey of rig owners/operators identified a wide range in the frequency that rigs would be taken to a shipyard for maintenance and repair work and the cost associated with the repair work. Repainting of oil rigs was reported in the interviews to occur every 10-15 years. Owners/operators of jack-up rigs reported their rigs will go to shipyards anywhere from every two years to 10 years; the average is five years. Submersibles were reported to be in shipyards every five years.

The cost of repair work varies depending on the work to be performed and also the age of the rig, which also affects the frequency of work to be performed in shipyards. The owners/operators reported current estimates of repair costs to rigs if they were to be serviced in Gulf Coast repair yards. Repainting of rigs was reported to cost between \$5-10 million. The work on jack-ups was reported to cost from \$0.5-30 million. The average jack-up cost for repair work at a shipyard is \$4 million based on the industry surveys. Work on submersible rigs at yards is reported to range between be \$2-3 million, while the work on semisubmersible rigs is reported to be \$10 million or more. These costs represent the potential lost revenue to Mobile shipyards for each of these rig types that could not be repaired in Mobile due to bridge air draft restriction or location.

In summary, the BAE and Signal shipyards (and the separate Yard 9) would be impacted by the proposed I-10 Bridge in competing for maintenance and repair work in the offshore oil rig market if the rigs must pass beneath the proposed bridge. In May 2011, BAE announced that they had repaired a drill ship and would be seeking rig repair work. The air draft data used in the analysis identified 14 semisubmersible rigs, two submersible rigs and nine drill

ships that would not be able to pass beneath the 215 ft. bridge with either a 10 ft. or 15 ft. clearance. A decrease in clearance to 5 ft. would allow one of the nine drill ships to pass beneath the bridge. The same number of semisubmersible and submersible rigs would still not be able to clear the bridge. Only if no bridge were built that impacted passage to the shipyards could the Mobile shipyards compete for repair work on 33 jack-up rigs.

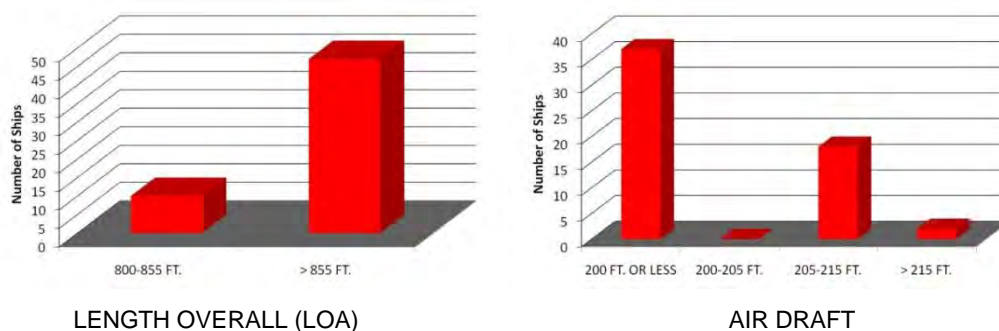
The discovery of oil in Walker Ridge, 175 miles off the coast of Louisiana, could potentially increase the nation’s oil reserves by over 50%. The location of this field is in 7,000 ft. of water and is accessible by perhaps less than six drill rigs. As a result of this potential oil boom, there will be an increasing demand to modify existing rigs to service the field. The 2010 Deepwater Horizon incident may delay potential development in this field. However, the Mobile shipyards are capable of performing these modifications but could be prevented from providing these services if the proposed I-10 Bridge prevents the rigs from reaching the shipyard facilities.

1.2 Cruise Ship Activity

There are three principal cruise operators in the U.S. South Atlantic/Gulf Coast markets: Carnival Cruise Lines, Norwegian Cruise Lines, and Royal Caribbean Cruise Lines. These three lines currently have 57 vessels in service or soon to be in service. These vessels range in size from 1,804 to 3,646 passengers and vessel lengths of 848 ft. to 1,181 ft. Air drafts on the tallest vessels exceed 200 ft. Exhibit 4 shows the distribution of these vessels’ sizes in terms of length overall (LOA) and air draft.

Exhibit 4

Distribution of Selected Cruise Vessels by Length and Air Draft



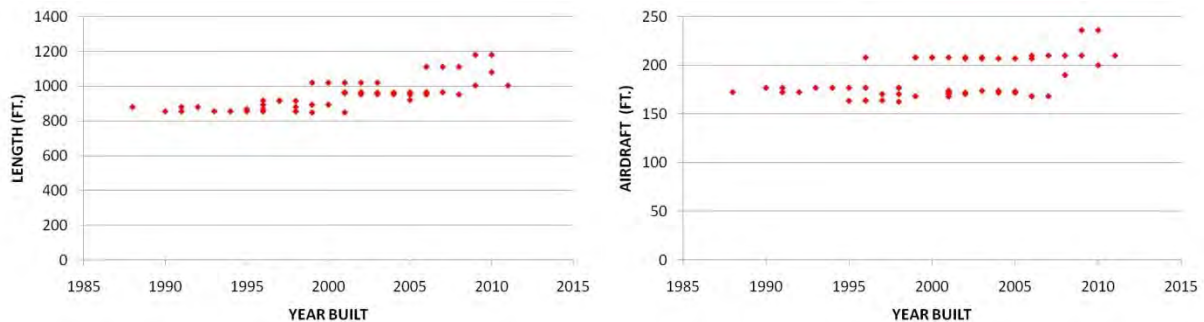
Source: Carnival Cruise Lines, Norwegian Cruise Lines, and Royal Caribbean Cruise Lines

Based upon an analysis of 52 cruise ships that could call on the Port of Mobile, only six would not be able to turn in the Three-Mile Creek Turning Basin. This is based upon the capability of turning a 965-foot long vessel with certain accommodations. If the cruise operators would accept a seven foot minimum air draft clearance the remaining 46 cruise ships would be able to operate with a 215 feet air draft clearance. The CCL operates a cruise ship in Jacksonville, Florida with a 5-foot clearance.

The current trend in cruise ship design of increasingly larger vessels does not necessarily imply air draft increases with increases in vessel length for all vessels. Exhibit 5 shows the relationships of vessel length and air drafts by year of construction for the 57 identified cruise vessels. The exhibit shows there is a trend in recent years to design and build longer cruise vessels but a corresponding increasing trend in air draft is only apparent in half the vessels built since the late 1990s.

Exhibit 5

Trends in Cruise Vessel Length Overall (LOA) and Air draft



Source: Carnival Cruise Lines, Norwegian Cruise Lines, and Royal Caribbean Cruise Lines

Until October 2011, the Port of Mobile was a homeport for CCL's *Elation* with a capacity of 2,052 passengers. This ship replaced the *Fantasy*, a sister ship, that had in turn replaced the smaller *Holiday* that served the Mobile market in 2005. The 1,452-passenger *Holiday*, now in European service, has a length of 728 ft. and an air draft of 157 ft. The *Elation* made three cruises every two weeks (a 4-day and two 5-day cruises) from the Port year-round. The vessel has an air draft of 177 ft. and would not be prevented from passing beneath the proposed I-10 Bridge. Other vessels in the same Fantasy Class have 177 ft. air drafts. All of these vessels

would be able to pass beneath the bridge with a clearance greater than the 15-ft. clearance Carnival prefers. The City of Mobile and others are actively recruiting a replacement cruise line and/or a return of CCL. The Cruise Industry Task Force (CITF) is targeting a cruise ship with a 208-foot air draft. The CITF has stated that a bridge with a minimum height of 215 feet would accommodate the targeted ship.

1.3 Government Vessel Activity

For the 2005 report the U.S. Navy's NAVSEA and NAVFAC offices, and Coast Guard and Military Sealift Command (MSC) headquarters in Washington, DC, were interviewed to identify potential impacts of bridge height on vessel calls at the Port of Mobile after the proposed bridge is constructed. Each department or agency indicated that no perceived impacts are expected due to potential bridge height issues for the vessels that would potentially use Mobile for repair or port-of-call activities. MSC reported its tallest vessel has a 170 ft. air draft and added that the largest vessels can take on ballast and reduce air draft by 10-15 ft. The maximum allowable depth over the tunnels is 40 ft. The Navy and Coast Guard stated the vessels they would send to Mobile would not be impacted by the proposed bridge height. Since there was no potential impact identified for government vessels in the 2005 study, these agencies and departments were not re-interviewed regarding a 215 ft. bridge.

1.4 Marine Cargo Activity

The Port of Mobile is also home to public and private marine cargo terminals located on the Mobile River. The public terminals include the Alabama State Docks' 27 general cargo and container berths that handled forest products, steel, frozen poultry, and other general cargo, the bulk material handling plant that handled coal and iron ore and McDuffie Terminals that handled coal. The Port of Mobile handled 25.1 million tons of cargo in 2011 and the APM Terminal Mobile handled 169,282 twenty-foot equivalent (TEU) containers. The public docks in Mobile had 804 vessel calls in 2011. The private terminals on the Mobile River include Alabama Bulk Terminal, Gulf Coast Asphalt, Plains Oil Terminal, Mobile Marine Terminal, Mobile River Terminal, Shell Chemical, Trigeant, and Vulcan Materials. These terminals are handling ore, coke, petroleum, and other bulk products. In 2011 the private terminals received 639 vessel calls.

Vessels calling the public and private docks on the Mobile River will pass beneath the proposed bridge if they are calling cargo terminals north of the four proposed alternative bridge locations or if they must use the turning basin north of the proposed bridge locations. The public general cargo docks and the bulk materials plant are located north of the proposed bridge location, and would be impacted by the bridge. Alabama Bulk, Gulf Coast Asphalt, Plains Oil, Shell, Trigeant, and Vulcan are also north of the proposed bridge location.

Additional marine cargo terminals are located on the Theodore Industrial Canal, 11 miles south of the principal bulk and general cargo docks on the Mobile River in the Port of Mobile. A turning basin is located within the canal. The public terminals on the canal are the ASD's Middle Bay Port, which is partially leased to Aker, and the Marine Liquid Bulk Terminal which handles liquid chemicals for INEOS which is adjacent to the terminal. The private terminals include Core Industries, Holcim Cement, Vulcan, Martin Marietta and Yelverton. The terminals are handling wood pellets, cement, aggregates and asphalt. The offshore oil and gas industry is supported by Technip, Serimax, Construction Solutions and M I Drilling Fluids who are also located on the Canal. These terminals will not be impacted by the bridge, as these terminals are located 15 miles to the south of the proposed I-10 Bridge, and therefore, can be accessed without passing under the proposed bridge. Vessels calling terminals on the canal use the turning basin on the canal. Therefore, businesses on the canal were not interviewed because they are not impacted by the bridge.

The ASD Harbor Master stated the proposed 215-ft. bridge will not impact vessel operations at the ASD terminals. All marine cargo and layberthing vessels calling at these docks would have no problem passing beneath the bridge. The only exceptions would be offshore rigs that have used public docks a few times in the past and tall cruise vessels that would call the cruise terminal. Additional coordination was conducted by Volkert with the Harbor Master regarding the determination of appropriate air draft clearance. The Harbor Master supports the 215-foot bridge height.

In addition to the interview with the ASD Harbor Master, Martin Associates re-interviewed nine Port of Mobile private marine terminal operators. The results of these interviews are summarized in the balance of this section.

The Mobile River Terminal (MRT), owned by Walter Energy, is located south of the proposed bridge locations. Walter Energy recently acquired the MRT and is making improvements to support exports from a new coal mine being developed north of Tuscaloosa, Alabama. Future MRT operations will not be impacted by any of the four proposed bridge alternatives.

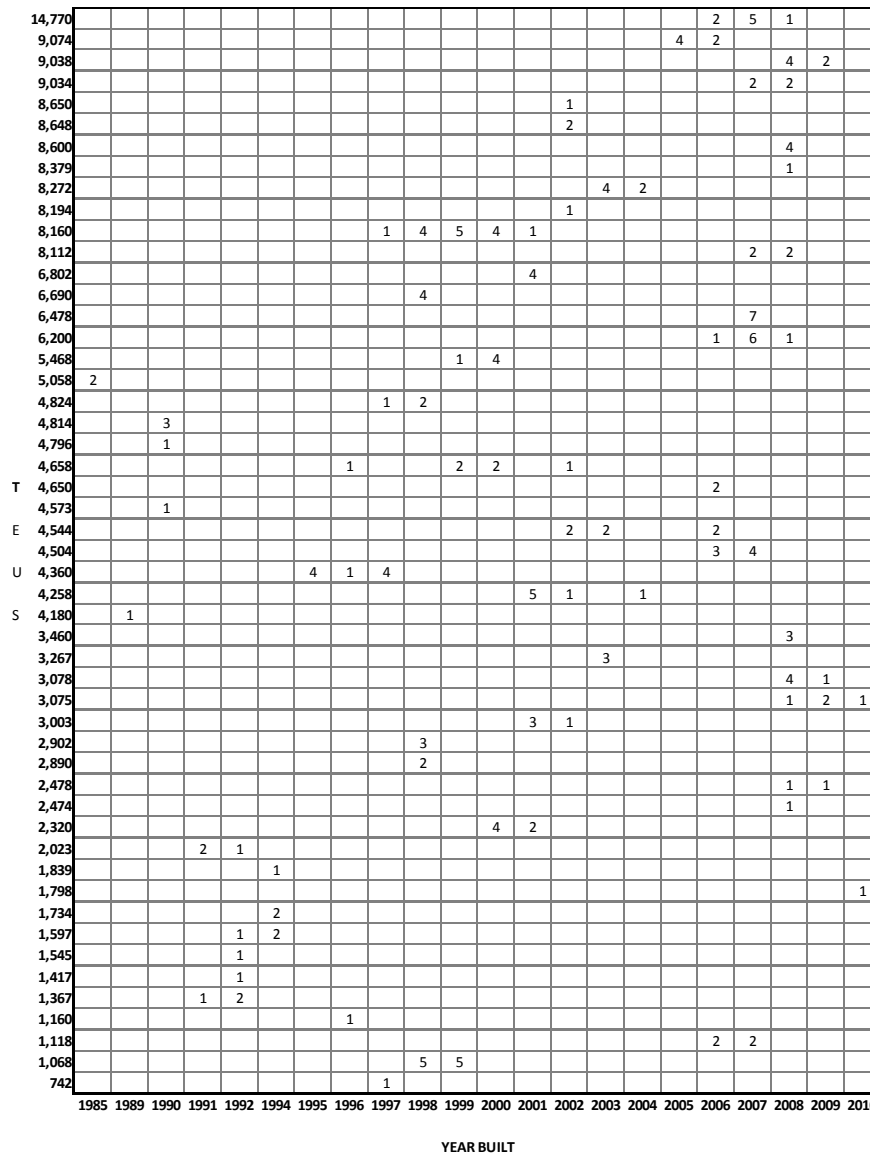
The Shell Chemical terminal is located north of the proposed bridge locations. Loaded tankers arrive at this terminal with 40 ft. drafts. Empty tankers leave the terminal riding high with a maximum air draft of 190 ft. which can transit safely beneath the bridge. Alabama Bulk Terminal receives petroleum tankers with average air drafts of 122 ft. Other terminals interviewed, including Gulf Coast Asphalt, the Trigeant Refinery, and CG Boatworks stated there is no height issue with the proposed I-10 Bridge.

The remaining private terminal operators stated there would be no impact on their vessel operations by the proposed bridge.

The Alabama State Docks has developed the 145-acre APM Terminal Mobile Container Terminal (formally Choctaw Point Terminal) north and adjacent to McDuffie Island. Most of the Port's container operations are conducted through this terminal. The combination carriers handling both containerized and break-bulk cargo remain at the main port. Container lines calling the Port of Mobile are Zim, Maersk, APL, CMA-CGN, Hyundai Merchant Marine, and Mediterranean Shipping Company (MSC). The proposed I-10 Bridge is not seen as potentially impacting the size of container vessels that may call the new Mobile container terminal in the future. The APM Terminal Mobile is located approximately 0.7 miles downstream of Alternative C, the southernmost alternative, and container ships will use the Pinto Island Turning Basin directly across the Mobile River. The current trend in size of new container vessel design and construction is for larger vessels. Container lines are investing in newer larger generation vessels to meet the growing world demand. For example, Exhibit 6 illustrates the growing vessel size in Maersk's 198-vessel fleet. The exhibit shows in the last 10 years Maersk has focused on constructing larger containerships with capacities greater than 4,200 twenty-foot equivalent units (TEUs). The exhibit also shows that during this time 25% of Maersk's new builds are less than 4,200 TEUs in size. In June 2012, MSC began a new container service to APM Terminal Mobile with the arrival of the first Post-Panamax Container Ship, MSC Laura.

Exhibit 6

Distribution of Maersk Container Fleet by TEUs and Year Built



TEUs = twenty-foot equivalent units
 Source: Maersk and Martin Associates

To assess the potential impact of the proposed bridge height on new generation container ships, Maersk was interviewed to identify the impact a 215 ft. bridge height would have on its vessel operations at Mobile. Though Maersk did not provide air draft data, Maersk did state the proposed bridge height would have no impact on vessel calls at Mobile. Further research indicates the largest current Maersk vessels have an air draft of 170 ft. and would not

be impacted by the 215 ft. bridge height. In addition, the new Pinto Island Turning Basin opened in 2010, across the Mobile River from the APM Terminal Mobile eliminates the need for container ships to pass under the proposed bridge. The dimensions of this new turning basin are 1,175 feet by 715 feet with a depth of 45 feet.

In addition to the air draft identified above for the largest Maersk vessel, Martin Associates reviewed air draft data of the Orient Overseas Container Lines' (OOCL) fleet to identify the air draft/size relationships of its container fleet. This data is to serve only as a proxy for the relationship of TEU capacity and air draft. Exhibit 7 shows the estimated air draft of the OOCL fleet by vessel class. The exhibit shows the largest OOCL containership has a capacity of 8,063 TEUs and an air draft of 154 ft.

Exhibit 7
Size of OOCL Containership Fleet by Class

CLASS	TEUs	LOA (ft.) (ft.)	BEAM (ft.)	DRAFT (ft.)	HEIGHT (ft.)	AIRDRAFT (ft.)
SX	8,063	1,059.6	140.4	47.7	201.8	154.1
S	5,714	909.9	131.2	45.9	196.7	150.8
S	5,390	905.5	196.8	45.9	196.8	150.9
P	4,500	862.9	105.6	42.1	180.2	138.1
ICE	4,402	964.6	105.8	35.4	178.4	142.9
F	3,161	790.7	106.0	41.1	172.4	131.3
ICE	2,992	803.8	105.6	35.4	173.4	138.0

Source: OOCL, Martin Associates

1.5 Summary of Bridge Height Impact on Shipyard Market Access, Commercial Cargo, and Cruise Vessel Activity

The proposed 215 ft. bridge height will have a substantial impact on the Port of Mobile's ability to serve the offshore rig market if the rigs are required to pass beneath the bridge. Forty-

four percent of the U.S. Gulf of Mexico rig market would be prevented from passing beneath the proposed bridge to reach the former Bender Yard #9 and these rigs could also be potentially impacted if rigs calling BAE must pass beneath the bridge to reach a slip or have to use the turning basin to the north, and hence pass beneath the proposed bridge. Drill ships would use the turning basin while other rigs are turned in the river. Additionally, a bridge located on Alternative C could adversely affect BEA repair activities for drill ships and rigs.

With respect to the cruise market, both for vessel service as well as access to shipyards for repair work, the 215 ft. bridge with a 15 ft. air draft clearance would restrict access to Mobile shipyards and the Port of Mobile cruise terminal. Of the 57 cruise vessel fleet now deployed by Carnival Cruise Lines, Norwegian Cruise Lines, and Royal Caribbean Cruise Lines, only one of the vessels has an air draft of 208 ft. air draft. It is to be emphasized that the current 1,000 ft. turning basin may be more of a constraint on the ability to access the cruise passenger market, as the current turning basin will limit vessels to 965 ft. in length overall according the Harbor Master.⁵ The new 1,175 ft. turning basin may increase the Port's competitive access to the Gulf and South Atlantic Cruise Vessel Market, but other logistics considerations must be dealt with such as location of the turning basin with respect to the cruise terminal. Cruise vessels longer than 855 ft. will be able to call Mobile shipyards, but turns in the north basin will likely require advanced planning.

No impacts on the commercial cargo operations were identified, including at the APM Terminal Mobile Container Terminal. Past layberthing activity in the Port of Mobile involving tall oil rigs and large vessels may be impacted by the proposed bridge in the future.

Similarly, the air draft restriction of the proposed bridge does not appear to have an impact on government vessel activity.

The following section addresses the potential impact of the physical location of the proposed bridge location on shipyard and other vessel operations activities in the Port of Mobile.

⁵ See Footnote 2

2. BRIDGE LOCATION IMPACT

In the previous section, the impact of the proposed I-10 Bridge height on the Mobile shipyard, cruise and marine cargo industries was discussed. These potential impacts would occur due to vessel air drafts and the proposed bridge restrictions on air draft. In this section, the potential impacts of the physical location of the bridge on the shipyards and nearby marine terminals are discussed. Four alternative bridge locations have been proposed that will each impact maritime activity differently. The locations of the proposed bridge alternatives are shown in Exhibit 8. The potential locational impact of each alternative is discussed in the balance of this section.

Exhibit 8
Alternative Bridge Locations



Source: Volkert, Inc.

2.1 Alternative Location A

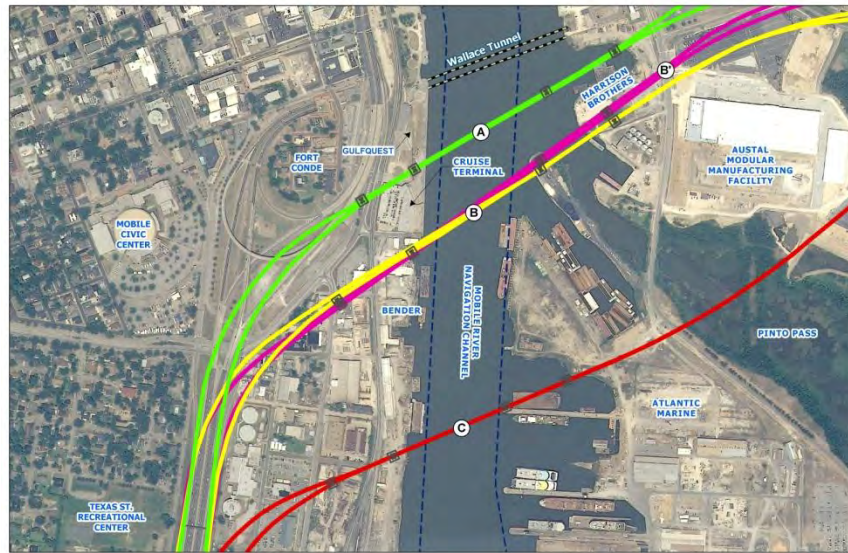
Alternate A is the northernmost proposed alternative bridge location. In this alternative, the bridge crosses the west bank of the Mobile River on City property between the northern side of the Alabama Cruise Terminal and south of the GulfQuest Maritime Museum being constructed by the City of Mobile and crosses the east bank on the northern side of the Harrison

Brothers property, just south of the Wallace Tunnel, and then continues on over ALDOT property to the north of Addesco Road.

The proposed bridge location on the west bank of the Mobile River will have an effect on cruise operations at the Alabama Cruise Terminal and a pylon would be constructed adjacent to the GulfQuest Maritime Museum. There could be indirect effects on the museum during construction. Exhibit 9 shows the location of the cruise terminal and the GulfQuest Maritime Museum in relation to the proposed bridge locations in Alternatives A and B/B'. For Alternative A, docked cruise vessels at the northern end of the terminal would be adjacent to, or under, the bridge. The proximity of the bridge to the vessel places the vessel and passengers at risk to damage or injury should rain run-off or debris fall from the bridge onto the ship. Bridges close to cruise terminals in other ports have installed fencing or other barriers to reduce the risk of this occurrence. A representative of the cruise terminal stated the location of the pylon is in the area where ship stores (supplies) were delivered and loaded onto the cruise ship and that security issues require delivery trucks to be unloaded 150 ft. from the ship. Truck queuing, unloading and access to the ship's side-port (door) to take on the stores may potentially be impacted by this pylon. In addition, underground waterlines to the ship are located in this area. Due to these issues, the representative added there is the potential for the terminal to shut down. These conflicts can potentially be resolved in the engineering and design phase of the bridge's construction. Cruise terminal impacts with Alternatives B/B' are further addressed in Section 2.2.

Exhibit 9

Location of Cruise Terminal to Alternatives A, B and B'



Source: Volkert, Inc.

The proposed I-10 Bridge location on the west bank has no impact on waterfront development planned for this City property according to the City of Mobile. Construction is underway for the GulfQuest Maritime Museum north of the cruise terminal. The planned routing of Alternative A is designed to run between the museum and the cruise terminal.

The east bank crossing of the bridge under Alternative A would severely impact shipyard operations in the area. The proposed location of one pylon is in the bay of the Harrison Brothers' operation. The U.S. Coast Guard has used Harrison Brothers to perform maintenance activities on its fleet of "black hull" vessels based on the Gulf Coast and inland rivers. These vessels are used to maintain aids to navigation and perform other work activities. As discussed previously Harrison Brothers is closing. Its property would be available for lease.

The east bank crossing of the bridge will pass over Austal's operations with the existing assembly yard operation to the north of the bridge and the module manufacturing facility and final outfitting yard to the south of the bridge and will not impact these operations. With the LCS and JHSV contracts with the Navy Austal's business plan estimated \$175 million in sales for FY 2010. Sales are projected to grow to \$900 million by FY 2014 and eventually increase to \$1.3

billion in steady state. As a result, employment will increase from 3,000 to over 4,000 personnel. In August 2012, Austal and the State of Alabama signed an agreement that could increase employment to 4,600 within five years. Austal is expanding its operation to accommodate the U.S. Navy work. The bridge construction will potentially interfere with the production work during the construction of the bridge by making transport of modules and materials between facilities difficult. Alternative A would have no physical impact on Austal and would not affect their parking.

Furthermore, there is a potential issue regarding the proposed bridge and the awarding of future U.S. Navy contracts. The issue is whether the location of the proposed bridge poses a security risk to military vessels that would be tied up at any of the Mobile shipyards. This could potentially affect the above noted U.S. Navy contract at Austal. The U.S. Navy has stated there currently are no Federal Regulations that would prevent a shipyard located under or in proximity to a bridge from bidding on or being awarded a U.S. Navy contract. However, there could potentially be security requirements placed in the contracts that would exclude such yards from doing the work. For example, shipyard interviews on this study reported there could potentially be a security requirement concerning a “2,000 yard line-of-sight”. This requirement would establish that there should be no unobstructed lines-of-sight within 2,000 yards between a U.S. Navy vessel and a fixed base from which an attack could be launched. (All munitions are removed from U.S. Navy vessels prior to entering a harbor for scheduled repair work). The bridge could be perceived as such a fixed base for attack. If this is the case, all four proposed alternative bridge locations could eliminate Austal, BAE, and Signal from performing U.S. Navy work. It is to be emphasized that interviews with NAVSEA and NAVFAC could not confirm this particular issue. It should also be noted that there are numerous fixed base features that currently exist within 2,000 yards (1.1 miles) of Austal, Harrison Brothers, BAE Systems, and Signal. If the 2,000 yard line-of-sight restriction actually existed, then U.S. Navy work would be prohibited under existing (No-Build) conditions.

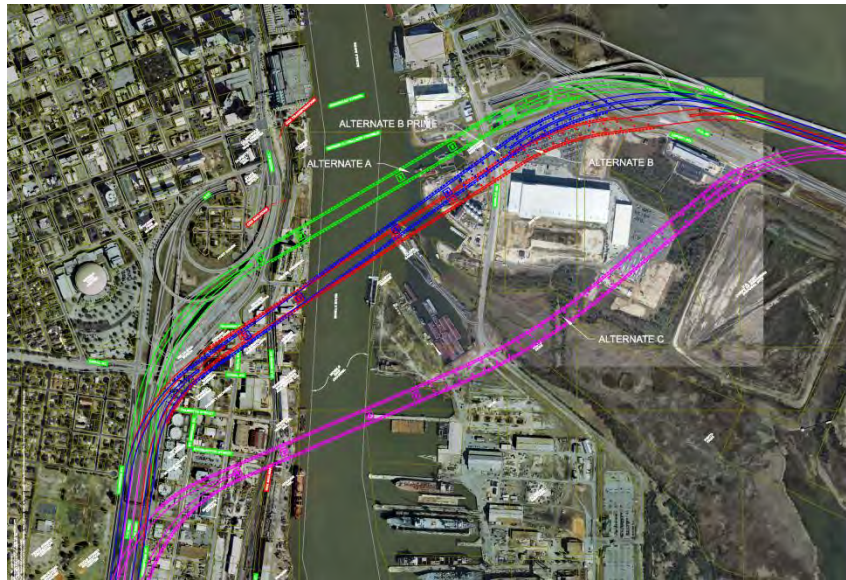
In summary, the impact of Alternative A would be the closure of Harrison Brothers, and the loss of some efficiency in communications and transport at Austal to build U.S. Navy vessels during the bridge construction period. Alternative A would also impact cruise terminal operations. The pylon location could potentially interfere with the loading of supplies aboard the cruise vessel and may also impact the underground waterlines. The proximity of the bridge to

the cruise vessel may also be an issue to cruise lines that would call on the port. Indirect effects to the GulfQuest Maritime Museum could occur during construction.

2.2 Alternative Locations B and B'

Exhibit 10 shows where the proposed Alternative B and B' locations would cross the west bank of the Mobile River near the southern end of the Alabama Cruise Terminal and north of the Signal Systems shipyard. The proposed east bank crossing is between the Harrison Brothers and the Austal outfitting yard and also bisects Austal's operations to the east. The proposed pylon locations for Alternatives B and B' are on Harrison Brothers property and on a peninsula at the northern side of the Pinto Island Industrial Park (Austal), respectively.

Exhibit 10
Bridge Crossings over Austal Property



Source: Volkert, Inc. – updated photo

The proposed east bank crossing for Alternatives A, B, and B' would affect Harrison Brothers and Austal to varying degrees. As discussed previously Harrison Brothers is closing their operations and their land is available for lease. The potential impacts to a successor tenant would be dependent upon their operations and activities.

For Alternative A, a pier would be located in the Harrison Brothers slip and would effectively eliminate potential ship repair activities. A tenant could conduct certain activities that could accommodate the pier and still conduct business.

For Alternatives B and B' the Harrison Brothers site would be affected to a lesser degree and could still operate as a ship repair facility if a tenant chose to pursue this type business. Alternative B would have less impact on the Harrison Brothers site because it would be located along the southern edge of the Harrison Brothers site.

The potential impacts to Austal are more difficult to discern and measure. In July 2012, Austal completed the expansion of its Modular Manufacturing Facility (MMF) Phase 2, Assembly Bay 5 and a new office complex. They have secure and lighted parking for their employees which are expected to increase from approximately 3,000 to more than 4,600 to meet contract requirements with the U.S. Navy. Austal is also developing an outfitting yard on the former Pinto Island Industrial Park that they acquired. In general, Austal constructs modules in the MMF and transports them to their assembly bays, launches the assembled vessels and will berth them in the outfitting yard for finishing and installation of equipment.

Because the evolving and complex nature of Austal's facilities and operations, special coordination was conducted with Austal by ALDOT and Volkert to discuss the potential implications of constructing Alternatives A, B, and B' across their site. The discussion led to a better mutual understanding of Austal's needs and concerns as well as the potential impacts of a bridge on their operations.

Adequate and secure parking within a confined footprint was a concern to Austal. Proposed bridge piers would not impact Austal's buildings but would occupy a portion of their parking lot. The inability to accommodate employee parking may hinder Austal's ability to increase their workforce which in turn may affect their ability to undertake the required work for the Navy in the future. Alternative B would have more adverse effects than B'. Measures would be required to replace lost parking spaces and to maintain security during construction. The construction of an employee parking garage could mitigate a large part of the parking issue.

Another area of concern expressed by Austal was potential interference with their transporting of modules or other operations while the bridge was being constructed. These types of impacts can be addressed through close coordination during design and construction phases.

An Alternative B or B' pylon that would be located on an existing pier on the riverside of Austal's outfitting yard was also a concern; these types of concerns can be addressed during final design to minimize adverse effects.

Austal's acquisition of the Pinto Island Industrial Park, in order to develop its outfitting yard, will necessitate the displacement of the following businesses: Oil Recovery (a tug and barge cleaning service), Alabama Abrasives, Farmers Grain Dealers (Grain Silos), Higman Barge Lines, and American Electric Power. These displacements will occur due to Austal's expansions and therefore would not be attributed to the construction of the proposed bridge.

The proposed bridge location on the west bank of the Mobile River will also have an effect on cruise operations at the Alabama Cruise Terminal similar to Alternative A. Under Alternative B, docked cruise vessels at the southern end of the terminal would be adjacent to, or under the bridge. The same risk for vessel damage or personal injury exists should rain run-off or debris fall from the bridge onto the ship. Alternative B' is slightly south of Alternative B on the west bank. Therefore, it would have a little less potential effect on cruise operations.

Interviews with Carnival Cruise Lines indicated that Carnival would prefer not to operate with these bridge location scenarios. As discussed previously, CCL ceased operations in Mobile on October 22, 2011, and the City of Mobile and others are actively recruiting a replacement cruise operation. Coordination with the City of Mobile, Mobile Area Chamber of Commerce, and the Cruise Industry Task Force indicates that a bridge with a 215-foot air draft clearance would not be an impediment to the recruitment efforts. The Alabama Cruise Terminal could still function.

The proposed location of the bridge would also affect potential expansion of the Mobile Alabama Cruise Terminal. The City of Mobile has looked at extending the terminal 250 ft. to the south (expansion northward is not possible) which would result in the bridge passing directly

over the terminal. The City would have to acquire this property still owned by Bender. However, the City has also re-evaluated the future demand for the cruise terminal and has lowered the potential need to expand but still holds that option open. Any potential expansion would be dependent upon a replacement cruise operation.

In summary, there will be no impact of the bridge locations in Alternatives B and B' on BAE operations, and while it would make operations more difficult at Harrison Brothers' site, the yard could still function. The bridge location would interfere with Austal's existing production and administrative operations and will require close coordination during design and construction to minimize disruptions. Alternative B has a more severe impact than B' to Austal because it reduces the waterfront wet berths by one half and it more significantly disrupts the production capability to transport the ship modules to the assembly area. Alternative B also removes more administrative, parking, and production land area from Austal use, in addition to the disruption caused by the bridge construction over the time required for construction. The inability to accommodate future demand for employee parking may impact Austal's ability to increase employee levels to meet project demand of its contract with the Navy.

Cruise terminal operations would be affected if it is determined that terminal expansion is needed to the south. This could impact the cruise lines' port of call decisions if the bridge is built across the expanded terminal. Currently, there is less probability that the cruise terminal expansion will occur. However, an expansion to the south would likely only proceed if the City is able to acquire 250 ft. of riverfront from Bender and a replacement cruise operation is recruited.

2.3 Alternative Location C

Alternative bridge location C crosses the west bank of the Mobile River over the Signal shipyard and crosses the east bank over the BAE operations. The proposed bridge crossing over the Signal property is shown in Exhibit 11. The proposed location of a bridge pylon on the Signal property has the potential to impact a large portion of Signal's operations at this west bank operation. The bridge pylon location is proposed in the center of a narrow open area between Signal's plate shop and panel line north of the proposed bridge location and Signal's assembly area and launch ways to the south of the bridge location. It is within this open area

that large panels and assemblies are transported from the panel line to the assembly area and launch ways. An example of an assembly in transit is shown in Exhibit 11. The assembly transporter is a wide multi-tiered vehicle with limited turning flexibility. In the earlier study Bender stated that depending on the size of the pylon footprint and security perimeter around the pylon, it is unlikely the assembly transporter would be able to pass around either side of the pylon. Relocating the pylon to allow the transporter to pass is possible. The relocation of the pylon has the potential to impact other less critical operations at the yard. For example, relocating the pylon closer to the river bank may impact the docking of vessels in this area as well as impact the accessibility to perform repair work on those vessels. Bender had estimated 70% of its business would be impacted if large panels and assemblies could not be moved through this area. Signal concurs with Bender’s assessment that its business would be similarly impacted if the pylon were to be placed in this area.

Exhibit 11

Proposed I-10 Bridge Crossing over Former Bender Property (Signal)



Source: Bender Ship Building & Repair

The east bank crossing of the proposed Alternative C is south of the former Atlantic Marine’s Panamax Bay facility, now part of the Pinto Island Industrial Park (Austal). The proposed locations of the pylons are at opposite corners of the bay to the south of the Panamax Bay. Rig work is conducted by BAE in the bay to the south of Panamax Bay. A feature of this

bay is a submerged barge hinged to the bulkhead that is raised and lowered to raise and lower rigs during the repair work. The barge is located in a dredged area 65 ft. deep to accommodate the barge movement. The alignment of the proposed bridge crosses the bay and will impact rig work conducted by BAE. BAE has plans to pursue additional repair work for drill ships and rigs. All rigs would have to pass beneath the bridge to reach this bay and would have to pass beneath it a second time entering the bay. Although the proposed bridge will be built with a greater clearance reducing height restrictions on vessels using the bay, the potential impact on operations could increase should the actual building site shift to the south and encroach on BAE's Pier E limiting the ability of drill ships from entering and leaving the slip. Alternative C also crosses the Austal potential southeast parking area expansion, reducing approximately 500 parking spaces (about 15% of planned parking spaces), and precludes expansion for the future 120,000 ft² warehouse, production maintenance facility, and the blast and paint building.

In summary, the proposed Alternative C bridge location has the potential to significantly impact Signal's operation unless a relocation of the pylon can be made that does not prevent the assembly transporter from moving the length of Signal's facilities. The proposed bridge at Alternative C also would have impacts on BAE. BAE's bay that is designed to accommodate rigs may not be accessible and the bridge location across the bay may make rig work impractical. The unique feature of the bay, the hinged barge, cannot be relocated to other BAE sites and therefore would not be utilized if the bay is not used due to the bridge location. Austal's planned expansions to accommodate planned business activities in the near-term would be curtailed.

3. VEHICULAR TRAFFIC IMPACT

Alabama Department of Transportation projects vehicular traffic on I-10 through Mobile to increase 3.5% annually. Projecting this rate long-term indicates traffic will double in 20 years and triple 12 years later. As a result ALDOT has stated major constraints will occur by 2035. Without an alternative routing, such as the proposed I-10 bridge, a continual increase in vehicular traffic will eventually lead to increasing traffic delays through the Wallace and Bankhead Tunnels as I-10 passes beneath the Mobile River. The longer delay times will likely result in longer back-ups for the tunnel entrances.

Delay times and back-ups have the potential of impacting truck traffic moving to and from public and private marine terminals. Initially delay times will be built into trucking schedules and the associated increase in truck operating costs will be incurred by the shipper and/or carrier. Eventually the increased costs will be passed on to the shippers or consignees, which in turn will be passed on to consumers in terms of higher prices.

Delays generated under a No-Build scenario may also impact business decisions and operations. Shippers/consignees now using the Port of Mobile's public and private marine terminals may look to alternative routings, i.e. new ports of import/export, if available, should the added costs and delays affect their operations and markets. For example, the Port of New Orleans may be a potential alternative for container shippers and consignees west of Mobile. Break bulk shippers/consignees may also be able to use the ports of Pascagoula and Gulfport in addition to New Orleans. Cost and transit time savings may be realized using these ports rather than Mobile in the distant future. Similarly, container and break bulk shippers/consignees east of Mobile could potentially use the ports of Panama City, Jacksonville, Savannah, and Tampa. Bulk operations are unlikely to relocate, particularly if they are dependent on rail service. Truck traffic supporting the Mobile shipyards will be impacted as well both for the receipt of domestic and international goods. The yards would not relocate due to traffic constraints but will have to pass on increased trucking costs to their customers. Coastal barging may be an option as well.

Delays have the potential to impact the development of infrastructure to support marine cargo using the Port of Mobile. Import containers handled through the APM Terminal Mobile could be destined for local or regional distribution centers (DCs). In the long-term delays and increased costs may result in the import containers being routed through a competing port for a "Mobile" delivery. Developers looking to build DCs in the Mobile area may take congestion delays into account when looking at potential sites. Sites west of Mobile would not be as impacted by the traffic delays caused by the tunnels since the container terminal is also west of the tunnels. Sites east of Mobile may not be seen as favorable for DC development. Sites west of Mobile have the potential of attracting import containers using the Port of Gulfport, should a large container market develop at this port. The Mississippi State Line is approximately 30 miles from Mobile along I-10. DC development serving both the Ports of Mobile and Gulfport could potentially be built in Mississippi which could benefit from the tax and other economic

impacts. In summary, severe congestion on I-10 in proximity to the Wallace Tunnel and the APM Terminal Mobile would adversely affect highway freight traffic and could influence future business decisions.

III. ECONOMIC IMPACT OF THE PROPOSED I-10 BRIDGE

The potential operational impacts identified in the previous chapter are quantified as potential economic impacts in this chapter.

1. ECONOMIC IMPACT METHODOLOGY

The methodological approach to this study is designed to provide highly defensible, as well as accurate results. This methodology has been used by Martin Associates in the last 25 years to assess the economic impacts of activity at seaports including:

<i>Los Angeles</i>	<i>Houston</i>	<i>Wilmington/Morehead City, NC</i>
<i>Long Beach</i>	<i>Texas City</i>	<i>Virginia Port Authority</i>
<i>Oakland</i>	<i>Beaumont/Port Arthur</i>	<i>Baltimore</i>
<i>Portland</i>	<i>Victoria, TX</i>	<i>Philadelphia</i>
<i>Seattle</i>	<i>Freeport, TX</i>	<i>Jacksonville</i>
<i>Tacoma</i>	<i>Corpus Christi</i>	<i>Tampa</i>
<i>Sacramento</i>	<i>New Orleans</i>	<i>Palm Beach</i>
<i>San Francisco</i>	<i>Baton Rouge</i>	<i>Providence</i>
<i>Vancouver, BC</i>	<i>Port Everglades</i>	<i>18 U.S. Great Lakes Ports</i>

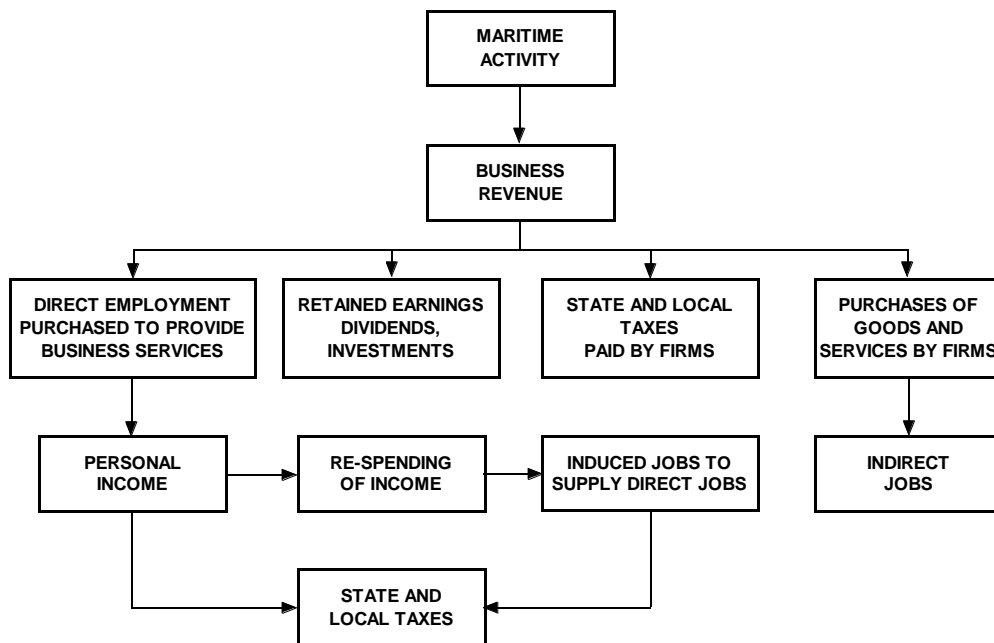
Specific shipyard impact models have been developed for the Portland Shipyard, the Tampa Bay Shipbuilding and Repair Company, International Ship Repair and Marine Services, Inc. (Tampa), Gulf Marine Repair Corp. (Tampa), Kvaerner Philadelphia Shipyard, Newport News Shipbuilding, and San Francisco Dry Dock (now BAE Systems San Francisco Ship Repair).

1.1 Economic Impact Structure

Shipyard operations as well as marine cargo operations, and passenger cruise activity at a seaport contribute to the local and regional economy by generating business revenue to local and national firms providing vessel and cargo handling services; ship construction, repair and conversion services; and cruise passenger services at the seaport. These firms, in turn, provide

employment and income to individuals, and pay taxes to state and local governments. Exhibit 12 shows how ship repair and construction, maritime activity, and cruise activity at the Port of Mobile generate impacts throughout the local, state and national economies. As this exhibit indicates, the impact of this activity on a local, state or national economy cannot be reduced to a single number, but instead, the seaport activities create several impacts. These are the revenue impact, employment impact, personal income impact, and tax impact. These impacts are non-additive. For example, the income impact is a part of the revenue impact, and adding these impacts together would result in double counting. The exhibit shows graphically how shipyard, cargo and cruise activity in the Port of Mobile generate the four impacts.

Exhibit 12
Flow of Economic Impacts Generated by Maritime Activity
(Shipyard, Cruise and Cargo Activities)



Business Revenue Impact

At the outset, shipyard, cargo or cruise activities generate business revenue for firms that provide services. This business revenue impact is dispersed throughout the economy in several ways. It is used to hire people to provide the services, to purchase

goods and services, to pay for the use of seaports and to make federal, state and local tax payments. The remainder is used to pay stockholders, retire debt, make investments, or is held as retained earnings. It is to be emphasized that the only portions of the revenue impact that can be definitely identified as remaining in the State of Alabama are those portions paid out in salaries to Alabama employees, for local purchases by individuals and businesses directly dependent on the seaport, and in contributions to state and local taxes, as well as federal taxes.

Employment Impact

The employment impact of shipyard, cargo or cruise activity consists of three levels of job impacts:

- Direct employment impact - jobs directly generated by shipyard, cargo or cruise activity. Direct jobs generated by marine cargo include jobs with railroads and trucking companies moving cargo between inland origins and destinations and the marine terminals, longshoremen, steamship agents, freight forwarders, stevedores, etc. Direct jobs generated by shipyard activity include employees of the shipyards, as well as the subcontractors employed as part of the contract work. Direct jobs with cruise operations include jobs with firms providing services to the cruise vessels such as local chandlery firms, bunkering firms, tour activity, public relations firms, etc. It is to be emphasized that these are classified as directly generated in the sense that these jobs would experience near term dislocation if the Mobile operations were to be closed or limited. These jobs are, for the most part, local jobs and are held by residents of Alabama.

- Induced employment impact - jobs created throughout the local economy because individuals are directly employed because of the shipyard activities. Cargo and cruise vessel employees spend their wages locally on goods and services such as food, housing and clothing. These employees may be located throughout the region and state. Therefore, their expenditures are estimated based on local and regional statewide purchases.

- Indirect Jobs - are jobs created in the State of Alabama due to purchases of goods and services by firms, not individuals. These jobs are estimated directly from local purchases data supplied to Martin Associates by the 4 shipyards interviewed as part of this study, and include jobs with local office supply firms, maintenance and repair firms, parts and equipment suppliers, etc. It is to be emphasized that special care was taken to avoid double counting, since the current study counts certain jobs as direct, which are often classified as indirect by other approaches.

Personal Earnings Impact

The personal earnings impact is the measure of employee wages and salaries (excluding benefits) received by individuals directly employed due to shipyard, cruise and cargo activities. Re-spending of these earnings throughout the State of Alabama for purchases of goods and services is also estimated. This, in turn, generates additional jobs -- the induced employment impact. This re-spending throughout the state is estimated using a state personal earnings multiplier, which reflects the percentage of purchases by individuals that are made within a state. The re-spending effect varies by state: a larger re-spending effect occurs in states that produce a relatively large proportion of the goods and services consumed by residents, while lower re-spending effects are associated with states that import a relatively large share of consumer goods and services (since personal earnings "leak out" of the state for these out-of-state purchases). The direct earnings are a measure of the local impact since those directly employed by seaport activity receive them. The re-spending effect is statewide.

Tax Impact

Federal, state and local tax impacts are tax payments to the state and local governments by firms and by individuals whose jobs are directly dependent upon and supported (induced jobs) by activity at the Mobile ship/boat construction and repair facilities, cargo activity and cruise operations.

1.2 Summary of Shipyard Impact Methodology

Four steps conducted in the economic impact analysis of the Mobile shipyards are summarized below.

Data Collection

The cornerstone of the Martin Associates approach is the collection of detailed baseline impact data from four shipyards in the Port of Mobile: Bender Shipbuilding (Signal), Atlantic Marine (BAE), Austal USA, and Harrison Brothers. To ensure accuracy and defensibility, the baseline impact data and operational impacts resulting from the proposed bridge were collected from personal interviews, supplemented by telephone and electronic mail with the four firms and their successors, as appropriate, in Mobile.

Direct Jobs, Income and Revenue Impacts

The results of these interviews were then used to develop the baseline direct job, revenue and income impacts for the ship- and boatyards. The direct tax impacts are estimated at a state, county and local level based on per income tax burdens developed by the Tax Institute.

This baseline survey data was also used to develop operational models that can be used to update the impacts of the shipyard activities on an annual basis and to evaluate the impacts of changes in:

- Contract values by type of vessel;
- Share of subcontracting work;
- Composition of yard work by type of vessel.

Induced Impacts

Induced impacts are those generated by the purchases of the individuals employed as a result of seaport activity. For example, a portion of the personal earnings received by

those directly employed due to activity at the seaport is used for purchases of goods and services, both in-state, as well as out-of-state. These purchases, in turn, create additional jobs in the State of Alabama, which are classified as induced. To estimate these induced jobs, a personal earnings multiplier for the State of Alabama was developed from data provided by the Bureau of Economic Analysis, Regional Input-Output Modeling System. This income multiplier is used to estimate the total personal earnings generated in the state. A portion of this total personal earnings impact is next allocated to specific local purchases (as determined from consumption data for Alabama residents, as developed from the U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2004). These purchases are next converted into retail and wholesale induced jobs in the regional economy.

Induced jobs are not estimated at lower levels of purchasing rounds (after the wholesale round) since it is not possible to trace with a sufficient degree of accuracy, geographically, where purchases at the remaining levels occur. However, about 80 percent of the consumption will likely occur at the first two rounds of purchases, which are most likely local retail and wholesale purchases.

Indirect Jobs

Indirect jobs are generated in the local economy as the result of purchases by firms that are directly dependent upon activity at the Mobile shipyards. These purchases are for goods such as office supplies and equipment, maintenance and repair services, raw materials, communications and utilities, transportation services and other professional services. To estimate the indirect economic impact, local purchases, by type of purchase, were collected from each of the four shipyards interviewed. These local purchases were then combined with employment to sales ratios in local supplying industries, developed from U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System for Alabama. These job-to-sales ratios capture the numerous spending rounds associated with the supply of goods and services. Special care has been exercised to avoid double counting the indirect impacts, and to specifically include only the expenditures by the directly dependent firms that are, in fact, local.

2. BASELINE ECONOMIC IMPACT OF THE MOBILE SHIPYARDS

As part of the Economic Impact Study of the proposed I-10 Bridge, Martin Associates conducted an economic impact assessment of the ship repair operations that are performed in the Port of Mobile: Bender Shipbuilding (Signal), Atlantic Marine (BAE) – Mobile and Alabama Shipyard, Harrison Brothers and Austal USA. The ship repair work includes ship building activities. The impacts generated by the ship repair work are measured in terms of:

- Jobs;
- Personal Income;
- Business Revenue;
- State and Local Taxes.

Expenditures associated with ship repair work typically occur in three ways. First, vessel owners contract directly with ship repair firms. The ship repair firms provide direct ship repair services with the companies' own employees and further purchase materials and subcontracting services. These subcontractor services include sandblasting, painting, boiler maintenance, electrical and machine part repairs, equipment replacement and maintenance. In turn, the subcontractors also purchase local parts, supplies and materials.

Secondly, vessel owners also make purchases directly from local vendors and suppliers of maritime services. For example, direct purchases include paint, mechanical, electrical and machine parts, flooring and carpeting, and ship stores and supplies. It is important to emphasize that the owners are not typically located in the Mobile Area, and, hence, these expenditures represent "new" money to the region.

In addition to the purchases by the vessel owners, either via the prime contractor (i.e. Signal or BAE) or direct with local suppliers, when the vessels are in the yard, crew members typically stay on-board performing routine maintenance tasks, including painting. In addition to the crew, the owner's technical teams are deployed to the Mobile Area to oversee repair work. These technical teams typically stay in local hotels. The crew on-board purchase food and

entertainment services and the technical team also generates economic impacts with the local hotels, rental car companies, and restaurants.

The impacts are estimated for the types of vessel market sectors served by the Mobile ship repair facilities. These vessel sectors are:

- Offshore rigs;
- Cruise/Passenger and Ferry;
- Tug and Barge;
- Tanker;
- Dry Bulk and General Cargo;
- Miscellaneous.

The impacts are also estimated separately by job category for each of these market sectors. The job categories consist of:

- Prime Contractor: includes the full-time equivalent jobs;
- Subcontractors: includes local firms supplying goods and services to the prime contractors, as well as sub-subcontractors providing services to the subcontractors;
- Crew Purchases: includes impacts generated in hotels, restaurants, retail, rental car companies, and entertainment establishments;
- Owner direct purchases: includes impacts with equipment and part suppliers, paint distributors, miscellaneous equipment and parts.

The resulting economic impacts generated by the Mobile ship repair facilities in 2009 (the Baseline Year) on the local area and state of Alabama are shown in Exhibit 13. The year 2009 was selected as the baseline since it was the most recently completed calendar year at the time of the initial interviews for this update. Although, the economic activities of the various maritime entities varies from year to year, the 2009 baseline is considered to be representative

of ongoing activities for the purpose of determining the relative level of economic impacts associated with the four bridge alternatives.

Exhibit 13
Positive Economic Impacts Generated by
Activity by Mobile Area Ship Repair Activities

REMAINING BASELINE WITH ALTERNATIVE A	BASELINE IMPACT
JOB	
DIRECT	3,448
INDUCED	2,280
INDIRECT	<u>2,817</u>
TOTAL JOBS	8,545
PERSONAL INCOME (\$000)	
DIRECT	\$133,163
RE-SPENDING/CONSUMPTION	\$131,926
INDIRECT	<u>\$98,782</u>
TOTAL INCOME AND CONSUMPTION	\$363,871
STATE/LOCAL TAXES (\$000)	\$32,020
DIRECT BUSINESS SERVICES REVENUE (\$000)*	\$386,156
LOCAL PURCHASES (\$000)	\$166,326
VALUE TO REGIONAL ECONOMY (\$000)**	\$562,218

Totals may not add due to rounding

* Not included in value to regional economy impact because it would be double-counting

** Value to Regional Economy = Total Income and Consumption + Taxes + Local Purchases

2.1 Job Impact

The ship repair activity at the Mobile facilities in 2009 generated 8,545 full-time equivalent jobs for Alabama, Mississippi and Florida residents dependent on Mobile shipyard activity. A full-time equivalent job is defined as a job requiring 2,080 hours annually. A person working only 50 percent of the time is classified as 0.5 jobs for purposes of this study. The 8,545 full-time equivalent jobs consist of:

- 3,448 direct jobs include the ship repair facilities, subcontractors, visitor industry firms, chandlers, electrical, paint and mechanical parts suppliers. These jobs would vanish if

the ship repair facilities were no longer in business. Jobs with other firms located in the vicinity of the shipyards that could be potentially impacted by bridge placement are also included.

- As the result of purchases in the local economy by the 3,448 direct full time jobs, another 2,280 induced jobs were generated in the Mobile Area.
- As the result of \$166.3 million of local purchases, 2,817 indirect jobs were also generated in Alabama, and this excludes jobs with subcontractors that have been included with the direct jobs.

To estimate the jobs generated by ship repair activity, the ship repair facilities provided the following data to Martin Associates:

- Contract value by market sector and the number of projects in each market sector;
- For each market sector, the composition of the contract value of a typical project:
 - Share spent on labor;
 - Share spent on subcontractor and materials;
 - Overhead;
- Labor costs, fully loaded to include:
 - Base rate;
 - Health insurance;
 - Workmen's compensation;
 - Liability insurance;
 - Miscellaneous benefits;
 - Total hourly labor costs;
- Place of residence of workers.

Based on this data and interview results, ratios were developed to convert prime contract ship repair dollar values into required person hours. To estimate the direct jobs with subcontractors, the percent of contract value typically spent on local subcontractors and material purchases was estimated from the prime contractors interview results. The percent of subcontractor dollars distributed to different types of subcontract work (i.e., sandblasting, boiler cleaning and repair, and parts and materials purchases) was next developed. To estimate the full-time equivalent jobs with subcontractors, the share spent on each type of subcontract was then multiplied by jobs to sales ratios for the relevant subcontractors using data from the Census of Manufacturers, Census of Wholesale Trade and the Census of Service Industries.

Data and assumptions were also developed as to:

- Length of time the vessel stays in the ship repair yard;
- Number of crew that remains on board;
- Average daily expenditures while in the Mobile Area by crew and technical team members.

The impact of the crew and technical team expenditures were estimated using the Martin Associates Visitor Industry Impact Model, calibrated as part of this study for the Mobile Area. Direct jobs in the visitor industry were estimated based on the number of yard days, by market sector, and the number of crew associated with a typical vessel project in each market sector.

2.2 Personal Income Impact

The 3,448 direct job holders received \$133.2 million of direct wages and salaries, for an average salary of \$38,620. As the result of the use of this income for the purchases of goods and services, another \$131.9 million of local consumption purchases and re-spending are made. These consumption purchases create the additional 2,280 induced jobs in the Mobile Area. The 2,817 indirect job holders received \$98.8 million of indirect income. The total direct, induced and consumption impact, and indirect income impact is \$363.9 million.

2.3 Business Revenue Impact

The ship repair facilities and the subcontractors and firms supplying materials and services to the repair facilities and to the vessel owners received \$386.2 million of business revenue from repair activity at Mobile Area ship repair facilities in 2009. Due to confidentiality considerations, the revenue is not broken out by market sector.

2.4 Tax Impact

Finally, the ship repair activity by Mobile Area ship yards generated \$32 million of tax revenue to the state and local governments.

3. IMPACTS OF ALTERNATIVE BRIDGE LOCATIONS ON MOBILE SHIPYARDS AND THE REGIONAL ECONOMY

As identified, the proposed I-10 Bridge across the Mobile River will impact Mobile shipyard operations in general regardless of the alternative routings proposed. The extent of the loss of business activity varies by market and yards depending on the alternative. The proposed bridge will also impact the cruise market to a lesser extent, in both repair work and in passenger activity. The following sections present the estimated economic impacts of the proposed alternative bridge locations on Mobile shipyard operations and Mobile area and state of Alabama economies. Although the operational impacts by alternative (and scenario) are specific to the affected yards in each alternative, the resulting economic impact estimates are presented in the aggregate to maintain the confidentiality of the data collected from the area shipyards. In each economic impact assessment presented below, it is assumed the proposed bridge will have a height of 215 ft. The impacts associated with the various alternatives can be considered to be losses on an annual basis after the bridge is constructed.

3.1 Economic Impact of Alternative A

The economic impacts generated by shipyard activity that can be conducted at the shipyards with the bridge built in accordance with Alternative A are shown in Exhibit 14. In this scenario it is assumed Harrison Brothers, or its successor; will close and that rigs will not be

able to be repaired at the Bender Yard #9 facility. This scenario does not include an assessment of the potential impact bridge construction will have on the ability of Austal to build vessels for the U.S. Navy during the four- to five-year construction period. This Alternative also assumes the cruise activity at the Alabama Cruise Terminal will restart and continue to operate similar to CCL. The economic impacts of the cruise activity are presented in Section 3.5. However, if such activity were impacted by Alternative A and cruise service would be discontinued then these impacts would have to be added to the shipyard impacts. Exhibit 14 also compares the alternative impacts with the baseline impacts. The resulting change (loss) in economic impacts is the impact of the bridge under Alternative A.

Exhibit 14

Economic Impacts of Shipyard Activity under Alternative A

ECONOMIC IMPACT CATEGORY	BASELINE IMPACT	REMAINING BASELINE WITH ALTERNATIVE A	IMPACT OF ALTERNATIVE A (LOSS)
JOBS			
DIRECT	3,448	3,417	31
INDUCED	2,280	2,259	21
INDIRECT	<u>2,817</u>	<u>2,791</u>	<u>26</u>
TOTAL JOBS	8,545	8,467	78
PERSONAL INCOME (\$000)			
DIRECT	\$133,163	\$131,702	\$1,461
RE-SPENDING/CONSUMPTION	\$131,926	\$130,528	\$1,398
INDIRECT	<u>\$98,782</u>	<u>\$97,886</u>	<u>\$896</u>
TOTAL INCOME AND CONSUMPTION	\$363,871	\$360,116	\$3,755
STATE/LOCAL TAXES (\$000)	\$32,020	\$31,690	\$330
DIRECT BUSINESS SERVICES REVENUE (\$000)*	\$386,156	\$383,932	\$2,224
LOCAL PURCHASES (\$000)	\$166,326	\$164,822	\$1,504
VALUE TO REGIONAL ECONOMY (\$000)**	\$562,218	\$556,627	\$5,590

Totals may not add due to rounding

* Not included in value to regional economy impact because it would be double-counting

** Value to Regional Economy = Total Income and Consumption + Taxes + Local Purchases

The exhibit shows that Alternative A will result in a loss of 31 direct jobs, and 47 induced and indirect jobs. Direct personal earnings will fall by \$1.5 million and as the result of re-spending of this direct income, another \$1.4 million of re-spending and consumption impacts will be lost from the Mobile economy. In addition, \$1.5 million of local purchases to support shipyard activity will be lost from the economy, resulting in the loss of 26 indirect jobs. The local

shipyards will also lose about \$2.2 million in business revenue annually and the state and local governments will lose \$0.3 million in state and local taxes.

3.2 Economic Impact of Alternatives B and B Prime

Under Alternatives B and B', the shipyard impacts considered are the loss of tall oil rig repair and construction activity at Yard #9 and no reduction in Austal's U.S. Navy business, although investment in site improvement will be required. It is anticipated Austal will lose a parcel of land due to the footprint of the bridge on a site designated for current and future employee parking. This area is needed to meet increased employment generated by future levels in the Navy contract. Without the parking area Austal may not be able to meet future labor demand and therefore may see a reduction in future Navy work. The parking situation can be improved with the construction of an on-site parking garage (estimated construction cost of \$15 million). The annualized cost for the parking garage would be \$1.12 million. Austal also estimates the annual business cost associated with effects from the bridge on operations is approximately \$5 million. This impact may occur due to the inefficiencies of transporting modules around the bridge structures between the manufacturing and assembly facilities. The total annual cost associated with transportation inefficiencies and the parking garage would be \$6.12 million. Exhibit 15 shows the economic impact of Alternatives B and B' if the parking issue is resolved and there is no reduction in Navy contracts but does include the impact of transportation inefficiencies represented as "lost work" to Austal.

Exhibit 15

Economic Impacts of Alternatives B and B' with Site Improvements

ECONOMIC IMPACT CATEGORY	BASELINE IMPACT	REMAINING BASELINE WITH IMPROVEMENTS	IMPACT WITH IMPROVEMENTS (LOSS)
JOBS			
DIRECT	3,448	3,409	39
INDUCED	2,280	2,257	23
INDIRECT	<u>2,817</u>	<u>2,782</u>	<u>35</u>
TOTAL JOBS	8,545	8,448	97
PERSONAL INCOME (\$000)			
DIRECT	\$133,163	\$131,892	\$1,271
RE-SPENDING/CONSUMPTION	\$131,926	\$130,710	\$1,216
INDIRECT	<u>\$98,782</u>	<u>\$97,556</u>	<u>\$1,226</u>
TOTAL INCOME AND CONSUMPTION	\$363,871	\$360,158	\$3,713
STATE/LOCAL TAXES (\$000)	\$32,020	\$31,693	\$327
DIRECT BUSINESS SERVICES REVENUE (\$000)*	\$386,156	\$381,156	\$5,000
LOCAL PURCHASES (\$000)	\$166,326	\$164,269	\$2,057
VALUE TO REGIONAL ECONOMY (\$000)**	\$562,218	\$556,120	\$6,069

Totals may not add due to rounding

* Not included in value to regional economy impact because it would be double-counting

** Value to Regional Economy = Total Income and Consumption + Taxes + Local Purchases

The exhibit shows the impacts of Alternatives B and B' with site improvement to meet future parking requirements results in a loss of \$6.1 million in value to the regional economy. The exhibit shows the economic impacts of Alternatives B and B' with site improvement will result in a loss of 97 total jobs of which 39 are direct jobs. This corresponds to a loss of \$1.3 million in direct earnings and \$2.4 million re-spending and indirect earnings. A loss of \$2.1 million in local purchases will be realized and \$327,000 in state and local taxes will be lost.

Exhibit 16 shows the impacts under Alternatives B and B' if the site improvements are not made. In this scenario the shipyard impacts considered are the loss of tall oil rig repair and construction activity at Yard #9 and a reduction in Austal's U.S. Navy business. It is assumed that cruise activity at the Mobile cruise terminal will restart.

Exhibit 16

Economic Impacts of Alternatives B and B' without Site Improvements

ECONOMIC IMPACT CATEGORY	BASELINE IMPACT	REMAINING BASELINE WITH ALT B & B'	IMPACT OF ALT B & B' (LOSS)
JOB			
DIRECT	3,448	2,527	921
INDUCED	2,280	1,776	504
INDIRECT	<u>2,817</u>	<u>1,965</u>	<u>852</u>
TOTAL JOBS	8,545	6,268	2,277
PERSONAL INCOME (\$000)			
DIRECT	\$133,163	\$102,958	\$30,205
RE-SPENDING/CONSUMPTION	\$131,926	\$103,029	\$28,897
INDIRECT	<u>\$98,782</u>	<u>\$68,969</u>	<u>\$29,813</u>
TOTAL INCOME AND CONSUMPTION	\$363,871	\$274,956	\$88,915
STATE/LOCAL TAXES (\$000)	\$32,020	\$24,195	\$7,825
DIRECT BUSINESS SERVICES REVENUE (\$000)*	\$386,156	\$269,485	\$116,671
LOCAL PURCHASES (\$000)	\$166,326	\$116,294	\$50,032
VALUE TO REGIONAL ECONOMY (\$000)**	\$562,218	\$415,446	\$146,771

Totals may not add due to rounding

* Not included in value to regional economy impact because it would be double-counting

** Value to Regional Economy = Total Income and Consumption + Taxes + Local Purchases

It is estimated that the Alternatives B and B' with no site improvement will result in the loss of 921 direct jobs and 1,356 induced and indirect jobs, for a total annual job loss of 2,277 jobs. Direct wages and salaries of \$30.2 million received by the 921 directly impacted jobs will also be lost, as will \$28.9 million of local re-spending impacts and consumption impacts. Local purchases by the shipyards will fall by \$50.0 million annually, and this leads to a loss of 852 indirect workers. The shipyards will lose \$116.7 million in annual business revenue, and \$7.8 million in state and local taxes will be lost to the state of Alabama and local jurisdictions. The total impact of Alternatives B and B' without site improvement is a loss of \$146.8 million in value to the regional economy compared to \$6.1 million if the improvement is made and results in a reduction in Navy work.

3.3 Economic Impact of Alternative C

Exhibit 16 presents the economic impacts generated by the Mobile shipyards if the proposed bridge is built in accordance with Alternative C. Two sub-scenarios associated with this scenario were presented in the earlier reports and are not included in the 2009 analysis. The data received for the 2009 analysis did not provide detail to permit the sub-analyses. The current analysis assumes the west bank pylon of the proposed bridge is located on Signal (formerly Bender) property and prevents the transport of large plate and assemblies to the assembly and launch areas. This scenario also assumed rig work would cease at Yard #9 and no rig work is performed at BAE.

Exhibit 17 shows that 1,318 direct jobs are lost as a result of the bridge being built in accordance with Alternative C. This represents 38% of the baseline direct jobs. In addition, 1,940 induced and indirect jobs are lost from the economy. The alternative results in a loss of \$50.5 million in direct personal earnings and \$132.3 million in total wage and salary earnings and consumption impacts. The alternative also results in a loss of \$137.1 million in direct business revenue to the yards and subcontractors, a loss of \$56.2 million of local purchases supporting the indirect jobs, and \$11.6 million loss in state and local taxes.

Exhibit 17

Economic Impacts of Shipyard Activity under Alternative C

ECONOMIC IMPACT CATEGORY	BASELINE IMPACT	REMAINING BASELINE WITH ALTERNATIVE C	IMPACT OF ALTERNATIVE C (LOSS)
JOBS			
DIRECT	3,448	2,130	1,318
INDUCED	2,280	1,297	983
INDIRECT	<u>2,817</u>	<u>1,859</u>	<u>957</u>
TOTAL JOBS	8,545	5,286	3,258
PERSONAL INCOME (\$000)			
DIRECT	\$133,163	\$82,651	\$50,513
RE-SPENDING/CONSUMPTION	\$131,926	\$83,601	\$48,325
INDIRECT	<u>\$98,782</u>	<u>\$65,274</u>	<u>\$33,508</u>
TOTAL INCOME AND CONSUMPTION	\$363,871	\$231,526	\$132,345
STATE/LOCAL TAXES (\$000)	\$32,020	\$20,374	\$11,646
DIRECT BUSINESS SERVICES REVENUE (\$000)*	\$386,156	\$249,032	\$137,124
LOCAL PURCHASES (\$000)	\$166,326	\$110,094	\$56,232
VALUE TO REGIONAL ECONOMY (\$000)**	\$562,218	\$361,994	\$200,223

Totals may not add due to rounding

* Not included in value to regional economy impact because it would be double-counting

** Value to Regional Economy = Total Income and Consumption + Taxes + Local Purchases

3.4 Comparison of Past and Current Economic Impact of Shipyard Activity

A comparison of the economic impacts of the proposed I-10 Bridge alternatives between the 2003, 2005/2006 and 2009 analyses could not be performed due to varying levels of detail provided by the shipyards in each of the analytical periods. The shipyards provided estimates of their 2005/2006 sales figures but not in the detail of the 2003 data provided. The sales figures could not be allocated to estimate potential loss in business by alternative. The economic impacts of the 2005/2006 sales data were estimated using the 2003 impact model. The 2009 sales figures were entered into an updated economic impact model using the most recent economic metrics and multipliers available from the federal government. The growth in economic impacts from 2003 through 2009 is attributed primarily to the growth in business at the Austal yard. A comparison of the economic impacts of shipyard activity in Mobile for 2003, 2005/2006 and 2009 are shown in Exhibit 18. The exhibit shows the recent growth in shipyard activity added 1,264 direct and 1,884 induced and indirect jobs to the local economy during the 6-year period. These jobs generated an additional \$122.1 million of personal earnings in the

local economy. Business revenue has grown \$141.8 million; local purchases \$53.1 million and taxes \$10.7 million. A greater boost in the local and state economies will occur as Austal's military sales continue to grow, reaching \$900 million in 2014. This growing demand has resulted in expansion by Austal.

Exhibit 18

Economic Impacts of Mobile Shipyard Activity – 2003, 2005/2006 and 2009

ECONOMIC IMPACT CATEGORY	2003 IMPACT	2005/2006 IMPACT	CHANGE FROM 2003 IMPACT	2009 IMPACT	CHANGE FROM 2003 IMPACT
JOB					
DIRECT	2,184	2,936	752	3,448	1,264
INDUCED	1,286	1,692	406	2,280	994
INDIRECT	<u>1,927</u>	<u>2,628</u>	<u>701</u>	<u>2,817</u>	<u>890</u>
TOTAL JOBS	5,397	7,255	1,859	8,545	3,148
PERSONAL INCOME (\$000)					
DIRECT	\$90,261	\$117,238	\$26,977	\$133,163	\$42,903
RE-SPENDING/CONSUMPTION	\$84,096	\$109,231	\$25,135	\$131,926	\$47,830
INDIRECT	<u>\$67,450</u>	<u>\$91,971</u>	<u>\$24,521</u>	<u>\$98,782</u>	<u>\$31,332</u>
TOTAL INCOME AND CONSUMPTION	\$241,806	\$318,440	\$76,634	\$363,871	\$122,065
STATE/LOCAL TAXES (\$000)	\$21,279	\$28,023	\$6,744	\$32,020	\$10,741
DIRECT BUSINESS SERVICES REVENUE (\$000)*	\$244,343	\$363,078	\$118,736	\$386,156	\$141,813
LOCAL PURCHASES (\$000)	\$113,193	\$154,345	\$41,151	\$166,326	\$53,133
VALUE TO REGIONAL ECONOMY (\$000)**	\$376,279	\$500,807	\$124,529	\$562,218	\$185,939

Totals may not add due to rounding

* Not included in value to regional economy impact because it would be double-counting

** Value to Regional Economy = Total Income and Consumption + Taxes + Local Purchases

3.5 Economic Impact of Future Cruise Operations

The potential economic impact of the proposed I-10 Bridge on future cruise operations is presented in this section. Cruise economic impact models developed by Martin Associates for similar cruise services at Southeast US ports were used to demonstrate how increases in vessel sizes with the same itinerary can increase the economic impacts, and the potential impact of the bridge on realizing those impacts. A description of the cruise impact model, the impact categories and the estimated economic impacts of the Mobile cruise market are presented.

3.5.1 Cruise Service Impact Model

Cruise service related to the home porting of a vessel contributes to the local and regional economies by providing employment and income to individuals, tax revenues to local and state governments, and revenue to businesses engaged in providing operational services and supplies to the vessels and passengers. The flow of cruise industry-generated economic impacts throughout an economy creates four separate and non-additive types of impacts. These four types of impacts are:

- **Employment Impact** - the number of full-time equivalent jobs generated by cruise activity at the Port of Mobile. This consists of jobs directly generated by the home porting of cruise vessels as well as induced jobs, or jobs created in the Mobile Area due to the purchase of goods and services by those individuals directly dependent upon cruise activity.
- **Income Impact** - the level of earnings associated with the jobs created by cruise activity, and adjusted to reflect respending throughout the economy.
- **Revenue Impact** - the sales generated by firms engaged in supplying services and materials to the vessels while in port, as well as firms in the Mobile Area visitor industry that supply services to cruise passengers staying in hotels before and after the cruise. The value of the cruise tickets is not included as a revenue impact for purposes of this analysis.
- **Tax Impacts** – includes the state and local tax revenues generated by cruise activity. These are taxes paid by individuals and firms directly dependent upon the cruise activity.

3.5.2 Impact Categories

The impacts are generated in firms throughout many sectors of the local and regional economy. Separate impacts are estimated for each of the various economic

categories supplying goods and services to the cruise ships and passengers. A discussion of each of the impact categories is provided below.

The typical expenditure profile of a cruise line while in port provides an understanding of the types of firms involved in providing goods and services to the vessel and its passengers. These expenditure categories are:

- Food and Beverage - This category includes wholesale food and liquor distributors. It is to be emphasized that in some cases the non-perishable food brought on board at the beginning of a cruise is not necessarily purchased locally, but based on contractual relationships and is trucked in from locations out of the area such as from Miami. Similarly, in some cases, liquor is purchased from in-bound warehouses, and not from local distributors.
- Logo Items - These items are typically purchased under contract and are trucked into the port of embarkation. Therefore, no local impact is estimated.
- Flowers - Local wholesale flower distributors supply flowers for each cruise.
- Public Relations and Advertising - Contracts are usually developed with local advertising firms to promote the cruise.
- Parking - Local parking management companies provide parking services for the passengers.
- Taxis/buses - Local taxis and buses provide transportation between the airport and the ship or between the hotel and the ship for air/sea passengers.
- Security - Security services are hired while the ship is in port.
- Linen services - Contracts are developed with local laundries for linen and laundry services.

- Pilots - Guide the cruise ships into the terminal.
- Tugs - Tug services are required for certain cruise ships to assist in docking and undocking. However, most cruise vessels require minimal, if any, tug assists.
- Stevedoring and Line Handling - Are required in loading and unloading baggage and ship stores and in securing and unsecuring the ship at dock.
- Local Travel Agencies - Local travel agencies will receive a commission from ticket sales to area residents.
- Garbage Disposal - Solid waste and other refuse that cannot be discharged at sea will be disposed by local refuse collectors.
- Bunkers - Fuel will be purchased from local bunkering companies.
- Water- Most cruise ships manufacture water at sea, but will still purchase some water locally prior to departure.
- Visitor Industry - In addition to the impacts generated by direct vessel purchases, passengers from areas not within driving distance will likely stay in hotels either before or after the cruise. These individuals will typically purchase incidental retail items before or after the cruise and eat in local hotel restaurants while in the Mobile Area. Also, these air/sea passengers will take taxis or limousines from the airport to the hotel or ship, as well as taxis between the hotel and the ship and throughout the city. In addition to passengers impacting the local visitor industry, the ship's crew will also impact the local industry. For example, the crew will likely purchase personal incidentals while in port. Also, a portion of the crew could be rotated on each sailing. The new crew could stay in a local hotel upon arrival, while the departing crew could also stay in a hotel prior to leaving the area.

In addition, the passengers arriving via a local airport also generate impacts on site at the Mobile Regional Airport, including jobs with airlines (ticket agents, baggage, concessions, taxis, security, etc.). To estimate the impact on the Mobile Regional

Airport, Martin Associates used average impact ratios developed from our numerous airport impact studies conducted for such airports as Miami International Airport, Atlanta Hartsfield International Airport, Washington Dulles and Reagan National Airports, Baltimore-Washington International Airport, San Francisco International Airport, and Seattle-Tacoma International Airport.

The economic impact analysis of cruise service at Mobile is based on cruise models that Martin Associates has developed for other Southeast ports, with modifications of these models to reflect the local Mobile and state of Alabama economies. The cruise models are based on a telephone survey of cruise lines including Carnival Cruise Lines, Royal Caribbean International, Norwegian Cruise Lines and Disney Cruise Line currently serving Southeast ports. These surveys were completed as part of specific cruise impact studies for South Atlantic Ports, and are used in this analysis to show the potential impact of various sizes of cruise vessels calling the Port of Mobile. The interviews focused on typical expenditure profiles of a vessel while in port, as well as the percent of passengers that are air/sea versus the local passengers. The price of the land-side portion of the air/sea package was determined from the interviews to estimate local visitor industry impacts, as was the percent of crew that are rotated on each sailing. Incidental expenses by crew while in port were also estimated from the interviews.

3.5.3 Impact Summary

Carnival Cruise Lines began offering regularly scheduled cruises from the Port of Mobile in October 2004. This continued until September 2005 when the service was interrupted due to Hurricane Katrina. The regular scheduled service resumed in March 2006 with the 1,452-passenger *Carnival Holiday* offering 78 cruises annually from the Port. In November 2009, the larger 2,052-passenger *Carnival Fantasy* replaced the *Holiday* operating in the same service. The *Fantasy* was replaced in May 2010 with a same size sister ship, the *Carnival Elation*. In order to compare the impacts of the current vessel service with the impacts of scenarios using larger vessels, it is assumed all three vessel scenarios complete 78 cruises annually carrying the identified passenger capacity. The economic impact of the current cruise vessel scenario at the Port of Mobile is presented in Exhibit 19. If cruise service were to cease at the Mobile Alabama

Cruise Terminal due to the Alternate A, B, or B' scenarios, these annual cruise economic impacts would no longer be generated in the Mobile area.

Exhibit 19
Economic Impact of Current Cruise Service with 2,052-Passenger Cruise Vessel

ECONOMIC IMPACT CATEGORY	2,052 PASSENGER VESSEL
JOB	
<i>DIRECT</i>	280
<i>INDUCED</i>	167
<u><i>INDIRECT</i></u>	<u>160</u>
TOTAL JOBS	607
PERSONAL INCOME (\$1,000)	
<i>DIRECT RE-SPENDING/CONSUMPTION</i>	\$ 6,695
<i>INDUCED</i>	\$12,248
<u><i>INDIRECT</i></u>	<u>\$ 5,194</u>
TOTAL INCOME AND CONSUMPTION	\$24,137
STATE/LOCAL TAXES (\$1,000)	\$ 2,341
DIRECT BUSINESS SERVICES REVENUE (\$1,000)*	\$67,352
LOCAL PURCHASES (\$1,000)	\$ 6,419
VALUE TO REGIONAL ECONOMY (\$1,000)**	\$32,897

Totals may not add due to rounding

* Not included in value to regional economy impact because it would be double-counting

** Value to Regional Economy = Total Income and Consumption + Taxes + Local Purchases

The current cruise vessel size scenario generates 280 direct jobs in the Alabama economy. The activity also generates 327 induced and indirect jobs. The direct job holders generate \$6.7 million in direct earnings and induced and indirect earnings are \$17.4 million. Business revenue generated is \$67.4 million that generates \$6.4 million in local purchases. State and local taxes generated are \$2.3 million.

The proposed bridge height of 215 ft. has the potential of restricting existing taller cruise vessels from calling the Port of Mobile. Our analysis showed that of the 57 vessels in the Carnival, Norwegian Cruise, and Royal Caribbean fleets, 20 would be eliminated from calling the Port due to a 215 ft. bridge and assuming a 15 ft. clearance is required. Assuming there is no height restriction in the Port, a taller cruise vessel could

replace the current 2,052 passenger vessel. The average size vessel of the now height restricted cruise vessels in the 57-vessel fleet less than 900 ft. in length is 2,700 passengers. According to the Mobile Harbormaster vessels up to 965 ft. can be turn in the Three Mile Creek Turning Basin with accommodations and vessels will be able to pass beneath the bridge with a minimum clearance of 8 ft., which is greater than that experienced in the Port of Jacksonville. Given these parameters it is probable for a 3,000-passenger cruise vessel may be able to call the Port of Mobile given a bridge with a 215-ft. height. Exhibit 20 shows the economic impact of the 3,000-passenger vessel if it were to replace previous cruise vessels operating with the same itinerary.

Exhibit 20
Economic Impact of Current Cruise Service with 3,000-Passenger Cruise Vessel

ECONOMIC IMPACT CATEGORY	3,000 PASSENGER VESSEL
JOB	
<i>DIRECT</i>	350
<i>INDUCED</i>	220
<u><i>INDIRECT</i></u>	<u>209</u>
TOTAL JOBS	778
PERSONAL INCOME (\$1,000)	
<i>DIRECT RE-SPENDING/CONSUMPTION</i>	\$8,094
<i>INDUCED</i>	\$14,758
<u><i>INDIRECT</i></u>	<u>\$6,748</u>
TOTAL INCOME AND CONSUMPTION	\$29,600
STATE/LOCAL TAXES (\$1,000)	\$2,871
DIRECT BUSINESS SERVICES REVENUE (\$1,000)*	\$83,645
LOCAL PURCHASES (\$1,000)	\$8,436
VALUE TO REGIONAL ECONOMY (\$1,000)**	\$40,907

Totals may not add due to rounding

* Not included in value to regional economy impact because it would be double-counting

** Value to Regional Economy = Total Income and Consumption + Taxes + Local Purchases

The use of the larger vessel would increase the number of passengers through the Port of Mobile and in turn increase the economic impacts generated. Exhibit 20 shows the direct jobs increase by 70 jobs to 350. Induced and indirect jobs increase by 102 jobs to 429 jobs. Direct earnings increase by \$1.4 million to \$8.1 million.

Responding and indirect earnings increase by \$4.1 million to \$21.5 million. Business revenue increases \$16.3 million to \$83.6 million. Local purchases increase \$2.0 million to \$8.4 million. Taxes increase \$0.5 million to \$2.9 million.

As discussed previously, since October 2011, there have been no cruise operations in Mobile. The City of Mobile has a \$20-30 million investment in constructing the Alabama Cruise Terminal and associated features such as the loading ramp and the parking garage. The City, with support from others, is actively recruiting another cruise operation to replace the CCL operations that left in 2011. Cruise ships with a passenger capacity up to 2,974 passengers are being targeted. For this impact analysis it is assumed that an appropriate size cruise ship will be recruited and in operation by the time the proposed bridge is constructed.

3.6 Summary of Economic Impacts of the I-10 Bridge

The findings of the economic impact scenarios presented above are summarized in Exhibit 21. The exhibit shows the lowest opportunity cost (least loss in economic impact) for shipyard activity in the 2009 Baseline occurs with Alternative A. The principal impacts of this scenario are with the Harrison Brothers operation or its successor.

Exhibit 21

Comparison of Potential Shipyard Economic Impacts

Economic Impact Category	2009 Baseline	Potential Losses by Alternative			
		A	B and B'		C
			With Garage	Without Garage	
Total Jobs	8,525	78	97	2,277	3,258
Total Income and Consumption (\$million)	\$364	\$4	\$4	\$89	\$132
State/Local Taxes (\$million)	\$32	\$0	\$0	\$8	\$12
Business Revenue (\$million)*	\$386	\$2	\$5	\$117	\$137
Local Purchases (\$million)	\$166	\$2	\$2	\$50	\$56
Value to Regional Economy (\$million)**	\$562	\$6	\$6	\$147	\$200

Totals may not add due to rounding

* Not included in value to regional economy impact because it would be double-counting

** Value to Regional Economy = Total Income and Consumption + Taxes + Local Purchases

***The potential loses for B and B' are essentially the same due to their close proximity.

Alternatives B and B' have the potential of constricting current and future operations at Austal if adequate parking is not replaced. Austal has expanded its operations since 2003 due to a large U.S. Navy contract it was awarded for the construction of LCS vessels.

Alternative C imposes the greatest loss in economic impact and could potentially result in the closure of the Signal shipyard. Alternative A also impacts operations at the cruise terminal impacting the ability to queue and unload trucks with ship supplies as well potentially impede the movement of the supplies onto the vessel. Terminal expansion would not be impacted; however, cruise vessels may be docked adjacent to or beneath the proposed bridge if it is built at this location. Alternative A would also have potential indirect impacts to the GulfQuest Maritime Museum during construction.

The potential economic impacts of the proposed I-10 Bridge on the Mobile shipyards presented in Exhibit 21 represent the potential lost economic impacts in the Mobile area and Alabama economies. Additional economic impacts are generated beyond this region throughout the nation. The impacts beyond the Mobile area and Alabama are not estimated in this study since it cannot be determined if these additional impacts would be foregone should

the lost shipyard work in Mobile be performed at other U.S. shipyards. Theoretically, given all things being equal, the transfer of shipyard activity from one U.S. yard to another U.S. yard will not result in a net change in the national economic impacts of the U.S. commercial shipbuilding industry. Therefore, only the localized impacts can be assumed to be lost with any certainty.

APPENDIX E:
HAZARDOUS MATERIAL



ALABAMA DEPARTMENT OF TRANSPORTATION

1409 Coliseum Boulevard, Montgomery, Alabama 36130-3050

Bureau of Materials and Tests
3700 Fairground Road, Montgomery, Alabama 36110
Phone (334) 206-2200 FAX (334) 264-6263



Robert Bentley
Governor

John R. Cooper
Transportation Director

November 29, 2012

Ms. Alfredo Acoff, Coordinator
Design Bureau - Environmental Technical Section
Alabama Department of Transportation
1409 Coliseum Boulevard
Montgomery, AL 36110

RE: ALDOT Project: DPI-0030(005)
Mobile River I-10 Bridge
Mobile County

Dear Ms. Acoff,

A request from your office was received on November 15, 2012 to review the potential Hazardous Materials Sites identified within the above referenced project corridor.

The following table was provided by Volkert, Inc. and outlines the potential Hazardous Materials Sites and their respective risk associated with each proposed alternate for this project.

Site	Site Name	Alt. A	Alt. B	Alt. B' (Preferred)	Alt. C
1	Harrison Brothers	H	H	H	
2	Oil Recovery Company		M	M	
3	Mobile Abrasives		H	H	
4	BAE (formally Atlantic Marine)		H		H
5	ALDOT - Tunnels	L			
6	Austal		L	L	L
7	Signal Ship Repair (formally Bender)		H	H	H
8	Complete Equipment		H	H	H
9	Former Sherman International Block Company				L
10	Mobile county Metro Jail		M	M	M
11	Gulf City Body & Trailer Works				M
12	City of Mobile - West River	H			
13	B&B Manufacturing				M
14	Mobile Tank Wash				M


H=High; M=Moderate; L=Low Potential Risk for Hazardous Materials Contamination

After a review of this Table, and all other related information submitted to our office, the ALDOT Environmental Analysis & Compliance Division concurs with Volkert, Inc's assessment of the referenced potential Hazardous Materials Sites and their respective risk levels. The ALDOT EA&C Division recommends that all Medium and High Risk sites be further investigated along the preferred alignment to better assess the potential hazardous material impacts to the proposed project.

If you should have any further questions, please feel free to contact me at (334) 206-2278.

Sincerely,

B.E. Cox, Jr., P.E.
Materials and Tests Engineer

By: 
Adam S. Anderson, P.E.
Environmental Analysis & Compliance Engineer

BEC/asa

Cc: Angelo Cleondis, Design Bureau – ETS
File

CONTAMINATION RISK EVALUATION CRITERIA

- NO RISK:** After a review of the available information, there is nothing to indicate hazardous materials would be a problem. It is possible that a hazardous material could have been handled on the parcel; however, a visit to the Alabama Department of Environmental Management revealed that there were no spills reported in the vicinity of the proposed project area. Also, interviews conducted with persons living in the vicinity of the project area revealed no information on possible contamination.
- LOW RISK:** The operation has a hazardous waste generator ID number or deals with hazardous materials; however, based on the available information, there is no reason to believe there would be any contamination from hazardous materials.
- MEDIUM RISK:** After a review of the available information, indications are noted (reports, Notice of Violations, consent orders, etc.) that identify known soil and/or water contamination, and that the problem does not need remediation, is being remediated, or that continued monitoring is required.
- HIGH RISK:** After a review of the information, there is a potential for hazardous material on the parcel. Further assessment will be required after assignment selection to determine the general presence and/or levels of hazardous materials and the need for remedial action. A recommendation must be included for any further assessment required. Parcels that contained underground storage tanks, or substations that have not been assessed or evaluated would receive this rating.

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) STATION #: Map # 1

MUNICIPALITY OR COMMUNITY: Mobile COUNTY: Mobile

FACILITY NAME: Harrison Brothers Dry Dock and Repair Yard

FACILITY ADDRESS: Dunlap Drive

OWNER'S NAME: Harrison Brothers Dry Dock and Repair Yard, William (Bill) H. Harrison, III (251) 432-4606

OWNER'S ADDRESS: PO Box 1843 Mobile, AL 36633-1843

FACILITY PHONE #: (251) 432-4606 OWNER'S PHONE #: (251) 432-4606

ADEM REGISTRATION #: _____

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine
- Repair Shop (Barge/Ship)
- Foundry
- Manufacturing Facility
- Farmer's Cooperative
- Landfill
- Other (Specify): NPDES, ERNS, RELEASE

COMMENTS: Site is located on

the west side of Dunlap Drive at its intersection with Addsko Road. Access to the site from I-10 in Mobile: Take Exit 27 and go east on the causeway to Addsko Road on the south side of the causeway, follow the Addsko Road its intersection with Dunlap Drive. The Harrison Brothers site is located between Dunlap Drive and the Mobile River.

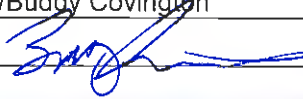
The environmental database search identified only limited known contamination at this site including the release of an unknown quantity of diesel fuel. An ADEM file review was previously conducted for this site. Neither review identified evidence of significant contamination at this site. Because of the nature of the dry dock and repair industry, there is a fairly high potential for contamination at the site. Potential contaminants include but are not limited to hydrocarbons, solvents, heavy metals, etc., associated with the dry dock and repair industry. Further evaluation of this site is recommended because of the potential for contamination.

Site is considered High Risk because of the long-term operation as a dry dock and repair yard.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE:



Harrison Brothers Dry Dock & Repair Yard looking west from Dunlap Drive.
(Alternatives A, B and B')



Harrison Brothers Dry Dock & Repair Yard grain silos looking west from Dunlap Drive.
(Alternative B and B')



Harrison Brothers Dry Dock & Repair Yard looking west from Dunlap Drive
adjacent to I-10 Wallace Tunnel Right-of-Way (Alternative A).



Harrison Brothers Dry Dock & Repair Yard looking west from Dunlap Drive (Alternative A).

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) **STATION #:** Map # 2

MUNICIPALITY OR COMMUNITY: Mobile **COUNTY:** Mobile

FACILITY NAME: Oil Recovery Company of Alabama

FACILITY ADDRESS: 200 Dunlap Drive; Mobile, AL 36602

Note: Alternative B and B' alignment crosses near the ORC Site.

OWNER'S NAME: Oil Recovery Company of Alabama, Contact: Bill Smith (251) 690-9010

OWNER'S ADDRESS: 200 Dunlap Drive; Mobile, AL 36602

FACILITY PHONE #: (251) 690-9010 **OWNER'S PHONE #:** (251) 690-9010

ADEM REGISTRATION #: ALR000034587/NLR for RCRANLR Site, NRC-607881/Vessel

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine Repair Shop
- Foundry
- Manufacturing Facility
- Farmer's Cooperative
- Landfill
- Other (Specify): RCRANLR Site, NRC

COMMENTS: Site is located at 200 Dunlap

Drive. Access to the site from I-10 in Mobile is as follows: Take Exit 27 and go east on the causeway to Addesco Road on the south side of the causeway, follow the Addesco Road to Dunlap Drive, turn left and proceed to the ORCA site at 200 Dunlap Drive.

Bill Smith with ORCA was interviewed regarding the site located at 200 Dunlap Drive. Mr. Smith said ORCA acquired the property about five years ago. A Phase I Environmental Site Assessment was done before they acquired the property. Mr. Smith said the Phase I ESA did not identify any contamination on the site. The grain elevators located on the site are owned by ORCA but are leased to others for operation. Past uses of the site included use as a barge repair yard. Mr. Smith said there may be part of a steel ship buried under the ORCA site. Mr. Smith said the reported vessel release involved a diesel fuel sheen on the water that should not have caused any lasting contamination. Potential contaminants at the site include hydrocarbons, solvents, and heavy metals associated with the barge repair facility and oil recovery operation.

Site is considered Moderate Risk.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE: 



Oil Recovery Company from Dunlap Drive (B and B')



**Oil Recovery Company from Dunlap Drive looking toward Mobile River.
Barge unloading area is located behind tanks. (B and B')**

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) **STATION #:** Map # 3

MUNICIPALITY OR COMMUNITY: Mobile **COUNTY:** Mobile

FACILITY NAME: Mobile Abrasives

FACILITY ADDRESS: 400 Dunlap Drive, Pinto Island

Alternatives B and B' cross this site

OWNER'S NAME: Mobile Abrasives, Contact: Eddie Serda (251) 694-0023

OWNER'S ADDRESS: 400 Dunlap Drive, Pinto Island; Mobile, AL 36652

FACILITY PHONE #: (251) 694-0023 **OWNER'S PHONE #:** (251) 694-0023

ADEM REGISTRATION #: _____

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine Repair Shop
- Foundry
- Manufacturing Facility
- Farmer's Cooperative
- Landfill
- Other (Specify): AIRS, FINDS, RCRATSD, RCRANLR, TRIS

COMMENTS: Site is located on Dunlap Drive.

Access to the site from I-10 in Mobile is as follows: Take Exit 27 and go east on the causeway to Addsko Road on the south side of the causeway, follow the Addsko Road to Dunlap Drive, turn left and proceed to the Mobile Abrasives site located on Dunlap Drive. The Mobile Abrasive sign shown below is located on Dunlap Drive immediately south of the Pinto Pass Bridge.

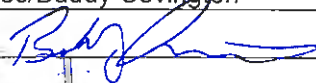
The Environmental FirstSearch database search also identified Clark Sand Company and OCAL Inc. as prior occupants of the 400 Dunlap Road site. Past uses of the site included fabricated pipe and pipe fitting manufacturing. Potential contaminants that were identified include zinc, zinc compounds, lead, sulfuric acid, methyl ethyl ketone, dichloromethane, and toluene. Mr. Serda said he leases the Mobile Abrasives site from Atlantic Marine. The site has been operated as a sand and/or abrasives operation for the last 17 years. Mr. Serda was not familiar with the pipe fabrication pipe fitting business that apparently operated on this site in the past but said there was a scrap metal operation on the site at one time. Mr. Serda has one double-wall above ground diesel tank on the site. He was not aware of any spills, leaks, or other environmental issues on the site.

Site is considered High Risk because of known past usage and likely historic usage of the site.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE:



Mobile Abrasives Entrance on Dunlap Drive. Atlantic Marine Site in Background (Alternatives B and B')



Mobile Abrasives Site looking west toward Mobile River.
(Alternatives B and B')



Mobile Abrasives Site looking west toward Mobile River.
(Alternatives B and B')

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) STATION #: Map # 4

MUNICIPALITY OR COMMUNITY: Mobile COUNTY: Mobile

FACILITY NAME: Atlantic Marine

FACILITY ADDRESS: 600 Dunlap Drive; Mobile, AL 36602

Note: Alternative C alignment crosses the Atlantic Marine Site. Alternative C crosses the industrial portion of the site.

OWNER'S NAME: Atlantic Marine, Contact: Teresa Preston (251) 690-4862

OWNER'S ADDRESS: 600 Dunlap Drive; Mobile, AL 36602

FACILITY PHONE #: (251) 690-4862 OWNER'S PHONE #: (251) 690-4862

ADEM REGISTRATION #: _____

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine
- Repair Shop (Ship Repair)
- Foundry
- Manufacturing Facility (Ship Building)
- Farmer's Cooperative
- Landfill
- Other (Specify): RCRAGN, RCRANLR, ERNS, FINDS, TRIS, UST, Releases, NPDES Site

COMMENTS: Site is located at 600 Dunlap

Drive. Access to the site from I-10 in Mobile is as follows: Take Exit 27 and go east on the causeway to Addsko Road on the south side of the causeway, follow the Addsko Road to Dunlap Drive, turn left and proceed to the Atlantic Marine Site at 600 Dunlap Drive.

Potential contaminants hydrocarbons, solvents, and heavy metals associated with ship building and repair. A ship building and ship repair facility has been operated on the site since World War II so there is a fairly high probability of encountering contaminated soil at this site. The Environmental FirstSearch database search identified a large number of environmental response actions (41 ERNS) and releases that affected only air or surface water (56). See Environmental FirstSearch Site Detail Reports for more detail on these and other environmental concerns.

Southeast Regional Maintenance Center is RCRA Generator located at the Atlantic Marine site on Dunlap Drive, POCs: Scott Stover (904) 270-5126 or Howard Harris (904) 270-5047.

The Southeast Regional Maintenance Center is a U.S Navy organization. They do not have any facilities located at the Atlantic Marine site. AL4170024638 is the Navy's I.D. number used to handle any hazardous wastes generated by Navy Personnel while Navy ships are being repaired at the Atlantic Marine Facility. There are no known or suspected environmental concerns associated with the Southeast Regional Maintenance Center operation at the Atlantic Marine site. Mr. Scott Stover was interviewed regarding this site.

Site is considered High Risk.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE: 



Atlantic Marine looking south along Dunlap Drive near Pinto Pass.
Alternative C alignment runs between the two buildings.



Atlantic Marine looking southwest from Dunlap Drive along Alternative C alignment.
Ship Building and Ship Repair Facility has operated at this site since WW II



Atlantic Marine looking northeast toward Dunlap Drive along Alternative C alignment.
Building on left is part of WW II Facility.



Atlantic Marine looking southwest along Alternative C alignment

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) **STATION #:** Map # 5

MUNICIPALITY OR COMMUNITY: Mobile **COUNTY:** Mobile

FACILITY NAME: Alabama Department of Transportation

FACILITY ADDRESS: 151 Dunlap Drive; Mobile, AL 36601

Note: Alternative A alignment crosses near the ALDOT Site.

OWNER'S NAME: Alabama Department of Transportation, Contact: Gerald Criswell (251) 432-4069

OWNER'S ADDRESS: 151 Dunlap Drive; Mobile, AL 36601

FACILITY PHONE #: (251) 432-4069 **OWNER'S PHONE #:** (251) 432-4069

ADEM REGISTRATION #: 2973-14648 USTs

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine Repair Shop
- Foundry
- Manufacturing Facility
- Farmer's Cooperative
- Landfill
- Other (Specify): UST

COMMENTS: Site is located at 151 Dunlap Drive. Access to the site from I-10 in Mobile is as follows: Take Exit 27 and go east on the causeway to Addsko Road on the south side of the causeway, follow the Addsko Road to Dunlap Drive, turn right and proceed to the ALDOT site at 151 Dunlap Drive.

One 280 GAL UST was removed in 1989 and two 2,000 GAL USTs were removed in 1993. These tanks contained unleaded gasoline. Mr. Criswell said there was no soil or groundwater contamination associated with these tanks. The tunnels emergency generators operate on natural gas with propane stored in an AST as backup. There is a used oil tank located at the Bankhead Tunnel. ALDOT is in the process of installing a fueling station that will store diesel fuel in a 2,000 GAL AST at the back of their maintenance building.

Site is considered Low Risk.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE: 



ALDOT Maintenance Building and new fueling station looking northwest from Addsko Road near Alternative A

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) **STATION #:** Map # 6

MUNICIPALITY OR COMMUNITY: Mobile **COUNTY:** Mobile

FACILITY NAME: Austal

FACILITY ADDRESS: 1 Dunlap Drive; Mobile, AL 36602

OWNER'S NAME: Austal USA

OWNER'S ADDRESS: 1 Dunlap Drive; Mobile, AL 36602

FACILITY PHONE #: (251) 434-8000 **OWNER'S PHONE #:** (251) 434-8000

ADEM REGISTRATION #: _____

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine
- Repair Shop (Ship Repair)
- Foundry
- Manufacturing Facility (Ship Building)
- Farmer's Cooperative
- Landfill
- Other (Specify): UST, NPDES Site

COMMENTS: Site is located at 1 Dunlap Drive.

Access to the site from I-10 in Mobile is as follows: Take Exit 27 and go east on the causeway to Addsko Road
on the south side of the causeway, follow the Addsko Road to Dunlap Drive, turn left and proceed to the Austal
Site at 1 Dunlap Drive.

Potential contaminants hydrocarbons, solvents, and heavy metals associated with ship building.

Note: Alternative B, B' and C alignments cross Austal.

Site is considered Low Risk.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE: 

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) **STATION #:** Map # 7

MUNICIPALITY OR COMMUNITY: Mobile **COUNTY:** Mobile

FACILITY NAME: Bender Ship Building and Repair

FACILITY ADDRESS: 265 South Water Street; Mobile, AL 36603

Note: Alternative alignments B, B' and C cross the Bender Site

OWNER'S NAME: Bender Ship Building and Repair, Contact: David Barnett (251) 431-8018

OWNER'S ADDRESS: 265 South Water Street; Mobile, AL 36603

Additional POC: Jackie Morris (251) 434-8803

FACILITY PHONE #: (251) 434-8018 **OWNER'S PHONE #:** (251) 434-8018

ADEM REGISTRATION #: _____

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine
- Repair Shop (Ship Repair)
- Foundry
- Manufacturing Facility (Ship Building)
- Farmer's Cooperative
- Landfill
- Other (Specify):UST, FINDS, RCRACOR, RCRAGEN Sites

COMMENTS: Site is located at 265 South

Water Street. Access to the site from I-10 in Mobile is as follows: Take Virginia Street (Exit 25B) east to Royal Street, turn left at Royal Street, and proceed to the Bender's main office on the east side of Royal Street, one block past Canal St.

Potential contaminants include but are not limited to hydrocarbons, solvents, heavy metals, etc., associated with the ship building and repair industry. Various ERNS notifications involved the release of No. 6 Fuel Oil, Motor Oil, Hydraulic Oil, Unknown Oil, Mixture of No. 6 Fuel Oil and Diesel, Benzyl Chloride, Waste Oil & Water Mixture, Crude Oil, and Diesel. David Barnett was interviewed regarding the Bender Ship Building and Repair site. I told Mr. Barnett the data base search had identified a large number of releases at the Bender Ship Building and Repair site. Mr. Barnett acknowledged that there had been a number of releases at the site.

Southeast Regional Maintenance Center is also located at 265 South Water Street, POCs: Scott Stover (904) 270-5126, Albert McGavock (601) 769-5644, Howard Harris (904) 270-5047.

The Southeast Regional Maintenance Center is a U.S Navy organization. They do not have facilities located at the Bender site. AL5170024637 is the Navy's I.D. number used to handle any hazardous wastes generated by Navy personnel while Navy ships are being repaired at the Bender Facility. There are no known or suspected environmental concerns associated with the Southeast Regional Maintenance Center operation at the Bender Site. Mr. Scott Stover was interviewed regarding this site.

Former Star Marine site located at 269 South Water Street is now part of the Bender Site.

ADEM Registration Numbers: 456118/Unknown for ERNS, AL0002025997 for FINDS

Site, ALR000010009/VGN for RCRAIN Site, ALR000010009/NLR for RCRAINLR Site, 110003388637/FRS FINDS.

Mr. Barnett had no knowledge of the former Star Marine site.

Former NL Baroid Mobile Service Center located at 311 South Water Street is now part of the Bender Site.

ADEM Registration Numbers: 11325-13647 for UST Site,

AL0002025997 for FINDS Site, ALD000653279/TR for RCRAINLR Site, ALD000653279/NLR for RCRAINLR Site.

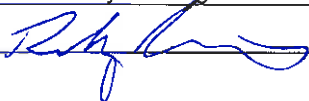
This site was also known as the NL Petroleum Service site. Mr. Barnett had no knowledge of either the former Star Marine site or the NL Petroleum Service site.

Site is considered High Risk. Much of the current Bender Ship Building and Repair site has been used for barge and ship building/repair for over 50 years and the database search identified a large number of releases at this site.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE:





Bender Ship Building and Repair Main Office (Alternative B and B').



Bender Ship Building and Repair looking south along Water Street at Eslava Street Intersection (Alternative B and B')



Bender Ship Building and Repair looking east along Eslava Street at Water Street Intersection (Alternative B and B'). Cruise Terminal on left, Southern Fish & Oyster in middle, and Bender Ship Building and Repair on right.



Bender Ship Building and Repair looking south along Water Street (Alternative C)

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) **STATION #:** Map # 8

MUNICIPALITY OR COMMUNITY: Mobile **COUNTY:** Mobile

FACILITY NAME: Complete Equipment

FACILITY ADDRESS: 265 South Water Street; Mobile, AL 36603

Note: Alternative alignments B, B' and C cross Complete Equipment's Sites

OWNER'S NAME: Complete Equipment, Contact: David Barnett (251) 431-8018

OWNER'S ADDRESS: 265 South Water Street; Mobile, AL 36603

FACILITY PHONE #: (251) 431-8018 **OWNER'S PHONE #:** (251) 431-8018

ADEM REGISTRATION #: 3194-13613 for UST Site

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine
- Repair Shop
- Foundry
- Manufacturing Facility
- Farmer's Cooperative
- Landfill
- Other (Specify): UST Site

COMMENTS: Site is located at 265 South

Water Street. Access to the site from I-10 in Mobile is as follows: Take Virginia Street (Exit 25B) east to Royal Street, turn left at Royal Street, and proceed to the Complete Equipment's main office on the east side of Royal Street, one block past Canal St. Note: Complete Equipment's address is the same as Bender Ship Building and Repair.

Potential contaminants include but are not limited to hydrocarbons, solvents, heavy metals, etc., associated with the ship building and repair industry, junk yard, and fuel storage facilities. Various ERNS notifications for the Bender Ship Building and Repair site located adjacent to the South Parcel involved the release of No. 6 Fuel Oil, Motor Oil, Hydraulic Oil, Unknown Oil, Mixture of No. 6 Fuel Oil and Diesel, Benzyl Chloride, Waste Oil & Water Mixture, Crude Oil, and Diesel.

Former National Linen Service located at 110 Canal Street is now part of the Complete Equipment Site.

ADEM's Registration Numbers are 3194-13613 for UST Site.

Mr. Barnett said the USTs were removed and contaminated soil remediated before the National Linen Service site was purchased by Complete Equipment. To his knowledge there is no remaining soil or ground water contamination on the National Linen Service site. There is some asbestos on the old boiler inside the building.


North Parcel is considered Moderate Risk. The former National Linen Service was located on the North Parcel. The western portion of the North Parcel is being used for storage of various materials (See Photo below).

South Parcel is considered High Risk. Sanborn Maps show an old junk yard located on the South Parcel. The South Parcel is currently being used for storing various equipment and materials. Also, the database search identified a large number of releases on the adjacent Bender Ship Building and Repair site. The Complete Equipment South Parcel appears to be an extension of the Bender Ship Building and Repair operation. There is no distinct separation between the two ownerships on the South Parcel.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE:





Complete Equipment North Parcel looking east along Canal Street (Alternative B and B').
Building behind fence is the former National Linen Service Site.



Complete Equipment North Parcel looking west from Canal Street (Alternative B and B').
This is the area behind the fence in the previous photograph.



Complete Equipment South Parcel looking northeast on Royal Street along Alternative C alignment.



Mobile County Sheriff's Office on Royal Street from location of previous Photograph (Alternative C). Complete Equipment South Parcel is on the right.

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) STATION #: Map # 9

MUNICIPALITY OR COMMUNITY: Mobile COUNTY: Mobile

FACILITY NAME: Former Sherman International Block Plant

FACILITY ADDRESS: 450 South Royal Street; Mobile, AL 36602

This site was not located during the site inspection. The Mobile County Sheriff's Office is now located on this site on Alternate Alignment C.

OWNER'S NAME: Former Sherman International Block Plant, Contact: Chuck Raborn (251) 574-8595

OWNER'S ADDRESS: 450 South Royal Street; Mobile, AL 36603

Last Known Sherman International Block Plant Contact: Wayne Spurlock (251) 433-2521

FACILITY PHONE #: (251) 574-8595 OWNER'S PHONE #: (251) 574-8595

ADEM REGISTRATION #: 17150-19550 for UST Site

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine
- Repair Shop
- Foundry
- Manufacturing Facility (Concrete Block)
- Farmer's Cooperative
- Landfill
- Other (Specify): UST Site

COMMENTS: The former Sherman

International Block Company Site was located at 450 South Royal Street. Access to the site from I-10 in Mobile is as follows: Take Virginia Street (Exit 25B) east to Royal Street, turn left at Royal Street, and proceed to the Mobile County Sheriff's Office.

Note: Historic maps show the Smith Kelly Supply Company Concrete Block Facility located where the Sheriff's office is now located. Chuck Raborn with Mobile County Environmental Services was interviewed regarding Sheriff's office site. Mr. Raborn had no knowledge of the former concrete block facility and said, to his knowledge, there are no environmental issues at this site.

Site is considered Low Risk – The Mobile County Sheriff's Office and parking lot are constructed on the former concrete block facility site. No sources of hazardous materials were observed at this site during the field inspection. The database search identified an above ground storage tank at this site.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE: 



The Mobile County Sheriff's Office is located on the former Sherman International Block Plant site (Alternate C)



Mobile County Sheriff's Office from Royal Street (Alternate C)



Back side of Sheriff's Office from Saint Emanuel Street (Alternate C)

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) **STATION #:** Map # 10

MUNICIPALITY OR COMMUNITY: Mobile **COUNTY:** Mobile

FACILITY NAME: Mobile County Metro Jail

FACILITY ADDRESS: 450 Saint Emanuel Street; Mobile, AL 36603

Note: Former Mobile Bus Maintenance Service is located on the southeast corner of the
Mobile County Metro Jail site

OWNER'S NAME: Mobile County Metro Jail, Contact: George Oaks (251) 574-4444

OWNER'S ADDRESS: 450 Saint Emanuel Street; Mobile, AL 36603

Additional POC: Chuck Raborn with Mobile County Environmental Services (251) 574-8595

FACILITY PHONE #: (251) 574-4444 **OWNER'S PHONE #:** (251) 574-4444

ADEM REGISTRATION #: 18105-16940 for UST Site, UST030412 for LUST, 13753-15913 for UST Site,
AL0002025997 for FINDS Site, ALR000010009/VGN for RC RAGN Site,
ALR000010009/NLR for RC RANLR Site, 110003388637/FRS FINDS

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine
- Repair Shop (Former Bus Maintenance)
- Foundry
- Manufacturing Facility
- Farmer's Cooperative
- Landfill
- Other (Specify): UST, LUST, FINDS, RC RAGN, RC RANLR Sites

COMMENTS: Site is located at 450 Saint

Emanuel Street. Access to the site from I-10 in Mobile is as follows: Take Virginia Street (Exit 25B) east to Saint Emanuel Street, turn left at Saint Emanuel Street, and proceed to the Mobile County Metro Jail Site.

Alternatives B, B' and C are adjacent to the jail.

Former Mobile Bus Maintenance Service site (the grassy area in the photograph below) was located on the corner of the Savannah Street and Saint Emanuel Street intersection on the Alternative C alignment. Potential contaminants include but are not limited to hydrocarbons, heavy metals, solvents, etc. ADEM Registration Numbers for the Mobile Bus Maintenance Site: 13753-15913 for UST Site, AL0002025997 for FINDS Site, ALR000010009/VGN for RCRAGN Site, ALR000010009/NLR for RCRANLR Site, 110003388637/FRS FINDS. Note: This site is identified as the Gulf Transport Company (Bus Garage and Repair) on Sanborn maps.

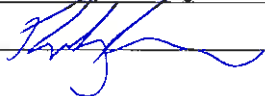
George Oaks (Building Maintenance) was interviewed regarding the Metro Jail site. Mr. Oaks said he was not aware of any environmental problems at the site other than the reported leaking USTs. He recommended that we contact Chuck Raborn at Mobile County Environmental Service regarding the LUSTs. Mr. Raborn said diesel contaminated soil at the facility has been remediated and likely resulted from over-filling the tank rather than a leaking tank. The tank passed pressure testing requirements and semi-annual ground water samples are clean. Mr. Raborn had no knowledge of the former Mobile Bus Maintenance Facility that was located on the site and he had no knowledge of any other environmental issues at this location.

Site is considered Moderate Risk. There is potential contaminants at the former Mobile Bus Maintenance Service Site as discussed above.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE:





Mobile County Metro Jail from corner of Savannah and Saint Emanuel looking north (Alternative C). The former Mobile Bus Maintenance site was located between the intersection and the jail.



Mobile County Metro Jail UST Site from South Conception Street (Alternatives B, B' and C)



South end of Mobile County Metro Jail Site looking east from South Conception Street (Alternative B, B' and C).

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) STATION #: Map # 11

MUNICIPALITY OR COMMUNITY: Mobile COUNTY: Mobile

FACILITY NAME: Gulf City Body & Trailer Works

FACILITY ADDRESS: 601 South Conception Street; Mobile, AL 36603

OWNER'S NAME: Gulf City Body & Trailer Works, Contact: Robert Wilson (251) 438-5521

OWNER'S ADDRESS: 601 South Conception Street; Mobile, AL 36603

FACILITY PHONE #: (251) 438-5521 OWNER'S PHONE #: (251) 438-5521

ADEM REGISTRATION #: ALD034040089/FRS & 110003031184/FRS for FINDS Site, ALD034040089/VGN for RCRAGEN Site, ALD034040089/NLR for RCRANLR Site

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine
- Repair Shop
- Foundry
- Manufacturing Facility (Motor Vehicle Body)
- Farmer's Cooperative
- Landfill
- Other (Specify): FINDS, RCRAGEN, RCRANLR Sites

COMMENTS: The Site is located at 601 South
Conception Street. The northern portion of the Site is along the Alternative C alignment. Access to the site from I-10 in
Mobile is as follows: Take Virginia Street (Exit 25B) east to South Conception Street, turn left at South Conception Street
and proceed to the site located at 601 South Conception Street.

Mr. Wilson said Gulf City Body & Trailer Works has operated on this site for over 50 years and he has worked at the site
for 20 years. Mr. Wilson said to his knowledge there have been no spills or releases to the environment at this site.
Hazardous waste generated at the site includes the following solvents: toluene, methyl ethyl ketone, carbon disulfide,
isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane, xylene, acetone, ethyl acetate, ethyl benzene, ethyl
ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol as well as chromium..

Alternative C is adjacent to Gulf City Body and Trailer Works.

Site is considered Moderate Risk. No obvious contamination was observed during the site inspection.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE: 



Gulf City Body & Trailer Works main office located at 601 South Conception Street.
The business occupies several buildings over a large area (See Map)



Gulf City Body & Trailer Works building located near the north end of their property on South Conception Street.



Gulf City Body & Trailer Work's parking area on South Conception Street. Alternate C crosses this building and the adjacent parking area.

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) **STATION #:** Map # 12

MUNICIPALITY OR COMMUNITY: Mobile **COUNTY:** Mobile

FACILITY NAME: City of Mobile – West River

FACILITY ADDRESS: West Bank of Mobile River, North of Northern End of Commerce Street, Downtown Mobile

The site is located between Cooper Riverside Park and Eslava Street

OWNER'S NAME: City of Mobile, Contact: Hudson McDonald, Project Engineer (251) 208-7627

OWNER'S ADDRESS: Mobile, AL

FACILITY PHONE #: (251) 208-7627 **OWNER'S PHONE #:** (251) 208-7627

ADEM REGISTRATION #: N/A

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine Repair Shop
- Foundry
- Manufacturing Facility
- Farmer's Cooperative
- Landfill
- Other (Specify): Various Industrial Uses in Past

COMMENTS: Site is located on the

Western shore of the Mobile River. Access to the site from North of Mobile is as follows: Take I-65 South to I-165 South; I-165 South to Water Street; go approximately ½ mile to Eslava; turn left onto Eslava, cross R-R tracks and Commerce St then turn left onto Commerce Street; go to end of Commerce site is just north of terminus of Commerce.

A cultural resource assessment was performed on the site and surrounding area in 1999. Trenches were dug just north of the proposed bridge footing of Alternative A.. These trenches (#4 and #5) revealed evidence of prior excavation activity purportedly by Bender Shipbuilding and Repair Co. in order to remove contaminated soils

A Phase I Environmental Site Assessment was performed on a parcel adjacent to and west of the site. Soil and water samples were collected and analyzed for contaminants. According to results of the report some soils contained PAHs and Arsenic at concentrations greater than the EPA Region III Risk Based Concentration (RBC) for Industrial Soils. Groundwater was not impacted by BTEX, PAHs, herbicides, PCBs, or pesticides. In at least one well arsenic, cadmium, chromium, copper, lead, antimony, and thallium exceeded their respective RBCs.

Recommend investigation of city property that would be required for Alternate A.

Site is considered High Risk.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE:



HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) STATION #: Map # 13

MUNICIPALITY OR COMMUNITY: Mobile COUNTY: Mobile

FACILITY NAME: B&B Manufacturing (Abandoned)

FACILITY ADDRESS: 401 South Carolina Street; Mobile, AL 36602

Note: Other names associated with this site include B&B Chemical, Research Solvent & Chemical, CHEMCO, and AMSCO Division of Union Oil of California

OWNER'S NAME: B&B Manufacturing, Contact: EPA's New On-Scene Coordinator – Anita Davis (404) 562-8844

OWNER'S ADDRESS: 401 South Carolina Street; Mobile, AL 36602

Additional POC: Tanya Floyd (Attorney) or Ralph Howard (Scientist) @ (404) 562-9813

EPA's On-Scene Coordinator – Karen Buerkis (404) 562-8847 (on Hurricane Katrina duty)

FACILITY PHONE #: (404) 562-8844 OWNER'S PHONE #: (404) 562-8844

ADEM REGISTRATION #: _____

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine Repair Shop
- Foundry
- Manufacturing Facility
- Farmer's Cooperative
- Landfill
- Other (Specify): FINDS, CERCLIS, ERNS, RCRANLR, State Site,

COMMENTS: See CERLIS database report. The Site is located at 401 South Carolina Street.

Access to the site from I-10 in Mobile is: Take Virginia Street (Exit 25B) and go west on Virginia Street, turn left on Warren Street, then left on South Carolina and proceed to the site located at 401 South Carolina Street.

ADEM responded to complaint of abandoned drums and other materials at the site. ADEM found approximately 200 drums, over 100 four-foot square totes, additional drums of concentrated acid, open vats, stained soil, numerous storage tanks, and other hazardous materials. EPA conducted cleanup operations in coordination with ADEM because of the size of the cleanup effort and the condition of the drums.

Karen Buerkis, EPA's On-Scene Coordinator, was on temporary duty supporting Hurricane Katrina recovery efforts. Anita Davis, EPA's new on-scene coordinator, was contacted but she was not very familiar with the site. She suggested that I send her an e-mail requesting a Project Status Report and the available information would be provided. After submitting the requested e-mail to Ms. Davis, I received a call from Tanya Floyd (Attorney) with EPA. Ms. Floyd said EPA had completed a removal action at this site including a large number of drums, totes, some tanks and soil removal down to ground water in some locations. No Further Response Action is planned at this site although there is still some contamination remaining. Land use restrictions are planned including not allowing excavation or use of the ground water on the site. Ralph Howard also called regarding the site. Mr. Howard said groundwater at the site is contaminated with numerous volatile organic compounds. Mr. Howard does not believe the site poses a high risk for the I-10 project but EPA has not conducted any off-site ground water sampling. Mr. Howard said it is possible that some contamination will be present in ground water within the I-10 right-of-way. Sampling ground water within the I-10 right-of-way will be required to determine if contamination is present.

Alternative C may impact this site.

Site is considered Moderate Risk for the I-10 project based on EPA's assessment of the site. Removal actions completed in February 2002. EPA considers the site to be no further response action planned with land use restrictions.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE: 



B&B Manufacturing Site looking southeast from South Carolina Street

HAZARDOUS MATERIALS NOTIFICATION FORM

PROJECT #: DPI-0030(005) STATION #: Map # 14

MUNICIPALITY OR COMMUNITY: Mobile COUNTY: Mobile

FACILITY NAME: Mobile Tank Wash (Abandoned)

FACILITY ADDRESS: 1051 Ledyard Street; Mobile, AL 36652

OWNER'S NAME: Mobile Tank Wash, Contact: EPA's On-Scene Coordinator - Dean Ullock (251) 490-6308

OWNER'S ADDRESS: 1051 Ledyard Street; Mobile, AL 36652

Additional POC: EPA Emergency Response and Removal Branch (404) 562-8855 or 8705

EPA Attorney Greg Luetscher (404) 562-9677

FACILITY PHONE #: (251) 490-6308 OWNER'S PHONE #: (251) 490-6308

ADEM REGISTRATION #: ALD980708036 for RCRA, 110000843990 and ALD980708036 for FINDS, ALD980708036 and 0407719 for CERCLIS

TYPE OF FACILITY [check applicable response(s)]:

- Gas Station
- Dry Cleaner
- Fertilizer Plant
- Plating Plant
- Leather Tannery
- Scrap Metal – Recycling
- Chemical Plant
- Wood Treating Plant
- Auto Parts w/Engine Repair Shop
- Foundry
- Manufacturing Facility
- Farmer's Cooperative
- Landfill
- Other (Specify): RCRAGN, FINDS, CERCLIS

COMMENTS: The Site is located at 1051

Ledyard Street. Access to the site from I-10 in Mobile is: Take Nellie Street (Exit 24) and go east on Nellie Street, turn left on Broad Street, then right on Baker Street, left on Tennessee Street, left on Ledyard Street and proceed to the site located at 1051 Ledyard Street.

Alternative C may impact this site.

The site was used for washing commercial tanker trucks between loads of various chemicals. Mr. Mike Ullock (EPA's On-Scene Coordinator) was interviewed concerning the status of the remediation the site. Mr. Ullock said the removal actions were completed in March 2005. Several USTs were removed along with many tons of contaminated soil. Mr. Ullock said the site has been remediated and he does not believe it presents a risk for the I-10 Bridge project. Sampling ground water within the I-10 right-of-way will be required to determine if contamination is present.

Site is considered Moderate Risk for the I-10 project based on EPA's assessment of the site. The site is located adjacent to ALDOT's ROW.

INSPECTOR'S NAME: Henry Malec/Buddy Covington

DATE INSPECTED: 2005-2012

SUPERVISOR'S SIGNATURE: 



Sign at Mobile Tank Wash Site looking west from Ledyard Street



Mobile Tank Wash Site looking west from Ledyard Street
Tennessee Street Overpass in Background



Mobile Tank Wash Site looking west from Ledyard Street I-10 in Background (Alternative C)



Mobile Tank Wash Site looking east from Tennessee Street at I-10 Overpass
(Alternative C)

APPENDIX F:
RELOCATION ANALYSIS

Narrative Analysis

Mobile County
Project No. DPI-0030(005)
I-10 Mobile River Bridge and Bayway Widening
Alternates A, B, B'

Following are responses to the questions posed on the Form ROW-RA-1:

Question #1:

No residential relocations are anticipated for **Alternates A, B and B'**.

Question #2:

The City of Mobile has a large and varied pool of possible residential replacement housing. Replacement housing should not be difficult to acquire, if required.

Question #3:

There are no public facilities or non-profit organizations along **Alternatives A, B and B'**.

This project is situated in an area along the Mobile River that is industrial. Businesses in this area are mostly related to the shipping industry and its needs. The bonding companies included are unique to the criminal justice activities at the nearby Metro Mobile/Mobile County jail. The jail is not expected to be relocated.

The real estate market in the downtown area of Mobile offers a wide range of properties for business relocations. Business closures have left a fairly large number of vacancies. Consultation with the Mobile Area Chamber of Commerce representatives indicated possible replacement sites for businesses are available, with river frontage being at a premium. Additional coordination time may be required for relocation of river front sites. Businesses such as Southern Fish & Oyster will require deep-water waterfront sites. A windshield survey of the industrial area surrounding the proposed project and the waterfront area along the Mobile River, as far north as Chickasaw; and south as Dauphin Island revealed some sites available (for sale) with deep-water frontage.

Question #4:

As mentioned in response to Question #3, additional lead-time will be required. Also, protective buying for some of the larger businesses that are unique to the riverfront may be appropriate as these properties become available.

Question #5:

The proposed bridge improvement will require the following business relocations, by alternate:

Alternate A will not require acquisition businesses:

Alternate B will require the following business relocations:

1. Delta Bail Bonding Company – tenant – 4+/- Full-time employees
2. Outlaw Bail Bonding Company – tenant – 4+/- Full-time employees
3. Discount Bail Bonding Company – tenant – 4+/- Full-time employees
4. Bond Max Bail Bonding Company – tenant – 4+/- Full-time employees
5. James Bail Bonding Company – owner – 4+/- Full-time employees
6. James Darley Esq. Law Office – owner – 2+/- Full-time employees
7. Bandit Bonding Company – tenant – 4+/- Full-time employees
8. Blackwell's Towing Co. – owner – 10+/- Full/part-time employees
9. South Royal Street Vacant Warehouse – owner – 0 employees
10. Bender Union Hall Vacant Storage – owner – 0 employees
11. South Royal Street Vacant Metal Building – owner – 0 employees
12. South Royal Street Vacant Concrete Building – owner – 0 employees
13. South Royal Street Vacant Metal Warehouse – owner – 0 employees
14. Southern Fish & Oyster Company – owner – 2- Full-time employees

Delta, Outlaw, Discount, Bond Max, James and Bandit bail bonding companies along with James Darley Esq., a law firm, are all businesses uniquely associated with the nearby Metro Mobile Jail Complex. **Alternate B** will require the acquisition of these businesses. The Metro Mobile Jail Complex is located in a developed commercial/industrial area with vacant parcels available. Therefore, no problems with finding adequate replacement locations for these businesses are anticipated.

Blackwell's Towing Service provides wrecker service to the public and has a small storage area (about 30 cars) for wrecked automobiles. Their major contractor is the nearby Metro Mobile Sheriff. **Alternate B** will require the acquisition of this business. The Metro Mobile Sheriff's Complex is located in a developed commercial/industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated.

Southern Fish and Oyster Company, a 4th generation family owned company, has been in the fresh seafood business at this location for more than 50 years. At this waterfront location, fishing vessels can pull right up to the door of the business. The business will be acquired for **Alternate B**. The type of business and current land use at this site requires that the business have river frontage or be in very close proximity to the river. The State currently owns river frontage as a protective purchase. After the alignment of the required bridge is determined, sufficient surplus state property will be available to accommodate the re-establishment of this business on the river front.

The remaining businesses are vacant storage facilities and warehouses that once supported the ship building industry. These properties are currently available for rent.

Alternate B' will require the following business relocations:

1. Delta Bail Bonding Company – tenant – 4+/- Full-time employees
2. Outlaw Bail Bonding Company – tenant – 4+/- Full-time employees
3. Discount Bail Bonding Company – tenant – 4+/- Full-time employees
4. Bond Max Bail Bonding Company – tenant – 4+/- Full-time employees
5. James Bail Bonding Company – owner – 4+/- Full-time employees
6. James Darley Esq. Law Office – owner – 2+/- Full-time employees
7. Bandit Bonding Company – tenant – 4+/- Full-time employees
8. Blackwell's Towing Co. – owner – 10+/- Full/part-time employees
9. South Royal Street Vacant Metal Building – owner – 0 employees
10. South Royal Street Vacant Concrete Building – owner – 0 employees
11. South Royal Street Vacant Metal Warehouse – owner – 0 employees
12. Southern Fish & Oyster Company – owner – 2- Full-time employees

Delta, Outlaw, Discount, Bond Max, James and Bandit bail bonding companies along with James Darley Esq., a law firm, are all businesses uniquely associated with the nearby Metro Mobile Jail Complex. **Alternate B'** will require the acquisition of these businesses. The Metro Mobile Jail Complex is located in a developed commercial/industrial area with vacant parcels available. Therefore, no problems with finding adequate replacement locations for these businesses are anticipated.

Blackwell's Towing Service provides wrecker service to the public and has a small storage area (about 30 cars) for wrecked automobiles. Their major contractor is the nearby Metro Mobile Sheriff. **Alternate B'** will require the acquisition of this business. The Metro Mobile Sheriff's Complex is located in a developed commercial/industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated.

Southern Fish and Oyster Company, a 4th generation family owned company, has been in the fresh seafood business at this location for more than 50 years. At this waterfront location, fishing vessels can pull right up to the door of the business. The business will be acquired for **Alternate B'**. The type of business and current land use at this site requires that the business have river frontage or be in very close proximity to the river. The State currently owns river frontage as a protective purchase. After the alignment of the required bridge is determined, sufficient surplus state property will be available to accommodate the re-establishment of this business on the river front.

The remaining businesses are vacant storage facilities and warehouses that once supported the ship building industry. These properties are currently available for rent.

Question #6:

Discussions with local business persons, residents and government officials indicate all are aware of the need for a resolution to the current traffic problems associated with I-10 and the existing tunnels. However, few were in favor of the previous proposed bridge plans. The current plans have been received more open-mindedly. Several still refer to a coalition of local businesses called “Keep Mobile Moving”. References were made to plans presented by a consultant hired by this group. All requested serious consideration of the plans presented by “Keep Mobile Moving”.

Question #7:

We believe personnel currently available will be sufficient to handle activity for any/all displaces. Acquisition and Relocation Programs will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1987, as amended. Services will be provided without regard to race, creed, color, sex, sexual orientation, religion, or national origin.

Hazardous Materials Notifications

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Acknowledgements

Information regarding existing and projected availability of replacement properties was obtained through discussions with realtors and appraisers, tabulation of real estate service listings, newspaper advertisements, and notation of posted “For Sale/Rent” signs during field investigations.

The following persons provided information for this report and/or estimate:

- Mr. Marvin Waller, R/W Engineer – ALDOT
- Mr. Stacy Cummings, Appraiser – ALDOT
- Mr. Mr. Gerald Criswell - ALDOT Tunnel Maintenance Supervisor
- Ms. Sheila Gurganis – City of Mobile Cruise Terminal Manager
- Mr. Al Ruffin – Mobile Chamber of Commerce
- Grubb & Ellis/Peebles & Cameron - Realtors

ALABAMA DEPARTMENT OF TRANSPORTATION
PRELIMINARY PROJECT RELOCATION ANALYSIS

(To be prepared prior to Corridor Public Hearing)

Project No. DPI-0030(005) County: Mobile and Baldwin
 Description I-10 Mobile River Bridge and Bayway Widening Alternate No. A

DISPLACEMENT AND REPLACEMENT HOUSING INVENTORY ESTIMATE

Type of Displacees	ESTIMATED NUMBER DISPLACED			INCOME LEVEL					
	Owners	Tenants	Total	Minority Own.	Ten.	*0-15	15-30	30-50	Over 50
Individuals and Families	0	0	0						
Businesses	0	0	0						
Farms	0	0	0						
Non-Profit Organizations	0	0	0						
Signs	3	0	3						

DISPLACED DWELLINGS	OWNERS VALUE OF DWELLING				
	*0-40	40-60	60-80	80-100	Over 100
1 - 3 BEDROOMS					
4 - OVER BEDROOMS					
AVAILABLE DWELLINGS					
1 - 3 BEDROOMS					
4 - OVER BEDROOMS					

DISPLACED UNITS	TENANTS MONTHLY RENTAL RATE				
	\$0-150	\$151-300	\$301-400	\$401-500	\$501 +
1 - 3 BEDROOMS					
4 - OVER BEDROOMS					
AVAILABLE UNITS					
1 - 3 BEDROOMS		5	2	7	10
4 - OVER BEDROOMS					

Items numbered 1 through 7 on the back of this form must be answered and explained. Number the corresponding responses and attach additional pages as needed.

I certify that the above is a realistic estimate.

Date: 12/31/12 Signed:  Title: Volkert, Inc.

(Submit in duplicate to Bureau of Right of Way)

Attached: Narrative Explanations

*Denotes Thousands

**DSS dwellings currently available.

The information listed below must be furnished as a narrative analysis to the extent appropriate for the project and in accordance with 49 CFR 24.205 and Paragraph G, Section I, of the State's Relocation Assistance Manual.

1. An estimate of the number of households to be displaced, including the family characteristics (e.g. minority, ethnic, handicapped, elderly, large family, income level and owner/tenant status). However, where there are very few displacees, information on race, ethnicity and income levels should not be included in the EIS to protect the privacy of those affected.
2. A discussion comparing available (decent, safe and sanitary) housing in the area with the housing needs of the displacees. The comparison should include: (1) price ranges, (2) sizes (number of bedrooms), and (3) occupancy status (owner/tenant).
3. A discussion of any affected neighborhoods, public facilities, non-profit organizations and families having special composition (e.g. ethnic, minority, elderly, handicapped or other factors) which may require special relocation considerations and the measures proposed to resolve these relocation concerns.
4. A discussion of the measures to be taken where the existing housing inventory is insufficient, does not meet relocation standards or is not within the financial capability of the displacees. A commitment to last resort housing should be included when sufficient comparable replacement housing may not be available.
5. An estimate of the numbers, descriptions, types of occupancy (owner/tenant) and sizes (number of employees) of businesses and farms to be displaced. Additionally, the discussion should identify: (1) sites available in the area to which the affected businesses may relocate. (2) likelihood of such relocation, and (3) potential impacts on individual businesses and farms caused by displacement or proximity of the proposed highway if not displaced.
6. A discussion of the results of contacts, if any, with local governments, organizations, groups and individuals regarding residential and business relocation impacts, including any measures or coordination needed to reduce general and/or specific impacts. These contacts are encouraged for projects with large numbers of relocatees or complex relocation requirements. Specific financial and incentive programs or opportunities beyond those provided by the Uniforms Relocation Act) to residential and business relocatees to minimize impacts may be identified, if available through other agencies or organizations.
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ALABAMA DEPARTMENT OF TRANSPORTATION
PRELIMINARY PROJECT RELOCATION ANALYSIS

(To be prepared prior to Corridor Public Hearing)

Project No. DPI-0030(005) County: Mobile and Baldwin
 Description I-10 Mobile River Bridge and Bayway Widening Alternate No. B

DISPLACEMENT AND REPLACEMENT HOUSING INVENTORY ESTIMATE

Type of Displacees	ESTIMATED NUMBER DISPLACED			Minority		INCOME LEVEL			
	Owners	Tenants	Total	Own.	Ten.	*0-15	15-30	30-50	Over 50
Individuals and Families	0	0	0			0			
Businesses	9	5	14	2	1				
Farms	0	0	0						
Non-Profit Organizations	0	0	0						
Signs	9	5	14						

DISPLACED DWELLINGS	OWNERS VALUE OF DWELLING				
	*0-40	40-60	60-80	80-100	Over 100
1 - 3 BEDROOMS					
4 - OVER BEDROOMS					
AVAILABLE DWELLINGS					
1 - 3 BEDROOMS					
4 - OVER BEDROOMS					

DISPLACED UNITS	TENANTS MONTHLY RENTAL RATE				
	\$0-150	\$151-300	\$301-400	\$401-500	\$501 +
1 - 3 BEDROOMS		1			
4 - OVER BEDROOMS					
AVAILABLE UNITS					
1 - 3 BEDROOMS		5	2	7	10
4 - OVER BEDROOMS					

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ALABAMA DEPARTMENT OF TRANSPORTATION
PRELIMINARY PROJECT RELOCATION ANALYSIS

(To be prepared prior to Corridor Public Hearing)

Project No. DPI-0030(005) County: Mobile and Baldwin
 Description I-10 Mobile River Bridge and Bayway Widening Alternate No B'

DISPLACEMENT AND REPLACEMENT HOUSING INVENTORY ESTIMATE

Type of Displacees	ESTIMATED NUMBER DISPLACED			Minority		INCOME LEVEL			
	Owners	Tenants	Total	Own.	Ten.	*0-15	15-30	30-50	Over 50
Individuals and Families	0	0	0	0	0	0			
Businesses	7	5	12	2	1				
Farms	0	0	0						
Non-Profit Organizations	0	0	0						
Signs	7	5	12						

DISPLACED DWELLINGS	OWNERS VALUE OF DWELLING				
	*0-40	40-60	60-80	80-100	Over 100
1 - 3 BEDROOMS					
4 - OVER BEDROOMS					
AVAILABLE DWELLINGS					
1 -3 BEDROOMS					
4 - OVER BEDROOMS					

DISPLACED UNITS	TENANTS MONTHLY RENTAL RATE				
	\$0-150	\$151-300	\$301-400	\$401-500	\$501 +
1 - 3 BEDROOMS		1			
4 - OVER BEDROOMS					
AVAILABLE UNITS					
1 -3 BEDROOMS		5	2	7	10
4 - OVER BEDROOMS					

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Narrative Analysis

Mobile County
Project No. DPI-0030(005)
I-10 Mobile River Bridge and Bayway Widening
Alternate C

Following are responses to the questions posed on the Form ROW·RA·1. These responses apply to Alternate C:

Question #1:

Alternate C will require the acquisition of two (2) tenant-occupied residences and one (1) vacant residence located along South Hamilton Street and one (1) owner occupied residence on Conception for a total of four (4) residential displaces. The two (3) residences on South Hamilton are in poor condition. Last Resort Housing Services may be required.

Question #2:

The City of Mobile has a large and varied supply of residential rental replacement housing and homes for sale, so finding replacement housing for the displacees should not be difficult. All of the residential displacees live in homes with less than four (4) bedrooms and less than eight (8) rooms overall. The current economic climate has provided a glut of this type of home for sale and rent.

Question #3:

There are no public facilities or non-profit organizations along Alternative C.

This project is situated in an area along the Mobile River that is industrial. Businesses in this area are mostly related to the shipping industry and its needs. The bonding companies included are unique to the criminal justice activities at the nearby Metro Mobile/Mobile County jail. The jail is not expected to be relocated.

The real estate market in the downtown area of Mobile offers a wide range of properties for business relocations. Business closures have left a fairly large number of vacancies. Consultation with the Mobile Area Chamber of Commerce representatives indicated possible replacement sites for businesses are available, with river frontage being at a premium. Additional coordination time may be required for relocation of river front sites. Businesses such as Southern Fish & Oyster will require deep-water waterfront sites. A windshield survey of the industrial area surrounding the proposed project and the waterfront area along the Mobile River, as far north as Chickasaw; and south as Dauphin Island revealed some sites available (for sale) with deep-water frontage.

Mobile County Metro Sheriff's Office and Barracks is part of the Mobile County Metro Sheriffs campus encompassing several blocks along Conception, St. Emanuel and Royal Streets. Of the several building on the campus, the offices are impacted by the project.

Question #4:

The existing housing inventory in Mobile is sufficient to meet the needs of the residential relocations. As mentioned in response to Question #3, additional lead-time will be required. Also, protective buying for some of the larger businesses that are unique to the riverfront may be appropriate as these properties become available.

Question #5:

The proposed **Alternate C** will require the following business relocations:

1. Dyer Trucking Co. – owner occupied – 8 to 10 Full-time employees
2. Mellow Yellow Kitchen Catering – owner occupied - 1 Part-time employee
3. Neptune’s Daughters Float Storage 1 – owner occupied – 0 employees
4. Neptune’s Daughters Float Storage 2 – owner occupied – 0 employees
5. Refined Oil Products – owner occupied - 1 or 2 Part-time employees
6. Merritt Oil Co– owner occupied – 4 Full-time employees
7. Radio Holland USA – tenant occupied - 3 to 4 Full-time employees
8. Liz's Bar Vacant – tenant occupied - 0 employees
9. Abandoned Commercial Building – owner occupied – 0 employees
10. Gulf City Body & Trailer Works – owner occupied - 60 Full-time employees
11. Atlas Ship Services – owner occupied – 5 Full-time employees
12. Pratt’s D.E. Ship Supplies – owner occupied – 2 Full-time employees
13. One Hour Bonding – owner occupied - 2 Full-time & 2- Part-time employees
14. Mobile County Sheriff’s Office – owner occupied – 60 Full-time employees
15. Mobile County Jail Barracks – owner occupied – 10 Full-time employees

Dyer Trucking is a fairly large owner-operated regional trucking operation with mainly (but not all) maritime customers. **Alternate C** will require the acquisition of this business. Dyer Trucking is located in a developed commercial / industrial area with vacant parcels available with convenient access to I-10. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site.

Mellow Yellow Kitchen Catering looked to be in-use and we believe this business is owner-occupied. **Alternate C** will require the acquisition of this business. The business is located in a developed commercial / industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site.

The Mardi Gras float storage warehouses for Neptune’s Daughters Mardi Gras organization will be relocated by Alternative C. These two buildings are owner occupied. There are other warehouse facilities for rent in the area. Therefore, no problem with finding an adequate replacement location for these warehouses is anticipated. It is unlikely that the warehouses will be able to continue to operate at this site.

Refined Oil is a small owner-occupied oil recovery business with a small storage tank and dilapidated barns. **Alternate C** will require the acquisition of this business. Refined Oil is located in a developed commercial/industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site.

Merritt Oil is a small owner-occupied oil business and a dilapidated barn/storage area is on their property. Alternate C will require the acquisition of this business. Merritt Oil is located in a developed commercial/industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site.

Radio Holland USA provides communication and navigation equipment service to the shipping industry. Radio Holland USA is an international company with ten (10) US locations and more than ten (10) international locations. This building is tenant-occupied. **Alternate C** will require the acquisition of this business. Radio Holland USA is located in a developed commercial / industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site.

Liz's Bar w/ Karaoke is a tenant-operated neighborhood bar catering to nearby workers. **Alternate C** will require the acquisition of this business. Liz's Bar w/ Karaoke is located in a developed commercial / industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site. Liz's Bar is currently vacant and for rent.

Abandoned Building is a small owner-occupied dilapidated retain building. Alternate C will require the acquisition of this business. This building is located in a developed commercial/industrial area with vacant parcels available. The building is currently vacant and for rent.

Gulf City Body & Trailer performs truck and trailer repairs and service. It is owner-occupied and the second largest operation along the proposed project route. **Alternate C** will require the acquisition of this business. Gulf City Body & Trailer is located in a developed commercial / industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site.

Atlas Ship Services is a small supply company located in an owner-occupied building. Alternate C will require the acquisition of this business. Atlas is located in a developed commercial / industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site.

Pratt's D. E. Ship Supply is a small supply company located in an owner-occupied building. Alternate C will require the acquisition of this business. Atlas is located in a developed commercial / industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site.

One Hour Bonding is a small bonding company located in an owner-occupied single wide trailer that appears to be movable. **Alternate C** will require the acquisition of this business. One Hour Bonding is located in a developed commercial / industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for this business is anticipated. It is unlikely that the business will be able to continue to operate at this site.

Mobile County Sheriff's Office and Barracks is part of the Mobile County Metro Sheriffs campus encompassing several blocks along Conception, St. Emanuel and Royal Streets. Of the several building on the campus, the offices are impacted by the project. Alternate C will require the acquisition of the office building and the barracks. The facilities are located in a developed commercial / industrial area with vacant parcels available. Therefore, no problem with finding an adequate replacement location for these facilities is anticipated.

Question #6:

Discussions with local business persons, residents and government officials indicate all are aware of the need for a resolution to the current traffic problems associated with I-10 and the existing tunnels. However, few were in favor of the previous proposed bridge plans. The current plans have been received more open-mindedly. Several still refer to a coalition of local businesses called "Keep Mobile Moving". References were made to plans presented by a consultant hired by this group. All requested serious consideration of the plans presented by "Keep Mobile Moving".

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- Grubb & Ellis/Peebles & Cameron - Realtors

ALABAMA DEPARTMENT OF TRANSPORTATION
PRELIMINARY PROJECT RELOCATION ANALYSIS

(To be prepared prior to Corridor Public Hearing)

Project No. DPI-0030(005) County: Mobile and Baldwin
 Description I-10 Mobile River Bridge and Bayway Widening Alternate No. C

DISPLACEMENT AND REPLACEMENT HOUSING INVENTORY ESTIMATE

Type of Displacees	ESTIMATED NUMBER DISPLACED			INCOME LEVEL					
	Owners	Tenants	Total	Minority		*0-15	15-30	30-50	Over 50
Individuals and Families	1	3	4	Own.	Ten.		3	1	
Businesses	13	2	15	2	0				
Farms	0	0	0						
Non-Profit Organizations	0	0	0	0	0				
Signs	5		5						

DISPLACED DWELLINGS	OWNERS VALUE OF DWELLING				
	*0-40	40-60	60-80	80-100	Over 100
1 - 3 BEDROOMS			1		
4 - OVER BEDROOMS					
AVAILABLE DWELLINGS					
1 - 3 BEDROOMS			10	5	
4 - OVER BEDROOMS					

DISPLACED UNITS	TENANTS MONTHLY RENTAL RATE				
	\$0-150	\$151-300	\$301-400	\$401-500	\$501 +
1 - 3 BEDROOMS				3	
4 - OVER BEDROOMS					
AVAILABLE UNITS					
1 - 3 BEDROOMS		5	2	7	10
4 - OVER BEDROOMS					

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I certify that the above is a realistic estimate.

Date: 12/31/12 Signed:  Title: Volkert, Inc.

(Submit in duplicate to Bureau of Right of Way)

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+ See question No. 1.

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APPENDIX G:

**LOCATION RISK
ASSESSMENT**

LOCATION RISK ASSESSMENT RECORD
FOR
LOCATION OF FLOODPLAIN ENCROACHMENT

Date: October 18, 2012

PROJECT NO. DPI-0030(005)

PROJECT DESCRIPTION: I-10 Mobile River Bridge and Bayway Widening, Mobile and Baldwin Counties

PREPARED BY: Volkert, Inc.

NFIP PARTICIPATION
(Fill In)

ENCROACHMENT DETERMINATION:
(Date of Map)

County	<u>Mobile, Baldwin</u>	PARTICIPATING	<u>X</u>
		NON-PARTICIPATING	<u> </u>
City	<u>Mobile, Spanish Fort, Daphne</u>	PARTICIPATING	<u>X</u>
		NON-PARTICIPATING	<u> </u>

FHBM	<u> </u>	FBFM	<u> </u>
FIRM	<u>3/17/10</u>	HUD STUDY	<u> </u>
<u>Mobile County FIRM 3/17/10 panels 558 , 564, 566</u>			
<u>Baldwin County FIRM 7/17/07 panels 500, 516, 518, 525</u>			

***Note – Preferred Alternate crosses 2 counties.**

OTHER SOURCES:

U.S.G.S. TOPO MAPPING FLOOD PRONE AREA MAP

PLAN-PROFILE SHEET

EXISTING STRUCTURE(S): I-10 Bayway , Tennessee Street Culvert

LENGTH: Approx. 38000' (7.2 miles) – Bayway; Approx. 470' – Tennessee Street culvert
P.G.: Approx. elevation 23.0' – Bayway; Approx. elevation 13.0' – Tennessee Street culvert
SKEW: 58° (Mobile River), 47° (Tensaw River), 90° (Blakely River), 42° (Tennessee Street)
CENTERLINE ELEV.: Approx. elev. 23.0' – Bayway; Approx. elev. 32' (Tennessee Street)

<u>PROJECT SITE EVALUATION</u>	<u>ALTERNATIVE NO.</u>	<u>A</u>	<u>YES or NO</u>
LONGITUDINAL ENCROACHMENT?			<u>No</u>
SIGNIFICANT ENCROACHMENT?			<u>No</u>
ALTERNATIVES TO SIGNIFICANT ENCROACHMENT?			<u>N/A</u>
ONLY PRACTICABLE ALTERNATIVE (ONLY IF SIGNIFICANT ENCR.)?			<u>N/A</u>
SIGNIFICANT RISK?			<u>No</u>
MEASURES TO MINIMIZE FLOOD PLAIN IMPACTS?			<u>Yes</u>
DIRECT OR INDIRECT SUPPORT TO BASE FLOOD PLAIN DEVELOPMENT?			<u>Yes</u>
POTENTIAL FOR INTERRUPTION OF EVACUATION ROUTE?			<u>No</u>

IMPACT ON BENEFICIAL FLOODPLAIN VALUES?

YES OR NO

Yes

IF YES EXPLAIN Impacts may occur due to culvert extensions or other activities associated with construction. Impacts will be minimized and confined.

MEASURES TO RESTORE AND PRESERVE BENEFICIAL VALUES?

Yes

IF YES EXPLAIN The structures in all base floodplains will be designed to convey the 100 year flood. If required, mitigation will be provided to minimize and/or restore beneficial floodplain values.

TYPE AND DEGREE OF DEVELOPMENT ON THE FLOODPLAIN? Floodplain development will include extending existing drainage structures to accommodate widening from five lanes to six lanes, along with construction of new bridge structures over the Mobile River floodplain. Hydraulic design will comply with ALDOT and FHWA policies for base floodplains.

PROPOSAL AFFECTING A REGULATORY FLOODWAY?

No

PROJECT COORDINATION WITH FEMA REQUIRED?

Yes

IF YES WHEN? During final construction plan development

OTHER COMMENTS _____

CONCLUSION:

Under the guidelines provided in the Alabama Highway Department's "Screening Process for the Design of Floodplains and Federal Aid Projects", this project qualifies for the level of analysis under Category 6.

Projects on new alignment and projects with potentially significant increases in 100-year flood water surface elevations. During final design, hydraulic analysis and any "no rise" certifications will be provided.

LOCATION RISK ASSESSMENT RECORD
FOR
LOCATION OF FLOODPLAIN ENCROACHMENT

Date: November 12, 2012

PROJECT NO. DPI-0030(005)

PROJECT DESCRIPTION: I-10 Mobile River Bridge and Bayway Widening, Mobile and Baldwin Counties

PREPARED BY: Volkert, Inc.

NFIP PARTICIPATION
(Fill In)

County	<u>Mobile, Baldwin</u>	PARTICIPATING	<u>X</u>
		NON-PARTICIPATING	<u> </u>
City	<u>Mobile, Spanish Fort, Daphne</u>	PARTICIPATING	<u>X</u>
		NON-PARTICIPATING	<u> </u>

ENCROACHMENT DETERMINATION:
(Date of Map)

FHBM	<u> </u>	FBFM	<u> </u>
FIRM	<u>3/17/10</u>	HUD STUDY	<u> </u>
<u>Mobile County FIRM 3/17/10 panels 558 , 564, 566</u>			
<u>Baldwin County FIRM 7/17/07 panels 500, 516, 518, 525</u>			

***Note – Preferred Alternate crosses 2 counties.**

OTHER SOURCES:

U.S.G.S. TOPO MAPPING FLOOD PRONE AREA MAP

PLAN-PROFILE SHEET

EXISTING STRUCTURE(S): I-10 Bayway , Tennessee Street Culvert

LENGTH: Approx. 38000' (7.2 miles) – Bayway; Approx. 470' – Tennessee Street culvert
P.G.: Approx. elevation 23.0' – Bayway; Approx. elevation 13.0' – Tennessee Street culvert
SKEW: 54° (Mobile River), 47° (Tensaw River), 90° (Blakely River), 42° (Tennessee Street)
CENTERLINE ELEV.: Approx. elev. 23.0' – Bayway; Approx. elev. 32' (Tennessee Street)

<u>PROJECT SITE EVALUATION</u>	<u>ALTERNATIVE NO.</u>	<u>B</u>	<u>YES or NO</u>
LONGITUDINAL ENCROACHMENT?			<u>No</u>
SIGNIFICANT ENCROACHMENT?			<u>No</u>
ALTERNATIVES TO SIGNIFICANT ENCROACHMENT?			<u>N/A</u>
ONLY PRACTICABLE ALTERNATIVE (ONLY IF SIGNIFICANT ENCR.)?			<u>N/A</u>
SIGNIFICANT RISK?			<u>No</u>
MEASURES TO MINIMIZE FLOOD PLAIN IMPACTS?			<u>Yes</u>
DIRECT OR INDIRECT SUPPORT TO BASE FLOOD PLAIN DEVELOPMENT?			<u>Yes</u>
POTENTIAL FOR INTERRUPTION OF EVACUATION ROUTE?			<u>No</u>

IMPACT ON BENEFICIAL FLOODPLAIN VALUES?

YES OR NO

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PROPOSAL AFFECTING A REGULATORY FLOODWAY?

No

PROJECT COORDINATION WITH FEMA REQUIRED?

Yes

IF YES WHEN? During final construction plan development

OTHER COMMENTS _____

CONCLUSION:

Under the guidelines provided in the Alabama Highway Department's "Screening Process for the Design of Floodplains and Federal Aid Projects", this project qualifies for the level of analysis under Category 6.

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LOCATION RISK ASSESSMENT RECORD
FOR
LOCATION OF FLOODPLAIN ENCROACHMENT

Date: November 12, 2012

PROJECT NO. DPI-0030(005)

PROJECT DESCRIPTION: I-10 Mobile River Bridge and Bayway Widening, Mobile and Baldwin Counties

PREPARED BY: Volkert, Inc.

NFIP PARTICIPATION
(Fill In)

County	<u>Mobile, Baldwin</u>	PARTICIPATING	<u>X</u>
		NON-PARTICIPATING	<u> </u>
City	<u>Mobile, Spanish Fort, Daphne</u>	PARTICIPATING	<u>X</u>
		NON-PARTICIPATING	<u> </u>

ENCROACHMENT DETERMINATION:
(Date of Map)

FHBM	<u> </u>	FBFM	<u> </u>
FIRM	<u>3/17/10</u>	HUD STUDY	<u> </u>
<u>Mobile County FIRM 3/17/10 panels 558 , 564, 566</u>			
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***Note – Preferred Alternate crosses 2 counties.**

OTHER SOURCES:

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CENTERLINE ELEV.: Approx. elev. 23.0' – Bayway; Approx. elev. 32' (Tennessee Street)

<u>PROJECT SITE EVALUATION</u>	<u>ALTERNATIVE NO.</u>	<u>B PRIME</u>	<u>YES or NO</u>
LONGITUDINAL ENCROACHMENT?			<u>No</u>
SIGNIFICANT ENCROACHMENT?			<u>No</u>
ALTERNATIVES TO SIGNIFICANT ENCROACHMENT?			<u>N/A</u>
ONLY PRACTICABLE ALTERNATIVE (ONLY IF SIGNIFICANT ENCR.)?			<u>N/A</u>
SIGNIFICANT RISK?			<u>No</u>
MEASURES TO MINIMIZE FLOOD PLAIN IMPACTS?			<u>Yes</u>
DIRECT OR INDIRECT SUPPORT TO BASE FLOOD PLAIN DEVELOPMENT?			<u>Yes</u>
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PROPOSAL AFFECTING A REGULATORY FLOODWAY?

No

PROJECT COORDINATION WITH FEMA REQUIRED?

Yes

IF YES WHEN? During final construction plan development

OTHER COMMENTS _____

CONCLUSION:

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LOCATION OF FLOODPLAIN ENCROACHMENT

Date: November 12, 2012

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PREPARED BY: Volkert, Inc.

NFIP PARTICIPATION
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City	<u>Mobile, Spanish Fort, Daphne</u>	PARTICIPATING	<u>X</u>
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ENCROACHMENT DETERMINATION:
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FHBM	<u> </u>	FBFM	<u> </u>
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SKEW: 64° (Mobile River), 47° (Tensaw River), 90° (Blakely River), 42° (Tennessee Street)
CENTERLINE ELEV.: Approx. elev. 23.0' – Bayway; Approx. elev. 32' (Tennessee Street)

<u>PROJECT SITE EVALUATION</u>	<u>ALTERNATIVE NO.</u>	<u>C</u>	<u>YES or NO</u>
LONGITUDINAL ENCROACHMENT?			<u>No</u>
SIGNIFICANT ENCROACHMENT?			<u>No</u>
ALTERNATIVES TO SIGNIFICANT ENCROACHMENT?			<u>N/A</u>
ONLY PRACTICABLE ALTERNATIVE (ONLY IF SIGNIFICANT ENCR.)?			<u>N/A</u>
SIGNIFICANT RISK?			<u>No</u>
MEASURES TO MINIMIZE FLOOD PLAIN IMPACTS?			<u>Yes</u>
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IF YES WHEN? During final construction plan development

OTHER COMMENTS _____

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