FHWA-AL-EIS-14-01-D

DRAFT ENVIRONMENTAL IMPACT STATEMENT

PROJECT NO. DPI-0030(005)
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
MOBILE AND BALDWIN COUNTIES, ALABAMA

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
ALABAMA DEPARTMENT OF TRANSPORTATION

July 2014

IN COOPERATION WITH:
U.S. Army Corps of Engineers, Mobile District
and
U.S. Coast Guard, Eighth District

FHWA-AL-EIS-14-01-D

PROJECT NO. DPI-0030(005)
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
MOBILE AND BALDWIN COUNTIES, ALABAMA

DRAFT ENVIRONMENTAL IMPACT STATEMENT

U.S. Department of Transportation
Federal Highway Administration
and
Alabama Department of Transportation

In cooperation with the

U.S. Army Corps of Engineers, Mobile District
U.S. Coast Guard, Eighth District

7/22/2014 — **Date**

Mark D. Bartlett — **For FHWA**

The following persons may be contacted for additional information:

Mr. Mark D. Bartlett, P.E.
Division Administrator
Federal Highway Administration
9500 Wynlakes Place
Montgomery, Alabama 36117
(334) 274-6350

Mr. John R. Cooper
Transportation Director
Alabama Department of Transportation
1409 Coliseum Boulevard
Montgomery, Alabama 36110
(334) 242-6311

Project DPI-0030(005) is a proposal to increase the capacity of Interstate Route 10 (I-10) by constructing a new six-lane bridge across the Mobile River and widening the existing I-10 bridges across Mobile Bay from four to eight lanes. The proposed project is located in Mobile and Baldwin Counties, Alabama.

ALABAMA DEPARTMENT OF TRANSPORTATION
Design Bureau, Consultant Management Section
1409 Coliseum Boulevard, Montgomery, Alabama 36110
P. O. Box 303050, Montgomery, Alabama 36130-1050
Phone: 334-242-6178 FAX: 334-353-6513

Robert Bentley
Governor

John R. Cooper
Transportation Director

May 5, 2014

To: Ronald L. Baldwin, P.E.
Chief Engineer

From: William F. Adams, P.E.
State Design Engineer

RE: Project No. DPI-0030(005)
I-10 Mobile River Bridge and
Bayway Widening
Mobile County

Attached for your review is the Environmental Commitment Statement for the above referenced project. If you concur with this statement, it will be incorporated into the body of the Draft Environmental Impact Statement (DEIS). An additional approval of environmental commitments will be required for this project between the DEIS and the Final Environmental Impact Statement (FEIS) approvals. This is based on the continued coordination and design associated with this project.

CONCUR
Ronald L. Baldwin
Ronald L. Baldwin, P.E.
Chief Engineer

5-5-14
Date

WFA/ hd

C: Curtis Vincent
Barry Fagan
Audrey Perine
Vince Calametti
Clay McBrien
Terry McDuffie (Attn. Theresa Barksdale)
DB File
ETS File

Lighting: Lighting associated with the bridge approaches, ramps and roadway widening will be designed so that light levels at the ROW boundary will be less than or equal to the existing light levels. ALDOT is committed to designing roadway and bridge lighting that provides necessary lighting to meet design criteria, while minimizing light pollution to the extent that is practical for the traveling public and its safety. Measures, including shielding, to minimize light pollution on historic resources, environmental justice communities, and others will be developed with input from the SHPO (State Historic Preservation Officer) and local stakeholders and incorporated into a Memorandum of Agreement (MOA) developed prior to and included in the FEIS. Strobe lights to prevent collision and nesting by migratory fowl will be addressed in the FEIS in coordination with US Fish and Wildlife Service (USFWS). During the design phase, lighting will also be coordinated with the USCG for navigational requirements and the Federal Aviation Administration (FAA) for air traffic requirements.

Hazmat: Further investigation (subsurface soil and groundwater testing where appropriate) will be done for the preferred alignment and documented in the FEIS for hazardous materials sites deemed moderate to high risk.

Cultural Resources (Archaeology, Battleship Park, Visual Effects and Vibration Considerations):

- **Archaeology:** Phase II archaeology testing will be coordinated with the State Historic Preservation Officer (SHPO) and performed as part of the investigation of the Preferred Alternative in the FEIS if sites cannot be avoided. Additional coordination with the SHPO will be conducted on methods to minimize impacts to historical archaeological resources as well as to define areas not previously surveyed and, if required, a Phase I archaeological investigation of these areas. This information will also be included in the FEIS.
- **Historic, Battleship Park:** ALDOT will coordinate with SHPO, USS Alabama Battleship Memorial Park Commission, and the consulting parties to determine location and type of signs for the USS Alabama Battleship Park. Any resulting decisions will be documented in the FEIS.
- **Historical, Visual:** Visual effects of the proposed project and opportunities to incorporate context-sensitive design features have been and will continue to be discussed with the SHPO and Section 106 Consulting Parties, through the Section 106 process as the design of the project develops. Through this coordination, a reasonable planting plan will be developed in an effort to maintain the tree canopy.
- **Vibrations:** ALDOT will conduct a study to evaluate potential vibration impacts for pile driving and to help identify construction methodologies that would avoid vibration impacts to historic properties in proximity to the project. A construction vibration monitoring system will be developed during the design phase and used during construction as needed so that buildings

within an affected range, as determined by the ALDOT vibration research study, can be monitored and documented before, during, and after construction.

Bridge Aesthetics: Input related to bridge aesthetics and contextual design will be sought during the coordination of the FEIS. In addition, ALDOT will coordinate during the design phase with stakeholders, SHPO, and Section 106 Consulting Parties on bridge aesthetics to design an attractive yet functional and economical bridge.

Pedestrian and Bicycle Facilities:

- **Proposed Accommodations:** ALDOT is committed to providing pedestrian and bicycle facilities across the Mobile River. This may be via Cochran Bridge or Bankhead Tunnel. Additional information will be presented at the DEIS Public Hearing for public input.
- **Crepe Myrtle Trail and Eastern Shore National Recreation Trail/I-10 Scenic Underpass Trail:** Piers for the proposed bridge will be placed to avoid impacting the Crepe Myrtle Trail and the Eastern Shore National Recreation Trail/I-10 Scenic Underpass Trail. Access to the I-10 Scenic Underpass Trail will be maintained.

Drainage: The project's surface runoff collection systems will be designed to minimize increased drainage that could result from the project. ALDOT will coordinate with the City of Mobile during the design phase for the Selected Alternative to address compatibility with city drainage improvement programs.

Bayway Construction: In consultation with resource and regulatory agencies, the following commitments were made to minimize impacts to natural resources:

- Construction will be performed utilizing segmented barges between the existing Bayway lanes. Barge segments would be linked together to serve as a construction platform and leapfrogged ahead using cranes as construction progresses. This same methodology will be used to construct the outside addition to the Bayway for the I-10/US-98 exit ramp.
- Duration of barge segments in a particular location should not exceed 30 days.
- Concrete materials removed from the existing inside bridge rail would not be allowed to fall into the water and would be collected for transport to a suitable disposal site.

Essential Fish Habitat (EFH), SAV and Wetlands and Coastal Zone: A draft mitigation plan will be developed for wetlands, Submerged Aquatic Vegetation (SAV), EFH and the Coastal Zone and included in the FEIS for impacted resources, as appropriate.

- EFH: Further coordination with the National Marine Fishery Service (NMFS) on EFH will be documented in the FEIS and coordination continued during the permitting phase for any NMFS conservation recommendations. A final mitigation plan that includes in-kind mitigation for each habitat type impacted will be developed prior to construction as necessary.

- **Wetland and Submerged Aquatic Vegetation (SAV) Surveys:** Wetland and SAV surveys will be conducted during the permitting phase to delineate resources that will be impacted and to provide a basis for determining appropriate mitigation measures. Appropriate mitigation measures will be developed in consultation with resource and regulatory agencies including US Corps of Engineer (USCOE), USFWS, NMFS, and Alabama Department of Environmental Management (ADEM). A final mitigation plan will be developed during the permitting phase prior to construction and will include specific mitigation measures determined to be reasonable for the project.
- **Coastal Zone:** ALDOT will coordinate with ADEM to develop practical atypical construction best management practices deemed necessary during the permitting process.

Protected Species: The USFWS issued an Incidental Take statement and prescribed reasonable and prudent measures to be taken as well as Terms and Conditions that must be met for the Incidental Take provisions to be valid. The ALDOT will meet these Terms and Conditions and coordinate with the USFWS during project development and implementation. The reasonable and prudent measures along with the Terms and Conditions are as follows:

- Work areas within the defined project area should be fenced to exclude Red-bellied turtles.
- All equipment staging areas located along the Causeway will be selected in cooperation with the USFWS and fenced to exclude Red-bellied turtles.
- Fencing shall be monitored and properly maintained for the duration of the project.
- Work areas within the project corridor should be cleared of Gulf sturgeon and Red-bellied turtles prior to placing work barges in the enclosures.
- Work areas that are not enclosed with mesh fencing will be cleared daily of Red-bellied turtles or Gulf sturgeon that might have entered the area.
- Catch barges or vehicles shall be used to collect and remove debris resulting from the modification of the existing bridge structures.
- Monitoring for dead, sick, or injured Red-bellied turtles or Gulf sturgeon should be conducted on a daily basis.
- In those areas where barges will rest on the bay bottom, mesh fencing or floating silt curtains, with a maximum 2" by 2" mesh, will be attached to existing support columns to exclude Red-bellied turtles and Gulf sturgeon from the work area. This fencing will be installed prior to moving barges along the work area and removed when work in the area is completed.
- Staging areas are those areas where equipment will be stored overnight or longer periods of time. These areas will be fenced using silt fence where possible. If fencing is impossible, the area should

be surveyed and cleared before vehicles are moved and all Red-bellied turtles removed and released into adjacent habitats.

- Prior to placing platform work barges in place, the work area within the project area will be cleared of Gulf sturgeon and Red-bellied turtles by trained personnel familiar with the species and permitted to take these species. Alabama Red-bellied turtles should be sexed, aged, measured, and weighed before releasing in suitable habitat outside the project area. Gulf sturgeon should only be removed from the water long enough to photograph for identification.
- The concrete portions of the existing bridges to be removed will be placed on catch barges or vehicles and later taken to the Gulf for the creation of fish habitat structures. Determining location of these structures should be coordinated with the Alabama Department of Conservation and Natural Resources, Marine Resources Division.
- Upon locating a dead, injured or sick individual of an endangered or threatened species, initial notification must be made to the Fish and Wildlife Service Ecological Services Division at the Daphne Field Office (Contact: Bruce Porter (251) 441-5864). Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.

The project will conform to the specified incidental take provisions and ALDOT will maintain appropriate coordination with the USFWS.

EXECUTIVE SUMMARY

ES-1 Purpose and Need

In the Mobile area, there is a need to increase the capacity of Interstate 10 (I-10) to meet existing and predicted future traffic volumes and to provide a direct route for vehicles transporting hazardous materials, while minimizing impacts to Mobile's maritime industry.

The first need is to increase the capacity of I-10 to meet existing and predicted future traffic volumes. The existing traffic volumes result in on-going traffic flow or congestion problems. The existing (2010) Average Annual Daily Traffic (AADT) crossing the Mobile River is 111,334 vehicles. The level of traffic creates a Level of Service (LOS) of F with delays during peak periods. The predicted AADT for 2030 is 182,445, which would create more congestion and longer delays. A LOS of F represents a traffic condition that produces gridlock under extreme conditions.

The second need is for a more direct route for vehicles transporting hazardous materials across the Mobile River. Trucks carrying prohibited hazardous materials must detour off I-10. Currently, they are rerouted through the Mobile Central Business District (CBD), using the Cochrane Africatown Bridge to cross the Mobile River. A direct interstate route would eliminate this situation.

The third need is to minimize the project's impacts to Mobile's maritime industry. The maritime industries in the Port of Mobile, including cargo shipments, ship building and cruise industries, contribute $2.4 billion to the regional economy and support over 28,700 jobs. Given the magnitude of employment and economic value provided by the maritime, any proposed measures to increase capacity of I-10 need to minimize adverse impacts to the maritime industry.

ES-2 Project Description

The I-10 Mobile River Bridge and Bayway Widening project is a proposal to increase the capacity of I-10 by constructing a new six-lane bridge with 215 feet of Air Draft Clearance (ADC) across the Mobile River and widening the existing I-10 bridges across Mobile Bay from four to eight lanes. The proposed project would be located in Mobile and Baldwin Counties, Alabama. The proposed project would provide for a LOS of D in 2030, provide a direct interstate route for hazardous material transport, and would minimize adverse impacts to the maritime industries. **Figure ES** depicts the overall setting and the location of a number of features that are addressed in this Draft Environmental Impact Statement (DEIS).

ES-3 Alternatives

A wide range of alternatives, including mass transit, Transportation System Management (i.e. ramp metering, Intelligent Transportation Systems [ITS], etc.), the No Build Alternative, and four Build Alternatives, have been evaluated in relation to this project. Alternative B' has been identified as the Preferred Alternative. The approach for identifying a Preferred Alternative included an analysis of environmental, social, economic, engineering, and other considerations. All four Build Alternatives and the No Build Alternative are still under consideration. The No Build Alternative also provides a basis for comparison of effectiveness of alternatives and their associated impacts. Final selection of an alternative will not be made until the alternatives' impacts and comments on the DEIS and from the public hearing have been fully evaluated.

ES-4 Estimated Project Costs and Impacts Summary

Table ES-1 shows a comparison of selected attributes and associated categories of the impacts to provide differentiating factors for the four Build Alternatives. Attributes that do not differentiate between the four Build Alternatives are not shown.

ES-1: Alternatives Comparison Matrix

Description	Alternative A	Alternative B	Alternative B' (Preferred)	Alternative C
Total Cost ($M)	$782.6	$771.2	$773.1	$791.0
Roadway Widening Length (miles)	1.1	0.9	0.8	1.2
Bridge Length (miles)	2.5	2.7	2.8	2.9
Bayway Widening Length (miles)	6.6	6.5	6.4	6.3
Total Length (miles)	10.2	10.1	10.0	10.4
Economic Loss[1] ($M)	$5.6	$6.1	$6.1	$200
Economic Benefits[1] ($M)	$537-1,054	$549-1,066	$549-1,066	$560-1,077
Residential Relocations (each)	0	0	0	4
Business Relocations (each)	0	13	12	13
Wetlands (acres)	2.2	1.7	1.7	6.6
Essential Fish Habitat (acres)	76.25	67.15	67.15	65.35
Traffic Noise Impacts (each)	275	274	275	392
Hazardous Materials Sites (each)	3	8	7	9
Archaeological Sites (each)	0	1	1	4
Section 4(f) Properties (each)	0	1	0	1

[1] See **Table 9** for explanation of attributes that define economic loss and economic benefits.

ES-5 Description of the Decision Making Process

A Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for the proposed project was issued on October 20, 2003. There has been a series of public involvement activities held, coordination conducted with agencies and public interest groups, studies conducted, and a DEIS prepared.

The next step will be to conduct public hearings on the DEIS and to solicit public and agency comments.

A Final EIS (FEIS) will be prepared that addresses comments received and it will be circulated for additional comments.

A Record of Decision (ROD) will be prepared following the comment period. The ROD will include a Selected Alternative.

0 1,750 3,500 7,000 Feet

1 inch = 3,500 feet

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

Figure ES
I-10 Mobile River Bridge and Bayway Widening
Build Alternatives with Bayway Widening
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure ES - Build Alternatives Bayway.mxd

ES-6 Economic Considerations

As summarized in **Table ES-1** there are economic impacts associated with implementing the proposed improvements. There are also economic impacts associated with the No Build Alternative. Alternative C has the highest potential economic loss to the maritime industry at $200 million per year. The potential economic losses for the other three Build Alternatives are about $6 million per year. Economic benefits ranging from $537 million to $1.08 billion per year would be realized with the Build Alternatives. The potential economic benefits are about the same for the four Build Alternatives. The benefits from reduced congestion would produce approximately 64 percent of the economic benefits. Although the cost of construction and potential economic losses to the maritime industry would be avoided with the No Build Alternative, the potential economic benefits of the Build Alternatives would not be realized.

ES-7 Biological/Ecological Resources

Detailed field surveys and analyses were conducted to determine the presence/absence of wildlife habitat, threatened, endangered, or other listed species, migratory species, critical habitat, and other biological/ecological resources. These field surveys were used to quantify the potential direct and indirect impacts to biological/ecological resources and to develop appropriate mitigation measures. Coordination with the US Fish and Wildlife Services (USFWS) has been conducted in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). Coordination will continue throughout the National Environmental Policy Act (NEPA) and permitting processes.

ES-8 Water Quality

Erosion and sedimentation will be areas of concern regarding water quality during construction. National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permits will be obtained for construction of the proposed project. The NPDES permit requires implementation of appropriate Best Management Practices (BMP) that will minimize potential impacts to water quality throughout the project. A Section 401 of

the Clean Water Act (CWA) Water Quality Certification will also be required from Alabama Department of Environmental Management (ADEM).

ES-9 Cultural Resources

Cultural resource surveys have been conducted in accordance with Section 106 of the National Historic Preservation Act and the Secretary of the Interior's Standards for Identification. Coordination with the State Historic Preservation Officer (SHPO) and Section 106 Consulting Parties has occurred since the initiation of the proposed project and will continue throughout the development of the proposed project. The four Build Alternatives have been evaluated to determine the potential for impacts to standing structures, historic districts, submerged archaeological sites, and terrestrial archaeological sites. Additional archaeological studies will need to be performed. Alternatives B and C would have a direct impact on the National Register of Historic Places (NRHP) eligible Union Hall and BAE Systems Maritime Historic District, respectively.

All alternatives were evaluated for the potential to cause indirect effects on cultural resources (visual impacts, noise, air pollution, lighting, shadows from the bridge, and vibrations from construction activities). The initial determination is there will be no adverse indirect effects. The SHPO and Consulting Parties have indicated ongoing concerns in this area. Consultation will continue with SHPO and other Section 106 Consulting Parties to reconcile differences on impacts and to identify measures to avoid adverse effects.

ES-10 Traffic Noise Impacts

A noise analysis was conducted in accordance with procedures for noise studies as set forth in 23 Code of Federal Regulations (CFR) Part 772. The scope of this analysis was to determine and analyze the effect of traffic noise on properties near the proposed project. The noise analysis was performed using the FHWA's Traffic Noise Model (TNM) Version 2.5. A total of 1,065 noise-sensitive receptors were identified adjacent to the four Build Alternatives. There were no noise impacts for noise increases 15 dBA or greater. Alternative B' (Preferred) would result in noise impacts approaching or

exceeding the noise abatement criteria (NAC) at 275 receptors. The No Build Alternative would impact 387 receptors. Noise abatement was evaluated and determined not to be reasonable.

ES-11 Relocation Impacts

The proposed project will result in the relocation of 0 to 4 residences and 0 to 13 businesses. Alternative B' (Preferred) would require 12 business relocations and zero residential relocations. The No Build Alternative would require no relocations. The acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources and advisory services are available to all eligible residential and business relocatees without discrimination.

Table of Contents

1.0 INTRODUCTION 1

2.0 PURPOSE AND NEED 4
2.1 Capacity 4
2.2 Hazardous Material Transport 6
2.3 Maritime Economic Consideration 6

3.0 ALTERNATIVES 8
3.1 Background 8
3.2 Alternative Screening 17
3.2.1 Alternatives from Agency Coordination and the 2003 Public Involvement Meeting 17
3.2.2 Alternatives Screening Process 20
3.2.3 Results of Alternative Screening Evaluation 22
3.2.4 Other Alternatives Reviewed 25
3.2.4.1 Mass Transit 25
3.2.4.2 Light Rail and Ferries 25
3.2.4.3 Commuter Transit 26
3.2.4.4 Transportation Management 27
3.2.4.5 Moveable Bridge Alternatives 28
3.2.4.6 Toll Facility 29
3.2.4.7 Further Review of Northern Alternative 30
3.3 Changes in Alternatives 31
3.3.1 Development of Alternative B' 32
3.3.2 Bridge Clearance Analysis/Increase in Air Draft 32
3.4 Description of Alternatives 33
3.4.1 Alternative A 35
3.4.2 Alternative B 35
3.4.3 Alternative B' 36
3.4.4 Alternative C 36
3.4.5 No Build Alternative 37
3.5 Objective Criteria 38
3.6 Logical Termini 40
3.7 Identification of a Preferred Alternative 40
3.8 Additional Benefits 42

4.0 ENVIRONMENTAL RESOURCES, IMPACTS AND MITIGATION 44
4.1 Setting 44
4.2 Existing Land Use and Transportation 44
4.2.1 No Build Alternative 50
4.2.2 Alternative A 50
4.2.3 Alternative B 50
4.2.4 Alternative B' (Preferred) 51
4.2.5 Alternative C 51
4.3 Local/Regional Economy 51

4.3.1 Potential Economic Impacts to Retail Sales and Tourism 52
4.3.2 Existing Maritime Industries Potentially Impacted 54
4.3.3 Potential Maritime Economic Impacts 56
4.3.4 Potential Economic Impacts on Shipyards 57
4.3.4.1 No Build Alternative 58
4.3.4.2 Alternative A 58
4.3.4.3 Alternatives B and B' (Preferred) 58
4.3.4.4 Alternative C 59
4.3.5 Summary of Maritime Economic Impacts 60
4.3.6 Economic Impacts Related to Transportation Cost and Savings 61
4.3.7 Travel and Marginal Costs/Benefit Considerations 61
4.3.8 Construction Benefits 62
4.3.9 Congestion Costs 63
4.3.10 Hazardous Materials Detour Costs 64
4.3.11 Summary of Potential Economic Losses and Benefits for the Build Alternatives 64
4.4 Socio-Economic Environment 65
4.4.1 Population Characteristics 66
4.4.2 Personal Income 69
4.4.3 Quality of Life 69
4.4.4 Fire Protection, Emergency, and Law Enforcement 70
4.4.5 Retail Development 70
4.4.6 Sidewalks and Bicycle Facilities 71
4.4.7 Recreation/Parks 73
4.4.8 Heritage Tourism 75
4.4.9 Impacts on Tourism 76
4.4.9.1 No Build Alternative 76
4.4.9.2 Build Alternatives 77
4.5 Infrastructure 77
4.5.1 Utilities 77
4.5.2 Railroads 78
4.5.3 Navigation 79
4.5.3.1 Three Mile Creek Turning Basin 79
4.5.3.2 Pinto Island Turning Basin 79
4.5.3.3 River Navigation 80
4.6 Geology and Hydrogeology 81
4.7 Potential Hazardous Materials Sites 81
4.7.1 No Build Alternative 83
4.7.2 Alternative A 83
4.7.3 Alternative B 83
4.7.4 Alternative B' (Preferred) 83
4.7.5 Alternative C 83
4.8 Relocation Impacts 85
4.8.1 No Build Alternative 85
4.8.2 Alternative A 85
4.8.3 Alternative B 86
4.8.4 Alternative B' (Preferred) 87

4.8.5 Alternative C 87
4.8.6 Relocation Assistance Advisory Service 90
4. 9 Disruption of Neighborhoods/Communities (Community Cohesion) 91
4.9.1 No Build Alternative 91
4.9.3 Alternatives B and B' (Preferred) 92
4.9.4 Alternative C 92
4.9.5 Environmental Justice 92
4.10 Floodplain Impacts 96
4.11 Farmland Impacts 97
4.12 Water Quality and Biological Resources 97
4.12.1Water Resources Impacts 99
4.12.1.1 Water Body Modifications 99
4.12.2 Coastal Zone 100
4.12.2.1 Coastal Barrier Resources 100
4.12.2.2 Coastal Zone Impacts 100
4.12.3 Biological/Ecological Resources 101
4.12.3.1 Wild and Scenic Rivers 101
4.12.3.2 Wetlands and Submerged Aquatic Vegetation (SAV) 101
4.12.3.3 Submerged Aquatic Vegetation 101
4.12.3.4 Emergent Wetlands 103
4.12.3.5 Forested Wetlands 103
4.12.4 Wetland Impacts 103
4.12.4.1 No Build Alternative 107
4.12.4.2 Alternative A 107
4.12.4.3 Alternatives B and B' (Preferred) 107
4.12.4.4 Alternative C 107
4.12.4.5 Avoidance and Minimization 108
4.12.4.6 Wetland and SAV Mitigation Measures 109
4.12.5 Fisheries 110
4.12.5.1 Essential Fish Habitat (EFH) 111
4.12.5.2 Shading Impacts Associated with the No Build Alternative 113
4.12.5.3 Shading Impacts Associated with the I-10 Bayway Widening 113
4.12.5.4 Alternative A Shading Impact 113
4.12.5.5 Alternatives B and B' (Preferred) Shading Impacts 113
4.12.5.6 Alternative C Shading Impacts 113
4.12.6 Threatened, Endangered, and Other Listed Species 113
4.12.6.1 Alabama Sturgeon (Scaphirhyncus suttkusi) 114
4.12.6.2 Alabama red-bellied turtle (Pseudemys alabamensis) 114
4.12.6.3 Bald eagle (Heliaeetus leucocephalus) 115
4.12.6.4 Gulf sturgeon (Acipenser oxyrinchus desotoi) 115
4.12.6.5 Florida manatee (Trichechus manatus latirostris) 116
4.12.6.6 Species Coordination 116
4.12.6.7 No Build Alternative 118
4.12.6.8 Build Alternatives 118
4.12.6.9 Protected Species Mitigation Measures 118
4.13 Noise Analysis 119

4.13.1 Methodology 119
4.13.2 Noise-Sensitive Receptors 120
4.13.3 Noise Analysis Techniques 130
4.13.4 Results 130
4.13.4.1 No Build Alternative 130
4.13.4.2 Alternative A 131
4.13.4.3 Alternative B 131
4.13.4.4 Alternative B' (Preferred) 131
4.13.4.5 Alternative C 131
4.13.4.6 Construction Noise 131
4.13.5 Noise Abatement Analysis 132
4.13.5.1 Traffic Management Measures 132
4.13.5.2 Alteration of Horizontal and Vertical Alignments 132
4.13.5.3 Acquisition of Real Property or Interests therein (predominantly unimproved property) to serve as a Buffer Zone to Preempt Development 133
4.13.5.4 Construction of Noise Barriers Whether Within or Outside of the Right-of-Way 133
4.13.6 Noise Insulation of Activity Category D Land Use Facilities 140
4.13.7 Undeveloped Land Analysis 143
4.14 Air Quality 143
4.14.1 Carbon Monoxide (CO) 144
4.14.2 Mobile Source Air Toxics (MSAT) 144
4.15 Lighting Conditions 147
4.16 Historic Resources 149
4.16.1 Historic Resources Consultation 152
4.16.2 Historic Background 153
4.16.3 Assessing the Viewshed 155
4.16.4 Historic Districts 158
4.16.4.1 Church Street East Historic District 158
4.16.4.2 Lower Dauphin Street Historic District 172
4.16.4.3 De Tonti Square Historic District 178
4.16.4.4 Oakleigh Garden Historic District 179
4.16.4.5 Old Dauphin Way Historic District 180
4.16.4.6 The Campground Historic District 182
4.16.4.7 Martin Luther King, Jr., Heritage Neighborhood 183
4.16.4.8 Oakdale Historic District 184
4.16.4.9 Maysville Historic District 186
4.16.4.10 BAE Maritime Historic District 187
4.16.4.11 Signal Marine 189
4.16.5 National Historic Landmarks 190
4.16.5.1 Old Southern Market and Old City Hall 190
4.16.5.2 Battleship USS Alabama Memorial Park 193
4.16.5.3 Government Street Presbyterian Church 197
4.16.6 Historic Structure (Union Hall) 198
4.16.7 Summary of Viewshed Impacts 203
4.16.8 Archaeological Sites 204

4.17 Construction Impacts 206
4.17.1 Sediment and Runoff 206
4.17.2 Bayway Construction 206
4.17.3 Air Quality Impacts during Construction 207
4.17.4 Noise Impacts during Construction 207
4.17.5 Vibration Impacts during Construction 208
4.17.6 Construction Staging Areas 208
4.17.7 Beneficial Use 209
4.18 Build Alternatives Comparison 209
4.19 Indirect and Cumulative Effects 210
4.19.1 NEPA/CEQ Policy and Guidance 210
4.19.2. Resources and Planning Documents Used to Identify Reasonably Foreseeable Development 212
4.19.3. Indirect Effects Analysis 213
4.19.4 Cumulative Impacts Summary 230
4.19.4.1 Water Quality and Aquatic Resources (Water Bodies, Water Quality, Wetlands, SAV and Protected Species) 232
4.19.4.2 Historic Resources 237
4.19.4.3 Economy 239
4.20 The Relationship between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity 242
4.21 Irreversible or Irretrievable Commitments of Resources Which Would Be Involved in the Proposed Action 242
4.22 Permits 243
4.23 Environmental Commitments 244

5.0 DRAFT SECTION 4(F) EVALUATION 250
5.1 Introduction 250
5.2 Proposed Action 250
5.3 Description of the Union Hall 251
5.3.1 Potential Use of the Union Hall 251
5.3.2 Measures to Minimize Harm 251
5.3.3 Avoidance Alternatives 251
5.4 Description of the BAE Maritime Historic District 252
5.4.1 Potential Use of the BAE Maritime Historic District 252
5.4.2 Measures to Minimize Harm 253
5.4.3 Avoidance Alternatives 253
5.5 Archaeological Sites 1MB410, 1MB411, 1MB412, 1MB498 and 1MB499 253
5.5.1 Potential Use of Archaeological Sites 1MB410, 1MB411, 1MB412, 1MB498 and 1MB499 253
5.6 Meaher State Park 254
5.6.1 Potential Use of Meaher State Park 254
5.7 Constructive Use 254
5.7.1 Noise 255
5.7.2 Visual Effects 256
5.7.4 Conclusions Regarding Visual Effects 258

5.8 Vibration 258
5.9 Conclusions 258

6.0 COMMENTS AND COORDINATION 260
6.1 Early Coordination 260
6.2 Cooperating Agencies 262
6.2.1 Coordination Meeting with U.S. Army Corps of Engineers 262
6.2.2 Coordination Meeting with the U.S. Coast Guard 263
6.3 Interagency Coordination 263
6.4 Other Meetings and Coordination 268
6.4.1 March 2006 I-10 Mobile River Bridge and Bayway Widening EIS Newsletter 268
6.4.2 Maritime Economic Impact Workshop and Update Coordination 268
6.4.3 Section 106 Coordination, Tribal Consultation, and Consulting Parties 268
6.5 Public Involvement Meetings 270

7.0 LIST OF PREPARERS 281

8.0 REFERENCES 283

List of Figures

Figure ES – Build Alternative ES-4
Figure 1: Project Area 3
Figure 2: Build Alternatives with Bayway Widening 10
Figure 2a: Build Alternatives 11
Figure 2b: Build Alternatives 12
Figure 2c: Build Alternatives 13
Figure 2d: Build Alternatives 14
Figure 2e: Build Alternatives 15
Figure 2f: Build Alternatives 16
Figure 3: 14 Potential Alternatives 19
Figure 4: Three Build Alternatives 24
Figure 5: Land Use Map 49
Figure 6: Census Tract Data 68
Figure 7: HazMat Sites 84
Figure 8a: Potential Wetlands 105
Figure 8b: Potential Wetland 106
Figure 9: Noise Figures Key Sheet Map 122
Figure 9a: Noise Analysis Duval Street to Broad Street 123
Figure 9b: Noise Analysis Broad Street to Texas Street 124
Figure 9c: Noise Analysis Texas Street to Wallace Tunnel West Entrance 125
Figure 9d: Noise Analysis Wallace Tunnel West Entrance to Addsco Rd 126
Figure 9e: Noise Analysis US 90 at Battleship Park 127
Figure 9f: Noise Analysis US 90/98 Causeway Mid-Bay Ramp 128
Figure 9g: Noise Analysis US 98 Interchange 129
Figure 10a: Noise Barriers Considered from Duval Street to Mobile River 137
Figure 10b: Noise Barriers Considered from Mobile River to US 90/98 Mid-Bay Ramp 138
Figure 10c: Noise Barriers Considered US 98 Interchange 139
Figure 11: Rendering of Proposed I-10 Mobile River Bridge 157
Figure 12: Cultural Resources 161
Figure 13: Areas of Potential Indirect Impact 216

List of Tables

ES-1: Alternative Comparison Matrix ES-3
Table 1: Existing and Predicted* Traffic 4
Table 2: Area LOS with No Improvements 5
Table 3: Excerpts from Summary Matrix of Alternative Screening Process 21
Table 4: I-10 Mobile River Bridge Improvements Summary 39
Table 5: Alternatives Characteristics Compared with Objective Criteria 40
Table 6: Comparison of Potential Maritime Economic Impacts from Appendix D 60
Table 7: Estimated Construction Benefits 62
Table 8: Congestion Cost ($million)* 64
Table 9: Summary of Potential Economic Losses/Benefits for Build Alternatives ($million) 65
Table 10: Mobile and Baldwin County Population Data 66
Table 11: Regional Demographics* 67
Table 12: Study Area Demographics* 67
Table 13: HHS 2012 Poverty Guidelines 69
Table 14: Utility Owners 77
Table 15: Utility Relocation Cost 78
Table 16: Potential Hazardous Materials Sites 82
Table 17: EFH Abundance Determinations for Mobile Bay in Vicinity of the Project 112
Table 18: FHWA Noise Abatement Criteria 121
Table 19: Noise Barrier Analysis 135
Table 20: I-10 Mobile River Bridge and Bayway Widening Exterior Noise Results at Activity Category D Land Use 141
Table 21: Undeveloped Land Analysis 143
Table 22: Vehicle Miles Traveled 145
Table 23: Section 106 Potential Effects 203
Table 24: Alternatives Comparison Matrix 209
Table 25: Eight–Step Indirect Effects Analysis Process 214
Table 26: Notable Features and Location Occurrence 222
Table 27: Study Area Planned or Reasonably Foreseeable Development 223
Table 28: Notable Features and Potential Impact-Causing Actions 224
Table 29: Industrial Area Development 231
Table 30: Interagency Coordination* 264
Table 31: Representative Public Involvement Comments 273

List of Appendices

Appendix A: Correspondence

Appendix B: Alternatives Screening Evaluation for the I-10 Mobile River Bridge and Bayway Widening EIS, Mobile and Baldwin Counties, Alabama. August 2005.

Appendix C: I-10 Mobile River Bridge Determination of Appropriate Air Draft Clearance. December 2012.

Appendix D: Economic Impact of the Proposed I-10 Bridge on Mobile Shipyard Activity and Port of Mobile Cargo and Cruise Vessel Operations. September 2012.

Appendix E: Hazardous Material

Appendix F: Relocation Analysis

Appendix G: Location Risk Assessment

Appendix H: Noise Analysis

Appendix I: Air Analysis

Appendix J: Cultural Resources

Appendix K: Preliminary Report on Vibrations Due to Pile Driving at the Mobile River Bridge Site

List of Acronyms

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway Transportation Officials
ACAMP	Alabama Coastal Area Management Program
ACHP	Advisory Council on Historic Preservation
ADC	Air Draft Clearance
ADCNR	Alabama Department of Conservation and Natural Resources
ADECA	Alabama Department of Economic and Community Affairs
ADEM	Alabama Department of Environmental Management
ADDSCO	Alabama Dry Dock & Shipbuilding Company
AHC	Alabama Historical Commission
ALDOT	Alabama Department of Transportation
APE	Area of Potential Effects
ASSF	Alabama State Site File
ASPA	Alabama State Port Authority
BCR	Benefit to Cost Ratio
BID	Business Improvement District
BMP	Best Management Practices
BRATS	Baldwin Rural Area Transportation Systems
CAA	Clean Air Act
CBD	Central Business District
CBRA	Coastal Barrier Resource Act
CCL	Carnival Cruise Lines

CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMT	Crepe Myrtle Trail
CMP	Congestion Management Process
CO_2	Carbon Dioxide
CO	Carbon Monoxide
CWA	Clean Water Act
dBA	"A-weighted" decibel unit measure
DEIS	Draft Environmental Impact Statement
DFCP	Daphne Future Comprehensive Plan
DWA	Day Wilburn Associates, Inc.
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
FAA	Federal Aviation Administration
FAL	Final Assembly Line
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FPPA	Farmland Protection Policy Act
FY	Fiscal Year
GIS	Geographic Information System

HEI	Health Effects Institute
HMPS	Historic Mobile Preservation Society
HOV	High-Occupancy Vehicle
HSF	Highlands of Spanish Fort
HSS	US Department of Health and Human Services
ICTF	Intermodal Container Transfer Facility
IRIS	Integrated Risk Information Systems
I-10	Interstate 10
ITS	Intelligent Transportation Systems
JHSV	Joint High Speed Vessels
LCS	Littoral Combat Ship
LOS	Level of Service
LRTP	Long Range Transportation Plan
MAAHT	Mobile African American Heritage Trail
MACC	Mobile Area Chamber of Commerce
MATS	Mobile Area Transportation Study
MBNEP	Mobile Bay National Estuary Program
MHDC	Mobile Historic Development Commission
MMF	Modular Manufacturing Facility
MOA	Memorandum of Agreement
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards

NAC	Noise Abatement Criteria
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NMFS	National Marine Fishery Service
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NRHP	National Register of Historic Places
NRNL	National Register of Natural Landmarks
NPDES	National Pollutant Discharge Elimination System
NTHP	National Trust for Historic Preservation
RESTORE	Resource and Ecosystems, Sustainability Tourist Opportunity, and Revived Economies of the Gulf Coast States Act of 2012
PM	Particulate Matter
ROD	Record of Decision
ROW	Right-of-way
RSA	Retirement Systems of Alabama
SARPC	South Alabama Regional Planning Commission
SAV	Submerged Aquatic Vegetation
SFCP	Spanish Fort Comprehensive Plan
SHPO	State Historic Preservation Officer

STIP	Statewide Transportation Improvement Program
TEA-21	Transportation Equity Act
TEUs	Twenty-foot Equivalent Units
THPO	Tribal Historic Preservation Officer
TIP	Transportation Improvement Plans
TMA	Traffic Management Area
TMDL	Total Maximum Daily Load
TNM	Traffic Noise Model
TTI	Texas Transportation Institute
USA	United States of America
USACE	U.S. Army Corps of Engineers
USCG	United States Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish & Wildlife Service
VMT	Vehicle Miles Traveled
WWII	World War II

1.0 INTRODUCTION

The NEPA requires Federal agencies to prepare EISs for major Federal actions that significantly affect the quality of the human environment. The EIS details the process through which a transportation project is developed, including consideration of a range of reasonable alternatives, analysis of the potential impacts resulting from the alternatives, and demonstrating compliance with other applicable environmental laws and executive orders.

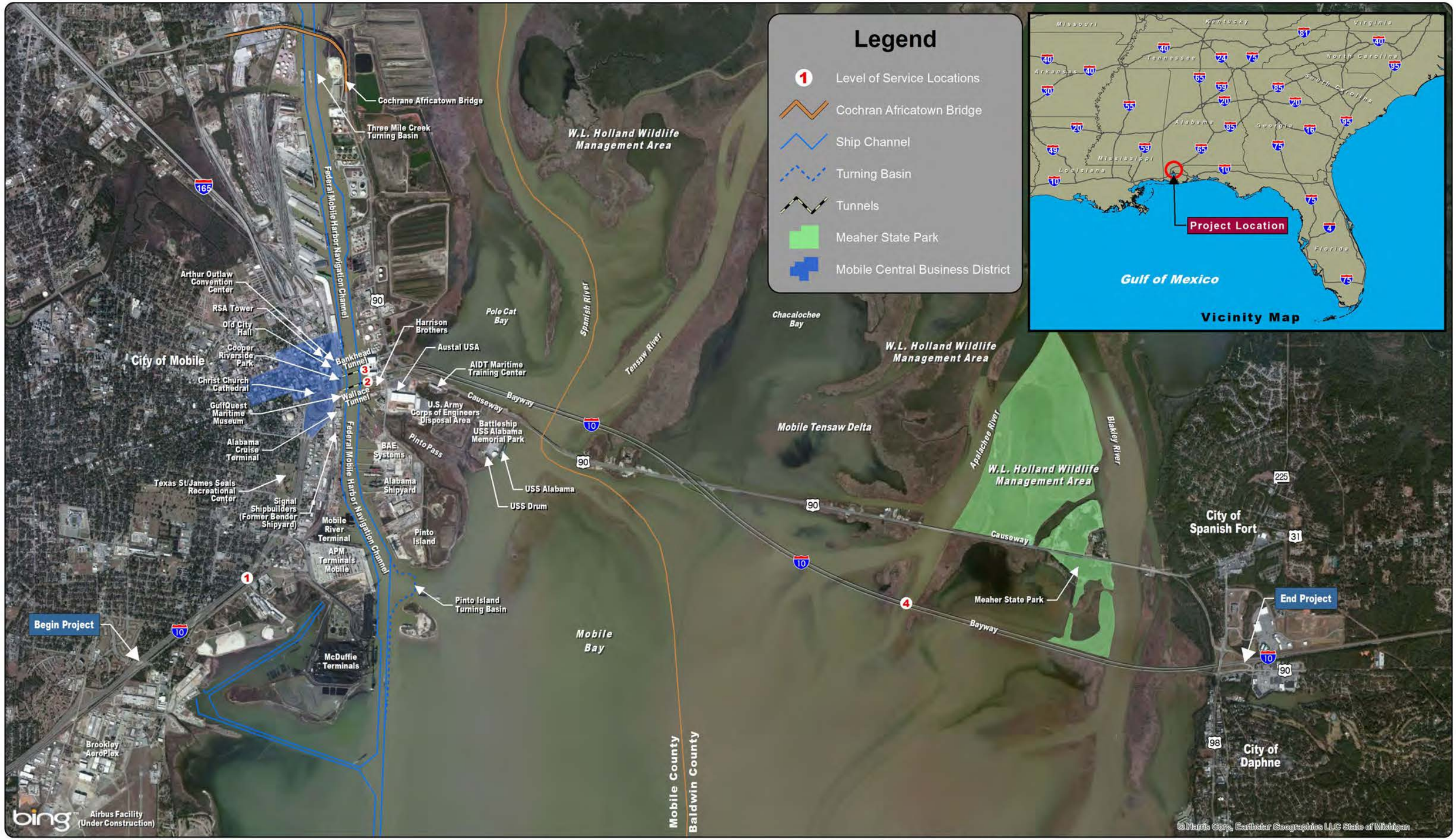
This DEIS will be provided for public and agency comments. Comments received will be addressed in the FEIS. On January 14, 2013, the FHWA and the Federal Transit Authority (FTA) issued Interim Guidance on MAP-21, Moving Ahead for Progress in the 21st Century Act, Section 1319, Accelerated Decisionmaking in Environmental Reviews and available at http://www.fhwa.dot.gov/map21/guidance/guideaccdecer.cfm. This guidance addressed Section 1319(b) "Single Final EIS and ROD Document" directing the combining of the FEIS and ROD to a single document where practicable. However, it allowed for not adopting this approach if a separate FEIS and ROD provided a more effective and efficient decision-making process. A separate FEIS and ROD will be utilized for this proposed project. Based on comments received during coordination activities, substantial controversy on the bridge's visual impacts on historic properties is anticipated. Completing a separate FEIS and ROD will provide additional time to resolve controversy and further develop mitigation.

The Draft EIS was developed in accordance with the following:

- FHWA *Environmental Impacts and Related Procedures* regulations found in 23 CFR Part 771 along with 42 United States Code (U.S.C.) 4321 et seq.,
- National Environmental Policy Act of 1969, as amended,
- 23 U.S.C. 138 and 49 U.S.C. 303, Section 4(f) of the Department of Transportation Act of 1966, and
- 40 CFR 1500 et seq., Council on Environmental Quality, Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.

The I-10 Mobile River Bridge and Bayway Widening project is a proposal to increase the capacity of I-10 by constructing a new six-lane bridge across the Mobile River and widening the existing I-10 bridges across Mobile Bay from four to eight lanes. The proposed project is located in Mobile and Baldwin Counties, Alabama. **Figure 1** depicts the overall setting and the location of a number of features that are addressed in this DEIS.

An Environmental Assessment (EA) for the proposed project was approved by FHWA on June 9, 2003 (Volkert, 2003). Because of concerns related to visual impacts of the bridge on historic properties, it was decided that an EIS would be prepared and on October 20, 2003, the FHWA published a NOI to prepare an EIS.



0 2,000 4,000 8,000 Feet

1 inch = 4,000 feet

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

Figure 1
I-10 Mobile River Bridge and Bayway Widening Project Area
Project No. DPI-0030(005)

Department Of Transportation

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 1 - Project Area.mxd

2.0 PURPOSE AND NEED

In the Mobile area, there is a need to increase the capacity of I-10 to meet existing and predicted future traffic volumes and to provide a more direct route for vehicles transporting hazardous materials, while minimizing impacts to Mobile's maritime industry.

2.1 Capacity

The first need is to increase the capacity of I-10 to meet existing and predicted future traffic volumes. **Table 1** shows the existing and predicted future traffic volumes on I-10 in Mobile across the Mobile River between Mobile and Daphne, Alabama. The table shows the I-10 Wallace Tunnels with traffic volumes of 79,997 vehicles per day in 2010. With future traffic volumes increasing, the I-10 Wallace Tunnels are anticipated to have an AADT of 131,082 in 2030.

Table 1: Existing and Predicted* Traffic

Route	Demand (AADT)**	
	Existing 2010	**2030**
Cochrane-Africatown USA Bridge	14,463	23,699
I-10 Wallace Tunnels	79,997	131,082
Bankhead Tunnel	16,884	27,664
Total	**111,344**	**182,445**

* Source: ALDOT 2010
** Average Annual Daily Traffic

The existing traffic volumes result in on-going traffic flow or congestion problems. The ALDOT maintains an I-10 Wallace Tunnels congestion log, based upon actual traffic counts and incidents. In 2010, the Wallace Tunnels experienced 114 congestion related incidents and 32 crashes (146 total incidents) that significantly slowed or stopped traffic flow through the tunnels. The average time congested for these 146 incidents was 2 hours and 39 minutes eastbound and 2 hours and 33 minutes westbound (ALDOT, 2010). It can be reasonably anticipated that as traffic volumes increase to the predicted 2030 level of 131,082 vehicles per day, both the number of incidents within the tunnels and the average time congested due to each incident will increase.

A LOS analysis was conducted in 2012 for the area of the proposed project to analyze the overall traffic flow problems. The analysis was made utilizing the software program HCS+ Version 2010 within the project corridor to determine peak hour LOS for design year 2030 if no improvements are made. Typically, LOS is used to categorize traffic flow. LOS categories range from A, free flow operations, to F, breakdown in vehicle flow. The categories describe traffic flow conditions that become progressively worse as the driver's ability to maneuver and vehicle speed declines. A LOS of F represents a traffic condition that produces gridlock under extreme conditions. Additional information on LOS can be found in the Transportation Research Board's *Highway Capacity Manual* (Transportation Research Board, 2010).

Table 2 displays a summary of the results of the LOS analysis for 2030 without improvements. The results are based on the peak hour traffic, which is normally during the morning or evening commute. The LOS for the I-10 Wallace Tunnels and Bayway in 2010 were F and will remain F with greater congestion and longer delays as traffic increases.

TABLE 2: Area LOS with No Improvements

Roadway	Location	Direction	2030 Peak Hour LOS
I-10 West of Project	West of Duval Street	Eastbound	D
		Westbound	D
I-10 Mobile	Between Broad St. and Virginia St.	Eastbound	E
		Westbound	E
I-10 Wallace Tunnels	Under Mobile River	Eastbound	F
		Westbound	F
I-10 Bayway	Between Mid-Bay Interchange and US 90/98	Eastbound	F
		Westbound	F
I-10 East of Project	East of US 98	Eastbound (2 lanes)	F
		Eastbound (3 lanes)*	D
		Westbound (2 lanes)	F
		Westbound (3 lanes)*	D
Cochrane Africatown Bridge	Over Mobile River	Eastbound	D
		Westbound	D
Bankhead Tunnel	Under Mobile River	Eastbound	F
		Westbound	F

* ALDOT has an approved project to widen I-10 to three lanes, to the east in both directions, between the I-10/US 98 interchange and SR 181.

The congestion at the I-10 Wallace Tunnels also has national implications. In 2003, the I-10 National Freight Corridor Study found freight transportation to be central to the performance of the U.S. economy and that highways are essential to other freight transportation system elements including ports, inland waterways, and railroads. This study found, "The I-10 Tunnel in Mobile is a major bottleneck and presents a threat to public safety, as well as to the vitality of the local, and national economy." The bottleneck was attributed to heavy traffic, including trucks, and the narrow tunnels (Wilbur Smith Associates, 2003). The trucking industries' ability to move freight along the I-10 corridor in Mobile will continue to decline and delay times will increase as traffic increases.

2.2 Hazardous Material Transport

The second need is for a more direct route for vehicles transporting hazardous materials. ALDOT prohibits the transport of hazardous materials in the I-10 Wallace Tunnels because of the potential for accidents in a confined space. The Federal Motor Carrier Safety Administration issued a Federal Register Notice on December 4, 2000, that restricted transport of hazardous materials through the I-10 Wallace Tunnels (Federal Register, December 4, 2000). Hazardous materials include radioactive hazardous materials, flammable, corrosive, and explosive materials. Trucks carrying prohibited hazardous materials must detour off I-10. Currently, they are rerouted through the Mobile CBD, using the Cochrane Africatown Bridge to cross the Mobile River. Based on actual traffic counts of hazardous materials trucks, it is estimated that 257 hazardous materials trucks per day were detoured in 2005, 280 in 2010, and this volume is projected to increase to 396 trucks per day in 2030. There is a need to provide a direct interstate route for trucks transporting hazardous materials across the Mobile River.

2.3 Maritime Economic Consideration

The third need is to minimize the project's impacts to Mobile's maritime industry. There are three main drivers of Mobile's maritime economy: cargo shipped through the Port of Mobile, shipbuilding and shipyard activities, and the cruise industry.

In 2012, the Alabama State Port Authority (ASPA) issued a report, "The Local and Regional Economic Impacts of the Port of Mobile." The Port of Mobile economic contribution to the regional economy is widespread and supports a variety of industries and businesses. These industries and businesses ship and consign products from the state's steel manufacturing, coal mining and utility production industries, paper/pulp manufacturing industries, and chemical industries as well as regional auto manufacturers and local and regional retail and wholesale businesses. Containerized cargo exports include pulp and forest products, paper products, and frozen poultry. The ASPA report stated that the Fiscal Year 2011 direct economic impact of the Port of Mobile from cargo activity supported 19,412 jobs and provided $1.8 billion in economic revenue to the area from ASPA public and private terminals (ASPA, 2012).

Shipbuilding and shipyard activities were estimated to provide 8,545 jobs and $562.2 million a year to the local economy. In addition, the City of Mobile has invested over $30 million in its cruise ship industry including building a terminal on the west bank of the Mobile River. Cruise services terminated on October 22, 2011, but the city is recruiting a replacement cruise ship. The cruise terminal has been used twice to handle cruise vessels that experienced damage or navigation problems at their homeport. It is also used for receptions and other social activities to produce income during the interim until a new cruise service occurs. The cruise industry, when operating, provides up to 778 jobs and $40.9 million in economic value to the regional economy. The combined annual economic contribution supported by these three maritime activities is over 28,700 jobs and $2.4 billion in economic benefits, representing approximately 16 percent of the economic activities of the Mobile region. This does not include the additional benefits of the port to the steel, coal, paper and chemical industries. **Appendix D** provides more information on the potential economic impacts to the shipbuilding and shipyard components of the maritime industry.

Given the magnitude of employment and economic value provided by maritime activities in the region, any proposed measures to increase capacity of I-10 need to minimize adverse impacts to the maritime industry.

3.0 ALTERNATIVES

3.1 Background

In 1997, a Feasibility Study was conducted to determine whether constructing a bridge over the Mobile River near the CBD would alleviate congestion in the Wallace Tunnels (Volkert, 1997). The study concluded that a bridge could provide additional traffic capacity along I-10 and reduce congestion in the Wallace Tunnels. Engineering and cost evaluations were conducted to determine the type of bridge. The study concluded that due to the proposed bridge height, span length, structural, and economic considerations, a cable-stayed bridge was necessary to meet these requirements. After developing a number of optional bridge locations for the Feasibility Study, three alternatives were evaluated to determine the relative beneficial and detrimental effects associated with each alternative alignment. These three alternatives, along with all the alternatives developed during the environmental process, are described in the following sections.

The I-10 Bayway (Bayway) consists of parallel bridges that carry eastbound and westbound I-10 across Upper Mobile Bay between the Wallace Tunnels and the City of Daphne (**Figure 1**). The elevated bridges are approximately 7 miles long and each bridge consists of two 12-foot travel lanes along with 10-foot outside shoulders and 6-foot inside shoulders. The need for widening the Bayway was not addressed in the Feasibility Study. However, based upon predicted traffic and the availability of only two travel lanes in each direction on the existing Bayway to accommodate the predicted traffic, it became apparent as the project developed that construction of a bridge would alleviate the congestion at the Wallace Tunnels, but the next bottleneck would occur on the Bayway. Eastbound I-10 with two lanes from the Wallace Tunnels and three lanes from a proposed bridge would converge into two eastbound lanes of the Bayway creating a bottleneck. Therefore, the proposed transportation improvements included the widening of the Bayway from four lanes to eight lanes. One alternative was recommended for further study and an EA was initiated.

In the sixteen years since the Feasibility Study was prepared, there have been a number of changes in the environmental setting. Among the more prominent changes are the establishment and expansion of Austal USA on the east bank of the Mobile Harbor Federal Navigation Channel; the construction and operation of the Alabama Cruise Terminal (cruise terminal) on the west bank; construction and operation of the APM Terminal Mobile (container terminal); construction of the Pinto Island Turning Basin across the river from the container terminal; and construction of GulfQuest Maritime Museum on the west bank just north of the cruise terminal (**Figure 1**). Each of these features has influenced the identification and evaluation of potential Build Alternatives. The process used to develop the four Build Alternatives (**Figures 2 and 2a through 2f**) is presented in the following sections.

DEPARTMENT OF TRANSPORTATION

0 1,750 3,500 7,000 Feet

1 inch = 3,500 feet

N

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

Figure 2
I-10 Mobile River Bridge and Bayway Widening
Build Alternatives with Bayway Widening
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 2 - Build Alternatives Bayway.mxd

0 300 600 1,200 Feet

1 inch = 600 feet

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

Figure 2a
I-10 Mobile River Bridge and Bayway Widening
Build Alternatives
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 2a - Build Alternatives.mxd

0 300 600 1,200 Feet

1 inch = 600 feet

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

Figure 2b
I-10 Mobile River Bridge and Bayway Widening
Build Alternatives
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 2b - Build Alternatives.mxd

Mobile Museum
Government St
Church St
Cooper Riverside Park
GulfQuest Maritime Museum
Mobile Civic Center
Canal St
Canal St
S Water St
Closed Pedestrian Overpass
10
S Conception St
Texas St/James Seals Recreational Center
S Royal St
CSX Railroad
Water St
Texas St
bing
Harrison Brothers
Wallace Tunnel
A
B
B'
C
Alabama Cruise Terminal and Parking Garage
Mobile Abrasives
Addsco Rd
AIDT Maritime Training Center
Austal Modular Manufacturing Facility
U.S. Army Corps of Engineers Disposal Area
90
BAE Systems
Dunlap Dr
Pinto Pass
Federal Mobile Harbor Navigation Channel
Pinto Island
Signal Shipbuilders (Former Bender Shipyard)

Legend

- Pier/Pylon Locations
- Alternative A
- Alternative B' (Preferred)
- Alternative B
- Alternative C
- Tunnels
- Ship Channel
- Mobile African American Heritage Trail
- Crepe Myrtle Trail
- Parks & Recreation

0 300 600 1,200 Feet

1 inch = 600 feet

N

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

Department Of Transportation

Figure 2c
I-10 Mobile River Bridge and Bayway Widening
Build Alternatives
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 2c - Build Alternatives.mxd

Bankhead Tunnel
Blakeley Island
Wallace Tunnel
Addsco Rd
Pole Cat Bay
A
B'
B
C
10
AIDT Maritime Training Center
NOTE:
Project Continues By Widening Bayway
From 4 Lanes to 8 Lanes To U.S. Highway 98
90
98
Bayway
10
Austal Modular Manufacturing Facility
Dunlap Dr
U.S. Army Corps of Engineers Disposal Area
Causeway
Battleship USS Alabama Memorial Park
USS Alabama
Pinto Pass
BAE Systems
USS Drum
bing

Legend

- Pier/Pylon Locations
- Alternative A
- Alternative B' (Preferred)
- Alternative B
- Alternative C
- Tunnels
- The Tensaw Parkway
- Eastern Shore National Recreation Trail
- Parks & Recreation

Department Of Transportation

0 300 600 1,200 Feet

1 inch = 600 feet

N

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

Figure 2d
I-10 Mobile River Bridge and Bayway Widening
Build Alternatives
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 2d - Build Alternatives.mxd

Chacalochee Bay

Mid-Bay Interchange

Eastern Shore National Recreation Trail Signage Site

ADCNR Boat Ramp

Mobile Bay

10

90

98

Legend

- Bayway Widening
- The Tensaw Parkway
- Eastern Shore National Recreation Trail

bing

Department Of Transportation

0 300 600 1,200 Feet

1 inch = 600 feet

N

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

Figure 2e
I-10 Mobile River Bridge and Bayway Widening
Build Alternatives
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 2e - Build Alternatives.mxd

0 300 600 1,200 Feet

1 inch = 600 feet

N

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

Figure 2f
I-10 Mobile River Bridge and Bayway Widening
Build Alternatives
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 2f - Build Alternatives.mxd

3.2 Alternative Screening

The EA was completed in 2003 and public hearings were held. Due to concerns expressed about the proposed project's visual impacts to Mobile's historic resources, the decision was made to prepare an EIS. The NOI was issued on October 20, 2003 (Federal Register October 20, 2003 – Volume 68, number 202, pages 59980-59981). The three original Build Alternatives identified in the 1997 Feasibility Study provided a starting point for exploring other reasonable alternatives.

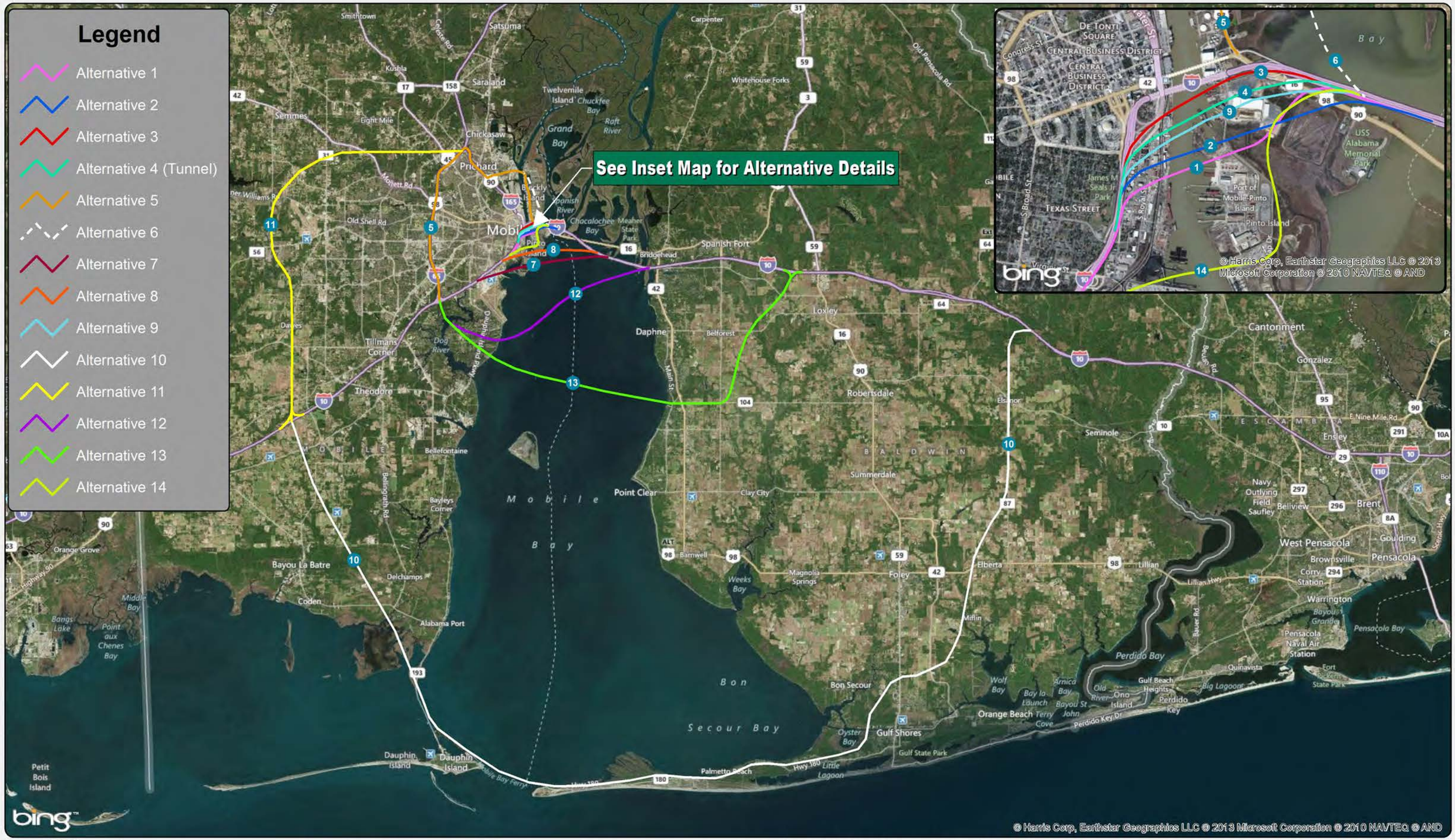
3.2.1 Alternatives from Agency Coordination and the 2003 Public Involvement Meeting

Initial efforts to seek additional alternatives included a meeting with agencies and local officials and a public involvement meeting in December 2003. Based upon input received during these meetings, eleven (11) additional alternatives were identified for further consideration. The 14 Build Alternatives shown on **Figure 3** are 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: Route traffic from I-10 to I-65, I-165, Bay Bridge Road, and Cochrane Bridge parallel to US 90 to I-10 Bayway
- Alternative 6: Route 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, 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 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 the 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 the 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

* Alternatives from the 1997 Feasibility Study



0 2.5 5 10 Miles

1 inch = 5 miles

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

Figure 3
I-10 Mobile River Bridge and Bayway Widening
14 Potential Alternatives
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 3 - 14 Potential Alternatives.mxd

3.2.2 Alternatives Screening Process

An alternatives screening process was conducted to identify reasonable alternatives. A five-step process was used to determine reasonableness. Each alternative was carried through the entire five-step process. The five steps included 1) the ability to meet the purpose and need of the project, 2) the technical feasibility of constructing the alternative, 3) economic impact of travel time savings, 4) the cost of the alternative, and 5) overall impacts to the human and natural environment. The resulting report, "Alternative Screening Evaluation for the I-10 Mobile River Bridge and Bayway Widening EIS, Mobile and Baldwin Counties, Alabama," August 2005, is included in **Appendix B**. **Table 3** presents excerpts from the Alternative Screening study.

The South Alabama Regional Planning Commission (SARPC) provided input to the Alternative Screening process by analyzing the "northern" and "in-town" alternatives using the Mobile Area Transportation Study (MATS) TRANPLAN Model. The TRANPLAN Model is a transportation model that utilizes mathematical relationships between socio-economic data and travel patterns to predict travel demand. The SARPC TRANPLAN Model results for the "northern" and "in-town" alternatives in the year 2030 revealed the following:

- Construction of an "in-town" bridge, such as Alternatives 1, 2, 3, or 9, would decrease the volumes of traffic in the Wallace Tunnels to 38,800 AADT, providing an acceptable level of service compared to the expected No Build 2030 traffic projection for the Wallace Tunnels of 116,178 AADT.[1]
- For a "northern" bridge, such as Alternatives 5 and 6, the traffic diverted from I-10, the SARPC model projects that the Wallace Tunnels would still carry a 2030 AADT of 72,900 and traffic would experience considerable delays. For Alternative 11, the 2030 projected traffic in the Wallace Tunnels increases to almost 81,000 AADT, which would continue to produce delays averaging about 2 hours and 30 minutes, based upon 2010 ALDOT data. The Cochrane Bridge would carry 40,634 AADT. A majority (67 percent) of the I-10 traffic would continue to use the Wallace Tunnels even with the delays.

[1] The current 2030 No Build traffic projected for the I-10 Wallace Tunnels has been updated to 131,082.

Table 3: Excerpts from Summary Matrix of Alternative Screening Process

Alternative	Brief Description of Alternative	Step One	Step Two	Step Three	Step Four
		Purpose & Need	Technical/Practical Reasonableness	Economic Costs/(Savings) in $million per 10,000 AADT	Total Construction Costs in $million
1	I-10 bridge south of Wallace Tunnels across portions of Bender and Atlantic Marine	Yes	Yes	(0.85)	603
2	I-10 bridge south of Wallace Tunnels, over Metro County Jail	Yes	Yes	(0.91)	660
3	I-10 bridge south of Wallace Tunnels over Mobile Landing across Harrison Brothers	Yes	Yes	(0.35)	617
4	New tunnel 0.24 mile south of Wallace Tunnels	Partial	No	(0.54)	1,550
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
6	I-10 Bayway to Cochrane Bridge route over Blakely Island to I-165 to I-65 to I-10	Partial	No	16.65	972
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
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
9	I-10 bridge south of Mobile Landing	Yes	Yes	(0.76)	620
10	I-65 to Dauphin Island to Fort Morgan through Baldwin County to I-10	No	No	46.86	2,926
11	I-10 to Cochrane Bridge Route to I-165 to proposed Mobile Western Loop	No	No	25.88	1,149
12	I-65 to I-10 bridge south of Brookley Field across Mobile Bay to Baldwin County to I-10	Yes	No	0.98	1,049
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
14	I-10 bridge from Broad Street to Pinto Island north through Atlantic Marine to I-10 Bayway	Yes	Yes	(0.29)	760

- Therefore, based on the SARPC model projections, construction of Alternatives 5, 6, or 11 would not accomplish the primary purpose and need of the project.

The fourteen alternatives were presented at public involvement meetings. Preliminary recommendations regarding the alternatives were presented to the public. Alternatives 1, 2, 3, and 9 met the purpose and need and were recommended for further study. Alternative 11 provided minimal reduction of traffic using the Wallace Tunnels, but it did have the least effect on the maritime and cruise industries as well as providing an alternative route for the I-10 to I-65 traffic. The maritime industry, historic interests, and city officials supported this alternative. It was recommended for further study.

Alternatives 4, 7, 8, 10, 12, 13, and 14 were recommended to be dropped from further study. Alternative 4, 10, and 13 were eliminated because they did not meet the purpose and need. Alternatives 7, 8, 12, and 14 met the purpose and need but were eliminated due to higher costs and other considerations including impacts to neighborhoods, wetlands, and travel length. Alternatives 7, 8, and 14 had greater impacts to maritime facilities. Alternative 12 had impacts to a runway at Brookley Field due to bridge interference with flight paths.

Two public involvement meetings were held to inform the public of the preliminary results of the alternatives screening process. Meetings were held in Mobile on June 6, 2005, and in Spanish Fort (Baldwin County) on June 7, 2005. The public involvement meetings were attended by the public and agencies, with 150 people in Mobile and 86 people in Baldwin County. In addition, 304 written comments were received. There was support for Alternatives 1, 2, 3, 9, and 11. There was little stakeholder support for Alternatives 7, 8, 12, and 14.

3.2.3 Results of Alternative Screening Evaluation

The results and recommendations from the Alternatives Screening process are documented in **Appendix B**. It was recommended that Alternatives 3, 9, and a combination of Alternatives 1 and 2 be carried forward for detailed analysis. In order to minimize confusion, the alternatives were re-designated as follows: Alternative 3

became Alternative A; Alternative 9 became Alternative B; and the combination of Alternatives 1 and 2 became Alternative C. The three Build Alternatives are shown on **Figure 4**.

Alternative 11 was being dropped from further consideration after the public involvement meetings. By letter dated June 20, 2005, former Mobile Mayor Mike Dow asked ALDOT to continue to consider Alternative 11 as an alternative to be studied in further detail (**Appendix B**). The SARPC conducted additional traffic modeling studies for Alternative 11. The analysis confirmed the previous analysis that Alternative 11 would not divert sufficient traffic from the I-10 corridor to alleviate congestion in the Wallace Tunnels. The 2030 AADT projections for the Wallace Tunnels with Alternative 11 constructed was 81,000. The level of service would be a F. Alternative 11, therefore, would not meet the project's purpose and need.

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 (**Appendix B**). In an effort to coordinate directly with Mayor Dow and to address questions regarding the proposed project and the evaluation of alternatives, ALDOT held an additional meeting with Mayor Dow on July 22, 2005. By letter dated August 2, 2005, ALDOT provided Mayor Dow with additional information including explanations of the traffic studies, the public involvement handouts, and the findings of The National I-10 Freight Corridor Study. This additional information supported the conclusion that Alternative 11 would be dropped from further study in the NEPA process and that additional capacity was needed for I-10 crossing the Mobile River. The construction cost for Alternative 11 is almost twice the cost for Alternatives 1, 2, 3, or 9. Additionally, as shown in **Table 3**, the economic cost for Alternative 11 would be almost $26 million annually per 10,000 AADT. In contrast, Alternatives 1, 2, 3, or 9 would produce economic savings. After this coordination with Mayor Dow, the Alternative Screening Report was completed in August 2005 (**Appendix B**).

0 800 1,600 3,200 Feet

1 inch = 1,600 feet

N

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

Department Of Transportation

Figure 4
I-10 Mobile River Bridge and Bayway Widening
Three Build Alternatives
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 4 - Three Build Alternatives.mxd

3.2.4 Other Alternatives Reviewed

In addition to the alternatives previously discussed, alternative modes of transportation and moveable bridge alternatives were evaluated and determined to not be reasonable.

3.2.4.1 Mass Transit

Mass transit was considered as a method to reduce traffic volumes on I-10; however, mass transit, including light rail, is not a viable option for through traffic. Through traffic is defined as traffic that does not initiate or terminate in the Mobile CBD. Commuter traffic is defined as traffic that initiates or terminates in the Mobile CBD. An origin/destination study, conducted in 1996 as a component of the Feasibility Study, indicated that between 61 and 63 percent of the traffic would use the proposed bridge, or 37 to 39 percent of the traffic is commuter traffic with a trip that would begin or end in the Mobile CBD. The *2010 Census Journey to Work* data shows that 6.6 percent of urban commuters use transit.

The benefit of mass transit in alleviating the capacity constraints in the existing Wallace Tunnels is calculated by multiplying the 2030 average daily traffic of 131,082 vehicles x 39 percent for commuter traffic x 6.6 percent of commuters using mass transit. This calculation provides an estimated mass transit usage of 3,374, which in turns leaves 127,708 vehicles per day in the Wallace Tunnels in the year 2030. The use of mass transit would still leave a LOS of F in the Wallace Tunnels. This would not meet the purpose and need.

While some forms of mass transit between Mobile and Baldwin Counties could alleviate a portion of the local commuter traffic, the traffic reduction would not be sufficient to eliminate the need for the proposed project. Supporting information from previous mass transit studies is included in **Section 3.2.4.2 and 3.2.4.3**.

3.2.4.2 Light Rail and Ferries

The Mobile City Council approved funding on January 7, 2003, for a study of the possible use of public transportation using light rail and ferries between Mobile and Baldwin Counties. The SARPC and ALDOT directed the study. The study

recommended the establishment of a passenger ferry service between Mobile and the Eastern Shore of Mobile Bay. The initial ferry berth in Mobile would be located at the City of Mobile's Mobile Landing. The initial ferry berth on the Eastern Shore would located in Fairhope. Parking and connections to other modes of transportation would be required to support the passengers since no vehicles would be transported. The study estimated about 600 passengers per day would utilize the ferry service during the initial year. Assuming each passenger represented a single vehicle and the 2010 AADT commuter traffic was 44,534 (111,334 x 0.40), the ferry would accommodate 0.01 percent of the commuter traffic. Future expansion of services would depend on utilization, funding, and other factors (DWA, July 2004). If or when it is constructed, the ferry service would accommodate only a very small portion of the local and commuter traffic between Mobile and Baldwin Counties. Therefore, the ferry service does not represent a reasonable alternative to address traffic congestion in the Wallace Tunnels.

Light rail would add costs and would not achieve sufficient ridership to justify the increased cost, based upon estimated ridership on the proposed ferry service and the bus transit service discussed below. In addition, light rail would require parking or transfer to other transportation modes.

3.2.4.3 Commuter Transit

Baylinc is a regional bus transit service that links commuters and workers in Mobile and Baldwin Counties with a regular public bus service, providing transportation Monday through Friday. Baylinc provides three routes on the Eastern Shore of Baldwin County in the morning to take commuters to Mobile. Two routes leave Mobile in the afternoon/evening to return to Baldwin County. The cost of Baylinc varies from $2.00 to $3.00 each way. Commuters can also sign up for the CommuteSmart program, which matches individuals with other carpoolers in a carpooling network (SARPC, 2010). According to the Baldwin Rural Area Transportation System (BRATS), a total of 15,912 people utilized the Baylinc transportation in 2008; 16,821 rode in 2009; and 16,477 rode in 2010 (Baldwin County Commission, 2011). Even with carpooling and Baylinc, the

2010-commuter traffic is estimated to be 44,534 AADT. Baylinc accommodated an estimated AADT of 63 [16,477 ÷ (52 x 5) = 63], which represents 0.001 percent of the 2010 commuter traffic.

3.2.4.4 Transportation Management

The Mobile urban area has a 2010 population greater than 200,000 and is designated as a Transportation Management Area (TMA). As a TMA, the SARPC has developed an approved Congestion Management Process (CMP) (23 CFR Part 450.320). The proposed I-10 project is in the adopted *2035 Long Range Transportation Plan*, which includes congestion management strategies. Therefore, a Congestion Management Strategy Alternative is not required for the CMP (SARPC, 2013).

Transportation management strategies typically include such options as fringe parking, ride sharing, high-occupancy vehicle (HOV) lanes, and traffic signal timing optimization. It is unlikely that management strategies will affect the need for the project because more than 60 percent of the traffic using this portion of the I-10 corridor is through traffic. Therefore, the through traffic, which constitutes the majority of the traffic utilizing the I-10 corridor in this area, would not realize adequate advantages from the transportation system management strategies described above to reduce the through traffic volume. Transportation system management would not meet the purpose and need. It would not add capacity to the system and is not considered a viable alternative for this project.

A potential transportation system management strategy that could reduce congestion and assist in facilitating through traffic would utilize ramp metering to reduce traffic on I-10. The concept would utilize traffic monitoring and Intelligent Transportation Systems (ITS) to determine when congestion is imminent. Selected I-10 on-ramps would be closed or signalized to prevent additional traffic from entering I-10 when the traffic volume is excessive. The on-ramps could be reopened when the congestion is alleviated. An ITS system would assist motorists in locating alternate routes when I-10 is inaccessible. This approach would benefit through traffic, but would be inconvenient and time consuming for local and commuter traffic. Additionally, local streets and alternate crossings of the Mobile River and Mobile Bay, such as the Bankhead Tunnel, Cochrane Bridge, and the

Causeway, would be subjected to increased traffic and associated congestion. Ramp metering and ITS assistance do not represent a solution that meets the purpose and need of the proposed project. These traffic management measures do not generally reduce the amount of traffic, but they can improve traffic flow. These types of measures could provide some relief to congestion for through traffic and could be further evaluated if the No Build Alternative occurs. Ramp metering could also be utilized as an interim measure until a bridge is constructed. It could also be considered if proposed project is implemented and traffic levels justify further improvements.

3.2.4.5 Moveable Bridge Alternatives

Moveable bridge options were evaluated, including a bascule bridge and a vertical lift bridge. Moveable bridge options were evaluated considering their ability to span a 1,200-foot section of the Mobile River. This span length was selected because the west pylon must be located landward of the bulkhead line and the east pylon must be located to avoid damage from a ship collision. The bulkhead line is a line marking the limit to which piers or wharves may project along a waterfront toward a navigation channel. This span length is comparable to the horizontal clearance provided by cable-stayed bridges and was used to develop preliminary designs and cost estimates to evaluate the feasibility of a moveable bridge.

Bascule Style Bridge

A bascule style or drawbridge is a moveable bridge with a counterweight that continuously balances the span through the lifting process. The bridge lifts from a hinged side allowing marine traffic to pass by with unlimited vertical clearance. The longest bascule bridges in the world are approximately 300-foot in length. As the bridge span increases, the weight of the bridge structure that is lifted increases. The span lengths are limited by the ability of the lift mechanisms to raise and lower the weight of the bridge. A 1,200-foot bascule bridge hinged at one end is not constructible with current technology. A two hinged bascule bridge with hinges on either shore of the Mobile River would require a 600-foot long span to be lifted; this is also not constructible with current technology.

Based upon criteria established in the Alternatives Screening Evaluation, a bascule bridge does not meet the technical/practical and feasible/reasonable criteria for this project and was eliminated from consideration.

Vertical Lift Bridge

A vertical lift bridge uses a counterweight to "lift" the main bridge span between two bridge towers. A possible advantage to the vertical lift bridge is that the counterweights would only be required to be equal to the weight of the deck. A possible disadvantage to the design is that four 465-foot vertical towers would be required to lift the main bridge span from a low elevation of 140 feet to a high elevation of 215 feet. It is estimated that a lift bridge would have a construction cost of $1.3 billion, increasing the construction cost for such an alternative to approximately $1.8 billion. The vertical lift bridge would also have additional costs to maintain and to operate. The estimated cost of a cable-stayed bridge for an equivalent span length is approximately $178 million with a total project cost of approximately $670 million.

The perceived advantage of a vertical lift bridge over a cable-stayed bridge is the lower profile and less visibility of the bridge on the viewshed. This is not the case due to the length of the span, which requires the four 465-foot towers as compared to the two 515-foot towers for a cable-stayed bridge. A vertical lift bridge would create a new feature in the viewshed that would be similar to a cable-stayed bridge. There would be no appreciable lessening of visual impacts with a vertical lift bridge when compared to a cable-stayed bridge.

Based upon criteria established in the Alternatives Screening Evaluation, a vertical lift bridge is not considered an affordable and cost-efficient solution and was eliminated from consideration.

3.2.4.6 Toll Facility

In addition to alternative modes of transportation, a toll option was evaluated. As part of the proposed project, a preliminary traffic and revenue study for a toll on I-10 was conducted by Wilbur Smith Associates to determine whether a toll would be reasonable

to provide a funding source for construction of the I-10 Mobile River Bridge. Potential tolling of the proposed bridge and the I-10 tunnels was also evaluated. The study concluded that tolling both the proposed bridge and part of the Wallace Tunnels traffic would generate considerable more revenue than tolling only the bridge. The analysis determined that the entire cost of the project could not be paid for by tolling; however, future tolling could pay for a portion of the project cost.

3.2.4.7 Further Review of Northern Alternative

In 2007, a coalition of businesses and citizens interested in the regional economy known as Keep Mobile Moving initialized an effort to provide alternate solutions to building a bridge in downtown Mobile across the Mobile Harbor Federal Navigation Channel. They recommended a six-step plan to address regional transportation issues. The six steps included the following:

1) Reroute trucks and install a regional ITS;
2) Modify the western end entrances and exits on I-10 for the Wallace Tunnels;
3) Improve/expand the connectors between I-165 and the Bayway to the Cochrane Africatown USA Bridge;
4) Expand the Bayway;
5) Expand I-65 from I-10 to I-165;
6) Build the Western Loop as an alternative to I-65.

As noted, the six-step plan included a northern alternative that utilized I-65, I-165, Bay Bridge Road, and US 98. This northern alternative was essentially a variation of Alternatives 5 and 6 evaluated in the Alternatives Screening Evaluation Report (**Appendix B**). The northern alternative was studied to a level of detail that would determine whether it would meet the purpose and need of the proposed I-10 Mobile River Bridge project. Traffic studies, cost estimates, and an analysis of potential impacts of a northern alternative on I-65 were conducted over a two-year period.

Numerous meetings among ALDOT, FHWA, the City of Mobile, Mobile County, SARPC, Mobile Area Chamber of Commerce (MACC), ASPA, Keep Mobile Moving, and other entities took place from 2007 through 2009. These meetings focused on

arriving at an approach to evaluating traffic and potential social, environmental, and economic impacts of the northern alternative to determine whether it constituted a reasonable alternative that should be fully studied in the EIS. The SARPC participated in evaluating the proposed northern route and conducted traffic modeling to determine the amount of traffic that would be diverted from the I-10 Wallace Tunnels. The modeling revealed that approximately 80,000 AADT in 2030 would still use the I-10 Wallace Tunnels. The results of the traffic analyses indicated a northern alternative would not divert sufficient amounts of traffic to relieve congestion in the I-10 Wallace Tunnels. The LOS in the I-10 Wallace Tunnels would be F and considerable time delays would be experienced. The proposed northern alternative would not meet the purpose and need. The proposed northern alternative would also produce a number of other detrimental effects including an increased travel time and increased traffic on I-65. Additional widening of I-65 would require additional right-of-way (ROW). There would be impacts to Bay Bridge Road, including potential Environmental Justice issues. The Cochrane Africatown USA Bridge would have to be rebuilt to meet interstate standards. Accommodations for access to existing businesses along US 90, between the Cochrane Africatown USA Bridge and the I-10 Bayway, would have to be provided. This alternative also has a substantially increased cost over the other four Build Alternatives. On November 14, 2008, ALDOT provided correspondence to Keep Mobile Moving, stating that the northern alternative is not a reasonable alternative and, therefore, would not be carried forward as a Build Alternative in the EIS for the proposed project. More detailed information regarding the coordination with Keep Mobile Moving and the evaluation of the northern alternative is included in **Appendix A**.

3.3 Changes in Alternatives

Coordination activities that occurred subsequent to the Alternatives Screening Evaluation process resulted in changes to the reasonable Build Alternatives. These changes included the development of a new alternative, Alternative B' (Preferred), and an increase in air draft/vertical clearance of the proposed bridge.

Final selection of an alternative will not be made until the alternatives' impacts and comments on the DEIS and from the public hearings have been fully evaluated.

3.3.1 Development of Alternative B'

Alternative B' was developed several years after the Alternative Screening Evaluation following additional coordination with area maritime interests. The maritime interests included Austal USA, the ASPA, the MACC, and the City of Mobile. The City of Mobile wanted to minimize potential impacts on the cruise terminal. Austal USA wanted to minimize impacts to their ship manufacturing operations, their newly constructed administration building, and employee parking. Alternative B was shifted slightly to create Alternative B', to reduce potential impacts (**Figure 2 and 2a through 2f**).

3.3.2 Bridge Clearance Analysis/Increase in Air Draft

The Mobile Harbor Federal Navigation Channel is a federally authorized navigation project in the vicinity of the proposed I-10 Mobile River Bridge crossing. The navigation channel provides a vital link to the ASPA and other maritime facilities, including the Alabama Cruise Terminal, that would be under and/or north of the alternative bridge sites. The need to assure that a new bridge would not impose any serious navigation constraints for existing or future navigation traffic, and would not compromise the economic viability or economic vitality of the maritime industry as a whole, engendered a thorough evaluation of bridge clearances for the navigation channel. Bridge clearances were examined during the Feasibility Study and a minimum 190-foot vertical clearance was recommended.

In October 2011, the Carnival Cruise Line terminated cruise services in Mobile. Since then, the City of Mobile and the Cruise Industry Task Force are recruiting cruise vessels with an air draft of approximately 208 feet. Therefore, the ADC determination was reevaluated to address an appropriate ADC for the proposed bridge (**Appendix C**). The analysis was conducted in consultation with the City of Mobile, ASPA Harbormaster, USACE, MACC, ALDOT, FHWA, USCG, and others. The following is excerpted from the ADC report (**Appendix C)**.

> "Based upon the potential to preclude future navigation options for the taller cruise ships and other marine vessels, safety considerations, a relatively small investment cost, and a high benefit to cost (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 Federal Navigation Channel. An ADC of 215' also eliminates impediments to future growth and expansion of these maritime industries."

An ADC of 215 feet is used for all four of the Build Alternatives.

3.4 Description of Alternatives

Based on the Alternative Screening Evaluation, Alternatives A, B, and C have been identified as reasonable Build Alternatives. Alternative B' was later developed to address impacts associated with Alternative B. Details of the Alternatives are shown in **Figures 2 through 2f**. The Alternatives have a number of shared features that are described below, beginning with the western end of the project, then moving to the bridge and finally to the Bayway on the eastern end of the project.

All four Build Alternatives would require modification to existing I-10 west of the proposed bridge and eliminate the existing Texas Street interchange. The elimination of Texas Street interchange is needed in order to remove the weaving section between Canal Street and Texas Street ramps. This weaving section is expected to operate at a LOS E in the 2030 peak hour condition, primarily due to the volume of traffic expected to use the Canal Street ramps, which must stay in place to provide access to the Mobile Civic Center from I-10. Traffic from Texas Street wanting to access I-10 will be routed via Conception Street to the I-10/Virginia Street interchange. Alternatives A, B, and B' propose to add a lane to the I-10 eastbound Broad Street on-ramp and carry it onto the I-10 mainline, thereby widening I-10 eastbound to six lanes. These six lanes would continue eastbound through the Virginia Street interchange to a point where three lanes would travel to the new bridge and the remaining four lanes would provide access to downtown Mobile and the Wallace Tunnels. Alternative C would not add a lane to the I-10 eastbound Broad Street on ramp because the ramp would tie-in to the eastbound lanes

going to the new bridge and not the existing I-10 mainline. The additional lane would not be needed because the three new eastbound lanes going to the new bridge would already have been created from widening of the existing I-10 mainline prior to the tie-in with the I-10 eastbound Broad Street on ramp. I-10 westbound from the new bridge will merge three lanes with the four lanes of I-10 westbound from the Wallace Tunnels. The outside lane will be dropped for the I-10 westbound off-ramp at Virginia Street leaving six westbound lanes to the I-10 westbound off ramp at Broad Street. At the I-10 westbound off ramp at Broad Street, the two outside lanes will be dropped and the remaining four lanes will continue westward toward I-65.

All four Build Alternatives include a cable-stayed bridge over the 600-foot wide Mobile Harbor Federal Navigation Channel. The bridge would have six lanes to accommodate traffic, a maximum grade of 4 percent to meet interstate standards, and a minimum air draft clearance of 215 feet. An acceleration lane would be provided for eastbound traffic. This would allow large trucks that may be merging into traffic from the port facilities to accelerate to interstate speeds, while climbing up the grade of the bridge.

All four Build Alternatives include essentially the same Bayway widening components. The Bayway would be widened from four to eight lanes with a ten-foot inside shoulder to match the existing outside shoulder. ALDOT and FHWA conducted evaluations, in consultation with state and Federal resource agencies to determine the preferred approach for widening the Bayway to either the outside or the inside (**Section 6.1** and **Appendix A**). Widening to the inside was determined to be the preferred option. This option would be constructed within the existing ROW and would impact wetlands that were previously disturbed by the Bayway construction activities in the 1970s. Widening to the outside would require disturbance to the aquatic resources on both sides of the Bayway. Potential disadvantages include impacts to previously unaffected wetlands and submerged bottom areas, as well as creating design complications related to existing interchange configurations. Widening to the outside was dropped from further consideration. In order to accommodate a dedicated exit lane to US 98, the eastbound Bayway would be widened to both the inside and outside through this 2,000-foot transition section. Three emergency crossovers would be provided along the Bayway to

facilitate emergency response to accidents or disabled vehicles. On the western end of the Bayway, the physical location where the widening would begin varies depending where the east end of the bridge connects to the existing Bayway.

3.4.1 Alternative A

Alternative A would require the widening of existing I-10 from ten lanes to twelve lanes for a distance of 1.1 miles. Widening of I-10 would begin approximately 0.25 mile east of the overpass at the I-10/Broad Street interchange where the Broad Street ramp ties with I-10 and end near the I-10/Texas Street interchange where the bridge would begin. The eastbound truck acceleration lane on the bridge would have a length of approximately 3,120 feet. The bridge would follow the existing I-10 route to the north (**Figures 2 through 2f**) and would then shift east to cross over the Canal Street/I-10 interchange, span the Mobile Harbor Federal Navigation Channel, and tie into the Bayway approximately one mile east of the Wallace Tunnels. The cable-stayed bridge structure would begin at the bank of the Mobile River in Mobile County at Canal Street and the western pylon would be located on land between the Alabama Cruise Terminal and the GulfQuest Museum. The eastern pylon would be located in the Mobile River outside of the eastern side of the navigation channel. The bridge approach structures would begin approximately 6,575 feet east and 5,700 feet west of the navigation channel to achieve the required vertical clearance. The bridge would have a main span skew length of 1,250 feet and asymmetrical side spans of 500 and 650 feet. Modifications would be required for the Canal Street, Broad Street, Virginia Street, US 98, and US 90 interchanges.

3.4.2 Alternative B

Alternative B follows a path similar to that of Alternative A, further to the south. It would require the widening of I-10 from ten lanes to twelve lanes for a distance of 1.06 miles. The widening would end between the I-10/Virginia Street and the I-10/Texas Street interchanges where the bridge would begin. The eastbound truck acceleration lane on the bridge would have a length of approximately 2,355 feet. The bridge would follow the existing I-10 route to the northeast (**Figures 2 through 2f**) and shift east to cross over the I-10/Canal Street interchange, span the Mobile Harbor Federal Navigation Channel,

and tie into the I-10 Bayway approximately 1.0 mile east of the Wallace Tunnels. The cable-stayed bridge structure approaches would begin at the bank of the Mobile River in Mobile County west of Royal Street; the western pylon would be located in an existing open water area set back from the west side of the navigation channel, and the eastern pylon would be located on land. The bridge approach structures would begin approximately 5,500 feet east and west of the navigation channel to achieve required vertical clearance. The bridge would have a main span skew length of 1,250 feet and symmetrical side spans of 725 feet. Modifications would be required for the Canal Street, Broad Street, Virginia Street, US 98, and US 90 interchanges.

3.4.3 Alternative B'

Alternative B' follows a path similar to that of Alternative B. It would require the widening of I-10 from ten lanes to twelve lanes for a distance of 0.87 mile. The widening would end between the I-10/Virginia Street and the I-10/Texas Street interchanges where the bridge would begin. The eastbound truck acceleration lane on the bridge would have a length of approximately 2,410 feet. The bridge would follow the existing I-10 route to the northeast and would shift east to cross over the I-10/Canal Street interchange, span the Mobile Harbor Federal Navigation Channel, and tie into the I-10 Bayway approximately 0.88 mile east of the Wallace Tunnels. The bridge would begin approximately 600 feet west of the I-10/Texas Street interchange. The cable-stayed bridge structure approaches would begin at the bank of the Mobile River in Mobile County west of Royal Street and the western pylon would be located in an existing open water area set back from the west side of the navigation channel. The eastern pylon would be located on land. The bridge approach structures would begin approximately 5,500 feet east and west of the navigation channel to achieve required vertical clearance. The bridge would have a main span skew length of 1,250 feet with symmetrical side spans of 725 feet each. Modifications would be required for the Canal Street, Broad Street, Virginia Street, US 98, and US 90 interchanges.

3.4.4 Alternative C

Alternative C would require a total of 0.5 mile of existing I-10 eastbound roadway to be widened from four to six lanes. Eastbound I-10 widening would occur between the

I-10/Duval Street and the I-10/Broad Street interchanges. Westbound I-10 widening from five to six lanes would occur between where the bridge ties into existing westbound I-10 and the I-10/Broad Street interchange. The bridge would begin approximately 600 feet west of the I-10/Virginia Street overpass. The eastbound truck acceleration lane on the bridge would have a length of approximately 2,550 feet. The bridge would follow the existing I-10 route to the northeast and would turn east at the Texas Street Recreation Center crossing over the Mobile County Sheriff's office, span the Mobile Harbor Federal Navigation Channel, pass by the northwest corner of the USACE disposal site, and tie into the I-10 Bayway approximately 1.25 miles east of the Wallace Tunnels. The cable-stayed bridge structure approaches would begin at the bank of the Mobile River in Mobile County west of Old Water Street and the eastern and western pylons would be located on land. The bridge approach structures would begin approximately 5,500 feet west and 9,000 feet east of the navigation channel to achieve required vertical clearance. The bridge would have a main span length of 1,000 feet with symmetrical adjacent spans 550 feet in length. Modifications would be required for the Broad Street, Virginia Street, US 98, and US 90 interchanges. The Virginia Street interchange would require substantial modifications. The required four percent upgrade for the bridge would be pushed further west on I-10, making the current ramp leading eastbound inaccessible. A loop ramp would be constructed for the I-10 eastbound on ramp to create a ramp profile that ties into the four percent bridge grade.

3.4.5 No Build Alternative

The No Build, or No Action, Alternative constitutes a baseline condition from which to measure impacts. This alternative is carried throughout the document as a means of comparison for the four Build Alternatives. The No Build Alternative avoids the impacts associated with Build Alternatives, but it does not meet the purpose and need of this project. Disadvantages of the No Build Alternative include increased congestion and more frequent, longer delays along the I-10 corridor, especially in the Wallace Tunnels. The increased congestion results in degraded air quality from increased carbon dioxide (CO_2) emissions. Additional fuel is wasted, as well. The adverse effects of congestion will be more severe as traffic increases. Under the No Build scenario, trucks hauling

hazardous cargo would continue to traverse the CBD, and the volume of truck traffic and associated opportunities for serious incidents or spills would increase. As stated previously, an average of 396 trucks carrying hazardous materials are projected to traverse the CBD per day in 2030 under the No Build scenario.

3.5 Objective Criteria

This section evaluates how each of the alternatives meets the purpose and need of the project. The purpose and need addresses three components: increased capacity, transport of hazardous materials, and minimizing adverse economic impacts to the maritime industry.

The first need of the project is to increase the capacity to meet existing and predicted future traffic volumes. Since LOS is typically used to categorize traffic flow, LOS was chosen to evaluate increased capacity. A LOS of C or better, would be preferred if physical constraints and cost considerations would permit. High traffic volume areas such as the I-10 corridor between Mobile and Daphne present special traffic flow issues due to the physical constraints. The ALDOT 2008 *Statewide Transportation Plan* established a recommended LOS threshold of D or better for congested urban areas (Jacobs Carter Burgess, 2008).

All four Build Alternatives meet the first need (**Section 2**). They add capacity to the I-10 corridor, improve the LOS to at least D, and reduce travel time as shown in **Table 4**.

TABLE 4: I-10 Mobile River Bridge Improvements Summary

Level of Service				
Roadway	**Location**	**Direction**	**2030 No Build Peak Hour**	**2030 Build Peak Hour**
I-10 Mobile	Between Broad St. and Virginia St. (point 1)*	Eastbound	E	C
		Westbound	E	C
I-10 Wallace Tunnels	Under Mobile River (point 2)*	Eastbound	F	D
		Westbound	F	D
I-10 Mobile River Bridge	Over Mobile River (point 3)*	Eastbound	-	D
		Westbound	-	D
I-10 Bayway	Between Mid-Bay Interchange and US 90/98 (point 4)*	Eastbound	F	D
		Westbound	F	D

Projected Travel Time** and Average Speed				
Roadway	**Peak Hour**	**2030 No Build**	**2030 Build**	**Time Savings**
I-10 Eastbound	A.M.	24.0 minutes / 26.0 mph	11.6 minutes / 53.3 mph	12.4 minutes
	P.M.	26.1 minutes / 24.0 mph	14.7 minutes / 42.0 mph	11.4 minutes
I-10 Westbound	A.M.	18.4 minutes / 33.3 mph	11.3 minutes / 54.7 mph	7.1 minutes
	P.M.	17.9 minutes / 34.9 mph	11.2 minutes / 55.2 mph	6.7 minutes

* See **Figure 1** for location of these points.

** Travel times calculated between I-10 at Broad Street on ramp and I-10 at US 90/98 using Alternative B' (Preferred), a distance of approximately 10.5 miles.

The second need is to provide a more direct route for vehicles transporting hazardous materials. Trucks transporting hazardous materials will be able to remain on the interstate for all four Build Alternatives by using the bridge and avoid the need to detour through the CBD. This will also shorten their travel routes by 10.5 miles.

The third need is to minimize the impacts on the maritime industry. In regards to maritime economic considerations, all four Build Alternatives protect the horizontal clearance of the Mobile Harbor Federal Navigation Channel and provide a minimum vertical clearance of 215 feet. An ADC analysis was conducted to determine the appropriate vertical clearance (**Appendix C**). On this basis, potential economic impacts to the shipbuilding and ship repair operations are addressed in **Appendix D**. The baseline (No Build) value to the regional economy for the shipbuilding and ship repair operations is $562 million per year. Alternative A, B, and B' (Preferred) would have about a one percent adverse economic effect on shipbuilding and repair operations and Alternative C would have about 36 percent adverse economic effect.

Alternative B' (Preferred) better accommodates the operational and parking needs of Austal USA (**Appendix D**). **Table 5** summarizes the characteristics of the four Build Alternatives and the No Build Alternative compared with the objective criteria.

Table 5: Alternatives Characteristics Compared with Objective Criteria

Alternative	Increased Vehicle Capacity (LOS 2030 / Meets LOS D Criteria)	Provides a Direct Route for Hazardous Materials	Minimizes Economic Impacts to Maritime Industry	
			Annual Dollars Lost (millions)	Annual Jobs Lost (each)
A	D / Yes	Yes	5.6	78
B	D / Yes	Yes	6.1	97
B'	D / Yes	Yes	6.1	97
C	D / Yes	Yes	200.2	3,258
No Build	F / No	No	0*	0*

*Note: Severe congestion on I-10 in proximity to the Wallace Tunnels and the APM Terminal Mobile would adversely affect highway freight traffic and could influence future business decisions (**Appendix D**).

3.6 Logical Termini

The logical termini for the I-10 corridor project are the I-10/Broad Street interchange in Mobile and the I-10/US 90/98 interchange in Daphne. The termini are the same for all four Build Alternatives. In Mobile, I-10 west of the Broad Street interchange has eight lanes, which is sufficient to accommodate the projected 2030 traffic for an urban freeway with a LOS of D as shown in **Table 2**. From the I-10/US 90/98 interchange in Daphne, a separate ALDOT project will widen I-10 from four to six lanes to accommodate traffic east of the I-10/US 90/98 interchange. A Programmatic Categorical Exclusion for Project No. NHF-I010(330), Widen I-10 from East End of Bayway Bridge to 0.5 Mile East of SR-181 in Baldwin County, was completed in December of 2012. The project is the next segment of I-10 to the east of the I-10/US 90/98 interchange and will function with a LOS of D in 2030 as shown in **Table 2**.

3.7 Identification of a Preferred Alternative

Identifying a Preferred Alternative involved consideration of the positive and negative impacts of the four Build Alternatives and the No Build Alternative. The alternatives were evaluated based on input from local stakeholders and potential impacts to historic

properties and the maritime industry. Alternative B' was identified as the Preferred Alternative.

Alternative A was closest to the National Historic Landmark (Old City Hall) and the NRHP listed Church Street East Historic District and would have the most visual effects of all the Alternatives. It does not use any Section 4(f) resources. Alternative A has the least amount of impact on the maritime industry of all the Build Alternatives with an annual loss of $5.6 million. In addition, a pylon in the water east of the navigation channel would create a potential safety concern, and would require armoring to protect against a ship collision. The City of Mobile and historic interests opposed this alternative.

Alternative B is located further away from historic resources in downtown Mobile than Alternative A and would also have visual effects. However, Alternative B would require the acquisition of the Old Union Hall, resulting in an adverse effect on the NRHP eligible building and the use of a Section 4(f) resource. Alternative B has a $6.1 million annual impact on the maritime industry. It would also impact Austal's newly constructed administration building and would have a greater impact on Austal's employee parking area than Alternative B' (Preferred).

Alternative B' (Preferred) is located further away from historic resources in downtown Mobile than Alternative A and would have similar visual effects to historic resources as Alternative B. Alternative B' (Preferred) represents a slight shift of Alterative B that avoids the Old Union Hall by 17 feet and avoids the use of a Section 4(f) resource. Alternative B' (Preferred) has a $6.1 million annual impact on the maritime industry. Alternative B' (Preferred) would not impact Austal's administration building and would have a lesser impact than Alternative B on Austal's employee parking area. Alternative B' (Preferred) is also preferred by the City of Mobile.

Alternative C is located the farthest away from historic resources in downtown Mobile and would have the least visual effects. However, Alternative C would cross the NRHP eligible Maritime Historic District located on the BAE Systems property on the east side

of the Mobile River. Property would be acquired from the District for a bridge pier, resulting in an adverse impact to the District and the use of the Section 4(f) resource. As the southernmost alternative, Alternative C was preferred by historic interests due to reduced visual effects on historic resources. In addition, Alternative C would have the most severe economic impacts on the maritime industry, projecting an annual loss of greater than $200 million. The MACC, Eastern Shore Chamber of Commerce, ASPA, and other maritime interests oppose Alternative C due to the severe economic impacts projected on the maritime industry.

3.8 Additional Benefits

The provision of improved transportation facilities, increased capacity on I-10, and reduced congestion would provide additional benefits to those utilizing these facilities. Improved safety conditions and improved ability for more rapid response from emergency vehicles in the case of accidents would be provided. For example, reduced traffic and congestion in the I-10 tunnels would promote safer driving conditions. The widening of the I-10 Bayway by two additional lanes in both directions and provision of a 10-foot inside shoulder, along with emergency crossovers, would be beneficial in increasing capacity, reducing congestion, promoting safer driving conditions, and providing for more rapid response from emergency vehicles. A more direct interstate route for the transport of hazardous materials, that removes these types of potentially dangerous materials from the more confined and populated CBD, reduces the dangers associated with potential accidents and spills.

The I-10 corridor between Daphne and Mobile is a component of the ALDOT *Regional Hurricane Evacuation Routes* (ALDOT, 2010). I-10 serves as an east-west connector to move traffic toward I-65, the primary north-south evacuation route. The Causeway is highly susceptible to closure due to flooding by storm-generated high water. When the Causeway is closed, the I-10 Bayway and Wallace Tunnels provide the only route across the Upper Mobile Bay and across the Mobile River. The Causeway was most recently closed during Hurricane Isaac in August 2012, and created congestion on I-10, where eastbound traffic was backed up to Virginia Street. The Causeway is closed approximately three times per year due to flooding. The vulnerability of the I-10 tunnels

and the Causeway to shut downs and closures presents another need to provide redundancy to the ability to cross the river during hurricane evacuations. The improved transportation facilities will be beneficial in making the I-10 corridor a more reliable component of ALDOT's *Regional Hurricane Evacuation Routes*.

4.0 ENVIRONMENTAL RESOURCES, IMPACTS AND MITIGATION

4.1 Setting

The overall physical environment consists of natural and manmade features along the I-10 corridor in portions of Mobile and Baldwin Counties. The setting includes the developed urban area of the City of Mobile, the maritime facilities along the east and west banks of the Mobile River, the natural areas along the I-10 Bayway and the Causeway, the I-10 Mid-Bay interchange with the Causeway in Spanish Fort, and developed commercial areas in the vicinity of the I-10/US 90/98 interchange in Daphne. Virtually the entire project corridor that would be affected by construction has been previously disturbed including the areas between the eastbound and westbound lanes of the Bayway that were dredged during construction of the Bayway. Some of the areas between the east and westbound lanes of the I-10 Bayway have reestablished to what approaches natural conditions. Locations of these areas are shown on **Figures 1** and **2 – 2f**.

4.2 Existing Land Use and Transportation

Congestion on I-10 and in the Wallace Tunnel is recognized in the transportation planning efforts of municipalities and planning organizations throughout the study area. The proposed project is included in the Mobile area *2035 Long Range Transportation Plan*, adopted February 24, 2010, as amended October 27, 2010. The I-10 Mobile River Bridge is described as a "vital freeway project" (SARPC, 2010). The proposed project is also included as a High Priority and Congressional Earmark Project in the South Alabama Regional Planning Commission's, *Mobile Area Transportation Study/Metropolitan Planning Organization's* Fiscal Year (FY) *2012-2016 Transportation Improvement Program*, adopted August 10, 2011, as revised July 9, 2012, (SARPC, 2012). The proposed I-10 Mobile River Bridge and Bayway Widening project is also included in the ALDOT *State Transportation Improvement Program* (STIP) and is listed as a High Priority Project in the *ALDOT Five Year Plan for 2013 from October 1, 2012 through September 30, 2017* (ALDOT, 2013). The Eastern Shore Metropolitan Planning Organization was established in June 2012. The proposed improvements in Baldwin County are in their area of responsibility. As a new

Metropolitan Planning Organization (MPO), their *2040 Long Range Transportation Plan* is scheduled to be published in 2015. The MPO sent a letter of support for the I-10 Mobile River Bridge to ALDOT on July 24, 2013. A copy of the letter is in **Appendix A**.

The City of Mobile has an approved Comprehensive Plan, which was adopted in 1995, and is administered by the City of Mobile Planning Commission (City of Mobile, 2006). The General Land Use Plan is a component of the Comprehensive Plan. The City's Zoning Ordinance is used for regulatory decisions related to land use. The proposed transportation improvements on I-10 are not expected to encourage land use changes. The existing I-10 corridor serves as a divider in downtown Mobile with residential land use on the western side and commercial and industrial areas on the eastern side (**Figure 5**). **Figure 5** shows land use with pink shading representing residential areas, red shading representing industrial and commercial areas, and green shading representing natural areas. The area adjacent to the I-10 corridor is already nearly fully developed. Potential redevelopment impacts resulting from the project are evaluated in **Section 4.19**, Indirect Impacts Summary. Residential areas on the western side of I-10 have been extensively modified by urban development activities that began in the 1960s. The residential areas have organized into associations to address issues of common interest. Two informal minority citizen organizations, the Central Texas Street Neighborhood Association and the Down the Bay Community Organization, are active in the proposed project area.

The I-10 corridor is an integral part of the Transportation Plan component of the City of Mobile Comprehensive Plan (City of Mobile, 2006). The I-10 corridor is designated as a limited-access major thoroughfare in the Major Street Plan for the City. I-10 serves an important role in minimizing the number of trucks utilizing city streets. However, trucks transporting hazardous cargo on I-10 are prohibited from using the Wallace Tunnels and therefore must traverse the city streets and the Cochrane Bridge in order to bypass the tunnels. The I-10 corridor serves as a vital connection to the CBD from a large portion of the City of Mobile to the west and from Baldwin County to the east. The I-10 Bayway from the eastern bank of the Tensaw River west is within Mobile County and within the Mobile city limits.

In 2008, "A New Plan for Mobile, An Urban Planning and Economic Development Plan" was prepared for the City of Mobile by EDSA and others (EDSA, 2009). Capacity issues at the I-10 Wallace Tunnels are recognized in the "New Plan." Alternatives for the proposed I-10 Mobile River Bridge are shown in the plan. The "New Plan" is a conceptual or strategic plan that identifies potential opportunities for addressing a number of community challenges and needs related to the existing land use, infrastructure, parking, demographics, pedestrian, bicycle accessibility, etc., and suggests approaches to improve future conditions for portions of the City of Mobile. The primary focus is on the downtown area, the waterfront and mid-town Mobile. The "New Plan" was adopted by the City of Mobile on January 10, 2012. It is being used as a planning tool to address selected issues.

Mobile has attracted a number of developments along the Mobile River and in the downtown area (**Figures 2 – 2f**). The $30 million cruise ship terminal, parking deck, and gangway at Mobile Landing became operational in October 2004. The GulfQuest Maritime Museum is under construction and scheduled to open in late 2014. It is a modern concrete, steel, and glass building located on the west bank of the Mobile River north of the cruise terminal and south of Cooper Riverside Park. Airbus is constructing a manufacturing facility at the Brookley Aeroplex to assemble passenger and freighter aircraft.

On the eastern side of Mobile River, Austal USA is rapidly expanding its shipbuilding facilities. In 2012, Austal USA opened its second Module Manufacturing Facility (MMF), Assembly Bay 5 and new office complex. Further expansion is underway, including an additional office building for the U.S. Navy and additional shipbuilding and ship outfitting facilities.

A new hotel, convention, and office building, The Retirement Systems of Alabama (RSA) Tower is located approximately 1,600 feet north of the proposed alignment of Alternative A. The RSA Tower includes a 35-story office tower that is connected to the historic Battle House Hotel. The hotel has been renovated and expanded. At 745 feet high, the RSA Tower is equivalent to a 50-story building and is the tallest building in

Alabama. The RSA Tower has been described as providing a "gothic look for downtown Mobile" (*Mobile Register*, December 18, 2001). RSA continues to renovate office buildings and hotels in downtown Mobile. Other actions being planned or considered in the downtown area include a pedestrian bridge across Water Street at Cooper Riverside Park.

The project area in Baldwin County consists of the Bayway and the I-10/US 90/98 interchange in Daphne. The Bayway has an existing Mid-Bay interchange with the Causeway. The Causeway is a four-lane highway designated as US 90/98. Originally constructed in 1926, it was primarily built of earth fill with bridges over the major rivers. It has been expanded and upgraded over the years and serves as an alternate route to the I-10 Bayway and provides access to commercial establishments (restaurants, motels, and fishing camps) located adjacent to the Causeway. The Causeway is a popular recreational and tourist attraction with public boat ramps, the *USS Alabama* Battleship Memorial Park, Five Rivers Delta Resource Center, and the Meaher State Park facilities.

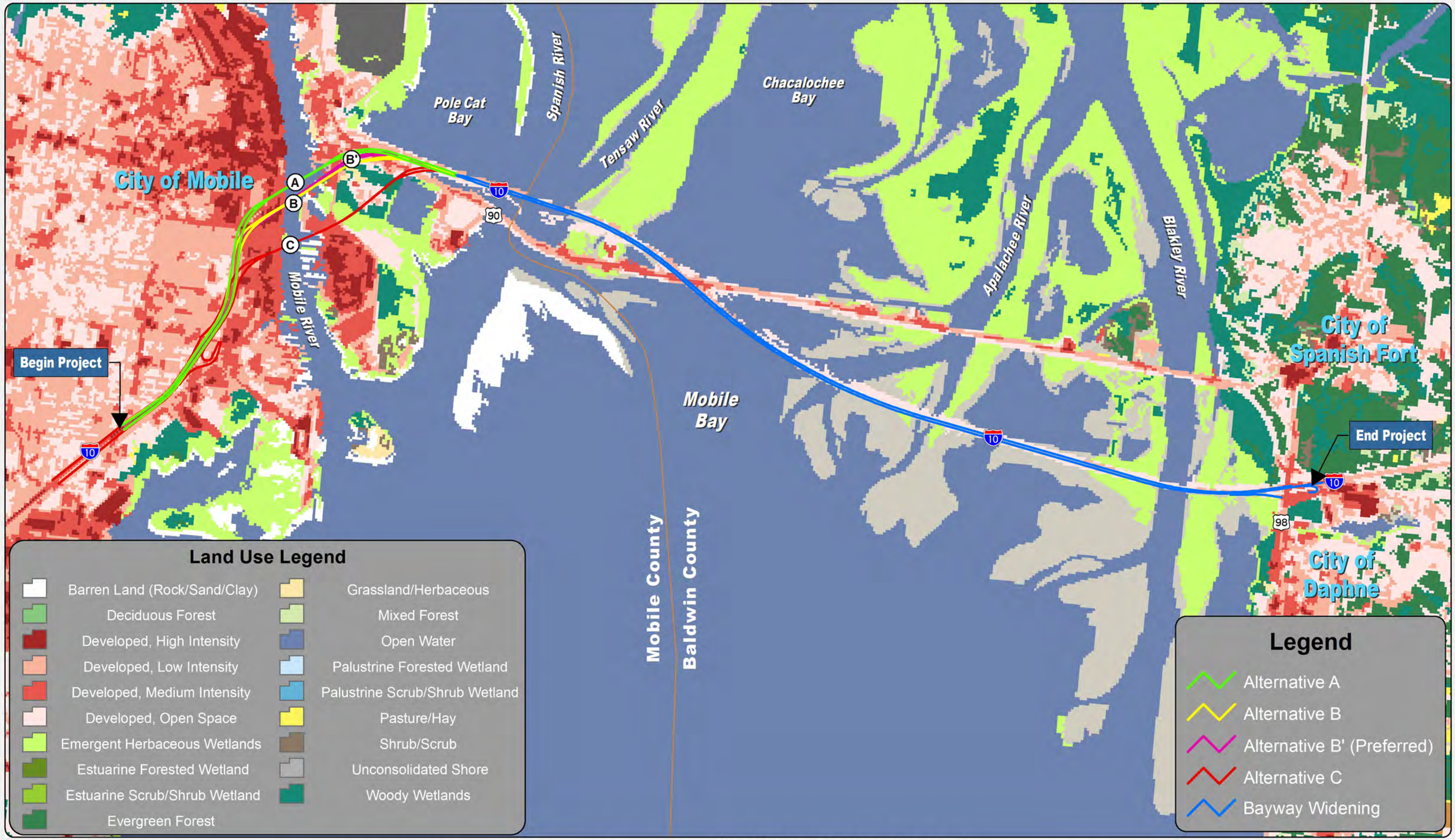
It serves as an access point for boaters, hunters, birders, and anglers to the Mobile-Tensaw Delta to the north and the Mobile Bay to the south. Bank fishing is a common recreational pursuit along the Causeway.

The western end of the Causeway is within the Mobile City limits. The remainder of the Causeway is in Baldwin County and is within the city limits of Spanish Fort. A section of the Bayway widening portion of the project is also located in the City of Spanish Fort, Alabama. The City of Spanish Fort's Comprehensive Plan, 2010 – 2025, was adopted May 2011. The existing land use in Spanish Fort in the project study area is primarily commercial, residential, and undeveloped. No land use changes are anticipated as a result of widening the Bayway.

The eastern terminus of the project is within the city limits of Daphne. The interchange and the segment of I-10 and abutting lands to the eastern terminus of the proposed improvements are zoned as General Business. A walking/biking trail was developed by the City of Daphne along the eastern shore that traverses under I-10 near the existing

I-10/US 90/98 interchange. The proposed improvements would be compatible with the City of Daphne's Comprehensive Plan, *Preparing Daphne for the Future: A Comprehensive Plan 2000-2020*, adopted June 26, 2003. Developable land along the I-10 corridor in Baldwin County from the I-10/US 90/98 interchange to the SR 181 (Malbis) interchange is expected to be developed with or without the proposed project. Potential impacts that may result from the proposed project are evaluated in **Section 4.19** Indirect and Cumulative Effects.

The proposed project is compatible with existing land uses and is in conformance with the General Land Use Plan for the City of Mobile and the Comprehensive Plans for the City of Daphne and the City of Spanish Fort. The Cities of Mobile, Daphne and Spanish Fort, along with Mobile and Baldwin Counties, have been active in the development of the proposed I-10 Mobile River Bridge project. Daphne, Spanish Fort, and Baldwin County officials have generally promoted the proposed I-10 transportation improvements as a measure to add capacity and reduce congestion.



Department Of Transportation

0 1,750 3,500 7,000 Feet

1 inch = 3,500 feet

N

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

Note: The 2002 National Land Cover Dataset courtesy of the United States Department of Agriculture Natural Resources Conservation Service. WWW.NRCS.USDA.GOV

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 5 - LandUse Map.mxd

Figure 5
I-10 Mobile River Bridge and Bayway Widening
Land Use Map
Project No. DPI-0030(005)

4.2.1 No Build Alternative

The No Build Alternative would not require the conversion of existing land to roadway use.

4.2.2 Alternative A

The proposed transportation improvements associated with Alternative A would be within existing state ROW, except for two parcels. The western bridge pier would be constructed on a parcel owned by the City of Mobile between the Alabama Cruise Terminal and GulfQuest Museum. The City of Mobile is developing the area north of the proposed bridge pier into the GulfQuest Maritime Museum. The bridge pier location has been coordinated with the city's consultant to assure compatibility with development plans for the GulfQuest Maritime Museum. The other parcel is an industrial site on the eastern shore of the Mobile River that is owned by Harrison Brothers Drydock and Repair Yard. One of the main bridge supports would be placed in the canal Harrison Brothers used to perform ship repair (**Figure 2c**). Harrison Brothers ceased operations in May 2012 and has its facilities available for lease.

The proposed alignment for the bridge avoids much of the existing industrial development and minimizes impacts to the maritime industry and other industrial establishments. There are no residential impacts associated with Alternative A.

4.2.3 Alternative B

Alternative B would require acquisition of thirteen businesses. The businesses are described in **Section 4.8;** the majority of these are small businesses located between I-10 and the Mobile River. In addition, Alternative B would impact Mobile Abrasives, Harrison Brothers, and Austal USA. The western pier and pylon locations have been coordinated with the city's consultant to assure compatibility with development plans for the GulfQuest Maritime Museum. The state currently owns the property where the pier and pylon would be located. The eastern pylon and supporting pier locations would be constructed on parcels occupied by Mobile Abrasives and by Harrison Brothers. Mobile Abrasives is currently operating. Harrison Brothers ceased operations in May 2012, and has its facilities available for lease. Alternative B would have an impact on Austal USA's parking for its MMF and would require the removal of about half of the estimated

1,000 parking spaces in this lot. Alternative B would also impact Austal USA's administration building. The MMF itself would not be impacted. Alternative B is the only alternative that directly impacts Old Union Hall, which is eligible for the NRHP. There are no residential impacts associated with Alternative B.

4.2.4 Alternative B' (Preferred)

Alternatives B and B' (Preferred) are in close proximity with similar impacts. Differences in impacts are discussed here. Alternative B' (Preferred) would require acquisition of twelve of the thirteen businesses that would be acquired for Alternative B. Alternative B' (Preferred) avoids direct impacts to the NRHP eligible Old Union Hall. Alternative B' (Preferred) also represents less of an impact than Alternative B on the parking at the Austal USA MMF facility. Alternative B' (Preferred) would require the removal of about a quarter of the estimated 1,000 parking spaces in the lot. The MMF itself and the administration building would not be impacted.

4.2.5 Alternative C

The proposed transportation improvements associated with Alternative C would require the acquisition of thirteen business/institutional parcels. The majority of these parcels are small businesses between I-10 and the Mobile River along with the Mobile County Sheriff's Office complex. In addition, Alternative C also acquires four single family residences and crosses Signal Ship Repair and BAE Systems. Both the western bridge pier and western pylon would be constructed on a parcel owned by Signal Ship Repair. The eastern pylon would be constructed on an existing finger pier/dock within property owned by BAE Systems. The eastern pier would be constructed in the northernmost berth of BAE.

4.3 Local/Regional Economy

The local/regional economy will be potentially impacted by the Build Alternatives and by the No Build Alternative. Potential economic impacts to the local/regional economy are presented under three general categories. The three categories were selected because of the potential for the proposed bridge to impact these categories. Retail sales and tourism are addressed because they were identified as areas for potential economic impacts,

especially in downtown Mobile, during the scoping and public involvement activities. The maritime industries are addressed because the proposed bridge could impact existing businesses and the air draft clearance of the bridge could restrict passage of vessels due to height restrictions. The third category addresses economic considerations related to transportation savings and cost of the proposed improvements. A summary of economic impacts is provided in **Section 4.3.11**.

4.3.1 Potential Economic Impacts to Retail Sales and Tourism

A brief background summary of the local/regional economy is presented to provide a context for addressing potential impacts to retail sales and tourism.

In 2012, the MACC published an economic overview of the Mobile and Baldwin Counties. The Mobile Bay region's 23,465 businesses make it a center for finance, health care, education, manufacturing, transportation, construction, distribution, retail trade, and technology. The Mobile Bay region is diversified and is not dependent on one industry for its success or failure. Retail and wholesale trade make up a large percentage of the region's local economy, with 17 percent of the workforce employed in retail. Retail sales in the Mobile Bay area, including Mobile and Baldwin Counties, increased almost 50 percent since 2000 to more than $8 billion in 2010 (MACC, 2012).

Tourism is also an important segment of the local/regional economy. Dauphin Island, Gulf Shores, USS Alabama Memorial Park, and Bellingrath Gardens and Home are among the top tourist attractions in Alabama. I-10 is an important transportation link for these tourist attractions, especially for Gulf Shores. Tourism associated with Mobile's historic resources is important to the city.

Mobile's overall economy is expanding. Mobile was forecasted to be the fastest growing economy over a five-year span (2008-2013) among 363 American metropolitan areas according to Moody's Economy.com. Moody's is a leading independent provider of data, analysis, and modeling on national and regional economics, financial markets, and credit risks. Economic development has not been limited to Mobile County. The Daphne-Fairhope micropolitan area, which encompasses all of Baldwin County, was named the 42nd strongest micropolitan economy in the U.S. and second strongest

micropolitan economy in the state by POLICOM Corporation, in 2012 (Southeast Sun, 2013). Factors measured in the ranking include wages, personal income, employment statistics, construction revenue, retail revenue, and consistency of growth or decline. Baldwin County is the only county in Alabama on the list of the 100 fastest-growing counties in the U.S. (U.S. Census Bureau, 2010-2011). Mobile and Baldwin Counties' expanding economies will increase the economic activities associated with retail sales and tourism.

The Downtown Mobile Alliance, a local organization of business interests, was formed to support the redevelopment of downtown Mobile through marketing advocacy and management of the Business Improvement District (BID) (Downtown Mobile Alliance, 2008). A BID is a geographic area in which enhanced services including ambassador services, cleaning of sidewalks, district management and economic development are financed through annual property assessments on non-government owned property within the district's boundaries. Relying on public/private partnerships, BIDs are an effective way for property owners to improve the public environment and economic health of urban areas. Redevelopment efforts by the Mobile Downtown Alliance and business investments have improved both the retail sales and tourism business environment in downtown Mobile.

Potential economic impacts to retail sales and tourism are difficult to quantify because the choice to shop or visit an area are influenced by many factors. On a qualitative basis, the No Build Alternative is expected to adversely affect retail sales and tourism due to inconveniences associated with increased congestion and traffic delays. In contrast, improved traffic flow and reduced delays associated with the Build Alternatives should be beneficial to retail sales and tourism. Additional discussion of impacts to tourism is presented in **Section 4.4.9**.

Dr. Semoon Chang of the University of South Alabama conducted a study to determine the potential economic impacts of the proposed I-10 Mobile River Bridge and Bayway Widening. This study was entitled, "Economic Impact of the Proposed I-10 Mobile River Bridge: A Special Report Prepared for Mobile Mayor Sam Jones." In his report to

Mayor Jones, Dr. Chang estimated that construction expenditures for the Build Alternatives would add, "millions of dollars into all different sectors of the local retail industry. Virtually no industry is exempted from the positive economic impact from construction expenditures." Construction expenditures for the proposed project are expected to result in approximately $349 million in positive economic impacts for the local retail industry. Appendix 3 of Dr. Chang's report includes food, beverage, convenience, home improvement, apparel, transportation, health care, and entertainment business as part of the local retail industry (Chang, 2006).

4.3.2 Existing Maritime Industries Potentially Impacted

The existing maritime industry has a high potential to be adversely impacted by the proposed bridge over the Mobile Harbor Federal Navigation Channel. Potential impacts would occur due to air draft constraints that would be imposed by locating a bridge in an area where currently no vertical constraints exist. In addition, physical impacts would occur to existing maritime businesses due to construction of bridge support structures on their property as well as operational encumbrances that would also be imposed by bridge support structures.

The maritime industry in Mobile contributes to the local, state, and regional economy in terms of job opportunities, salaries and wages, and tax revenues. Numerous maritime industries currently exist along the Mobile River (**Figure 2**).

As presented in **Section 2.3**, three components of the maritime industry contribute an estimated $2.4 billion to the local/regional economy and support over 28,700 jobs. Approximately 75 percent of the economic value is provided by cargo/shipping activities, 23 percent by shipbuilding/shipyard activities, and 2 percent by cruise activities.

The Port of Mobile is home to public and private cargo terminals located on the Mobile River that support cargo/shipping activities. The public terminals include the ASPA's 27 general cargo and container berths that handle forest products, steel, frozen poultry, and other general cargo, the bulk material handling plant at the north end of the port that handles coal and iron ore, and the McDuffie Terminals that handle coal. The APM Terminal Mobile, a container terminal, handled over 169,000 twenty-foot equivalent

units (TEU) of containers. The public terminals in Mobile had 804 vessel calls in 2011. Private terminals handle ore, coke, petroleum, and other bulk products. In 2011, the private terminals received 639 vessels calls. Together, the public and private terminals at the Port of Mobile handled 25.1 million tons of cargo in 2011 (Martin Associates, 2012).

The shipbuilding/shipyard component of the maritime industry has been very dynamic in its ownership and operations over the past few years. Additionally, because of their proximity to the four proposed Build Alternatives, this component has the greatest potential for adverse economic impacts. For these reasons, more detailed information is presented for this component of the maritime industry.

Signal Ship Repair, LLC (formally Bender Shipbuilding and Repair Co, Inc. [Bender]), operates on the west bank of Mobile River. Effective December 27, 2010, Bender's shipbuilding operations have been terminated and its physical assets have been liquidated (Kelley-Drye/Bender, 2013). Signal Ship Repair acquired most of Bender's assets and provides repair, conversion, and construction services of marine vessels including drill rigs (Martin Associates, 2012). Former Bender Yard #9 on the east bank was also utilized for repair of drill rigs and could be used for that purpose in the future.

BAE Systems (formally Atlantic Marine – Mobile and Alabama Shipyard) operates on the east bank of Mobile River. This shipyard consists of both construction and repair operations. The Atlantic Marine operation focused on repair and conversion work, while Alabama Shipyard focused on new construction. Vessel work at the BAE yards includes cargo vessels, cruise vessels, and drill rigs (Martin Associates, 2012).

Harrison Brothers Drydock and Ship Repair was a full-service vessel repair facility located on the east bank of Mobile River. Harrison Brothers focused primarily on smaller commercial, government, and recreational vessels. Harrison Brothers announced in May 2012, that it was closing operations and placing its land on the market for lease. For the purpose of this EIS, it is assumed the Harrison Brothers would resume operation, or that another entity would operate the facility.

Austal USA began operations on the east bank of the Mobile River in 1999 and its operations have expanded considerably. Austal USA now occupies three specific parcels of land involved in the fabrication, assembly, and final outfitting of high-speed aluminum vessels. The site also contains warehouse space and office buildings for Austal USA and the U.S. Navy. In 2008, the U.S. Navy awarded Austal USA 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 USA a contract to build 10 Littoral Combat Ships (LCS). Austal USA 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 (Martin Associates, 2012).

Under the cruise industry component, the Port of Mobile was a homeport for the Carnival Cruise Lines (CCL) *Holiday*. The *Holiday* has a capacity of 1,452 passengers and made three cruises every two weeks year-round. Four-day and five-day cruises to the Western Caribbean were offered from Mobile. CCL provided guests with options to attend shore excursions to Mobile area attractions, including Bellingrath Gardens and Home, historic Mobile homes, and USS Alabama Memorial Park. In addition, travelers on the CCL cruise ships often stayed overnight in local hotels, ate in local restaurants, and shopped in local stores while waiting to depart on a CCL cruise. All of these activities contributed to the economy of Mobile and the surrounding area. On October 21, 2011, CCL ceased operations in Mobile. The City of Mobile, with assistance from others, is actively recruiting a replacement cruise operation, or return of CCL, to utilize the $30 million investment in the Alabama Cruise Terminal and to provide economic benefits to the area. A 3,000-passenger cruise ship would provide $40 million annually to the regional economy (**Exhibit 20, Appendix D**).

4.3.3 Potential Maritime Economic Impacts

The maritime economic impact study conducted by Martin Associates assessed the potential impacts of the physical location of the four Build Alternatives on the shipyards, cargo, and cruise operations. Martin updated this evaluation in September 2012,

to address a bridge height of 215 feet and the addition of Alternative B' (Preferred). The potential economic impacts on maritime interests represent the potential economic losses in the Mobile area and Alabama economies. Additional economic impacts would be generated beyond this region throughout the country. Because of the volatility of the shipbuilding/shipyards industry, the potential impacts are a "snapshot in time" that are considered to be representative of the annual economic contributions to the local/regional economy. Actual impacts would vary depending upon the contracted activities by the individual shipyard/shipbuilding companies and the associated employment. A copy of the maritime economic impact study is included in **Appendix D**. None of the four Build Alternatives would affect the cruise industry or public and private cargo berths or activities. No impacts to cruise or public and private port cargo operations are anticipated with a bridge ADC of 215 feet because cruise and cargo vessels calling on the Port of Mobile have air drafts that could pass under the bridge (**Appendix C**).

4.3.4 Potential Economic Impacts on Shipyards

The following sections summarize the potential economic impacts on shipbuilding/shipyard operations under each Build Alternative. A description of the methodology and data used to conduct this economic analysis is included in the maritime economic impact study in **Appendix D**. The location of the bridge pylon and piers discussed in this section are shown on **Figure 2c**.

The potential economic impacts on shipyards are quantified in terms of business impacts based upon their operational practices. This methodology is a different approach than is used to assess business relocation impacts that are based upon the acquisition of land from a business. There are factors that will tend to lessen the potential economic impacts to shipyards. ALDOT has adopted an acquisition and relocation approach to minimize impacts to the maritime industry and will take measures during design and construction of the selected alternative to minimize impacts and reduce disruptions to operations of affected shipyards. Additionally, the affected shipyards may be able to adjust their operations to work around bridge structural support features. The potential economic impacts to shipyards described below do not reflect these measures to reduce impacts.

4.3.4.1 No Build Alternative

Under the No Build Alternative, current shipyard operations could continue. There would be no economic impacts.

4.3.4.2 Alternative A

Alternative A would involve the placement of a pylon on the east side of the Mobile River in the bay of Harrison Brothers Dry Dock and Ship Repair (Harrison Brothers), which has ceased operation. For Alternative A, it is assumed Harrison Brothers, or its successor, will close. Drill rigs will not be able to be repaired at the former Bender Yard #9 facility. The former Bender Yard #9 is on the east bank north of the four Build Alternatives. Tall drill rigs could not pass under the proposed bridge to access former Bender Yard #9. Therefore, the potential economic impacts on former Bender Yard #9 would be the same for all four Build Alternatives. The potential maritime economic loss for Alternative A is $5.6 million per year as described in **Appendix D**.

4.3.4.3 Alternatives B and B' (Preferred)

Alternatives B and B' (Preferred) are in close proximity to each other. They are so close that it is difficult to discern the differences in economic impacts between the two alternatives. Coordination with the City of Mobile and Austal USA indicates that the shifts from Alternative B to B' (Preferred) provides advantages even if these are not measureable. The City of Mobile believes Alternative B' (Preferred) improves its initiatives to recruit a replacement cruise operation. The City of Mobile also supported Alternative B' (Preferred) because it had less impacts on Austal than Alternative B. Austal prefers Alternative B' (Preferred) over Alternative B because it would not impact their newly constructed administration building and it would have less impact on their employee parking area. Alternatives B and B' (Preferred) will require acquisition of a portion of Harrison Brothers, due to a bridge pylon on the south side of the property, but the yard would be able to operate in a reduced area. No adverse economic impacts to Harrison Brothers are predicted. Under Alternatives B and B' (Preferred), the shipyard impacts considered are the loss of drill rigs repair and construction activity at former Bender Yard #9 and no reduction in Austal USA's U.S. Navy business. It is anticipated that Austal USA will lose a parcel of land due to the construction of bridge piers in 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 sufficient parking areas, Austal may not be able to meet future labor demand. The parking situation can be improved with the construction of an on-site parking garage with an estimated construction cost of $15 million.

Austal estimates the annual business cost associated with effects from the bridge on operations to be approximately $5 million. This impact could occur due to the inefficiencies of transporting ship modules around the bridge support structures between Austal's manufacturing and assembly facilities. The total estimated annual cost associated with module transportation inefficiencies at Austal and the loss of drill rigs repair and construction at former Bender Yard #9 would be $6.1 million. If the site improvements for parking were not provided, the potential impacts to Austal USA would be much larger, resulting in the loss of 2,277 jobs and a $146.8 million annual loss of value to the regional economy (**Appendix D)**.

4.3.4.4 Alternative C

The proposed location of a bridge pylon on the Signal Ship Repair property under Alternative C has the potential to impact a large portion of Signal's operations along the west bank of the Mobile River. The proposed bridge pylon would be located in the center of an area through which an assembly transporter carries large panels and assemblies from the panel line to the assembly and launch areas. The assembly transporter is a wide platform with wheels that is used to transport ship components along the dock from the location where they are built to the vessel assembly and launch area to the south. The location of the bridge pylon would likely prevent the assembly transporter from being able to pass around either side of the pylon to reach other areas of Signal's facilities. The loss of the capability to transport ship components along the dock would not allow the current vessel manufacturing operations to continue.

Appendix D presents the economic impact to the Mobile shipyards if the proposed bridge is built on Alternative C. Most of the impacts are to Signal due to the bridge pylon interference with its vessel assembly activities. This scenario also assumes that

drill rig work would cease at former Bender Yard #9 and that no drill rig work is performed at BAE. A bridge pier located in BAE's northernmost berth would not allow drill rig work at BAE. Alternative C has the largest potential economic impact on the shipbuilding/shipyard industries of the four Build Alternatives, estimated to be $200 million per year.

4.3.5 Summary of Maritime Economic Impacts

Table 6 displays a comparison of the economic impacts on maritime interests for all four of the Build Alternatives from *Maritime Economic Impact Study* (**Appendix D**). Alternative A would have the least economic impact (loss) on shipyard activity at $5.6 million per year. The impact of both Alternative B and B' (Preferred) would be about $6.1 million per year. Alternative C would result in the greatest economic loss at $200 million per year (**Appendix D**). The potential adverse economic impacts would be to the shipbuilding/shipyard component of the maritime industry. No impacts are anticipated to cargo/shipping activities or the cruise activities.

Table 6: Comparison of Potential Maritime Economic Impacts from Appendix D

Economic Impact Category	Baseline ***	Potential Annual Losses by Alternative		
		A	B or B' (Preferred)	C
Total Jobs	8,525	78	97	3,258
Total Income and Consumption ($million)	364	3.7	3.7	132.3
State/Local Taxes ($million)	32	0.3	0.3	11.6
Business Revenue ($million)*	386	2.2	5.0	137.1
Local Purchases ($million)	166	1.5	2.0	56.2
Value to Regional Economy ($million)**	562	5.6	6.1	200.2

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.
*** Baseline represents the No Build conditions.

The potential impacts to shipbuilding/shipyard activities were based upon interviews with owners and reflect their estimates of how the four Build Alternatives would affect their facilities and operations (**Appendix D**). The potential impacts could be reduced by

design refinements, adaptations in operational approaches by the owners and allowing operations to continue under the bridge structure. Water dependent maritime operations will be allowed, with certain restrictions, to utilize the land under the bridge for operational and other purposes that do not compromise the integrity and use of I-10. Depending upon the selected Build Alternative, ALDOT will determine appropriate restrictions on use of lands underneath the elevated structures on a case-by-case basis during the ROW acquisition and relocation phase. Non-water-dependent businesses and residences would not be allowed to remain under the elevated structures.

4.3.6 Economic Impacts Related to Transportation Cost and Savings

There are potential economic impacts for the No Build and the four Build Alternatives in five categories addressed in **Sections 4.3.7 – 4.3.10**. Economic impacts can be costs such as the cost of congestion, the cost of longer travel distances, and the cost of construction. Economic benefits can be due to shorter travel distances and time-savings due to reduced congestion. The cost of the proposed improvements will provide economic benefits from the purchase of goods and the creation of jobs. This section provides information on predicted economic efficiencies and inefficiencies by comparing the No Build and Build Alternatives as well as presenting the differences in economic impacts among the four Build Alternatives.

4.3.7 Travel and Marginal Costs/Benefit Considerations

There are transportation costs to motorists associated with travel distances. If distances are reduced, they produce economic benefits. The differences in the travel distance between the proposed Build Alternatives and the existing I-10 corridor were calculated (**Appendix B**). Additional miles traveled represent a cost to motorists, while fewer miles traveled would produce a benefit compared to the existing facility. This difference in travel distance was multiplied by the 2010 Federal mileage reimbursement rate of $0.50 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.

Marginal costs identified by the FHWA for pavement (maintenance and repairs), congestion (delays), and crashes (accidents) were selected to represent economic considerations that would accrue as benefits for the Build Alternatives. Marginal costs represent an economic cost to governmental entities and the public-at-large. Marginal cost depends upon the miles traveled and the type and number of vehicles. The calculations can be found in Appendix C (Economic Cost Factors) in **Appendix B**. The results of the travel costs/savings and marginal costs/savings analysis are presented in **Table 9**.

4.3.8 Construction Benefits

Benefits will accrue due to construction activities and expenditures. In his report (**Section 4.3.1**) to Mayor Jones, Dr. Chang estimated the economic benefits provided by construction of the proposed transportation improvements. Dr. Chang's benefit estimates are based upon an estimated construction cost of $650 million for each alternative (Chang, 2006).

For the purposes of the study, a construction period of five years was assumed. The proposed project was projected to create 2,490 construction-related jobs during each of the five years assumed for construction. Substantial tax revenues, totaling approximately $26 million, would also be generated by the proposed project. Approximately $3.4 million would be generated for the City of Mobile, $2.7 million for Mobile County, $17.7 million for the State of Alabama, and $2.2 million for Mobile County Public Schools.

Based upon updated construction estimates, the one-time construction benefits are presented in **Table 7**:

Table 7: Estimated Construction Benefits

Alternative	Estimated Benefits ($ million)
A	$357.7
B	$362.5
B'	$363.3
C	$366.4

These benefits are also presented in **Table 9**. There would be no benefits of construction experienced with the No Build.

4.3.9 Congestion Costs

According to the National Cooperative Highway Research Program (NCHRP), Report 463: *Economic Implications of Congestion*, "Traffic congestion is defined as a condition of traffic delay (when the flow of traffic is slowed below reasonable speeds) because the number of vehicles trying to use the road exceeds the traffic network capacity to handle them." Traffic congestion and slowdowns can produce negative impacts on residents, businesses, and the overall economy, including impacts on air quality, quality of life, and business activities. Congestion causes travel-time delays and creates expenses for commuters and business travelers. The NCHRP states that, "From an economic point of view, congestion clearly causes households and businesses to incur excess time and money costs." (NCHRP, 2001)

Studies indicate that congestion can also impact a region's ability to maintain and grow businesses, as well as adversely affecting quality of life. Increased congestion especially affects commuter and truck (freight) traffic. Businesses pass on their additional costs of congestion associated with increased transportation costs to their customers. Congestion problems can also make an area or region unattractive for locating new businesses due to increased transportation costs, delivery times, etc. (Economic Research Development Group, 2005).

The beneficial effects of reduced traffic congestion include time-saving and increased fuel efficiency for travelers. Because I-10 is a major east-west corridor, time-saving in the transportation of freight by truck will produce considerable transportation cost reductions.

The Texas Transportation Institute developed a methodology to calculate congestion costs in their 2009 "Urban Mobility Report." This methodology was used to calculate congestion costs associated with the I-10 Wallace Tunnels for the year 2030. The methodology and assumptions used for this analysis are included in Appendix C of the

Alternatives Screening Evaluation included in **Appendix B** of this document. The range of estimated benefits from reduced congestion and delays are presented in **Table 9**.

The estimated congestion cost associated with the projected 2030 AADT in the I-10 Wallace Tunnels without the proposed project is shown in **Table 8**. The congestion cost includes costs for both non-commercial and commercial vehicles. The congestion cost is for lost time only and does not include fuel costs or other environmental costs, such as air quality degradation. The total congestion cost would be experienced annually and would increase each year to the 2030 projections under the No Build scenario. The annual cost would continue to increase each year as traffic increases. The year 2030 is utilized to represent a 20-year period from 2010. The traffic in the Wallace Tunnels is projected to increase from an AADT of 79,997 in 2010, to a projected AADT of 131,082 in 2030. The cost savings would be realized as a benefit under any of the four Build Alternatives.

Table 8: Congestion Cost ($million)*

Delay Scenarios	Total Congestion (Delay)
	No Build Alternative
15 minute peak/5 minute non-peak	173
30 minute peak/10 minute non-peak	345
45 minute peak/15 minute non-peak	518
60 minute peak/20 minute non-peak	690

* Cost would be economic benefits under the Build Alternatives due to the reduction in traffic delays on I-10.

4.3.10 Hazardous Materials Detour Costs

Vehicles transporting hazardous materials incur a cost as a result of traveling the required 10.5 miles to detour around the Wallace Tunnel. Under any of the four Build Alternatives, companies transporting hazardous cargo would experience a benefit from a savings of travel costs of approximately $1,443,036 in 2030, and would save the time required to traverse the route, compared to the No Build Alternative. These benefits are also presented in **Table 9**.

4.3.11 Summary of Potential Economic Losses and Benefits for the Build Alternatives

Table 9 presents a summary of the potential economic losses and benefits associated with the four Build Alternatives for selected activities. For the No Build Alternative there

would not be economic losses projected for the maritime industry and the potential benefits projected for the Build Alternatives would not be realized. Although not quantified, it is anticipated that the increased traffic congestion and delays that would occur under the No Build Alternative would have adverse economic effects on retail sales and tourism.

Table 9: Summary of Potential Economic Losses/Benefits for Build Alternatives ($million)

Type of Loss/Benefit	Alternative A	Alternative B	Alternative B' (Preferred)	Alternative C
Maritime Economic Loss[1]	$5.6	$6.1	$6.1	$200
Travel Benefits[2]	$4.3	$9.3	$9.3	$15.6
Marginal Benefits[3]	$1.0	$2.4	$2.4	$3.8
Construction/Retail Benefits[4]	$357.7	$362.5	$363.3	$366.4
Congestion Benefits[5]	$173-690	$173-690	$173-690	$173-690
Hazardous Material Detour[6]	$1.4	$1.4	$1.4	$1.4

[1] Loss would be experienced annually (**Appendix D**).
[2] Benefits based upon 2030 AADT of 131,082 for Wallace Tunnels for reduced travel distance on I-10.
[3] Benefits are based upon 2030 AADT of 131,082 multiplied by a factor developed by FHWA for pavement maintenance and repairs and other expenses (**Appendix C**).
[4] Benefits projected to be experienced over a five-year construction include, tax revenue generated and impact on local retail industry (Based upon Chang, 2006).
[5] Benefits would be experienced annually and would continue to increase as traffic volumes increased. Range represents benefits associated with various delay scenarios.
[6] Benefits are shown for year 2030 based on reduced travel distance.

4.4 Socio-Economic Environment

The socio-economic environment consists of area demographic characteristics, public services, community resources, recreational facilities, and development along the existing I-10 corridor. The I-10 corridor is a primary connector between Mobile and Baldwin Counties, the two southernmost counties in Alabama. Traditionally, the Mobile area has served as a major employment center for portions of Baldwin County. From a general perspective, commuter traffic between Baldwin and Mobile Counties adds to congestion, particularly during peak periods. Although not quantifiable, congestion relief related to improved traffic flow with a Build Alternative could accelerate population growth in Baldwin County. Mobile County continues to be the more populous county, but Baldwin County is growing at a rapid rate. **Table 10** presents population information on the two counties. Census tracts for Mobile and Baldwin Counties are shown on **Figure 6**.

Table 10: Mobile and Baldwin County Population Data

	Mobile County Population	Baldwin County Population
1980 Census	364,980	78,556
1990 Census	378,643	98,280
2000 Census	399,843	140,415
2010 Census	412,992	182,265

Source: U.S. Census (1980, 1990, 2000, 2010)

While both counties have experienced growth over the past 30 years, Baldwin County's growth rate is much higher. Mobile County's population grew by 3.7 percent from 1980 to 1990, 5.6 percent from 1990 to 2000, and 3.3 percent from 2000 to 2010 with an overall increase of 13.2 percent for the three decades. In contrast, Baldwin County's population grew by 25.1 percent from 1980 to 1990, 42.9 percent from 1990 to 2000, and by 29.8 percent from 2000 to 2010 with an overall increase of 132 percent for the three decades. The population trends experienced over the past 30 years can be expected to continue; however, local stimuli or controls could alter the rates of growth in the two counties.

4.4.1 Population Characteristics

Table 11 presents the ethnic characteristics of Mobile and Baldwin Counties compared to the United States and to the State of Alabama. **Table 12** presents the ethnic characteristics of the Census tracts adjacent to the proposed project. Additional data is presented on **Figure 6**. Census tract data indicates that the population of the western portion of the study area is predominantly Black or African American. Downtown Mobile is populated by almost equal percentages of Black or African American and White residents. The eastern portion of the study area in Baldwin County is predominantly White.

Table 11: Regional Demographics*

Ethnicity	United States	Alabama	Mobile County	Baldwin County	City of Mobile
White (%)	72.4	68.5	60.2	85.7	48.7
Black or African American (%)	12.6	26.2	34.6	9.4	47.8
Hispanic (%)	16.3	3.9	2.4	4.4	1.9
American Indian or Alaskan Native (%)	0.9	0.6	0.9	0.7	0.5
Asian (%)	4.8	1.1	1.8	0.7	1.1
Native Hawaiian and Other Pacific Islander (%)	0.2	0.1	<0.1	<0.1	<0.1
Some Other Race (%)	6.2	2.0	0.9	2.0	0.8
Two Races or More (%)	2.9	1.5	1.5	1.5	1.3

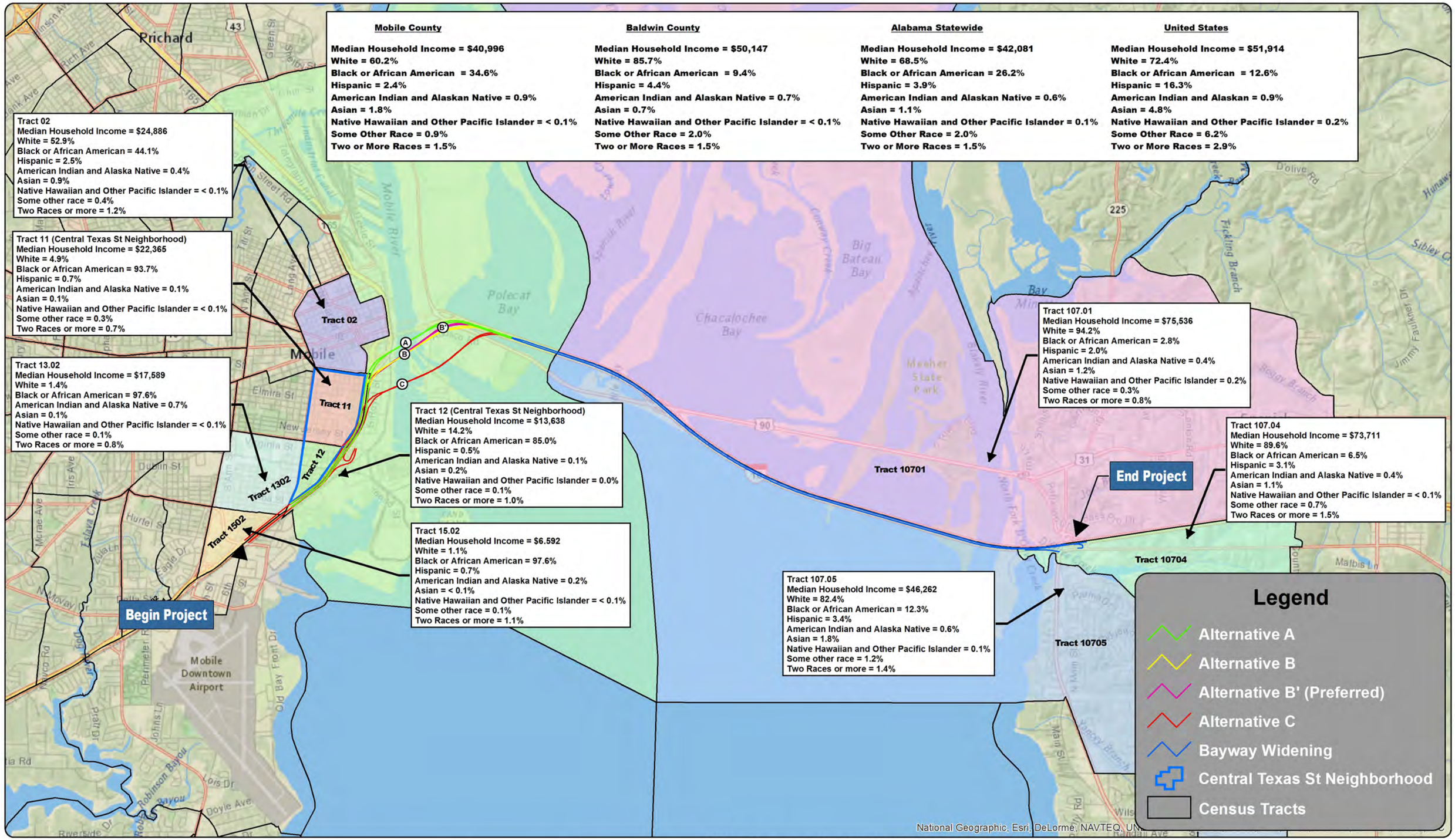
Source: U.S. Census (2010)

Table 12: Study Area Demographics*

Ethnicity	Tract 15.02	Tract 13.02	Tract 12	Tract 11	Tract 2	Tract 107.01	Tract 107.05	Tract 107.04
White (%)	1.1	1.4	14.2	4.9	52.9	94.2	82.4	89.6
Black or African American (%)	97.6	97.6	85.0	93.7	44.1	2.8	12.3	6.5
Hispanic (%)	0.7	0.7	0.5	0.7	2.5	2.0	3.4	3.1
American Indian or Alaskan Native (%)	0.2	0.1	0.1	0.1	0.4	0.4	0.6	0.4
Asian (%)	<0.1	<0.1	0.2	0.1	0.9	1.2	1.8	1.1
Native Hawaiian and Other Pacific Islander (%)	<0.1	<0.1	0.0	<0.1	<0.1	0.2	0.1	<0.1
Some Other Race (%)	0.1	0.1	0.1	0.3	0.4	0.3	1.2	0.7
Two Races or More (%)	1.1	0.8	1.0	0.7	1.2	0.8	1.4	1.5

Source: U.S. Census (2010)

*** Note: Numbers total more than 100 percent because some people are reported in more than one ethnicity category.**



0 0.5 1 2 Miles

1 inch = 1 miles

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

Note: 2010 Census Data courtesy of The U.S. Census Bureau. Numbers total more than 100% because some people are reported in more than one ethnic category.

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 6 - Census Tracts.mxd

Figure 6
I-10 Mobile River Bridge and Bayway Widening
Census Tract Data
Project No. DPI-0030(005)

4.4.2 Personal Income

Table 13 shows a comparison of household size and income to the poverty guidelines published by the U.S. Department of Health and Human Services (HHS) each year. HHS guidelines are used to determine whether families/households qualify for certain types of government financial assistance. Based on this analysis, the median household income for the project area is above the HHS poverty guidelines for 2012. Tracts 15.02, 13.02, and 12, located along the west side of I-10 near the western end of the proposed project displays median household income below the HHS poverty lines for 2012. Incomes in these tracts are not expected to change materially under No Build nor with the four Build Alternatives.

Table 13: HHS 2012 Poverty Guidelines

Location	Average[1] Household Size	Median Household Income[1]	HHS 2012 Poverty Guidelines[2]	Below HHS 2012 Poverty Guidelines
Alabama	2.53	$42,081	$17,229	No
Mobile County	2.61	$40,996	$17,545	No
Baldwin County	2.5	$50,147	$17,110	No
City of Mobile	2.45	$38,240	$14,960	No
Tract 15.02	3.01	$6,592	$19,090	Yes
Tract 13.02	2.91	$17,589	$18,734	Yes
Tract 12	2.80	$13,683	$18,298	Yes
Tract 11	2.12	$22,365	$15,605	No
Tract 2	1.47	$24,886	$13,031	No
Tract 107.01	2.58	$75,536	$17,427	No
Tract 107.05	2.24	$46,262	$16,080	No
Tract 107.04	2.57	$73,711	$17,387	No
Study Area	2.46 [3]	$35,078 [3]	$16,952	No

[1] – Source: Quick Facts from U.S. Census Bureau, 2012
[2] – Source: Prorated from 2012 HHS Poverty Guidelines
[3] - Average for Census Tracts Adjacent to the Project

4.4.3 Quality of Life

Quality of life is a subjective term that relates to a variety of attributes. For the purposes of this section, several attributes in proximity to the project study area were selected to provide a frame of reference that represents quality of life amenities. The quality of life provided for residents and visitors is influenced by many factors, such as fire protection and law enforcement services, retail development, and recreational facilities.

4.4.4 Fire Protection, Emergency, and Law Enforcement

The Mobile Fire-Rescue Department provides fire protection and emergency services to the project area in Mobile County. The City of Daphne and the City of Spanish Fort Fire Department's provide services to the project area located on the Eastern Shore of Mobile Bay. The western portion of the study area is served by the Mobile Police Department, which employs more than 700 full-time personnel to provide services to the City of Mobile. The eastern portion of the project study area is served by the Daphne Police Department and the Spanish Fort Police Department.

Time of response can be crucial in accidents, fires, medical emergencies, hazardous materials spills, and other situations affecting life and property. Under the No Build Alternative, traffic congestion will continue to adversely affect emergency response vehicles. Transportation improvements will facilitate emergency response vehicles' accomplishment of their journeys and tasks. The improvements will be very similar for all four Build Alternatives. The widened Bayway and the new emergency crossovers will also promote ease of access and movement of emergency vehicles. The crossovers and widened inside shoulder of the Bayway will be beneficial to vehicles responding to accidents on the Bayway.

4.4.5 Retail Development

Various shopping opportunities exist within and adjacent to the project study area. These shopping areas range from locally owned shops and grocery stores to larger stores and complexes. The Eastern Shore Centre, located just east of the project terminus in Baldwin County, opened in November 2004 and houses upscale shops and major department stores. A large retail center was also constructed adjacent to the northeast quadrant of the I-10/US 90/98 interchange in Spanish Fort. This complex houses Bass Pro Shop, JC Penney, Kohl's, and other large and small retail stores. A retail shopping center is also located south of I-10 and east of US 98 consisting of retail businesses and restaurants. According to the MACC, west Mobile and Baldwin County are at the forefront of retail shopping expansion and development, but retail development in downtown Mobile is expected to increase due to business investments and redevelopment efforts by the Mobile Downtown Alliance (**Section 4.3**) (MACC, 2006). The No Build

Alternative could discourage retail shoppers from Mobile and Baldwin Counties from utilizing facilities away from their respective domiciles due to delays associated with congestion. In contrast, more free-flowing traffic associated with the four Build Alternatives could promote/encourage movement of retail shoppers between the two counties. The amount of change due to improved traffic flow cannot be projected due to other factors such as prices, quality of stores, and convenience.

4.4.6 Sidewalks and Bicycle Facilities

In accordance with 23 USC 217, ALDOT gives full consideration to bicycle and pedestrian facilities and providing reasonable alternatives to the bicycling public in transportation planning. Section 39-13 of the Mobile City Code (Code 1965, § 41-26.1) prohibits pedestrians and bicycles on certain interstate highways. The following is an excerpt from the Mobile City Code: "It shall be unlawful and an offense against the city for pedestrians to be upon, or for any person to operate a bicycle, a non-motorized vehicle, or a motor driven cycle of less than ten (10) horsepower, on any part of Interstate Highway 10 and Interstate Highway 65, including the entrance roads thereto, at any place within the city and its police jurisdiction." ALDOT Regulation 4-71, revised April 2, 1989, also addresses this issue.

The proposed project does not include any pedestrian or bicyclist facilities along the I-10 corridor, since such activities are currently prohibited along the I-10 corridor. Recently there has been public interest expressed for including bicycle/pedestrian facilities on the proposed bridge (Press-Register, June 2, 2013). ALDOT is committed to providing pedestrian and bicycle facilities across the Mobile River via Cochrane Bridge, Bankhead Tunnel, or the proposed I-10 Bridge. Additional information will be presented at the DEIS public hearing and public input will be sought.

The City of Mobile is interested in providing safe bicycle/pedestrian facilities. Existing and proposed bicycle/pedestrian facilities in the project vicinity are described below. The city has a concept for improving pedestrian and bicycle facilities called the Crepe Myrtle Trail (CMT). The concept for the CMT has been envisioned for several years. A study entitled *Western Shore Waterfront Access Study* was commissioned by the City of

Mobile to develop conceptual plans for a trail. The conceptual plans included the CMT as a bicycle/pedestrian path lined with trees and serving as a connector to identified points of interest.

A follow-up Feasibility Study was conducted, and a report was issued in 2002 (GS&P, 2002). The Feasibility Study recommends a trail corridor that would extend from McNally Park, located approximately 2.8 miles south of Brookley Airport, to Cooper Riverside Park and the Mobile Convention Center on the north. The CMT corridor is divided into three sections. The northernmost section of the trail is near Cooper Riverside Park (**Figure 2c**). The CMT was identified as a Transportation Equality Act (*TEA)-21 High Priority Project*, and Federal funds were allocated for its development. The first phase of design of the proposed CMT is underway on its southern end near McNally Park. The proposed trail is expected to be located along existing roadways, and the I-10 improvements would be elevated above the existing roadways. The four Build Alternatives would not impact the CMT. Piers for the proposed bridge would be placed to avoid impacting the CMT.

There is a pedestrian overpass (walkway) crossing over I-10 in the vicinity of the Texas Street Recreation Center (**Figure 2c**). The Texas Street pedestrian overpass has been closed since 1991 and is scheduled to be demolished by the ALDOT, Ninth Division (Project No. NH-I10(304)).

The Eastern Shore National Recreation Trail is a 36-mile trail for pedestrians and non-motorized vehicles that generally follow the shores of Mobile Bay. Portions of the trail in the vicinity of the existing I-10 Bayway cross under and/or directly adjacent to the interstate (**Figures 2d through 2f**). The trail is located along existing roadways, and the I-10 improvements would be elevated above the existing roadways and existing access will be maintained. Therefore, direct impacts are not expected.

Pedestrians and bicyclists crossing Mobile Bay must utilize the existing Cochrane-Africatown Bridge and the Causeway connecting the cities of Mobile, Spanish Fort, and Daphne. The Causeway is designated as an Existing/Planned On-Street Bicycle Facility

in the ALDOT Bicycle and Pedestrian Plan (ALDOT, 2010). Neither the No Build Alternative nor the four Build Alternatives would affect these facilities.

The I-10 Scenic Underpass Trail is a walking/biking trail located in the City of Daphne. Constructed in 2004, the trail begins on North Main Street in Daphne, goes under the existing I-10 Bayway, and ends at US 90 north of I-10 (**Figure 2f**). The trail is maintained by the City of Daphne. The proposed project is not expected to have any impacts on the trail and access to the trail will be maintained.

4.4.7 Recreation/Parks

In addition to the recreational trails described in the section above, recreational resources and parks adjacent to the project include the Texas Street Recreation Center (James M. Seals, Jr. Community Center), Cooper Riverside Park, *USS Alabama* Battleship Memorial Park, Meaher State Park and natural areas along the Causeway.

The Texas Street Recreation Center (James M. Seals, Jr. Community Center) is located on the west side of I-10 in the vicinity of Texas Street (**Figure 2c**). This 29.5-acre property is administered by the City of Mobile. Facilities include a gymnasium, meeting rooms, parking, and playing fields (Mobile, 1998). There will be no land acquired from the Texas Street Recreation Center. The recreation area currently operates adjacent to an interstate highway and would be able to continue to function with the Build Alternatives.

Cooper Riverside Park is a 4-acre City of Mobile park located on the western shore of the Mobile River north of the proposed bridge crossings (**Figure 2c**). The park contains walking paths, benches, and restroom facilities. The Mobile Convention Center is located north of Cooper Riverside Park, and the City of Mobile's maritime center GulfQuest is being constructed south of this park. There will be no direct impacts to Cooper Riverside Park.

The *USS Alabama* Battleship Memorial Park is located south of the Causeway, approximately 1.6 miles west of the I-10 Mid-Bay interchange (**Figure 2d**). The park is owned and operated by the USS Alabama Battleship Memorial Park Commission, a state agency. This 155-acre park is an important tourist attraction; it is home to two National

Historic Landmarks (NHL), the Battleship *USS Alabama* and the *USS Drum*, a World War II submarine. The park also has an aircraft pavilion that houses 24 warplanes as well as helicopters and a flight simulator. A fishing pier has been added to the site.

Since its opening in January 1965, the *USS Alabama* Battleship Memorial Park has produced over $250 million in direct economic benefits and more than $500 million in indirect economic benefits from the sale of admission tickets (*USS Alabama*, 2013). There will be no direct impacts to *USS Alabama* Battleship Memorial Park or the two NHLs. There will be no adverse effects on the *USS Alabama* Memorial Park or the NHLs provided access and signage is maintained. This resource is further discussed in **Section 4.16.4.2**, Historic Resources.

Meaher State Park is a 327-acre park with boat ramps, a fishing pier, day-use picnicking areas, camping hook-ups, and nature trails. Meaher State Park lands are located on both the south and north sides of the Causeway on the west side of the Blakeley River in Spanish Fort, Alabama (**Figure 1**). The park is owned and operated by the State of Alabama Department of Conservation and Natural Resources (ADCNR). An ADCNR on-site park official was interviewed regarding the Bayway Widening as it relates to Meaher State Park. ADCNR relayed that the boundaries of Meaher State Park do not extend to the existing Bayway. By widening the Bayway to the inside, potential impacts to Meaher State Park are avoided. The Alabama Department of Economic and Community Affairs (ADECA), the state agency responsible for Section 6(f) compliance, reviewed the proposed Bayway widening as it relates to Meaher State Park. ADECA determined that by widening the Bayway to the inside, any potential impacts to property designated as outdoor recreational use under Section 6(f) of the Land and Water Conservation Act of 1965 are avoided (**Appendix A**). There will be no direct impacts to Meaher State Park.

The Causeway Coalition, a citizen-based organization, received a Department of Transportation grant to consider conversion of the Causeway to a scenic byway in December 2002. In 2012, portions of the Causeway, from the *USS Alabama* Battleship Memorial Park eastward into Baldwin County, became The Tensaw Parkway.

The Tensaw Parkway is a state-designated Scenic Byway. The Tensaw Parkway and the Eastern Shore National Recreation Trail share the same location along the Causeway (**Figure 2d through 2e**). Impacts to the Tensaw Parkway are the same as stated above for the Eastern Shore National Recreation Trail. When the two resources reach the eastern shore of Mobile Bay in Spanish Fort, the Tensaw Parkway turns north and continues out of the study area. The Eastern Shore National Recreation Trail turns south and crosses under existing I-10 along with the I-10 Scenic Underpass Trail.

The Mobile-Tensaw Delta (Delta) is Alabama's largest river delta and wetland; because of its uniqueness, it has been placed on the National Register of Natural Landmarks (NRNL). The Delta extends from the confluence of the Tombigbee and Alabama Rivers to near the Causeway. The land included in the W.L. Holland and Mobile-Tensaw Delta Wildlife Management Areas is located north of the Causeway and will not be impacted by the proposed Build Alternatives **(Figure 1**).

The ADCNR public boat access is an existing public access point located along the Causeway (**Figure 2e**). The boat ramps and parking were developed in the vicinity of the existing I-10 Bayway and the Causeway and will not be impacted by the proposed Build Alternatives.

4.4.8 Heritage Tourism

As one of the oldest cities in the United States, the City of Mobile is very rich in historic resources. The City of Mobile, the MACC, the Mobile Bay Convention and Visitors Bureau, Downtown Mobile Alliance, and a number of historic groups are developing heritage tourism opportunities for visitors to experience Mobile's history. These opportunities are exemplified by the multitude of historic buildings, sites, and districts that provide insight into Mobile's history and the evolution of the region's social and economic setting over the past 300 years.

The proposed Build Alternatives for the I-10 Mobile River Bridge and Bayway Widening project are being developed while taking into consideration input from stakeholders. Through research and from input received from interest groups relating to historic resources, it is likely the project will have some impact on certain well-defined self-

guided driving tours, downtown walking tours, and bus tours of downtown Mobile. For example, the Mobile African American Heritage Trail (MAAHT) is a trail designed for school bus or group tours. The trail begins at Mobile Museum located at 111 South Royal Street in the vicinity of the proposed I-10 Mobile River Bridge project (**Figure 2c**). The proposed project may have visual impacts on the first and last leg of the tour. The first leg of the tour travels along Royal Street toward St. Louis Street. The last leg of the tour returns to Royal Street and the Mobile Museum via Church Street. Alternative C would have less visual impacts than Alternatives A, B, and B' (Preferred).

Other groups that host historic resource tours include the Historic Mobile Preservation Society (HMPS) and the Mobile Historic Development Commission (MHDC). The tours offered by these groups vary from year to year by typically visiting existing historic resources in downtown Mobile. It is likely that the proposed project will have some visual effects on these tours due to the elevated bridge structures.

4.4.9 Impacts on Tourism

According to the Mobile Bay Convention and Visitors Bureau, the tourism industry employs more than 15,000 people, and the Mobile Bay area welcomes more than 2.5 million visitors each year to attractions like the Gulf Coast Exploreum and IMAX Theater, *USS Alabama* Battleship Memorial Park and other tourist attractions. The GulfQuest Maritime Museum, under construction, is expected to add to the tourist attractions in the Mobile area.

4.4.9.1 No Build Alternative

The No Build Alternative would result in increased congestion at the I-10 Wallace Tunnels and along I-10 within the project study area. As stated previously, increased congestion could cause potential visitors to avoid the downtown Mobile area and its associated tourist attractions. In addition, increased congestion could cause drivers to use alternate routes that do not pass through the Mobile area to avoid the congestion on I-10 within the project study area.

4.4.9.2 Build Alternatives

The Build Alternatives would improve transportation conditions within the project study area, making tourist attractions within the project study area more easily accessible. The proposed project is not projected to have any adverse impacts on the Gulf Coast Exploreum and IMAX Theater or other downtown tourist attractions. Alternative A would have indirect impacts on GulfQuest during construction of the bridge. Activities related to constructing a bridge pylon for Alternative A would create temporary inconvenience for access to GulfQuest until construction is complete. The construction activities, including truck traffic and excavations, would take place very close to the museum. No impacts to the cruise ship industry were identified in **Section 4.3.3**. The proposed project is not expected to have any adverse impacts on the *USS Alabama* Battleship Memorial Park. There is speculation from some interest groups that the visual appearance of a bridge would be detrimental to tourism and the economies of downtown Mobile. Likewise, there is speculation that the bridge could become a tourist attraction and improve the downtown business economy. With consideration of the many other factors that influence tourism and business, including accessibility and parking, it is not practicable to accurately determine these types of impacts.

4.5 Infrastructure

4.5.1 Utilities

Several utilities are located within areas that will be acquired as ROW. A list of utility companies with facilities within the project area is included in **Table 14** below.

Table 14: Utility Owners

Service	Utility Owner
Electricity	Alabama Power Company, Rivera Utilities
Telephone/Cellular Service	BellSouth Telecommunications, Delta Com, Verizon Business, AT&T, SOLight, XSpedius, Media Com, Level 3, Madison River Com, Interstate Fiber Net
CATV	Comcast Cable
Gas	Mobile Gas Company
Water and Sewer	Mobile Area Water and Sewer System, Daphne Utilities, Fairhope Utilities

An assessment of potential impacts to utilities or energy resources located within the project study area was performed for the proposed project. The results of this assessment are shown in **Table 15**. Alternatives B and B' (Preferred) have the highest utility relocation cost at $5,256,000.

Table 15: Utility Relocation Cost

Utility Relocations	Proposed Conflict Relocation Cost		
	Alternative A	**Alternative B and B' (Preferred)**	**Alternative C**
MAWSS -Water & Sewer	$2,462,000	$2,791,000	$2,131,000
Alabama Power	$1,350,000	$1,500,000	$1,375,000
Mobile Gas	$198,000	$190,000	$48,000
Bellsouth	$0	$100,000	$0
Delta Com	$0	$0	$75,000
Verizon Business	$225,000	$225,000	$225,000
XSpedius	$250,000	$250,000	$250,000
Southern Light	$100,000	$100,000	$100,000
AT&T	$100,000	$100,000	$100,000
Total Relocation Cost	$4,685,000	$5,256,000	$4,304,000

4.5.2 Railroads

The Mobile area is served by six railroads, including five Class-I railroads. The five Class-I railroads are Burlington Northern, Canadian National Railroad, CSX Transportation, Kansas City Southern, and Norfolk-Southern. Burlington Northern and Norfolk Southern serve major industrial sites along the Mobile River and extend south to the Alabama State Docks at the Port of Mobile. CSX serves the Theodore Industrial Park in southwest Mobile County, as well as the Brookley Industrial Complex. CSX parallels I-10 in downtown Mobile. Canadian National Railroad serves the western areas of Mobile and Prichard. The five Class-I railroads converge at the Port of Mobile, providing intermodal service for imports and exports. The Central Gulf Railroad provides rail ship service to Coatzacoalcos, Mexico (MACC, 2007).

The proposed project would not directly impact any railroads located within the project study area. CSX Transportation and Canadian National Railroads are the railroads with tracks that could be affected by the proposed project.

A permit from CSX Transportation, Inc. will likely be required for any of the Build Alternatives crossing over the CSX railroad tracks located between I-10 and the Mobile River. A permit from Canadian National Railroad would likely be required for the Alternative C interchange modifications at the I-10/Virginia Street interchange (**Figure 2b**).

4.5.3 Navigation

4.5.3.1 Three Mile Creek Turning Basin

The existing Three Mile Creek Turning Basin is located approximately 2.5 miles north of the Wallace Tunnels (**Figure 1**). The maximum size deep draft (greater than 25 feet) vessel that can be turned in this turning basin is 850 feet under general conditions. Vessels with lengths greater than 850 feet must be turned under special conditions, including advance coordination with harbor officials to ensure that adequate turning space is available within the harbor. The Harbormaster stated that container ships with a length of 965 feet turned in this turning basin 2-3 times a week for over a year prior to opening of the Pinto Island Turning Basin (**Appendix C**). The existing Three Mile Creek Turning Basin is used by virtually all vessels currently calling ports and shipyards along the Mobile River near downtown. These vessels would pass under the four Build Alternatives. Neither the No Build nor the four Build Alternatives will affect the Three Mile Creek Turning Basin.

4.5.3.2 Pinto Island Turning Basin

The USACE issued Public Notice FP-06-MH13-10 on December 19, 2006, to notify interested parties that the USACE, Mobile District, proposes to construct a turning basin in the vicinity of the McDuffie Terminal as part of the Mobile Harbor Federal Navigation Project in Mobile County, Alabama. The Pinto Island Turning Basin was completed in 2010 (**Figure 1**). The Pinto Island Turning Basin is relevant to the proposed project because, prior to its construction, vessels using the McDuffie Terminal and the APM Terminal had to use the upstream Three Mile Creek Turning Basin. To reach the Three Mile Creek Turning Basin, vessels would have to navigate under any of the proposed I-10 Bridge locations. The Pinto Island Turning Basin now eliminates the need for vessels

accessing these terminals to navigate under the proposed bridge. Neither the No Build nor the four Build Alternatives would affect the Pinto Island Turning Basin.

4.5.3.3 River Navigation

The proposed project will result in temporary impacts to navigation during construction. Navigation clearance has been coordinated with the USCG, Harbormaster, and other maritime interests to provide adequate horizontal and vertical clearance for the Mobile Harbor Federal Navigation Channel. The Mobile Harbor Federal Navigation Channel does not have a guide navigation clearance specified by USCG. When guide clearance does not exist, the horizontal and vertical clearance of the proposed bridge projects necessary to meet the reasonable needs of navigation are determined on a case-by-case basis (**Appendix C**). An ADC of 215' is the proposed vertical clearance for the Mobile River Bridge project. The horizontal clearance ranges from 1,000 feet to 1,250 feet, and was established based on the width of the Mobile Harbor Federal Navigation Channel and designated berthing areas. Alternative A would have a bridge pylon in the Mobile River east of and outside the navigation channel that would be armored to protect against potential ship or barge collision. Alternatives B, B' (Preferred) and C would have bridge pylons that are located on piers or in slips that are outside the navigation channel and are generally landward of the banks of the Mobile River. It is likely that bridge pylons for Alternatives B, B' (Preferred), and C will not require armoring. The No Build Alternative will not impact navigation.

In addition to the Mobile Harbor Federal Navigation Channel being spanned by any of the proposed bridge alternatives crossing the Mobile River, the Bayway widening for all alternatives will cross the Tensaw, Apalachee, and Blakeley Rivers (**Figure 1**). Navigation clearances for these rivers were established by the construction of the existing Bayway. The Tensaw River has guide navigation clearances of 100 feet horizontal and 24 feet vertical; the Apalachee River has guide navigation clearances of 50 feet horizontal and 16 feet vertical; and the Blakeley River has guide navigation clearances of 50 feet horizontal and 16 feet vertical. All Build Alternatives will provide the same horizontal and vertical navigation clearances as the existing Bayway.

Additional coordination with the USCG, USACE, and the Harbormaster will be conducted throughout the EIS, design, and permitting phases of the project to develop permit conditions related to navigation.

4.6 Geology and Hydrogeology

The project area is entirely within the East Gulf Coastal Plain physiographic section. The Mobile and Tensaw Rivers have produced alluvial and terrace deposits, which constitute the Alluvial-Deltaic Plain District (Mooty, 1988). These areas have relatively little topographic relief ranging from 10 to 30 feet on the western shore, to approximately 50 feet on the eastern shore. The western shore of the Mobile River was created through filling activities over a long period of time. The delta area consists of a series of interconnecting rivers, streams, islands, and marshes that are continuously being modified by erosion and deposition. There will be no effect on geology from the No Build or the four Build Alternatives.

The major aquifers in the study area are the Miocene-Pliocene and the Alluvial-Coastal aquifers. These aquifers are hydraulically connected and generally respond to stresses as a single aquifer (Mooty, 1988). Rainfall, which averages 62 inches per year, is the source of aquifer recharge. Ground water discharges to wells, streams, and other water bodies. Recharge areas for the major aquifers are susceptible to surface contamination from hazardous material spills and contaminated sites. The I-10 corridor is included in the ground water areas that are considered highly susceptible to surface contamination (Mooty, 1988). Public drinking water is primarily supplied by surface reservoirs located away from the I-10 corridor and not from Miocene-Pliocene- or Alluvial-Coastal ground water aquifers. The Build Alternatives will lessen the opportunities for spills from vehicles transporting hazardous materials because vehicles will not be required to traverse the CBD and travel an additional 10.5 miles.

4.7 Potential Hazardous Materials Sites

A hazardous materials assessment was performed for the proposed project to locate areas that pose a potential for hazardous materials contamination. The assessment was conducted on areas within and adjacent to the proposed ROW limits for each of the four

Build Alternatives. Fourteen potential hazardous materials sites were identified (**Figure 7**). **Table 16** shows the fourteen potential sites and the alternatives that potentially impact the sites. Each of the sites was a given high, moderate, or low rating based on its potential risk of hazardous materials contamination in relation to the ROW limits. A complete description of the Contamination Risk Evaluation Criteria is also included in **Appendix E**. Hazardous Materials Notifications Forms were completed for the sites and are included in **Appendix E**. The Hazardous Materials Notification Forms will be updated and submitted to the ALDOT for further investigation as dictated by the sites' contamination conditions and types of impacts. ALDOT has agreed with the potential risks displayed in **Table 16** and recommended that all moderate and high-risk sites be further investigated along the preferred alignment in the FEIS to better assess the potential hazardous material impacts to the proposed project. Further site review and subsurface soil and groundwater testing would be conducted by ALDOT where appropriate.

Contaminated areas would be avoided, if possible. If contaminated areas cannot be avoided, remediation actions would be taken in accordance with applicable Federal, state and local laws and regulations.

Table 16: Potential Hazardous Materials Sites

Site	Site Name	Alternative A	Alternative B	Alternative B' (Preferred)	Alternative 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

4.7.1 No Build Alternative

The No Build Alternative will not result in any impacts to potential hazardous materials sites.

4.7.2 Alternative A

Three sites were identified as potential areas of concern along Alternative A. Two sites rated high risk and one site rated as low risk for potential contamination.

4.7.3 Alternative B

Eight sites were identified as potential areas of concern along Alternative B. Five sites rated high risk, two sites rated moderate risk, and one site rated as low risk for potential contamination.

4.7.4 Alternative B' (Preferred)

Seven sites were identified as potential areas of concern along Alternative B' (Preferred). Four sites rated high risk, two sites rated moderate risk, and one site rated low risk for potential contamination.

4.7.5 Alternative C

Nine sites were identified as potential areas of concern along Alternative C. Three sites rated high risk, four sites rated moderate risk, and two sites rated low risk for potential contamination.

0 800 1,600 3,200 Feet

1 inch = 1,600 feet

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

Department Of Transportation

Figure 7
I-10 Mobile River Bridge and Bayway Widening
HazMat Sites
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 7 - Hazmat Sites.mxd

4.8 Relocation Impacts

The Preliminary Project Relocation Analysis is included in **Appendix F**. Because of existing development of the maritime industry along the Mobile Harbor Federal Navigation Channel in the vicinity of the four proposed Build Alternatives, ALDOT has adopted an acquisition and relocation approach to minimize impacts to the maritime industry. ROW required for construction would be acquired. This primarily involves land required for construction of pylons and bridge support piers (**Figures 2, 2c and 2d**). Water-dependent maritime operations will be allowed, with certain restrictions, to utilize the land under the bridge for operational and other purposes that do not compromise the integrity and use of I-10. Depending upon the selected Build Alternative, ALDOT will determine appropriate restrictions on use of lands underneath the elevated structures on a case-by-case basis during the ROW acquisition and relocation phase. Non-water-dependent businesses and residences would not be allowed to remain under the elevated structures.

4.8.1 No Build Alternative

The No Build Alternative would not result in any relocation impacts.

4.8.2 Alternative A

There would be no residential or business relocations associated with the Alternative A. Two parcels would have to be acquired to construct Alternative A.

The first parcel is located on the western shore of the Mobile River between the Alabama Cruise Terminal and the GulfQuest Maritime Museum and is owned by the City of Mobile. The pier for the west bridge pylon would be placed in this area. The pier location has been coordinated with the city's consultant for the GulfQuest Maritime Museum, and the footprint for the pier has been minimized to limit impacts. The land under the bridge that is not occupied by the pier could be used for other purposes, such as parking or other activities. The amount of land to be acquired, and any use restrictions on the land under the bridge, would be established by ALDOT in coordination with the City of Mobile.

The second parcel would have to be acquired from Harrison Brothers Dry Dock. Harrison Brothers Dry Dock provided dry dock services for ships along the Mobile River. One of the main bridge supports would be placed in the canal Harrison Brothers used to perform ship repairs. In May 2012, Harrison Brothers announced the closing of its operations and placed its property on the market for lease.

4.8.3 Alternative B

Alternative B would potentially relocate thirteen businesses including: Delta Bail Bonding Company, Outlaw Bail Bonding Company, Discount Bail Bonding Company, Bond Max Bail Bonding Company, James Bail Bonding Company, James Darley Esq. Law Office, Bandit Bonding Company, Blackwell's Towing Company, Bender Union Hall (vacant storage), South Royal Street Vacant Metal Building, South Royal Street Vacant Concrete Building, South Royal Street Vacant Metal Warehouse, and Southern Fish & Oyster Company.

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. Alternative B will require the acquisition of these businesses. The Metro Mobile Jail Complex is located in a developed commercial/industrial area with vacant buildings 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. Alternative B will require the acquisition of this business.

Southern Fish and Oyster Company is a fourth-generation, family-owned business that has been at its current location for 50 years. They provide fresh seafood to the public. At this waterfront location, fishing vessels can pull right up to the door of the business. The business will be acquired for Alternative 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.

The Old Union Hall, formerly used for storage by Bender Shipbuilding and Repair Company would be acquired. The building is currently vacant and has been offered for sale. The remaining businesses are vacant storage facilities and warehouses that once supported the shipbuilding industry. These properties are currently available for rent. ROW would have to be acquired from Harrison Brothers and Austal, but these businesses could still operate. Impacts to these properties are described in **Section 4.3.4**.

4.8.4 Alternative B' (Preferred)

Alternative B'(Preferred) would potentially relocate twelve businesses including: Delta Bail Bonding Company, Outlaw Bail Bonding Company, Discount Bail Bonding Company, Bond Max Bail Bonding Company, James Bail Bonding Company, James Darley Esq. Law Office, Bandit Bonding Company, Blackwell's Towing Company, South Royal Street Vacant Metal Building, South Royal Street Vacant Concrete Building, South Royal Street Vacant Metal Warehouse, and Southern Fish & Oyster Company.

The businesses relocated for Alternative B' (Preferred) are similar to the impacts described previously for Alternative B with the exception of the Bender Union Hall (vacant storage), that would not have to be relocated.

ROW would have to be acquired from Harrison Brothers and Austal, but these businesses could still operate. Impacts to these properties are described in **Section 4.3.4**.

4.8.5 Alternative C

Alternative C would potentially relocate four residents and thirteen businesses including: Dyer Trucking Company, Mellow Yellow Kitchen Catering, Neptune's Daughters Float Storage 1, Neptune's Daughters Float Storage 2, Refined Oil Products, Merritt Oil Company, Radio Holland USA, Liz's Bar Vacant, Abandoned Commercial Building, Gulf City Body & Trailer Works, Atlas Ship Services, Pratt's D.E. Ship Supplies, and

One Hour Bonding. Two municipal facilities, Mobile County Sheriff's Office and the Mobile County Jail Barracks would have to be relocated.

Dyer Trucking is an owner-operated regional trucking operation. Alternative C will require the acquisition of this business. It is unlikely that the business will be able to continue to operate at this site.

Mellow Yellow Kitchen Catering appears to be in-use and it is believed this business is owner-occupied. Alternative C will require the acquisition of this business. 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. 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. Alternative C will require the acquisition of this business. 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. Alternative C will require the acquisition of this business. 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. Alternative C will require the acquisition of this business. 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. Alternative C will require the acquisition of this business. 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 un-occupied dilapidated building. Alternative C will require the acquisition of this business. 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. Alternative C will require the acquisition of this business. 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. Alternative C will require the acquisition of this business. 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. Alternative C will require the acquisition of this business. 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 singlewide trailer that appears to be movable. Alternative C will require the acquisition of this business. 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 Sheriff's campus encompassing several blocks along Conception, St. Emanuel, and Royal Streets. Alternative C will require the acquisition of the office building and the barracks.

The businesses and facilities that require relocation are in a developed commercial/industrial area with vacant buildings available. Therefore, no problem with finding an adequate replacement location for these businesses or facilities is anticipated.

ROW would have to be acquired from Signal Shipbuilding, BAE, and Austal, but these businesses could still operate. Impacts to these properties are described in **Section 4.3.4**.

4.8.6 Relocation Assistance Advisory Service

The acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and relocation resources will be made available to all residential and business relocatees without discrimination.

The Relocation Assistance Advisory Service offered by the ALDOT is designed to help displacees find a new place to live or in which to do business. Relocation assistance will determine the needs of displaced families, individuals, and business concerns without regard to race, color, religion, sex, or national origin. Services will be offered within sufficient lead-time prior to the need for replacement housing. This housing must be available fair housing open to all persons regardless of race, color, religion, sex, or national origin. It must meet the decent, safe, and sanitary standards of the state law and applicable local housing and occupancy codes and be adequate to accommodate the relocatee. Relocation of displaced persons will be made in areas not generally less desirable in regard to public utilities and public and commercial facilities, including public transportation. Rents and sale prices of replacement housing offered must be priced within the financial means of the families and individuals displaced. Businesses being acquired would be provided moving costs, reestablishment costs up to $10,000 or in-lieu payments up to $20,000, depending on their situation. Moving costs include actual move expenses, search expenses ($2,500 maximum), substitute personal property, advisory services for obtaining permits, zoning issues, etc., and up to one year of storage.

It is a policy of the state that no person to be displaced by the ALDOT's construction projects shall be required to move from his or her dwelling unless at least one comparable replacement dwelling has been made available to the person.

Replacement properties would be made available equal in number to the number of displaced families and individuals, in the same general area from which they are being displaced, and in locations reasonably accessible to their places of employment. The relocation officer will also assist owners of displaced businesses in obtaining and becoming established in suitable locations. This will include explaining to and exploring

with all displacees all options available to them, such as (1) purchase of replacement housing (whether displacees are owner-occupants or renter-occupants), (2) rental of replacement housing (private or public), or (3) relocating existing owner-occupant housing.

Information concerning the Federal Housing Administration home acquisition program, the Farmer's Home Administration home acquisition program, the Small Business Administration loan programs, and other state and Federal programs offering assistance will be provided to displaced persons.

ALDOT will coordinate with water-dependent maritime industries that require ROW acquisition for construction in order to minimize impacts and establish provisions for continued operations under the elevated structures, on a case-by-case basis.

4. 9 Disruption of Neighborhoods/Communities (Community Cohesion)

Two locally recognized neighborhoods are identified in proximity to the project. The Church Street East Neighborhood is within the Church Street East Historic District and is primarily interested in maintaining the historic character of their neighborhood. The East Church Street Development Association, Inc., an incorporated domestic non-profit corporation, represents the Church Street East Neighborhood. The Central Texas Street Neighborhood is south of the Church Street East Historic District. The location of the Church Street East Neighborhood and the Central Texas Street Neighborhood are shown on **Figure 2**. The population of Central Texas Street Neighborhood is predominately African-American. The neighborhood is bounded by Canal Street, I-10, and Broad Street. Two neighborhood-based citizen organizations, the Central Texas Street Neighborhood Association and the Down the Bay Community Organization, represent this area. The citizens in the neighborhood are interested in preserving and promoting the quality of life in the area.

4.9.1 No Build Alternative

The No Build Alternative would not result in impacts to neighborhoods or communities.

4.9.2 Alternative A

The Church Street East Neighborhood is in close proximity to the proposed bridge, especially the eastern portion that contains the mixed-use residential/commercial Fort Condè Village. The Fort Condè Village is presently encircled by entrance and exit ramps of I-10 and this will not change. The only change will be the visual appearance of a new bridge to the south and east of the Fort Condè Village.

There will be lanes added to I-10 and interchange modifications will be required at the I-10/Broad Street and I-10/Virginia Street interchanges. The I-10/Texas Street interchange will be permanently closed. These activities would be accomplished within existing I-10 ROW adjacent to the Central Texas Street Neighborhood and would not disrupt community cohesion.

4.9.3 Alternatives B and B' (Preferred)

The Church Street East Neighborhood would not be affected. The modifications adjacent to the Central Texas Street Neighborhood would be similar to Alternative A and would occur within existing ROW. Alternatives B and B' (Preferred) will not disrupt community cohesion.

4.9.4 Alternative C

The Church Street East Neighborhood would not be affected. Alternative C will have impacts near the Virginia Street interchange due to residential relocations and additional ROW to the east of I-10 would be required in this area. These relocations are on the east side of I-10 across from the Central Texas Street Neighborhood. Community cohesion would not be disrupted.

4.9.5 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, signed by the President on February 11, 1994, directs Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of Minority and Low-Income populations to the greatest extent practicable

and permitted by law. Further guidance on Environmental Justice and NEPA is provided in a 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.

Section 4.4 (Socio-Economic Environment) provides data on Minority and Low-Income populations as defined by the above order and guidance. The primary Minority/Low-Income populations of concern are located in Census Blocks 11 and 12 in the Central Texas Street Neighborhood and census blocks 13.02 and 15.02, west and south of the neighborhood, as shown on **Figure 6**. Two Minority citizen organizations, the Central Texas Street Neighborhood Association and the Down the Bay Community Organization, represent this area. The boundaries of the Central Texas Street Neighborhood are shown on **Figures 2 and 6**. The Central Texas Street Neighborhood is the Minority/Low-Income Environmental Justice community in the study area.

In an effort to assure opportunities for Environmental Justice populations to provide input to the NEPA process, a workshop meeting and public involvement meetings for the project have been conducted at the Texas Street/James Seals, Jr. Recreational Center that is located in the Central Texas Street Neighborhood. A workshop meeting was conducted with the Central Texas Street Neighborhood Association and the Down the Bay Community Organization on October 9, 2001. The workshop provided a forum to explain the project and its implications, to answer questions, to listen to concerns, and to gain an understanding of neighborhood issues. A resume of the workshop is included in **Appendix A**. Public involvement meetings for the project were held at the Texas Street/James Seals, Jr. Recreational Center on December 9, 2003, and August 31, 2010.

The I-10 corridor has existed for almost 40 years. The proposed transportation improvements will be confined to existing ROW, except in the areas east of I-10, minimizing disruption of the Central Texas Street Neighborhood, which is located west of I-10. All Build Alternatives would have essentially the same impact to Environmental Justice populations in the Central Texas Street Neighborhood. Potential impacts in the Central Texas Street Neighborhood and residences east of I-10, related to roadway

improvements include relocations, closure of the I-10 Texas Street interchange, noise, lighting, drainage, and visual impacts.

Alternatives A, B, and B' (Preferred) would not require any Minority relocations. Alternative C would require four Minority relocations. These relocations would be required due to modifications of the I-10/Virginia Street interchange on the east side of I-10 across from the Central Texas Street Neighborhood. Replacement housing is available for these Minority relocations to be relocated in proximity to the Central Texas Street Neighborhood.

The permanent closing of Texas Street interchange for all four Build Alternatives will be an inconvenience to Central Texas Street Neighborhood residents that currently use this interchange. The local street network and close proximity of the Virginia Street interchange will serve as alternatives for access to I-10 (**Figure 2**). West of I-10, South Washington Avenue provides a direct connection between Texas Street and Virginia Street. East of I-10, South Conception Street provides a direct connection between Texas Street and Virginia Street. From the Texas Street/South Washington Avenue intersection, the additional travel distance to reach the I-10 overpass at Virginia Street is approximately 1,900 feet (0.36 mile) via South Washington Avenue and Virginia Street. An additional 3,000 feet of travel distance is required from the same intersection to the I-10 overpass at Virginia Street via Texas Street and South Conception Street. The South Washington Avenue option will likely be the most utilized. Currently, South Washington Avenue and Virginia Street are three-lane roadways with adequate capacity for any additional traffic that will be generated as a result of closing the Texas Street interchange.

Because the detour route for the transport of hazardous materials does not involve the Central Texas Street Neighborhood, there will be no impacts related to the transfer of hazardous materials from the CBD to I-10, under the Build Alternatives.

The Central Texas Street Neighborhood is experiencing noise impacts now and those impact levels will increase in the future due to increasing traffic on I-10. However, the increase in noise levels over the next 20 years will be approximately 2 dBA for most

noise receptors. This small increase in noise over such a long duration will not be perceptible to receptors. Noise levels will increase slightly, but noise impacts will be similar for both Build and No Build conditions (**Section 4.13 and Appendix H**).

The I-10 roadway is currently lighted. The light emitted from the proposed cable-stayed bridge at elevations above 200 feet would be approximately 0.1 foot-candles at ground level within 150 feet of the bridge. The light intensity would be equivalent to moonlight. Lighting associated with the bridge approaches, ramps and roadway widening will be designed so that light levels at the ROW boundary will be less than or equal to the existing light levels. Lighting fixtures with exterior shielding will reduce the light levels emanating to areas out the ROW.

The Central Texas Street Neighborhood experiences drainage problems that are common throughout downtown Mobile. As Mobile has developed and impervious area has increased, the amount of peak runoff has increased and exceeded the capacity of the existing stormwater collection systems causing localized flooding of streets during heavy rain events. The project's surface runoff collection and retention systems will be designed to prevent increased drainage problems.

The proposed bridge would create a new visual appearance for the area. Opportunities to enhance visual effects and improve aesthetics will be coordinated during the design phase.

The identified potential impacts do not rise to a level of disproportionate adverse impacts to human health, social, or economic conditions for Minority/Low-Income populations. No disproportionately high and adverse effects were identified as predominantly borne by Minority/Low-Income populations. No adverse effects were identified that would be incurred by Minority/Low-Income populations that are appreciably more severe or greater in magnitude than adverse effects on non-Minority or non-Low-Income populations.

4.10 Floodplain Impacts

Section 60.3(d)(3) of the National Flood Insurance Program (NFIP) states that a community shall prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practices that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base (100-year) flood discharge.

The cities of Mobile, Daphne, and Spanish Fort administer the NFIP within their city limits. Baldwin County administers the NFIP in unincorporated portions of the study area in Baldwin County. The NFIP's Flood Insurance Rate Maps (FIRM) covering the project area is included in **Appendix G**. FIRM mapping indicates the project would involve some floodplain encroachment. A Location Risk Assessment Record for floodplain encroachment was prepared for each Build Alternative per 23 CFR 650 (**Appendix G**). The encroachment is similar for all alternatives and the project would be designed to avoid raising the base flood level in the project area. The No Build Alternative will not impact floodplains.

A regulated floodway goes under the existing I-10 at Tennessee Street. The floodway traverses the I-10 ROW via an underground culvert. Another underground culvert traverses the I-10 ROW at the Virginia Street interchange. Neither of these culverts would be affected by the proposed improvements.

Portions of the bridge and the Bayway would be constructed in a V-Zone that is subject to storm surges and high wind and water velocities. The structures would be designed to be anchored to resist flotation, collapse, and lateral movement due to the combined effects of wind and water. A V-Zone Design Certificate will be required prior to construction.

The proposed structures will have an effective waterway opening equal to or greater than existing structures, and backwater surface elevations are not expected to increase. As a

result, there will be no impacts on natural and beneficial floodplain values, there will be no significant change in flood risks, and there will be no increase in potential for interruption or termination of emergency service or emergency evacuation routes; therefore, it has been determined that these encroachments will not be significant. In conclusion, the four Build Alternatives are feasible and acceptable from a flood risk standpoint.

The following considerations have been observed in relation to the proposed project:

- There is minimal potential for the interruption of any roadway which is needed for emergency vehicles or provides an evacuation route;
- There is minimal adverse impacts on the natural and beneficial floodplain values;
- There is minimal associated increased flood risk;
- There is avoidance of longitudinal encroachment;
- Special design measures will be required for structures in the V-Zone; and
- Coordination will be maintained with the City of Mobile Engineering Department, the cities of Daphne and Spanish Fort, as well as Baldwin County.

4.11 Farmland Impacts

The Farmland Protection Policy Act (FPPA) does not apply to the proposed project because Mobile and Daphne are urbanized areas per the U.S. Census Bureau. The proposed project is to be constructed predominantly on bridge over water or over existing industrial sites. At-grade construction will be within existing roadway ROW with the exception of Alternative C.

4.12 Water Quality and Biological Resources

Water quality regulatory programs, such as those under the CWA, are initiated and implemented to protect, maintain, and improve the quality of water supplies for domestic uses, wildlife, fish, agricultural, industrial, recreation, and other uses. Criteria have been established for each water use classification recognized by the State and are intended to ensure that water resources are utilized in a manner in which their quality is not degraded.

The following water use classifications have been established:

1) Outstanding Alabama Resource Water
2) Public Water Supply
3) Swimming and Other Whole Body Water-Contact Sports
4) Shellfish Harvesting
5) Fish and Wildlife
6) Limited Warm-water Fishery
7) Agricultural and Industrial Water Supply

These water use classifications are utilized by the ADEM Water Division for interstate and intrastate waters to apply water quality criteria for each of the particular uses. The Mobile River in the vicinity of the proposed project is classified as Limited Warm-water Fishery Use. Mobile Bay in the vicinity of the proposed project is classified as Fish and Wildlife Use (ADEM, 2010).

Section 303(d) of the CWA requires that each state identify those waters that do not currently support designated uses and to establish a priority ranking of these waters by taking into account the severity of the pollution and the designated uses of such waters. For each water body on the list, the state is required to establish a TMDL for the pollutant or pollutants of concern at a level necessary to implement the applicable water quality standards. Three water bodies within the project study area are listed on the Final 2012 Alabama 303(d) list. These water bodies are the Mobile River, from Mobile Bay to Spanish River; Joes Branch, from its source to D'Olive Creek; and D'Olive Creek, from its source to D'Olive Bay. The Mobile River is listed as impaired due to exceedances of metals (mercury) from atmospheric deposition. A TMDL for the Mobile River is scheduled to be established in 2018. Joes Branch and D'Olive Creek, in Baldwin County, are both listed for siltation (habitat alternation) due to land development (**Figure 2f**). Both of these streams are classified for fish and wildlife utilization. The TMDLs for these waters bodies are scheduled for 2013 (ADEM, 2012).

Construction of the proposed I-10 bridge would traverse an ADEM 303(d) impaired water body at the Mobile River. Construction activities west of the eastern termini could

also affect Joes Branch and D'Olive Creek. This will require a Stormwater Management Plan that demonstrates that runoff from the project will not adversely affect these streams be submitted to ADEM for review, prior to the issuance of a NPDES permit. Water quality conditions that exist at the time of construction will be evaluated to determine if any special water quality control measures are required. The proposed improvements would create approximately 105 acres of impervious surface due to added lanes to existing I-10 in the City of Mobile, the new bridge and the Bayway Widening. Ninety-five percent of the new impervious surface would be over water, wetlands, and existing impervious surfaces and would not create additional runoff. The remaining five percent, approximately 5.5 acres, would only create minor increase in runoff volumes for Alternatives A, B, B' (Preferred), and C when compared to the No Build Alternative.

4.12.1 Water Resources Impacts

Portions of the following water bodies are located in the study area: Mobile River, Mobile Bay, Pinto Pass, Polecat Bay, Chacalochee Bay and the Tensaw, Apalachee, and Blakeley Rivers. The Wallace Tunnels and the Bayway currently span all the water bodies, except Pinto Pass. Water quality in the Mobile Bay system is not expected to degrade as a result of the proposed I-10 improvements. Stormwater is currently allowed to run off the existing Bayway through scuppers that empty to land or surface waters below. With improved traffic flow, it is anticipated that the amount of pollutants deposited on the roadway, which result from normal traffic, should be reduced due to improved engine fuel burning efficiency and a decrease in the potential for oil or other contaminants that leak from vehicles during traffic delays. There should be no long-term impact to water quality from the completion of the Build Alternatives. For the No-Build Alternative, there would be an increase in contaminants deposited on the roadway during traffic delays. This would produce additional pollution in runoff from the roadway surface that would be adverse to water quality.

4.12.1.1 Water Body Modifications

A rock-armored pier island would surround the eastern pylon pier of the proposed bridge for Alternative A to protect against vessel collisions. The closest distance from the eastern edge of the navigation channel to the rock-armored pier island would be

approximately 218 feet. A pier for Alternative C would be constructed in a BAE Systems berth to the east of the navigation channel. This pier would be protected from vessel collisions since it is within a confined berth. Alternatives B, B' (Preferred), and C will not require rock-armored pier islands. Pier locations for the four Build Alternatives are shown on **Figures 2, 2c, and 2d.** Other structures over water bodies will be on bridges or elevated bridge-like structures (Bayway and crossovers).

4.12.2 Coastal Zone

The project corridor is located within the area designated as the coastal zone as defined by the Alabama Coastal Area Management Program (ACAMP), which is jointly administered by the ADEM, Coastal Division, and the ADCNR, Coastal Section. Agency coordination meetings were conducted in 2000, 2001, and 2011 to explain the proposed improvements, including a new bridge and Bayway widening. The proposed improvements to the existing I-10 will add Bayway widening support piers in the coastal zone. ADEM was concerned about potential impacts to submerged aquatic vegetation (SAV) and mitigation. Coordination with these agencies is documented in **Appendix A**. The coastal zone is defined as those lands and waters below the ten-foot elevation contour. The ACAMP was promulgated in 1981 by the Coastal Area Board in response to the Federal Coastal Management Act of 1972 and later the Coastal Barrier Resource Act (CBRA) of 1982. The CBRA established certain coastal areas to be protected by prohibiting the expenditure of Federal funds for new and expanded facilities within designated coastal barrier units. There are no CBRA designated coastal barrier units within the study area for the proposed project.

4.12.2.1 Coastal Barrier Resources

No lands protected under the CBRA will be impacted by the proposed project.

4.12.2.2 Coastal Zone Impacts

Coastal zone impacts include impacts to SAVs, wetlands, water bodies, and water quality. Potential impacts are addressed in **Section 4.12**. Water quality certification under Section 401 of the CWA and a coastal consistency determination will be required from ADEM prior to the issuance of USACE and/or USCG permits for the proposed

project. The proposed project involves roadway and bridge construction activities that are consistent with ACAMP and that typically receive water quality certification and coastal consistency from ADEM. ALDOT will coordinate with ADEM and develop proper construction best management practices during the permitting process.

4.12.3 Biological/Ecological Resources

Biological and ecological resources in the study area include protected species along with wetland and submerged aquatic areas typically found in the rivers, bays and marshes of coastal Alabama. This section addresses natural resources identified through field review of the study area and coordination with resource agencies.

4.12.3.1 Wild and Scenic Rivers

The proposed project is not located in the vicinity of any river designated wild or scenic under the Wild and Scenic Rivers Act. No direct or indirect impacts to wild or scenic rivers would occur from the Build and No-Build Alternatives.

4.12.3.2 Wetlands and Submerged Aquatic Vegetation (SAV)

Surveys were conducted in June 2000 and July 2001 to determine the extent of wetlands and SAVs along the project corridor and to describe the habitats present along the I-10 Bayway where the roadway widening would occur. In a letter dated February 28, 2002, the USACE confirmed the approximate jurisdictional wetland boundaries for the proposed action. Wetlands and SAVs are important components of Essential Fish Habitat (EFH). EFH is addressed in **Section 4.12.5.1**. Wetlands and SAVs will be surveyed and delineated prior to construction during the permitting phase of the project.

4.12.3.3 Submerged Aquatic Vegetation

SAV beds are the most abundant wetland type in the project corridor. SAV is also considered by many scientists and regulatory agencies to be the most valuable of all wetland types in this area. SAVs identified in the corridor include Wild celery (*Vallisneria Americana*), Wigeongrass (*Ruppia maritima*), and Hydrilla (*Hydrilla verticillata*). All of the SAV species found were field identified from vegetative matter and did not have flowers, fruits or seeds to make positive identification. A publication of

SAV in Mobile Bay has identified Giant eelgrass (*Vallisneria neotropicalis*) and Eurasian watermilfoil (*Myriophyllum spicatum*) in these same locations (Vittor and Associates, Inc., 2004). The Vittor report found Wigeongrass (*Ruppia maritime)* in areas along the western shoreline of Mobile Bay and near the Battleship. SAV is well known for the ephemeral quality of beds of vegetation. Between survey years, the spatial coverage, distribution, and species composition of SAV in coastal Alabama has been demonstrated to be variable (Vittor & Associates, 2004). In general, however, the amount of SAV in Mobile Bay has been declining since the late 1950's. During this time, there has also been an increase in invasive SAV species in both spatial coverage and species numbers. Eurasian watermilfoil (*Myriophyllum spicatum*) and Hydrilla (*Hydrilla verticillata*) are considered to be the two most persistent and problematic of the invasive SAV species found in the Mobile Bay region.

The temporal loss of SAV acreage between years is directly related to salinity changes in the water column, especially in areas dominated by species that are more ecologically suited to freshwater conditions. The I-10 and Causeway corridors in general mark the normal boundary between the more saline waters of the bay and the freshwater habitats that are found within the delta for the numerous rivers flowing into the bay.

Substantially more SAV was found in June 2000 than was found in July 2001. Low precipitation in both years appears to have led to increased salinity located in the river discharge areas of the Mobile Bay delta. The loss of SAV in the project area is considered temporary, as the SAVs tend to be more or less prolific in response to environmental conditions. For the purpose of this DEIS, the maximum amount of SAV observed is used. The temporary impacts to SAVs will be associated with construction of the Bayway Widening and will be the same for all four Build Alternatives.

A total of 33.4 acres of SAV are located in the corridor (Volkert, 2001). In their confirmatory letter from 2002, the USACE stated that because of "drastic change" in vegetation reported between the surveys conducted in 2000 and 2001, an inspection should be conducted prior to commencement of construction (**Appendix A**).

A SAV survey will be conducted prior to construction to assist in determining appropriate mitigation measures.

4.12.3.4 Emergent Wetlands

Emergent wetlands occur in the areas where the Bayway crosses rivers. Sediment carried by the rivers has contributed to deposition. Emergent vegetation grows on the shallow mud flats. The vegetation is exposed to tidal forces and their root zones become inundated on high tides. The growth habits of these plant species contribute to the further deposition of sediment and can result in a very diverse community of species that can include woody species in some instances.

The emergent wetlands described include estuarine intertidal habitat that include emergent and scrub/shrub vegetative communities. Species observed included: Common Reed (*Phragmites australis*), Green arum (*Peltandra virginica*), Black needle rush (*Juncus roemerianus*), Saltwater cordgrass (*Spartina alterniflora*), and Cattail (*Typha* spp.).

4.12.3.5 Forested Wetlands

Forested wetlands occur along a very small portion of the bank near the eastern project limits and on the outside of the existing Bayway structure. These forested wetlands contain mature tree species such as Sweet gum (*Liquidambar styraciflua*), Black gum (*Nyssa slyvatica*), and Slash pine (*Pinus elliottii*). These areas represent less than a tenth of an acre of potential impact should it be determined that the proposed ramp improvements from I-10 eastbound to US 90/98 southbound cannot avoid or bridge these areas.

4.12.4 Wetland Impacts

Calculations of wetland impacts have been derived based on the structural dimensions and projected as ground impacts. The bridge dimension used is 112 feet wide; the ramp dimensions are 65 feet wide. The impacts from construction of the bridge structure and the additional lanes as it merges with the I-10 Bayway will be much less, as the only part of the structures impacting the wetlands will be the support piers or bents associated with

the bridge. Impacts from machinery used to set these support structures will be temporary, and the area impacted will be restored following construction. Potential wetland impacts from the four Build Alternatives are shown on **Figures 8a and 8b.**

Congress St
St Anthony St
St Michael St
Dauphin St
Government St
N Broad St
City of Mobile
Mobile Convention Center
Mobile Civic Center
Canal St
Texas St Recreational Center
Texas St
S Broad St
Virginia St
Federal Mobile Harbor Navigation Channel
Blakeley Island
Pole Cat Bay
Austal Modular Manufacturing Facility
U.S. Army Corps of Engineers Disposal Area
Battleship USS Alabama Memorial Park
Bayway
Causeway
Tensaw River
Pinto Pass
USS Alabama
USS Drum
Alabama Shipyard
Pinto Island
Mobile River Terminal
APM Terminals Mobile
Pinto Island Turning Basin
Begin Project
A
B
B'
C
10
90

Legend

- Alternative A
- Alternative B
- Alternative B' (Preferred)
- Alternative C
- Bayway Widening
- Ship Channel
- Turning Basin
- Potential Wetlands Impacted
- Wetlands Avoided
- Potential Shading of Essential Fish Habitat

0 800 1,600 3,200 Feet

1 inch = 1,600 feet

N

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

Department Of Transportation

Figure 8a
I-10 Mobile River Bridge and Bayway Widening
Potential Wetlands
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 8a - Wetlands.mxd

0 900 1,800 3,600 Feet

1 inch = 1,800 feet

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

Figure 8b
I-10 Mobile River Bridge and Bayway Widening
Potential Wetlands
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 8b - Wetlands.mxd

4.12.4.1 No Build Alternative

The No Build Alternative will not impact wetlands.

4.12.4.2 Alternative A

Construction of the cable-stayed bridge for Alternative A would impact approximately 2.2 acres of wetland habitat dominated by common reed and cattail. There are no wetlands located on the shoreline of the Mobile River in the location of Alternative A. Wetland impacts begin on the western side of Mobile Bay where the alternative begins to transition to the Bayway. In this area, the wetlands are dominated by common reed and cattail. As the bridge starts to cross open water, the dominant vegetation changes to a saltwater cordgrass dominated marsh. Forested wetlands occur along a very small portion of the bank near the eastern project limits and on the outside of the existing Bayway structure. The actual wetland impacts will be limited to the areas associated with the placement of piers to support the bridge structure.

4.12.4.3 Alternatives B and B' (Preferred)

Construction of the cable-stayed bridge for Alternatives B and B' (Preferred) would impact approximately 1.7 acres of wetland habitat dominated by common reed and cattail. There are no wetlands located on the shoreline of the Mobile River in the location of Alternatives B and B' (Preferred). Wetland impacts begin on the western side of Mobile Bay where the alternative begins to transition to the Bayway. In this area, the wetlands are dominated by common reed and cattail. As the alternative starts to cross open water, the dominant vegetation changes to a saltwater cordgrass dominated marsh. Forested wetlands occur along a very small portion of the bank near the eastern project limits and on the outside of the existing Bayway structure. The actual wetland impacts will be limited to the areas associated with the placement of piers to support the bridge structure.

4.12.4.4 Alternative C

Construction of the cable-stayed bridge for Alternative C would impact approximately 6.6 acres of wetlands. There are no wetlands located on the shoreline of the Mobile River in the location of Alternative C. Wetland impacts begin on the eastern side of BAE

Systems where the alternative begins to cross Pinto Pass. In this area, the wetlands are dominated by common reed and cattail. As the alternative starts to cross open water, the dominant vegetation changes to a saltwater cordgrass dominated marsh.

The wetlands end to the east of Pinto Pass and the alternative travels northwest of a large upland dredge material disposal area. The area retains water but is part of a former water control structure for stormwater in this disposal area. The emergent habitat is dominated by pure stands of Cogongrass (*Imperata cylindrical)* and the soils are white sand fill material.

Wetland areas begin again at the edge of the large wooded parcel to the west of the dredge disposal site west of Battleship Park. The dominant tree species in this area are Sweet bay (*Magnolia virginiana)* and Chinese tallow (*Triadica sebifera).* Wetlands continue to the southern edge of the Causeway and become emergent wetlands dominated by common reed and cattail. Forested wetlands also occur along a very small portion of the bank near the eastern project limits and on the outside of the existing Bayway structure.

4.12.4.5 Avoidance and Minimization

The CWA requires avoidance and minimization of impacts to wetlands where possible. Widening the Bayway to the inside versus the outside avoids impacts to larger areas of more established wetland communities consisting of both SAVs and emergent wetlands interspersed along the outside of the Bayway on both sides. In contrast, the wetlands on the inside are established on the sediment deposited in the construction channel since the 1970s due to periodic deposition associated with flooding. The extent of emergent wetlands near the Bayway is shown on **Figures 8a and 8b**. The adoption of a construction methodology that avoids dredging, which would destroy the existing reestablished wetlands, will further minimize wetland impacts. In consultation with resource and regulatory agencies, an alternate construction methodology was developed to avoid the impacts associated with dredging and to minimize the impacts on biological resources. The construction of the I-10 Bayway widening would be performed utilizing segmented barges traversing the area between the existing Bayway lanes.

The original construction channel would be utilized without modification. The segmented barges can float, if sufficient water depth exists, or rest on the bottom of shallow areas. The barge segments would be linked together to serve as a construction platform and would be disassembled and "leapfrogged" ahead using construction cranes as construction progresses. Duration of barge segments in a particular location should not exceed 30 days. The same construction methodology would be used to construct the outside additions to the Bayway in the 2,000-foot eastbound transition section for the I-10/US 98 exit ramp. Concrete materials removed from the existing inside bridge rail would not be allowed to fall into the water; they would be collected for transport to a suitable disposal site.

4.12.4.6 Wetland and SAV Mitigation Measures

Mitigation measures will be developed to compensate for project wetland losses. Discussion has been initiated with the USFWS to consider mitigating for wetland impacts by enhancing impaired wetlands along Pinto Pass. Restoration of the natural tidal exchange across the pass would be considered as a mitigation option for the project (USFWS, 2006). The potential for reestablishing wetlands and promoting natural circulation through the pass are considered habitat enhancement. Further discussion of mitigation alternatives will be conducted with ADEM, USACE, USFWS, and National Marine Fishery Service (NMFS) during development of the mitigation plan.

As discussed above, the SAV that may exist in the project area varies from year to year depending upon environmental conditions. Therefore, as recommended by the USACE, the SAV that could be impacted will be determined based on an inspection prior to commencing construction. A special coordination meeting involving representatives of FHWA, ALDOT, USFWS, and NMFS was held on January 23, 2002, to discuss potential effects to EFH and Threatened and Endangered Species (**Appendix A**). In a letter dated May 9, 2002, the NMFS recommended that a mitigation plan be developed that provides in-kind mitigation for each habitat that will be impacted (**Appendix A**). A detailed draft mitigation plan for wetlands and SAVs will be included in the FEIS.

Based upon the above considerations, a final mitigation plan that addresses the transplanting of impacted SAVs will be completed during the permitting process for the Selected Alternative prior to construction. Appropriate consideration will be given to more detailed design data, identification and delineation of actual impacts, and a more refined construction methodology. The mitigation plan will likely include:

- A mitigation site selection process;
- Protocol for handling and treatment of plants to be transplanted/planted;
- Establishment of replacement ratios and success criteria;
- A monitoring program; and
- A remedial action/contingency plan if the mitigation plan does not produce an acceptable level of success.

The draft and final mitigation plans will be developed in consultation with the USACE, USFWS, NMFS, ADEM, and local agencies, as appropriate.

4.12.5 Fisheries

The ADCNR, Marine Resources Division, was contacted to determine if additional marine resources could occur in the project area. In addition to managed species protected under the EFH designation described in **Section 4.12.5.1** below, the following list of species was provided by the ADCNR as important living marine resources. The following species can use the marine, estuarine, and riverine environments during some portion of their life cycle. Salinity levels largely dictate their occurrence in riverine systems.

Gulf sturgeon (*Acipenser oxyrinchus desotoi*)	White trout (*Cynoscion arenarius*)
Atlantic croaker *(Micropogon undulatus*)	Bay anchovy (*Anchoa mitchilli*)
Gaftopsail catfish (*Bagre marinus*)	Gizzard shad (*Dorosoma cepedianum*)
Inland silverside (*Menidia beryllina*)	Gulf menhaden (*Brevoortia patronus*)
Hardhead catfish (*Arius felis*)	Shiners (*Notropis* spp.)
Spot (*Leiostomus xanthurus*)	Spotfin mojarra (*Eucinostomus argenteus*)
Speckled trout (*Cynoscion nebulosis*)	Silver perch (*Bairdiella chrysura*)
Red drum (*Sciaenops ocellatus*)	Striped mullet (*Mugil cephalus*)
Southern flounder *(Paralichthys lethostigma)*	Sheepshead minnow *(Cyprinodon variegatus)*

The following species are predominantly riverine species but occasionally occur in estuarine environments.

Blue catfish (*Ictalurus furcatus*)
Channel catfish (*Ictalurus punctatus*)
American eel (*Anguilla rostrata*)
Largemouth bass (*Micropterus salmoides*)
Spotted sunfish (*Lepomis punctatus*)
Yellow bass (*Morone mississippiensis*)
Rainwater killifish (*Lucania parva*)
Striped bass (*Morone saxatilus*)
Bluegill (*Lepomis macrochirus*)
Chain pickerel (*Esox niger*)
Threadfin shad (*Dorosoma petenense*)
Black crappie (*Pomoxis nigromaculatus*)
Marsh killifish (*Fundulus confluentus*)
Paddlefish (*Polyodon spathula*)
Redear sunfish (*Lepomis microlophus*)

The following species will spend nearly all of their adult life cycle in the marine environment but will occasionally occur in estuarine and riverine systems. Juveniles are likely to occur in estuarine to riverine environments. Juveniles use these environments as a refuge from predatory finfish and as foraging habitat.

Sheepshead (*Archosargus probatocephalus*)
Silver seatrout (*Cynoscion nothus*)
Crevalle jack (*Caranx hippos*)
Atlantic spadefish (*Chaetodipterus faber*)
Spanish Mackerel (*Scomberomorus maculatus*)
Gulf killifish (*Fundulus grandis*)
Harvestfish (*Peprilus paru*)
Gulf butterfish (*Peprilus burti*)
Grey snapper (*Lutjanus griseus*)

Several species of macroinvertebrates that occur in the project area are:

Blue crab (*Callinectes sapidus*)
Gulf stone crab (*Menippe adina*)
Crayfish (*Procambarus spp.*)
Brown shrimp (*Penaeus aztecus*)
Pink shrimp (*Penaeus duorarum*)
White shrimp (*Penaeus setiferus*)

The species listed above are likely to occur in the project corridor. Impacts to these species are considered minimal, as the project will be constructed on bridge over aquatic areas. Potential impacts would be associated with installing bridge support piers and shading from Bayway Widening as discussed in the following sections.

4.12.5.1 Essential Fish Habitat (EFH)

EFH is defined as all estuarine waters and substrates (mud, shell, sand, rock, and associated biological communities), including the sub-tidal vegetation (SAV and algae) and adjacent inter-tidal wetland vegetation (marshes and mangroves). The potential impacts to biological/ecological resources including SAVs and wetlands are addressed in **Section 4.12.3**. In other words, EFH includes all waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The project area wetlands were identified as EFH in the 1998 Generic Amendment of the Fishery Management Plans for

the Gulf of Mexico. NMFS has defined the abundance of the species under management that are found in Mobile Bay. Most of the listed species have specific salinity requirements that are not met in the location of the project. **Table 17** includes the abundance characteristics of the species listed for Mobile Bay. For the most part, the area of Mobile Bay that includes the project corridor separates salinity regimes and limits the presence of most of the listed species.

Table 17: EFH Abundance Determinations for Mobile Bay in Vicinity of the Project

			Salinity Season Abundance			
Common Name	**Scientific Name**	**Life Stage**	**February to April**	**May to July**	**August to October**	**November to January**
Gray snapper	*Lutjanus griseus*	Adult	Rare	Rare	Rare	Rare
Gray snapper	*Lutjanus griseus*	Juvenile	Rare	Rare	Common	Rare
Gulf stone crab	*Menippe adina*	Adult	Not Present	Common	Common	Common
Gulf stone crab	*Menippe adina*	Juvenile	Not Present	Common	Common	Common
Stone crab	*Menippe mercenaria*	Adult	Not Present	Rare	Rare	Not Present
Stone crab*	*Menippe mercenaria*	Juvenile	* Not available			
Spiny lobster	*Panulirus argus*	Adult	Not Present	Not Present	Not Present	Not Present
Spiny lobster	*Panulirus argus*	Juvenile	Not Present	Not Present	Not Present	Not Present
Brown shrimp	*Penaeus aztecus*	Adult	Rare	Highly Abundant	Common	Abundant
Brown shrimp	*Penaeus aztecus*	Juvenile	Abundant	Highly Abundant	Abundant	Common
Pink shrimp	*Penaeus duorarum*	Adult	Not Present	Common	Common	Not Present
Pink shrimp	*Penaeus duorarum*	Juvenile	Rare	Abundant	Common	Common
White shrimp	*Penaeus setiferus*	Adult	Rare	Rare	Rare	Rare
White shrimp	*Penaeus setiferus*	Juvenile	Rare	Abundant	Abundant	Abundant
Red drum	*Sciaenops ocellatus*	Adult	Rare	Common	Common	Rare
Red drum	*Sciaenops ocellatus*	Juvenile	Rare	Common	Common	Common
Spanish mackerel	*Scomberomorus maculatus*	Adult	Not Present	Not Present	Not Present	Not Present
Spanish mackerel	*Scomberomorus maculatus*	Juvenile	Not Present	Rare	Rare	Rare

Source: National Oceanic and Atmospheric Administration (NOAA) Fisheries Service, Galveston Laboratory

The species listed above have designated EFH in the project corridor. Impacts to these species are considered minimal, as the project will be constructed on bridge over aquatic areas. The primary concern is the loss of habitat by shading due to the Bayway widening and crossovers. Areas where shading impacts are likely to occur are shown on **Figures 8a and 8b**. Shading is not likely to result in the total loss of habitat within the shaded area. Mitigation requirements for shading impacts will be defined through further coordination and permitting with the resource agencies.

4.12.5.2 Shading Impacts Associated with the No Build Alternative

The No Build Alternative will not change the shading impacts on EFH.

4.12.5.3 Shading Impacts Associated with the I-10 Bayway Widening

Widening of the Bayway will increase existing shading impacts already being experienced by the existing Bayway. The Bayway traffic lanes are approximately 16 feet above the surface of the water and, on average, are separated by approximately 150 feet between the structures. The added lanes will increase shading an additional 64 feet on the inside of the existing structures for a total of approximately 63 acres. The remaining 86 feet will experience seasonal shading depending on the sun angle. The three crossovers will add approximately 0.25 acres of shading impacts.

4.12.5.4 Alternative A Shading Impact

The aerial coverage of the bridge for this alternative over shallow water habitat is approximately 13 acres. Combining these impacts with the 63.25 acres of impact for the Bayway widening results in a total shading impact of 76.25 acres.

4.12.5.5 Alternatives B and B' (Preferred) Shading Impacts

The aerial coverage of the bridge for these alternatives over shallow water habitat is approximately 3.9 acres. Combining these impacts with the 63.25 acres of impact for the Bayway widening results in a total shading impact of 67.15 acres.

4.12.5.6 Alternative C Shading Impacts

The aerial coverage of the bridge for this alternative over shallow water habitat is approximately 2.1 acres. Combining these impacts with the 63.25 acres of impact for the Bayway widening results in a total shading impact of 65.35 acres.

4.12.6 Threatened, Endangered, and Other Listed Species

Coordination with the USFWS is being conducted in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.); Migratory Bird Treaty Act (16 U.S.C 703 et seq); and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). The USFWS stated that the following four

Federally listed species could occur in the project area (USFWS, May 14, 2003) (**Appendix A**).

Alabama sturgeon (*Scaphirhyncus suttkusi*)
Alabama red-bellied turtle (*Pseudemys alabamensis*)
Bald eagle (*Heliaeetus leucocephalus*)
Gulf sturgeon (*Acipenser oxyrinchus desotoi*)

A subsequent meeting with the USFWS on January 11, 2007, indicated that the Florida manatee (*Trichechus manatus latirostris*) should also be included as a Federally protected (endangered) species that could occur within the project area.

4.12.6.1 Alabama Sturgeon (*Scaphirhyncus suttkusi*)

The only confirmed record of the Alabama Sturgeon since 1985 is from the free-flowing portion of the Alabama River in Clarke and Monroe Counties, Alabama. This species is riverine and is presently not known to occur outside of the Alabama River. This species is not known to occur in the Mobile Bay Basin.

4.12.6.2 Alabama red-bellied turtle *(Pseudemys alabamensis)*

The Alabama red-bellied turtle is a large, freshwater turtle with an orange to reddish plastron and a prominent notch at the tip of the upper jaw, which is bordered on either side by a tooth-like cusp. This turtle seems to feed almost entirely on aquatic plants. The Alabama red-bellied turtle inhabits the lower part of the floodplain of the Mobile River system in Baldwin and Mobile Counties, Alabama. It appears to be most abundant in the Mobile delta between I-65 and I-10. It also inhabits all of the river systems, such as Fish River, Fowl River, Dog River, Magnolia River, and Bon Secour River that flow into Mobile Bay.

The principal habitat of this species is the backwater areas of embayment, which are three to six feet deep. These broad vegetated expanses of shallows support a greater number of Alabama red-bellied turtles than any other area. Beds of aquatic vegetation serve as substrate for basking and predator avoidance. The USFWS and the Alabama Department of Conservation and Natural Resources, Game and Fish Division, were contacted regarding nesting sites in the area. The Alabama red-bellied turtle tends to nest on high sandy soils, such as levees, spoil banks, high stream banks, and riverbanks.

They have been known to nest on the banks of the Apalachee River, the Mobile River, the Blakeley River, spoil banks, and in areas with good substrate along the entire length of the Causeway. This species is known to occur in every watershed associated with Mobile Bay (personal communication, Dr. David Nelson, University of South Alabama). Nesting occurs between the months of April and August, depending on weather conditions. Potential nesting areas should be avoided for the months of April through October due to nesting activity. The project corridor contains very limited habitat for this species. Five embankments occur in the project corridor. All of these embankments are highly disturbed and contain either concrete seawalls or riprap, which makes nesting opportunities unlikely.

4.12.6.3 Bald eagle (*Heliaeetus leucocephalus*)

The Bald eagle was delisted by the USFWS in June 2007 as a Threatened Species. The Bald eagle still receives protection under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Suitable nesting areas do not exist within the project limits. Due to human activity, the project corridor should not be considered potential forage habitat for this species. Heavy vehicular traffic would normally deter eagles from the interior of the Bayway. A nesting pair of Bald eagles has been documented on Bay Minette Creek, approximately 10 miles northeast of the project area. Bald eagle sightings have been reported near the project area.

4.12.6.4 Gulf sturgeon (*Acipenser oxyrinchus desotoi*)

Gulf sturgeons are anadromous fish with sub-cylindrical bodies imbedded with bony plates or scutes. The snout is greatly extended and bladelike with four fleshy chin barbells in front of the mouth, which is protractile on the lower surface of the head. Body color is light brown to dark brown and pale underneath. This species grows to a maximum length of about eight feet and can weigh over 200 pounds (USFWS and GSMFC, 1995).

On March 19, 2003, the USFWS and NMFS issued a Final Rule proposing to designate Critical Habitat for the Gulf sturgeon. The Gulf sturgeon has historically been located in the Mobile River Basin and could occur in the project area as described in **Section 4.12.6**. The Mobile River Basin, including the Mobile Bay Estuary, was not listed as proposed Critical Habitat for the Gulf sturgeon (USFWS, 2003).

4.12.6.5 Florida manatee (*Trichechus manatus latirostris*)

Manatee sightings have been documented in Mobile Bay and/or its tributaries for the past several years from May to December. The number of sightings appears to be increasing. Manatees are tagged to study their migratory patterns. They tend to migrate from the Alabama waters to rivers in the Gulf Coast of Florida during the winter.

4.12.6.6 Species Coordination

A special coordination meeting involving representatives of FHWA, ALDOT, USFWS, and NMFS was held on January 23, 2002, to discuss potential effects to EFH and Threatened and Endangered Species **(Appendix A)**. The following summarizes views expressed by USFWS:

a. USFWS representatives suggested installing strobe lights with three-second durations on the bridge. (The FAA has been contacted concerning what type of strobe lights will be permissible [**Appendix A**]). If approved by the FAA, the suggested strobe lights will be installed to assist in avoiding collisions and in preventing nesting by migratory fowl on the bridge columns and cables. (This will be addressed in the FEIS in coordination with the USFWS and the FAA).
b. USFWS representatives also stated that impacts to the Bald eagle and Gulf sturgeon are not major concerns. These species can occur in the project vicinity, but the USFWS does not anticipate an impact to these species. Based on the information provided, the USFWS concluded that there would be no impacts to Gulf sturgeon, Bald eagles, or the Alabama sturgeon, provided that turbidity curtains are installed around construction areas.
c. The project corridor contains forage habitat and potential nesting habitat for the Alabama red-bellied turtle, which could be temporarily affected by the Bayway construction. Therefore, the USFWS recommended the preparation of a

Biological Opinion and issuance of an Incidental Take Permit. On July 11, 2002, the FHWA requested formal Section 7 consultation with the USFWS for the Alabama red-bellied turtle and the Gulf sturgeon for the proposed I-10 improvements. By letter dated August 28, 2002, USFWS initiated formal consultation with the FHWA regarding the widening of the I-10 corridor and the erection of a bridge over the Mobile River. By letter dated May 14, 2003, the USFWS transmitted its Biological Opinion to FHWA (**Appendix A**).

The USFWS determined that:

- The Gulf Sturgeon would not be taken by the proposed action.
- An incidental take of the red-bellied turtle could occur under certain conditions and during certain construction activities.
- The anticipated level of incidental take is not likely to result in jeopardizing the species when the reasonable and prudent measures identified by USFWS are implemented.

The USFWS issued an Incidental Take statement and prescribed reasonable and prudent measures to be taken, as well as Terms and Conditions that must be met for the Incidental Take provisions to be valid. The May 14, 2003, letter is included in **Appendix A**. Subsequent to the issuance of the Incidental Take Permit, an additional coordination meeting was held with the USFWS. The FHWA and ALDOT will conform to the specified terms and conditions of the Incidental Take Statement and maintain appropriate coordination with the USFWS. The terms and conditions are listed in **Section 4.23**, Environmental Commitments. The Incidental Take Permit will be reviewed and updated, as appropriate, for the selected alternative. A coordination meeting with USFWS was conducted in January 2007, to discuss how to address impacts to biological resources of interest or concern to the agency including field surveys of SAV and wetlands. A field review was conducted with USFWS. By letter dated March 14, 2007, USFWS agreed with the methods being used to evaluate SAV and wetlands for the project (USFWS, 2007). Although the Incidental Take coordination occurred in 2003, the project has been coordinated with the USFWS through 2012 as indicated in the correspondence included

in **Appendix A**. As recently as September 28, 2012, the USFWS has stated no additional formal consultation on the proposed project is required (**Appendix A**).

4.12.6.7 No Build Alternative

The No Build Alternative will not impact Threatened, Endangered or other listed species.

4.12.6.8 Build Alternatives

Build Alternatives A, B, B' (Preferred), and C all would impose similar potential impacts to Threatened, Endangered, and other listed species. The proposed project will comply with the Incidental Take statement and prescribed reasonable and prudent measures, as well as the Terms and Conditions to minimize impacts to the Alabama red-bellied turtle and Gulf sturgeon. Potential impacts to these species include physical damage from construction barges, tugs boats, and other construction activities such as pile driving. The proposed project is not expected to impact the Alabama sturgeon, Bald eagle, or Florida manatee. Standard manatee protection provisions would be required for Alternative A for vessels used to construct the armored island. It is possible that other construction activities utilizing work vessels will occur for the Selected Alternative. Manatee warnings will be implemented, if required.

4.12.6.9 Protected Species Mitigation Measures

The USFWS provided conservation recommendations in the Incidental Take Permit for the proposed project. These recommendations include the following:

a. Install modified guardrails along US Highway 98/90 (Causeway) to prohibit Alabama red-bellied turtle's access to the roadway.
b. Post wildlife caution/information crossing signs along the Causeway to educate and alert the public to the presence of the Alabama red-bellied turtle.
c. Efforts to breach the Causeway with elevated roadways allowing for a return of more natural flows and flushing of the Upper Mobile Bay should be studied with regard to the benefit of the environment.
d. The impacts to submerged aquatic vegetation and emergent wetlands resulting from the proposed project should be mitigated. Mitigation should include

restoration or creation of similar types of habitat as close to the impact site as possible.

For the past decade, scientists have conducted surveys to document trends in the numbers of red-bellied turtles that are killed by vehicles along the Causeway. These surveys were used to support an initiative to install and maintain conservation fencing along the Causeway. In July 2008, the ADCNR and ALDOT installed chain-link fencing along the portion of the Causeway known for having the highest rates of Alabama red-bellied turtle deaths. The conservation fencing is approximately 30 inches high, typically extends into the soil surface for a few inches, and covers approximately 2.6 miles of the easternmost portion of the Causeway in Baldwin County. ALDOT continuously repairs damage to the fencing resulting from vehicles, anglers, and storms, and places signs along the Causeway to alert drivers of possible turtle crossings, particularly during nesting and emergence seasons. Since installation of the permanent fencing was completed, the mortality rate of red-bellied turtles on the Causeway declined by 82 percent in 2009 and 81 percent in 2010 (ADCNR, 2010).

Mitigation measures will be identified and developed for the Selected Alternative, in consultation with the USFWS, NMFS, USACE, and other appropriate agencies during development of the draft mitigation plan for the FEIS. In addition, special provisions to protect species, such as the manatee and gulf sturgeon, during construction will be identified.

4.13 Noise Analysis

4.13.1 Methodology

A traffic noise analysis was performed in accordance with ALDOT's Highway Traffic Noise Analysis and Abatement Policy and Guidance (Revised July 2011), U.S. Department of Transportation, and FHWA Highway Traffic Noise: Analysis and Abatement Guidance, December 2011. The ALDOT policy is consistent with Title 23, CFR, Part 772, and U.S. Department of Transportation, FHWA, entitled *Procedures for Abatement of Highway Traffic Noise and Construction.* A copy of the Noise Analysis Technical Report is included in **Appendix H.**

The traffic noise analysis for this project consists of a comparison of computer modeled noise levels for existing conditions and modeled noise levels for future conditions. The computer software used for the noise analysis was the FHWA approved TNM Version 2.5 program. The TNM 2.5 model results yield an hourly equivalent steady-state sound level at each receptor. The TNM 2.5 program represents noise levels at Leq(h). Leq is defined as the equivalent steady-state sound level which, in a stated period of time, contains the same acoustic energy as the time-varying sound level during the same period. Leq(h) is the hourly volume of Leq. Leq(h) is based on the more commonly known decibel (dB) and "A-weighted" decibel (dBA) units. The A-weighted decibel (dBA) unit measures perceptible sound energy and factors out the fringe frequencies.

4.13.2 Noise-Sensitive Receptors

A noise-sensitive receptor is defined as a location where noise levels are calculated using a model. Receptors are located at sites where noise sensitive activities occur within a corridor. **Table 18** defines noise sensitive activities typically encountered within a corridor and the associated NAC, as defined by the FHWA.

Table 18: FHWA Noise Abatement Criteria

Activity Category	$Leq_{(h)}$	Description of Activity Category
A	57 dBA (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 dBA (Exterior)	Residential.
C[1]	67 dBA (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 dBA (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[1]	72 dBA (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	Undeveloped lands that are not permitted.

Source: FHWA, 23 CFR, Part 772
[1] - Includes undeveloped lands permitted for this activity category.

One thousand and sixty-one (1,061) receptors sites were modeled along the I-10 Mobile River Bridge and Bayway Widening study corridor. The 1,061-modeled sites represent 1,065 receptor sites in the study area. Land use along the I-10 Mobile River Bridge and Bayway Widening study corridor consists primarily of residential land use on the western side and predominantly commercial and industrial development on the eastern side between I-10 and the Mobile River. The predominantly residential area on the western side has been extensively modified by urban development activities that began in the 1960s. **Figures 9 through 9g** show the Build Alternatives and the receptor locations.

Legend

- Noise Figures Key Sheet
- Alternative A
- Alternative B
- Alternative B' (Preferred)
- Alternative C
- Bayway Widening

City of Mobile

Mobile River

Figure 9d

Pole Cat Bay

Spanish River

Tensaw River

Chacalochee Bay

Figure 9e

Figure 9c

Figure 9f

Pinto Pass

Pinto Island

Apalachee River

Blakley River

Figure 9b

All Alternatives Combined

City of Spanish Fort

Figure 9a

Figure 9g

End Project

Mobile Bay

Begin Project

Mobile County

Baldwin County

City of Daphne

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Department Of Transportation

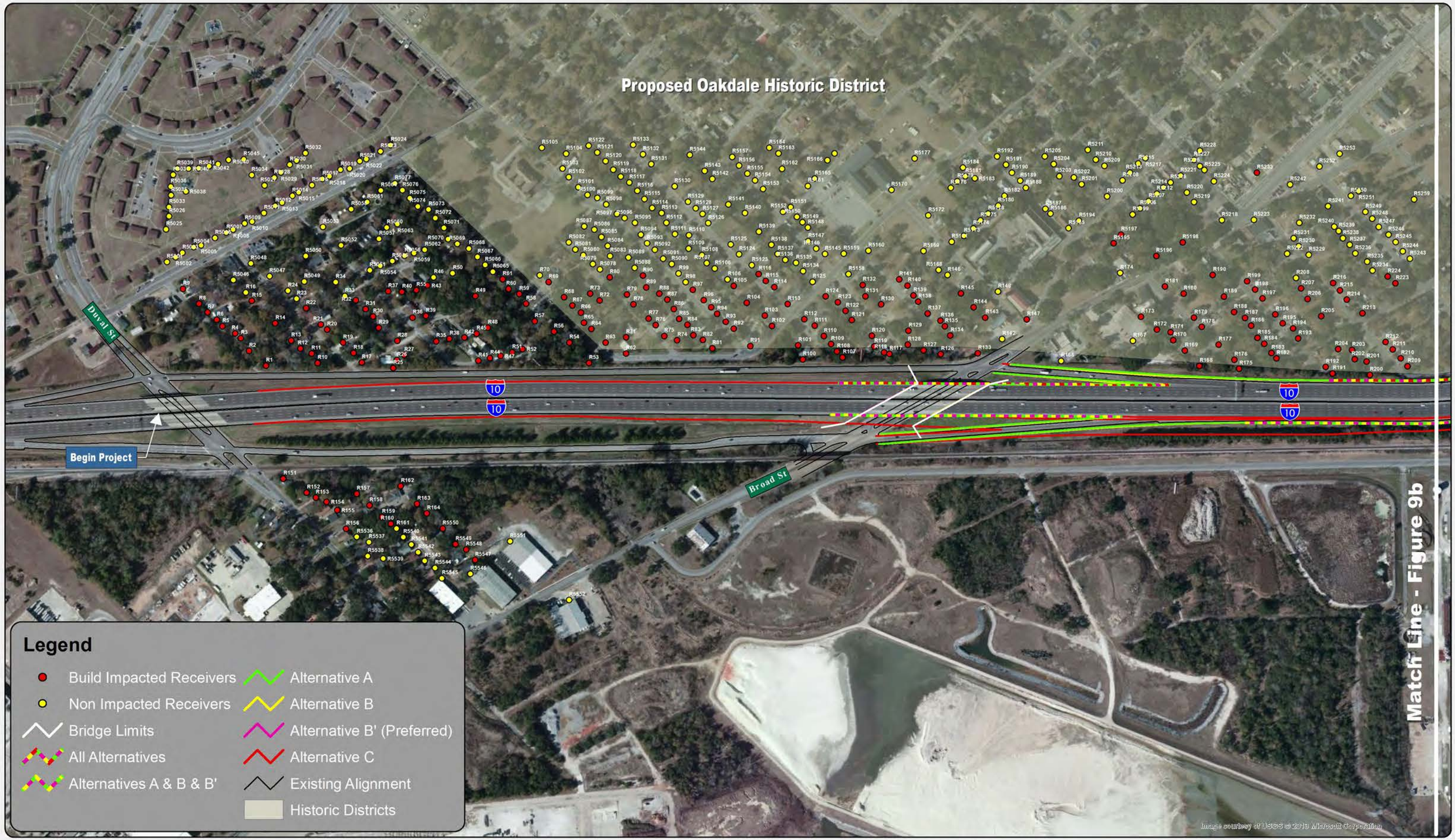
0 2,000 4,000 8,000 Feet

1 inch = 4,000 feet

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

Figure 9
I-10 Mobile River Bridge and Bayway Widening
Noise Figures Key Sheet Map
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 9 - Noise Figures Key Map.mxd



0 200 400 800 Feet

1 inch = 400 feet

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

Figure 9a
I-10 Mobile River Bridge and Bayway Widening
Noise Analysis Duval St to Broad St
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 9a - Noise Analysis Duval St to Broad St.mxd

0 200 400 800 Feet

1 inch = 400 feet

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

Figure 9b
I-10 Mobile River Bridge and Bayway Widening
Noise Analysis Broad St to Texas St
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 9b - Noise Analysis Broad St to Texas St.mxd

Match Line - Figure 9b

Church Street East Historic District

Lower Dauphin Historic District

Claiborne St

Canal St

Government St

S Water St

St. Emanuel St

Royal St

CSX Railroad

V3

V4

V5

Match Line - Figure 9d

Legend

- Non Impacted Receivers
- Build Impacted Receivers
- Validation Sites
- Bridge Limits
- Alternatives A & B
- Alternative A
- Alternative B
- Alternative B' (Preferred)
- Alternative C
- Existing Alignment
- Historic Districts

0 200 400 800 Feet

1 inch = 400 feet

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

Department Of Transportation

Figure 9c
I-10 Mobile River Bridge and Bayway Widening
Noise Analysis Texas St to Wallace Tunnel W Entrance
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 9c - Noise Analysis Texas St to Wallace Tunnel W Entrance.mxd

Legend

- Noise Measurement Site
- Non Impacted Receivers
- Build Impacted Receivers
- Alternative A
- Alternative B
- Alternative B' (Preferred)
- Alternative C
- Existing Alignment
- Historic Districts

Water St
CSX Railroad
R5529
R471
R470
R469
R468
R467
R465
R466
R472
Dunlap Dr
Addsco Rd
90
10
10
Proposed Maritime Historic District
Match Line - Figure 9c
Match Line - Figure 9e
bing
Image courtesy of USGS State of Michigan

0 200 400 800 Feet

1 inch = 400 feet

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

Department Of Transportation

Figure 9d
I-10 Mobile River Bridge and Bayway Widening
Noise Analysis Wallace Tunnel W Entrance to Addsco Rd
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 9d - Noise Analysis Wallace Tunnel W Entrance to Addsco Rd.mxd

0 200 400 800 Feet

1 inch = 400 feet

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

Figure 9e
I-10 Mobile River Bridge and Bayway Widening
Noise Analysis US90 at Battleship Park
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 9e - Noise Analysis US90 at Battleship Park.mxd

0 200 400 800 Feet

1 inch = 400 feet

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

Figure 9f
I-10 Mobile River Bridge and Bayway Widening
Noise Analysis US90-98 Causeway Midbay Ramp
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 9f - Noise Analysis US90-98 Causeway Midbay Ramp.mxd

0 200 400 800 Feet

1 inch = 400 feet

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

Department Of Transportation

Figure 9g
I-10 Mobile River Bridge and Bayway Widening
Noise Analysis US98 Interchange
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 9g - Noise Analysis US98 Interchange.mxd

4.13.3 Noise Analysis Techniques

The noise analysis included the following activities:

1. Determining the location of noise-sensitive areas in the project vicinity, taking into account existing ambient noise, as well as future development.
2. Characterizing the existing ambient noise environment by obtaining measurements at selected sites.
3. Determining future noise levels resulting from the four proposed Alternatives and the No Build Alternative at noise-sensitive receptors through computer modeling.
4. Assessing noise impacts resulting from the four Build Alternatives. In accordance with the FHWA Title 23 CFR, Part 772, ALDOT defines noise impacts as occurring under the following circumstances:
   a) When noise levels approach (1dBA below the NAC) or exceed the NAC.
   b) When noise levels increase by 15 dBA regardless of the NAC.
5. Evaluating noise abatement measures at any sites where a future impact was predicted, with consideration to the feasibility and reasonableness of each proposed measure.

4.13.4 Results

The TNM 2.5 results for the representative receptors are summarized in **Appendix H**. For the 2010 existing scenario, noise impacts are currently being experienced at 280 modeled receptor sites representing 281 individual noise-sensitive receptors. The impacted receptors are shown in red on **Figures 9a – 9g.**

4.13.4.1 No Build Alternative

For the 2030 No Build scenario, noise impacts are predicted to occur at 383 modeled receptor sites representing 387 individual noise-sensitive receivers within the I-10 Mobile River Bridge and Bayway Widening corridor. No receivers for the No Build scenario are predicted to experience a substantial (15 dBA or greater) increase in noise levels over the existing level.

4.13.4.2 Alternative A

For the proposed 2030 Build Alternative A, noise impacts are predicted to occur at 271 receptor sites representing 275 individual noise-sensitive receiver sites. No receivers for the 2030 Build Alternative A are expected to experience a substantial (15 dBA or greater) increase in noise levels over the existing level.

4.13.4.3 Alternative B

For the proposed 2030 Build Alternative B, noise impacts are predicted to occur at 270 receptor sites representing 274 individual noise-sensitive receiver sites. No receivers for the 2030 Build Alternative B are expected to experience a substantial (15 dBA or greater) increase in noise levels over the existing level.

4.13.4.4 Alternative B' (Preferred)

For the proposed 2030 Build Alternative B' (Preferred), noise impacts are predicted to occur at 271 receptor sites representing 275 individual noise-sensitive receiver sites. No receivers for the 2030 Build Alternative B' (Preferred) are expected to experience a substantial (15 dBA or greater) increase in noise levels over the existing level.

4.13.4.5 Alternative C

For the proposed 2030 Build Alternative C, noise impacts are predicted to occur at 388 receptor sites representing 392 individual noise-sensitive receiver sites. No receivers for the 2030 Build Alternative C are expected to experience a substantial (15 dBA or greater) increase in noise levels over the existing level.

4.13.4.6 Construction Noise

Construction noise will temporarily increase noise levels in the immediate vicinity of the construction site. The precise nature of the noise from construction activities is not known at the time. It should be noted that most construction equipment moves frequently, thereby limiting the exposure of any one location to construction noise. Lastly, construction-related noise would be mitigated in accordance with ALDOT procedures.

4.13.5 Noise Abatement Analysis

Noise abatement measures were evaluated at locations where impacts were predicted to occur under the 2030 Build Alternative scenarios. The abatement measures were evaluated using FHWA's guidelines as promulgated by Title 23 CFR, Part 772. The abatement measures evaluated included traffic management measures, the alteration of horizontal and vertical alignments, the construction of noise barriers, the acquisition of real property or interests therein, and noise insulation.

4.13.5.1 Traffic Management Measures (e.g., traffic control devices and signing for prohibition of certain vehicle types, time use restrictions for certain vehicle types, modified speed limits, and exclusive lane designations)

Traffic management measures applied for the purpose of noise abatement would be inconsistent with the purpose of this project. Use restrictions, including the restriction of vehicle types and time use restrictions, would eliminate certain traffic from using the roadway and, therefore, increase through traffic on local roads in the Mobile CBD and on Water Street. The installation of traffic control devices, modification of speed limits, or exclusive lane designations would result in a decreased level of service and decreased efficiency of the proposed facility. Therefore, the implementation of the traffic management measures for the purpose of noise abatement is not deemed reasonable or likely for this project.

4.13.5.2 Alteration of Horizontal and Vertical Alignments

Four Build Alternatives with different horizontal and vertical profiles are under consideration. Noise-sensitive sites are in areas where dense residential, commercial, and industrial development has occurred along both sides of existing I-10. I-10 will remain the primary source of highway traffic noise impacts along the corridor. Additional horizontal and/or vertical shifts of the alignments would not reduce noise impacts to sensitive receptors along I-10. In addition, alterations in the horizontal alignment or vertical profile of the Build Alternatives for the purpose of noise abatement would also not be cost reasonable. Additional costs associated with ROW, relocations, and construction would be required for the shifts for noise abatement. Therefore, further alteration of horizontal and vertical alignments is not reasonable.

4.13.5.3 Acquisition of Real Property or Interests therein (predominantly unimproved property) to serve as a Buffer Zone to Preempt Development

The acquisition of real property rights to act as a buffer zone would include the acquisition of the affected sites along the developed I-10 Mobile River Bridge and Bayway Widening corridor. The purchase of these properties to serve as a buffer zone does not appear to be an economically reasonable mitigation measure for the project.

4.13.5.4 Construction of Noise Barriers Whether Within or Outside of the Right-of-Way

ALDOT's *Highway Traffic Noise Analysis and Abatement Policy and Guidance* Manual provide guidance when determining the feasibility and reasonableness of noise barriers. To be considered feasible, noise barriers must reduce the predicted noise level by a minimum of 5 dBA for 70 percent or more of the impacted receptors. In order for noise barriers to be considered reasonable, the following criteria must be achieved; a reduction in noise of 10 dBA must be achieved by at least 65 percent of the benefitted receptors, the cost of the noise barriers must be equal to or less than $25,000 per benefited receptor, and 70 percent of the benefitted property owners must be in favor of the noise barrier.

For a noise barrier to effectively shield receptors, the barrier design must be relatively continuous. The proposed I-10 Mobile River Bridge and Bayway Widening project involve improvements to a limited access highway. Limited access highways generally provide long segments of uninterrupted ROW, which provides for the opportunity to construct continuous barrier sections. In addition, the density and close proximity of many of the sensitive receptors to the proposed alternatives allow for effective placement of noise barriers along the corridor.

The construction of noise barriers was analyzed for each Build Alternative at several locations where impacts were predicted to occur along the corridor. For Build Alternatives A, B, and B' (Preferred), noise barriers were determined to be feasible between the Broad Street interchange and the Texas Street Overpass along the north side of I-10. For Build Alternative C, noise barriers were found to be feasible from the Duval Street interchange to the Virginia Street interchange on the north side of I-10 and from Duval Street to Broad Street on the south side of I-10. None of the noise barriers

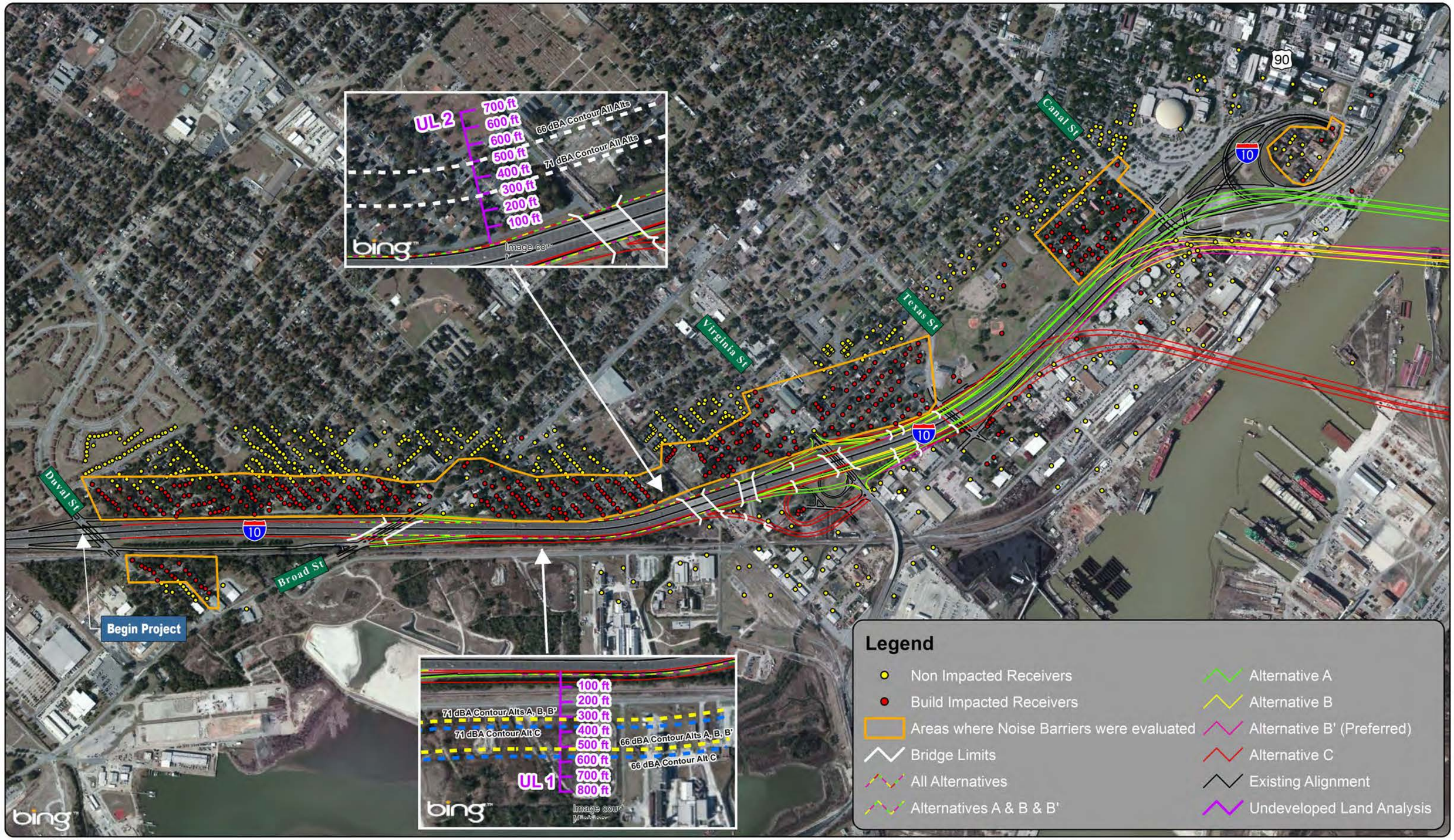
analyzed were found to be reasonable. **Table 19** summaries the results of the barrier analysis. The locations where noise barriers were analyzed are located on **Figures 10a through 10c**.

Noise barriers were not evaluated at locations with isolated receptors. This is based on past experiences modeling noise barriers at isolated receptors. Experience has shown that isolated receptors do not represent enough potential benefitted receptors to meet the cost reasonableness criteria for noise barriers to be provided. Locations where isolated impacts are predicted to occur at isolated receptors include between Texas Street and Augusta Street north of I-10, between South Carolina Street and Canal Street south of I-10, and along the Bayway.

Table 19: Noise Barrier Analysis

Location	Build Alternative	Feasibility Analysis					Reasonable Analysis				
		Length (feet)	Height (feet)	Average Noise Reduction (dBA)	Achieved Noise Reduction of 5 dBA or more	Feasible	Length (feet)	Height (feet)	Average Noise Reduction	Achieved Noise Reduction of 10 dBA or more at Benefitted Receptors	Reasonable
Duval Street to Broad Street (south of I-10)	C	4,929	12	5.9	94%	Yes	4,829	3 - 20	8.7	24%	No
Duval Street to Broad Street (south of I-10)	C	4,220	12	5.8	87%	Yes	4,220	20	8.3	14%	No
Broad Street to Virginia Street (north of I-10	A	8,145	20	8.7	94%	Yes	8,145	13 – 20	8.7	29%	No
Broad Street to Virginia Street (north of I-10)	B	8,136	17 – 20	8.2	94%	Yes	6,744	9 – 20	7.1	24%	No
Broad Street to Virginia Street (north of I-10)	B' (Preferred)	8,145	12 – 20	6.3	93%	Yes	8,145	2 – 20	5.3	16%	No
Broad Street to Virginia Street (north of I-10)	C	8,145	12	5.5	78%	Yes	5,447	11 – 20	5.3	32%	No
Virginia Street to Texas Street (north of I-10)	A	3,857	17 – 20	5.8	83%	Yes	3,736	10 – 20	5.7	8%	No
Virginia Street to Texas Street (north of I-10)	B	5,633	17 – 20	6.6	98%	Yes	4,899	13 – 20	6.3	6%	No

Location	Build Alternative	Feasibility Analysis					Reasonable Analysis				
		Length (feet)	Height (feet)	Average Noise Reduction (dBA)	Achieved Noise Reduction of 5 dBA or more	Feasible	Length (feet)	Height (feet)	Average Noise Reduction	Achieved Noise Reduction of 10 dBA or more at Benefitted Receptors	Reasonable
Virginia Street to Texas Street (north of I-10)	B' (Preferred)	5,592	17 – 20	7.5	98%	Yes	4,711	10 – 20	6.6	9%	No
Virginia Street to Texas Street (north of I-10)	C	6,641	17 – 20	4.1	14%	No	No Reasonable Analysis Required				
Augusta Street to Canal Street (north of I-10)	A	4,724	20	2.8	0%	No	No Reasonable Analysis Required				
Augusta Street to Canal Street (north of I-10)	B	4,935	20	2.3	0%	No	No Reasonable Analysis Required				
Augusta Street to Canal Street (north of I-10)	B' (Preferred)	5,474	20	2.8	0%	No	No Reasonable Analysis Required				
Fort Condé Village	A	3,338	20	0.3	0%	No	No Reasonable Analysis Required				
Fort Condé Village	B	3,777	20	0.6	0%	No	No Reasonable Analysis Required				
Fort Condé Village	B' (Preferred)	3,754	20	0.6	0%	No	No Reasonable Analysis Required				



0 500 1,000 2,000 Feet

1 inch = 1,000 feet

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

Figure 10a
I-10 Mobile River Bridge and Bayway Widening
Noise Barriers Considered Duval Street to Mobile River
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 10a - Barriers Considered Duval Street to Mobile River.mxd

DEPARTMENT OF TRANSPORTATION

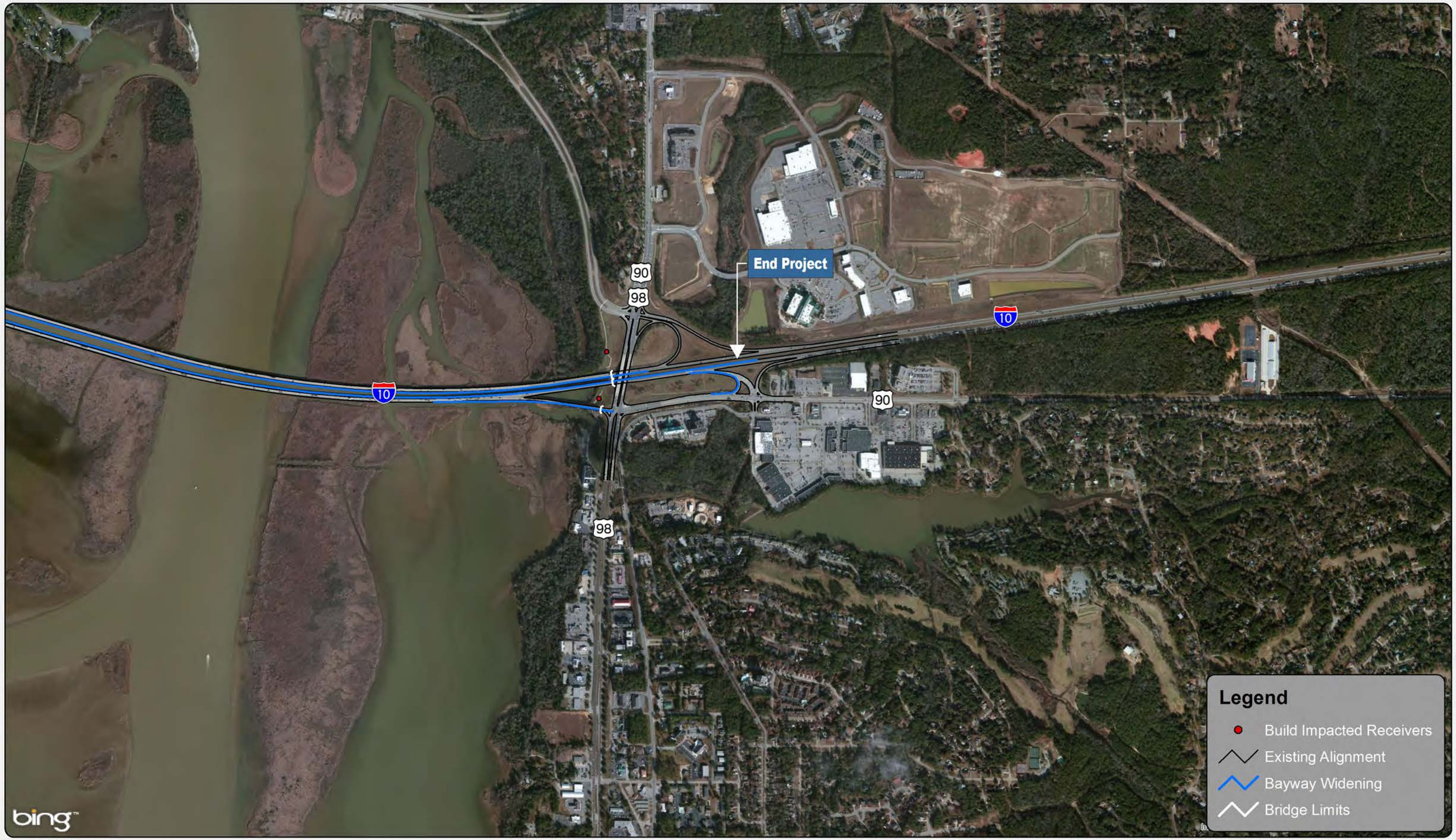
0 500 1,000 2,000 Feet

1 inch = 1,000 feet

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

Figure 10b
I-10 Mobile River Bridge and Bayway Widening
Noise Barriers Considered Mobile River to US 90/98 Midbay Ramp
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 10b - Barriers Considered Mobile River to Midbay Ramp.mxd



Department Of Transportation

0 500 1,000 2,000 Feet

1 inch = 1,000 feet

N

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

Figure 10c
I-10 Mobile River Bridge and Bayway Widening
Noise Barriers Considered US 98 Interchange
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 10c - Barriers Considered US 98 Interchange.mxd

4.13.6 Noise Insulation of Activity Category D Land Use Facilities (auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or non-profit institutional structures, radio studios, recordings studios, schools, and television studios)

Noise impacts to Activity Category D land use facilities are predicted to occur at fourteen individual receptor locations for Alternatives A, B, and B' (Preferred). Noise impacts to Activity Category D land use facilities are predicted to occur at twelve individual receptor locations for Alternative C. **Table 20** summarizes the exterior noise levels and adjusted interior noise levels at the Activity Category D land use along the I-10 Mobile River Bridge and Bayway Widening study corridor.

The predicted exterior noise levels at the Activity Category D land uses are predicted to range from 60.3 dBA to 74.2 dBA. The adjusted interior noise levels are predicted to range from 25.3 dBA to 49 dBA. The adjusted interior dBA values are well below the Activity Category D NAC of 51 dBA. Therefore, noise insulation at Activity Category D land uses was not evaluated for the project.

Table 20: I-10 Mobile River Bridge and Bayway Widening Exterior Noise Results at Activity Category D Land Use

Receptor	No. of Receptors Rep.	Construction	2010 Existing Noise Level (Exterior dBA)	Structural Insertion Loss	Alternative A		Alternative B		Alternative B' (Preferred)		Alternative C	
					2030 Build Noise Level (Exterior dBA)	Adjusted 2030 Build Noise Level (Interior dBA)	2030 Build Noise Level (Exterior dBA)	Adjusted 2030 Build Noise Level (Interior dBA)	2030 Build Noise Level (Exterior dBA)	Adjusted 2030 Build Noise Level (Interior dBA)	2030 Build Noise Level (Exterior dBA)	Adjusted 2030 Build Noise Level (Interior dBA)
Church 147 (St. Matthew's Catholic Church)	1	Masonry/Double Glazed Windows	**70.8**	35	**72.5**	37.5	**72.7**	37.7	**72.6**	37.6	**72.5**	37.5
Church 150 (St. Matthew's Catholic Church Recreation Center)	1	Light Frame/Storm Windows	64.4	25	**68.7**	43.7	**66.5**	41.5	**66.4**	41.4	**66.5**	41.5
Church 172 (Christ Overcoming Holiness Pentecostal Church)	1	Light Frame/Storm Windows	**71.8**	25	**73.9**	48.9	**74.0**	49.0	**73.9**	48.9	**74.0**	49.0
Church 173 (Parker's Activity Center)	1	Masonry/Double Glazed Windows	65.9	35	**68.0**	33.0	**68.1**	33.1	**68.1**	33.1	**68.1**	33.1
Church 208 (Mt. Zion Primitive Baptist Church)	1	Light Frame/Storm Windows	63.1	25	65.5	40.5	65.5	40.5	65.4	40.4	65.6	40.6
Church 289 (Mt. Sinai Missionary Baptist Church)	1	Masonry/Double Glazed Windows	**66.7**	35	**69.1**	34.1	**68.8**	33.8	**68.9**	33.9	**69.8**	34.8
School 313 (Council Elementary School)	1	Masonry/Double Glazed Windows	**69.7**	35	**72.5**	37.5	**72.5**	37.5	**72.6**	37.6	**72.9**	37.9
Church 347 (Delaware Street Baptist Church)	1	Masonry/Double Glazed Windows	**68.0**	35	**71.6**	36.6	**72.1**	37.1	**72.3**	37.3	**71.8**	36.8
Church 362 (International Ministries Center)	1	Masonry/Double Glazed Windows	**70.2**	35	**74.2**	39.2	**73.2**	38.2	**73.4**	38.4	**70.9**	35.9
Church 363 (Mt. Pleasant Missionary Baptist Church)	1	Masonry/Double Glazed Windows	**68.9**	35	**73.0**	38.0	**71.9**	36.9	**72.0**	37.0	**71.1**	36.1
Church 384 (Prince of Peace Catholic Church School Building)	1	Masonry/Double Glazed Windows	65.5	35	**67.9**	32.9	**68.0**	33.0	**67.3**	32.3	65.8	30.8
Church 389 (Prince of Peace Catholic Church)	1	Masonry/Double Glazed Windows	**66.1**	35	**68.3**	33.3	**68.1**	33.1	**67.7**	32.7	**66.2**	31.2
Church 5170 (El Bethel Primitive Baptist Church)	1	Masonry/Double Glazed Windows	58.4	35	60.3	25.3	60.3	25.3	60.3	25.3	60.6	25.6
Church 5222 (Church)	1	Light Frame/Storm Windows	62.6	25	64.8	39.8	64.9	39.9	64.9	39.9	65.0	40.0
Fire Station 5233 (Fire Station)	1	Masonry/Double Glazed Windows	63.9	35	**66.1**	31.1	**66.1**	31.1	**66.1**	31.1	**66.2**	31.2
Church 5398 (Church)	1	Masonry/Double Glazed Windows	63.2	35	65.9	30.9	**66.3**	31.3	**66.3**	31.3	**66.2**	31.2
Church 5399 (Church)	1	Masonry/Double Glazed Windows	59.6	35	62.5	27.5	63.2	28.2	63.1	28.1	63.9	28.9
Com 5511 (Civic Center)	1	Masonry/Double Glazed Windows	64.3	35	65.3	30.3	64.4	29.4	64.4	29.4	Alternatives A, B, and B' (Preferred) Only	
Com 5524 (Government Plaza)	1	Masonry/Double Glazed Windows	61.1	35	61.8	26.8	60.6	25.6	60.7	25.7	Alternatives A, B, and B' (Preferred) Only	

Receptor	No. of Receptors Rep.	Construction	2010 Existing Noise Level (Exterior dBA	Structural Insertion Loss	Alternative A		Alternative B		Alternative B' (Preferred)		Alternative C	
					2030 Build Noise Level (Exterior dBA)	Adjusted 2030 Build Noise Level (Interior dBA)	2030 Build Noise Level (Exterior dBA)	Adjusted 2030 Build Noise Level (Interior dBA)	2030 Build Noise Level (Exterior dBA)	Adjusted 2030 Build Noise Level (Interior dBA)	2030 Build Noise Level (Exterior dBA)	Adjusted 2030 Build Noise Level (Interior dBA)
Com 5526 (Court House)	1	Masonry/Double Glazed Windows	59.4	35	62.1	27.1	60.9	25.9	61.2	26.2	Alternatives A, B, and B' (Preferred) Only	
Com 5525 (Christ Church Cathedral)	1	Masonry/Double Glazed Windows	63.0	35	64.3	29.3	63.4	28.4	63.5	28.5	Alternatives A, B, and B' (Preferred) Only	
Com 5527 (Museum of Mobile)	1	Masonry/Double Glazed Windows	64.0	35	64.8	29.8	64.2	29.2	64.3	29.3	Alternatives A, B, and B' (Preferred) Only	
Com 5528 (Explorium)	1	Masonry/Double Glazed Windows	64.9	35	**66.9**	31.9	**66.4**	31.4	**66.5**	31.5	Alternatives A, B, and B' (Preferred) Only	
Com 5531 (Museum)	1	Masonry/Double Glazed Windows	64.3	35	**66.2**	31.2	65.2	30.2	65.4	30.4	Alternatives A, B, and B' (Preferred) Only	

*Note: Bold/Shading represent noise impacts

4.13.7 Undeveloped Land Analysis

There are three areas of undeveloped land (Activity Category G) within the I-10 Mobile River Bridge and Bayway Widening project study area. Noise contours were generated at these locations for the 66 dBA and 71 dBA noise levels. The results from the Undeveloped Land analysis are included in **Table 21**. Undeveloped Land areas (UL 1, UL 2, and UL 3) are also shown on **Figures 10a through 10c**. This information is included for local officials to be aware of anticipated highway noise so that future development can be compatible with traffic noise. For example, if a residence is planned with NAC criteria of 66 dBA, officials may choose to locate the development 500 feet or more from the proposed project. If a business is planned with NAC criteria of 71 dBA, officials may choose to locate the development 300 feet or more from the proposed project.

Table 21: Undeveloped Land Analysis

	2030 Build Alternative A		**2030 Build Alternative B**		**2030 Build Alternative B' (Preferred)**		**2030 Build Alternative C**	
Site	66 dBA Contour Distance from Edge-of-Pavement (feet)	71 dBA Contour Distance from Edge-of-Pavement (feet)	66 dBA Contour Distance from Edge-of-Pavement (feet)	71 dBA Contour Distance from Edge-of-Pavement (feet)	66 dBA Contour Distance from Edge-of-Pavement (feet)	71 dBA Contour Distance from Edge-of-Pavement (feet)	66 dBA Contour Distance from Edge-of-Pavement (feet)	71 dBA Contour Distance from Edge-of-Pavement (feet)
UL 1	500	300	500	300	500	300	650	350
UL 2	500	300	500	300	500	300	500	300
UL 3	900	500	900	500	900	500	900	500

4.14 Air Quality

The US Environmental Protection Agency (USEPA) describes areas with poor air quality as “non-attainment” areas. A non-attainment area is any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for a pollutant. Areas with acceptable air quality are described as “attainment” areas. Attainment areas meet the national primary or secondary ambient air quality standard for a pollutant. Pollutants related to transportation projects are typically ozone, carbon monoxide, nitrogen dioxide, and particulate matter (PM).

The proposed I-10 project study area is located entirely within an area designated to be in attainment for ozone, carbon monoxide, nitrogen dioxide, and PM (PM–2.5, PM-10) (ADEM Air Quality Website, 2012, USEPA Green Book July, 2012). Therefore, transportation conformity does not apply to this project.

Air quality impacts for the No Build Alternative and four proposed Build Alternatives for the I-10 Mobile River Bridge and Bayway Widening project were analyzed and the complete Air Quality Analysis Technical Report is included in **Appendix I**.

4.14.1 Carbon Monoxide (CO)

The project is located within Mobile and Baldwin Counties which are designated, pursuant the Clean Air Act Amendments of 1990, in air quality attainment for CO. The air quality analysis evaluates whether NAAQS for CO would be exceeded. A CO hot-spot analysis was conducted to determine if there would be any localized impacts near the most congested intersections under the Build Alternatives conditions along the project. The most congested intersection was determined to be at the I-10/US 90/98 interchange. Based on the analysis performed, CO concentrations at all receptors modeled in the vicinity of the I-10/US 90/98 interchange will not exceed the NAAQS under the 2030 No Build and the Design Year 2030 Build Alternatives scenarios.

4.14.2 Mobile Source Air Toxics (MSAT)

MSAT assessments are required for most Federal transportation projects. The I-10 Mobile River Bridge and Bayway Widening project was classified as a project with "Low Potential MSAT Effects." A classification of "No Potential MSAT Effects" was not chosen because the project will have an effect on traffic volumes and vehicle mix. A higher classification of "Higher Potential MSAT Effects" was not chosen because the project does not involve an intermodal freight facility, will not increase the number of diesel vehicles, does not involve a project were the AADT is projected to be in the range of 140,000 to 150,000, and the proposed Build Alternatives represent shifts away from heavily populated areas. This category was chosen because the project serves to improve the operations of a highway without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. The design year traffic

is also projected to be less than 140,000 to 150,000. The projected ranges of AADT under each alternative condition are shown in **Table 22**. According to ALDOT, trucks are expected to comprise 15 percent of the AADT for all alternatives.

Qualitative MSAT Assessment

For both the Design Year 2030 No Build and Build Alternatives, the amount of MSAT emitted would be proportional to the vehicle miles traveled (VMT). The project is to be constructed along existing I-10 and on new alignment. An assessment of VMT for the No Build and each Build Alternative is included in **Table 22**. The new roadway would attract rerouted trips from elsewhere in the transportation network, including trucks carrying hazardous materials. As shown, the projected VMT for the No Build Alternative is 1,352,339. The VMTs for the Build Alternatives are 4 to 12 percent lower than the VMT for the No Build Alternative. Therefore, the project is expected to reduce the total MSAT emissions in the area.

Table 22: Vehicle Miles Traveled

Alternative	Length (miles)	2030 AADT	VMT*
No Build	10.5	131,082	1,352,339
Alternative A	10.2	131,082	1,185,659
Alternative B	10.1	131,082	1,184,203
Alternative B' (Preferred)	10.0	131,082	1,194,398
Alternative C	10.4	131,082	1,300,720

* Length x Range of AADT for Each Alternative = VMT (**Appendix I**)

The construction of the proposed improvements would have the effect of moving some traffic slightly closer to nearby homes, businesses, and industrial sites from the western termini east to the point where the Build Alternatives transition into widening along the Bayway. More specifically, traffic will move slightly closer to residences located along the north side of I-10 from the Broad Street interchange to the Texas Street overpass. Along the south side of I-10, traffic will move closer to residences, businesses, and industrial sites from the Tennessee Street overpass east to the Bayway; the Build Alternatives will move traffic closer to commercial and industrial development. Through the remainder of the study corridor, widening will occur to the inside of the existing I-10; therefore, it is expected that MSAT concentrations would not be affected.

Under the Build Alternatives conditions, there may be localized areas where ambient concentrations of MSAT could be higher than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the previously described portion of the corridor from the Broad Street interchange east to the Texas Street overpass. The existing development is most dense in this area and existing interchanges provide access to the interstate along this portion of I-10. However, the magnitude and the duration of these potential increases compared to the No Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, the localized level of MSAT emissions for the Build Alternatives could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion, which are associated with lower MSAT emissions. In addition, MSAT will be lower in other locations when traffic shifts away from development. For the I-10 Mobile River Bridge and Bayway Widening project under the Build Alternatives conditions, a substantial amount of traffic would be diverted away from the heavily developed City of Mobile. As a result, MSAT would be expected to be lower in the downtown area. On a regional basis, the USEPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions that in almost all cases, will cause region-wide MSAT levels to be significantly lower in the future than today. As such, the FHWA has determined that this project would generate minimal air quality impacts for Clean Air Act (CAA) criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSAT.

Incomplete or Unavailable Information for Project Specific MSAT Health Impact Analysis

A discussion of incomplete and unavailable information related to project specific MSAT Health Impact Analysis is provided in **Appendix I**.

Greenhouse Gas Emissions and Climate Change

Climate change is an important national and global concern. To help address the global issue of climate change, USDOT is committed to reducing greenhouse gas emissions from vehicles traveling on our nation's highways. USDOT and EPA are working

together to reduce these emissions by substantially improving vehicle efficiency and shifting toward lower carbon intensive fuels. We have jointly established new, more stringent fuel economy and first ever greenhouse gas emissions standards for model year 2012-2016 cars and light trucks. We have issued a notice to propose even more stringent standards for model year 2017-2025 vehicles, with an ultimate fuel economy standard of 54.5 miles per gallon for cars and light trucks by model year 2025. Further, on August 9, 2011, we jointly proposed the first ever fuel economy and greenhouse gas emissions standards for heavy-duty trucks and buses. Increasing use of technological innovations that can improve fuel economy, such as gasoline- and diesel-electric hybrid vehicles, will improve air quality and reduce CO2 emissions future years.

Consistent with our view that broad-scale efforts hold the greatest promise for meaningfully addressing the global climate change problem, FHWA is engaged in developing strategies to reduce transportation's contribution to greenhouse gas emissions—particularly CO2 emissions.

Even though project-level mitigation measures will not have a substantial impact on global greenhouse gas emissions because of the exceedingly small amount of greenhouse gas emissions involved, the following measures during construction will have the effect of reducing greenhouse gas emissions. Article 107.22 of the State of Alabama Highway Department Standard Specifications requires the contractor to comply with all state, Federal, and local laws and regulations controlling pollution of the environment, including air pollution. These Standard Specifications will be followed during construction to reduce greenhouse gas emissions. These activities are part of a program-wide effort by FHWA to adopt practical means to avoid and minimize environmental impacts in accordance with 40 CFR 1505.2(c).

4.15 Lighting Conditions

There are several sources of light intrusion that affect the project corridor. The first is the existing well-lit I-10 roadway and Bayway in Mobile and Baldwin Counties. In Mobile, city street lighting, the Mobile Auditorium, Mobile Convention Center, Texas Street Recreation Facilities, McDuffie Coal Terminal, APM Terminals, and other adjacent

commercial and industrial development provide additional sources of light intrusion. When approaching Mobile from the east on the I-10 Bayway or Causeway at night, the entire skyline from the Cochrane Bridge south displays lights from skyscrapers in the CBD as well as commercial and industrial facilities including numerous tall waterfront cranes. The Battleship *USS Alabama* is also well lighted. In Baldwin County, lighting on I-10, US 90, US 98, and adjacent commercial development are the primary light sources.

Lighting along the existing, well-lit I-10 roadway and Bayway in Mobile and Baldwin Counties is not expected to change with the proposed project, except for the new high-level Mobile River Bridge. The new bridge will introduce a new light source visible to commercial and residential areas, as well as historic resources along the I-10 corridor. The SHPO commented that not enough attention has been paid to the amount of light pollution this very tall bridge will spread across the area (SHPO, 2012/**Appendix A**). The light emitted from the proposed cable-stayed bridge at elevations above 200 feet would be approximately 0.1 foot-candles at ground level within 150 feet from the bridge. The light intensity would be equivalent to moonlight. Lighting associated with the bridge approaches, ramps, and roadway widening will be designed so that light levels at the ROW boundary will be less than or equal to the existing light levels. Lighting fixtures with exterior shielding will reduce the light levels emanating to areas out the ROW.

The ALDOT is committed to designing roadway and bridge lighting that provides the necessary lighting to meet design criteria, while minimizing light pollution. Measures, including shielding, to minimize light pollution on residential areas and historic resources will be developed with input from the SHPO and local stakeholders and included in an MOA developed prior to and included in the FEIS.

Lighting will also be coordinated with the USCG for navigational requirements, the FAA for air traffic requirements, and the USFWS to avoid or minimize impacts on migratory birds.

The four Build Alternatives would have similar lighting systems so lighting impacts would be similar for all Alternatives. Under the No Build Alternative, no additional lighting is anticipated in the project corridor.

An additional assessment was conducted to determine the potential effect of shadows that may be cast by the elevated bridge structures on buildings near the proposed project (**Appendix J**). Using a computer model, it was determined that the maximum shading would occur on December 21 (the winter solstice) every year. The proposed bridge would produce shadows on buildings north of its proposed location from sunrise until about 10:00 a.m. During late winter, spring, and summer the shading would decrease until June 21 (the summer solstice) and then begin to increase until the winter solstice.

Figures depicting potential shadows created by each of the Build Alternatives on the morning of December 21 were rendered. Alternative A would produce the most shadows on buildings due to its proximity to developed areas of downtown. Alternative C would produce the least shadows on buildings because it is the farthest removed from downtown. The presence of shadows on buildings in downtown is not expected to impact the buildings in a manner that they could no longer be used or enjoyed.

4.16 Historic Resources

The Section 106 process must be followed as part of the environmental review process on projects with federal-aid funding. A federal undertaking can encompass a broad range of federal activities. The activity may be an action by the federal agency itself, the granting of funds from a federal agency, or a permit approval by a federal agency. Whenever one of these activities has the potential to affect historic properties, a cultural resources study must be completed.

The cultural resource study identifies the impacts of federally funded undertakings on historic properties. Historic properties, as defined in regulation 36 CFR 800.16(y), include historic districts, sites, buildings, structures, and objects, that are listed in, or eligible for inclusion in, the National Register of Historic Places (NRHP). A historic

property is eligible for listing in the NRHP if it meets one, or more, of four NRHP Criteria and retains sufficient integrity to convey historic significance.

The Section 106 process included extensive coordination and consultation with SHPO, MHDC, and other Section 106 Consulting Parties related to properties, alternatives, potential effects, and initial coordination regarding potential mitigation opportunities (**Section 6** and **Appendix A**). An Area of Potential Effect (APE) was established through two separate meetings and corresponding field reviews as Alternatives A, B, B' (Preferred), and C were evaluated. SHPO concurred with the APE in their correspondence dated November 15, 2012 (**Appendix A**). Studies were conducted to establish a historic background/context; to identify historic properties that are on or eligible for the NRHP; and to evaluate alternatives for potential effects (**Appendix J**). The cultural resource studies were utilized to provide a basis for identifying properties, evaluating potential effects for the Build and No Build Alternatives.

Title 36 CFR Part 800, "Protection of Historic Properties" required federal agencies to take into account the effects of their undertaking on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings. The ACHP is a Section 106 Consulting Party for this proposed undertaking. 36 CFR Part 800.5, "Assessment of Adverse Effect" states as follows, "§800.5 Assessment of adverse effects. (a) Apply criteria of adverse effects. In consultation with the SHPO/THPO and any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to identified historic properties, the agency official shall apply the criteria of adverse effect to historic properties within the area of potential effects. The agency official shall consider any views concerning such effects which have been provided by consulting parties and the public.

> (1) Criteria of adverse effect. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of historic property, including those that may have been

identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative."

The "Criteria of adverse effect" establishes a basis for determining whether or not adverse effects would take place. For Alternatives that do not directly affect (physically use) historic properties, the following example of indirect adverse effects provides a basis for evaluating potential adverse effects, "(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features." (36 CFR Part 800.5)

The No Build Alternative would not have adverse effects on historic properties. For the Build Alternatives, Alternative B would adversely affect the NRHP eligible Union Hall and Alternative C would adversely affect the NRHP eligible BAE Maritime Historic District. The effects to these two properties are addressed in **Sections 4.16.4.10** and **4.16.6**. Build Alternatives A and B' (Preferred) do not adversely affect NRHP properties.

Coordination with the SHPO, ACHP, and other Section 106 Consulting Parties (**Section 6.4.3** and **Appendix A**) identified several potential indirect effects as a concern. These indirect effects include visual impacts, noise, air pollution, lighting, shadows from the bridge, and vibrations from construction activities. In assessing potential effects on historic properties, a determination was made as to whether or not the four Build Alternatives would indirectly diminish the integrity of the properties' significant historic features. The potential effects on historic properties are addressed in this DEIS:

- Visual effects are assessed in **Sections 4.16.4 – 4.16.7** and in **Appendix J**. Visual effects were identified at the Church Street East Historic District, Lower Dauphin Street Historic District, Old Southern Market and Old City Hall, Battleship USS Alabama Memorial Park and the Union Hall.
- Noise effects are assessed in **Sections 4.13, 4.16.4.1, 4.16.4.8** and **Appendix H**. Noise effects were identified at the Church Street East Historic District and the Oakdale Historic District.

- Effects on air quality are addressed in **Section 4.14** and **Appendix I**. No air quality impacts were identified for the proposed alternatives of this project.
- Lighting effects are addressed in **Section 4.15**. The new bridge will introduce a new light source in the night sky visible to historic properties along the I-10 corridor.
- Bridge shadow effects are addressed in **Section 4.15**. The proposed bridge would produce shadows.
- Construction vibration effects are addressed in **Section 4.17.5** and **Appendix K**. Construction techniques will be used that avoid vibration effects.

4.16.1 Historic Resources Consultation

Per 36 CFR 800.5, "the agency official, in consultation with SHPO/THPO, may propose a finding of no adverse effect when the undertaking's effects do not meet the criteria of paragraph (a) (1) of this section or the undertaking is modified or conditions are imposed, such as the subsequent review of plans for rehabilitation by SHPO/THPO to ensure consistency with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines, to avoid adverse effects."

Per 36 CFR 800.5, FHWA proposed their "Finding of Effects" in letters from ALDOT to the SHPO and consulting parties sent May 28, 2014. Their finding of direct effects were as follows:

- The No Build Alternative would not have adverse effects on historic properties.
- Alternative A would not have adverse effects on historic properties.
- Alternative B would have an adverse effect on the Union Hall and archaeological site 1MB412.
- Alternative B' (Preferred) would have an adverse effect on archaeological site 1MB412.
- Alternative C would adversely affect the NRHP eligible BAE Maritime Historic District and archaeological sites 1MB410, 1MB411, IMB498 and 1MB499.

Their finding of indirect effects were basically the same for all the alternatives, and are described here:

- Visual: The project's visual effects will not diminish these historic properties' location, design, setting, materials, workmanship, feeling, or association. As a result, there will be no adverse visual effects on historic properties.
- Noise: The project's noise effects will not diminish these historic properties' location, design, setting, materials, workmanship, feeling, or association. As a result, there will be no adverse noise effects on historic properties.
- Air Quality: No air quality impacts were identified for the proposed alternatives of this project. No historic properties will be affected by air pollution.
- Lighting: The nighttime viewshed lacks historic integrity as numerous existing lights are already present. New lighting will be designed so that light levels at the ROW boundary will be less than or equal to the existing light levels. The new lighting will not adversely affect historic properties.
- Shadow: The presence of shadows will not introduce incompatible visual elements at any historic properties. The bridge shadow will not adversely affect historic properties.
- Vibrations: Construction techniques will be used that avoid vibration effects. Vibrations will not affect historic properties.

The SHPO and consulting parties indicated ongoing concerns regarding the indirect effects of the project. The letters to the SHPO, consulting parties, and their response letters are included in **Appendix A**. Consultation will continue with the SHPO and other Section 106 Consulting Parties in an effort to reconcile differences on the severity of impacts and to identify measures to avoid adverse effects.

The following sections present descriptions/characteristics of individual historic properties along with a discussion of potential adverse effects on historic properties.

4.16.2 Historic Background

Mobile's history dates back to the 16th century when Spanish explorers moved through the area and documented Mobile Bay and the Mobile and Tensaw River Delta. French

explorers established a settlement in 1702 as the capital of colonial French Louisiana and, at various times in the 18th century, the French, British, and Spanish occupied Mobile. The City of Mobile became part of the United States in 1819 when the State of Alabama was formed. Extensive historical documentation exists regarding the history of Mobile from a wide variety of sources. Detailed information on the history of Mobile and Baldwin Counties, and specifically the study area for the I-10 Mobile River Bridge project area, has been developed for this project. The following reports: VOLUME 1, *Historical Background on the Port of Mobile During the Twentieth Century and Historic Building Survey and Viewshed Impact Assessment of BAE Systems Southeast Shipyards and the Former Bender Shipbuilding & Repair Company, Inc., Facilities for the Proposed Interstate-10 Mobile River Bridge and Bayway Widening;* VOLUME 2, *Historical Background, and Phase I Historic Building Survey for the Proposed Interstate-10 Mobile River Bridge and Bayway Widening,* and VOLUME 3, *Viewshed Impact Assessment for the Proposed Interstate-10 Mobile River Bridge and Bayway Widening Project* are included in **Appendix J.**

Since colonial times, the I-10 Bridge project study area has undergone numerous changes. For the most part, the property has been in private hands. The movement of development within the study area has, in general, been from north to south, as the northern portion is adjacent to Mobile's Central Business District. Mobile's riverfront development has especially adhered to this trend, beginning in the northern portion of the study area during the colonial and antebellum periods, and in the southern portion following the Civil War. This development trend continues today.

Presently, the area west of I-10, aside from the encroachments from the development of the Mobile Civic Center and Texas Street Park, consists almost exclusively of residential related developments, including a mixture of historical and modern homes, at least one historic church, and two historic schools.

The area east of I-10 has been altered considerably by commercial, municipal, and maritime development. The area bounded by Church Street on the north, Mobile River on the east, Virginia Street on the south, and S. Cedar Street on the west has undergone

vast changes over the years. From its beginnings, the majority of this area of the city, located immediately south of downtown, has supported residential developments. The portion of the study area located adjacent to Mobile River and east of S. Royal Street was first developed for commercial and industrial pursuits. Over time, much of the study area that was once residential was impacted by either commercial developments or community facilities. Despite the infill, many people still make their homes in portions of the study area, amidst an area that has steadily become heavily industrial.

4.16.3 Assessing the Viewshed

The RSA Tower dominates the Mobile skyline. The RSA Tower is the tallest building in the state of Alabama. There are also a number of tall office, hotel, and government buildings located in downtown Mobile that define the viewshed. The skyline along the Mobile River is characterized by tall cranes and manufacturing facilities associated with the maritime industry. North of downtown Mobile, the existing Cochrane-Africatown cable-stayed bridge is visible on the skyline. The proposed I-10 bridge will be a prominent feature. Visual effects will primarily be those associated with the high-level bridge as a new component to the existing Mobile skyline. Potential visual effects on historic buildings and historic districts were assessed based upon their setting, surroundings, and the appearance of proposed new bridge structures in the downtown Mobile area. The four alternative bridge locations would present different views depending upon the location the historic property, and the location of the viewer. **Figure 11** presents a rendering of the proposed bridge as presently conceived.

Sixty sites were identified for viewshed impact assessment at the request of the Section 106 Consulting Parties. These sites include 56 sites in the City of Mobile in Mobile County and four sites on the Eastern Shore of Baldwin County. These sites include 41 historic properties (buildings), 14 street intersections (not historic properties), two historic cemeteries, one historic neighborhood (Fort Condé Village), a military museum park (*USS Alabama* Battleship Memorial Park), and a modern civic building (Arthur R. Outlaw Mobile Convention Center). These sites were identified during field reviews with the Section 106 Consulting Parties and were chosen as key locations for the historic properties. The viewshed impact assessment at these sites was used in evaluating the

visual effects to the historic properties. This information is addressed in detail in **Appendix J**.

For a visible rendering of the appearance of the project on historic properties, Alternatives A, B, B' (Preferred) and C were computer modeled to scale. Georeferenced photographs of each site were then imported into the computer model at their respective elevations and angles. The computer modeled image of the alternatives was overlain on the original photographs to create a depiction of what Alternatives A, B, B' (Preferred), and C would look like from the sites. Potential visual effects were described in terms of blockage by other structures; sparse, moderate, and dense tree canopies; or other landscape features.

For historic properties where visual effects were <u>not</u> of concern, percentages were estimated of how much of the bridge, including deck and pylons, would be visible from each site. Evaluations were also based on distance from the resource to each bridge alternate **(Appendix J)**.

For historic properties where visual effects <u>were</u> of concern, the following three-step process was followed. First, considering the aspects of integrity, the viewshed was evaluated to determine if it contributes to the significance of the property and had integrity. Then, the possible visual effects were described. Finally, a determination of visual effect was made based on the integrity of the properties' significant historic features including the properties' location, design, setting, materials, workmanship, feeling or association. If the viewshed did not contribute to the historic significance of the historic property or was previously compromised, then the middle step was skipped.

Input related to bridge aesthetics will be sought during the coordination of visual effects in the FEIS, and efforts to seek public input will continue during the design phase. Measures that will be addressed include aesthetic treatment for various bridge (**Figure 11**) components such as the pylons, cables, piers, treatment of the underside of the bridge, and other visual enhancement or mitigation measures, including lighting.

NOTE: NOT TO SCALE

Figure 11
I-10 Mobile River Bridge and Bayway Widening
Bridge Rendering
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 11 - Bridge Rendering.mxd

4.16.4 Historic Districts

A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. Eleven historic districts in or near the APE of the proposed I-10 Mobile River Bridge project study area were identified and evaluated. They are shown on **Figure 12**. The details of the evaluation for each of the historic districts are described in the following sections.

4.16.4.1 Church Street East Historic District

Church Street East Historic District (**Figure 12**) includes much of the south side of downtown Mobile and is west-northwest of the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C. Church Street East Historic District covers approximately 169 acres and contains over 80 buildings including residential, commercial, governmental, and religious buildings. It was listed on the NRHP in 1971, with boundary increases in 1984 and 2005, based on Criterion C; the district embodies distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction. Specifically, the qualifying characteristic of Church Street East Historic District is its distinctive architecture, which includes examples of Classical Revival, Renaissance, Greek Revival, Federal, Italianate, Victorian, Neo-Classic, as well as the indigenous Gulf Coast Cottage and shotgun houses among other styles. Most of the contributing buildings in the Church Street East Historic District are single family homes with a diversity of architectural styles represented that are a distinctive link to Mobile's cultural heritage from ca. 1825 to 1925, its period of significance. In general, the Church Street East Historic District remains intact with streets lined with historic homes.

The setting within the historic district remains intact, maintaining a high degree of integrity. Old majestic Live Oaks line most of the streets, creating a dense tree canopy throughout the district. With the exception of a few non-historic houses, apartment complexes, commercial and civic buildings, the historic residences in Church Street East Historic District are predominantly one-story residences of wood frame and two-story

residences of brick; some of latter have original or replicated ornamental cast iron second-story balconies. A good number of the historic houses are used for business offices, yet retain their historic residential character.

This mixture of governmental, educational, religious, commercial, and residential buildings reflects the multi-faceted nature of the Church Street East Historic District. The Church Street East Historic District retains the aspects of integrity it originally possessed: location, design, setting, materials, workmanship, feeling and association.

The viewshed surrounding the Church Street East Historic District to the north is the Lower Dauphin Street Historic District, to the west is the Oakleigh Garden Historic District, to the northwest is the Old Dauphin Way Historic District, to the southeast are U.S. Interstate 10 elevated ramps, and to the south is a residential neighborhood consisting of primarily twentieth-century houses, interspersed with a small number of nineteenth-century houses.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the NRHP listed Church Street East Historic District.

Visual Effects: Infill buildings and structures are located within the viewshed of the Church Street East Historic District. These include tall downtown buildings, the courthouse, I-10 elevated ramps, the Maritime Museum, cruise terminal and parking garage. From the Old Southern Market and Old City Hall, the view beyond the district includes the Mobile Convention Center, Cooper Riverside Park, Maritime Museum, cruise terminal and parking garage, ramp to I-10, an air conditioning unit, overhead directional signage for I-10, and street lighting (**Photos 1-5**). From the Fort Condè Village, the viewshed beyond the district includes tall downtown buildings, the courthouse, I-10 elevated ramps, Maritime Museum, cruise terminal and parking garage, trees, and street lighting. This infill has not affected the setting or architectural significance of the Church Street East Historic District or the contributing resources within the district. Adding the proposed bridge does not change the character or diminish the setting of the district. The viewshed, beyond the district to the southeast, lacks

historic integrity and does not contribute to the significance of the district. Even though the proposed project alternatives will be visible from the district, none will have an adverse effect on the Church Street East Historic District. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

NOTE:
PROJECT CONTINUES BY WIDENING BAYWAY FROM 4 LANES TO 8 LANES TO U.S. HIGHWAY 98

Legend

- Viewshed Analysis Locations
- Alternative A
- Alternative B
- Alternative B Prime
- Alternative C
- Existing Tunnels
- Area Of Potential Effect
- Ship Channel
- USACE Disposal Area
- Viewshed Location Label
- Proposed Maritime Historic District
- Church Street East
- DeTonti Square
- Leinkauf
- Lower Dauphin
- Oakleigh Garden
- Old Dauphin Way
- Maysville
- Proposed Oakdale
- Campground
- MLK Heritage Neighborhood

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

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

Department Of Transportation

Figure 12
I-10 Mobile River Bridge and Bayway Widening
Cultural Resources
Project No. DPI-0030(005)

Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 12 - Cultural Resources Historic Districts APE.mxd

Photo Number 1 –
Southeast corner of the Church Street East Historic District/Old Southern Market and Old City Hall looking east-northeast at Mobile Convention Center and Cooper Riverside Park.

Photo Number 2 -
Southeast corner of the Church Street East Historic District/Old Southern Market and Old City Hall looking east at Cooper Riverside Park, overhead signs, and Maritime Museum.

Photo Number 3 -
Southeast corner of the Church Street East Historic District/Old Southern Market and Old City Hall looking southeast at Maritime Museum, overhead signs, and I-10 ramps.

Photo Number 4 -
Southeast corner of the Church Street East Historic District/Old Southern Market and Old City Hall looking south at I-10 ramp, overhead signs, and air conditioning unit.

Photo Number 5 –
South edge of the Church Street East Historic District/Old Southern Market and Old City Hall near the Christ Church property looking south at parking lot, I-10 overpass, streetlights, and trees.

Noise Effects: A detailed noise analysis was conducted for the entire study area using FHWA's Traffic Noise Model, Version 2.5 (TNM 2.5) (**Appendix H**). Noise impacts were identified in the Church Street East Historic District. This historic district is located in a highly developed environment and is in close proximity to the existing transportation network. The properties were reviewed and the increase in the projected noise levels for the Build Alternatives over the No-Build Alternative is 2 dBA or less, which is imperceptible by most people.

Construction activities would temporarily increase noise levels in the immediate vicinity of the construction site. Construction-related noise will be addressed in accordance with ALDOT specifications for construction activities and equipment.

Conclusion: There are potential visual and noise effects on the Church Street East Historic District, associated with the four Build Alternatives (**Photos 6-19**). These potential effects do not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. There will be no

physical effect on to the Church Street East Historic District. Visual and noise effects will not create a change in the character of the Church Street East Historic District's use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not diminish the Church Street East Historic District's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO expressed concerns of possible visual impacts to certain NRHP Resources within the Church Street East Historic District.

Photo Number 6 –
Church Street East Historic District looking east toward Cooper Riverside Park and Alternative A rendering.

Photo Number 7 –
Church Street East Historic District looking east toward Cooper Riverside Park and Alternative B rendering.

Photo Number 8 –
Church Street East Historic District looking east toward Cooper Riverside Park and Alternative B' (Preferred) rendering.

Photo Number 9 – Church Street East Historic District looking east toward Cooper Riverside Park and Alternative C rendering.

Photo Number 10 –
Church Street East Historic District looking east from Ft. Condè toward the existing Water Street interchange ramps and Alternative A rendering.

Photo Number 11 –
Church Street East Historic District looking east from Ft. Condè toward the existing Water Street interchange ramps and Alternative B rendering.

Photo Number 12 –
Church Street East Historic District looking east from Ft. Condè toward the existing Water Street interchange ramps and Alternative B' (Preferred) rendering.

Photo Number 13 –
Church Street East Historic District looking south toward the Phoenix Fire Museum and Alternative A rendering.

Photo Number 14 –
Church Street East Historic District looking south toward the Phoenix Fire Museum and Alternative B rendering.

Photo Number 15 –
Church Street East Historic District looking south toward the Phoenix Fire Museum and Alternative B' (Preferred) rendering.

Photo Number 16 –
Church Street East Historic District looking south toward the Phoenix Fire Museum and Alternative C rendering.

Photo Number 17 –
Church Street East Historic District looking southeast from Christ Episcopal Church toward Ft. Condè, Old City Hall, and Alternative A rendering.

Photo Number 18 –
Church Street East Historic District looking southeast from Christ Episcopal Church toward Ft. Condè, Old City Hall, and Alternative B rendering.

Photo Number 19 –
Church Street East Historic District looking southeast from Christ Episcopal Church toward Ft. Condè, Old City Hall, and Alternative B' (Preferred) rendering.

4.16.4.2 Lower Dauphin Street Historic District

Lower Dauphin Street Historic District (**Figure 12**) includes the main commercial thoroughfare of Dauphin Street in downtown Mobile, directly north of the Church Street East Historic District, and is north of the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C. Lower Dauphin Street Historic District covers approximately 56 acres along Dauphin Street and includes 185 buildings (primarily commercial buildings) considered to be contributing resources. The district was listed on the NRHP in 1979 with boundary increases in 1982, 1995, and 1998. The district was listed based on Criterion A, the district is associated with events that have made a significant contribution to the broad patterns of our history, and Criterion C, the district embodies distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction. Specifically the qualifying characteristics of Lower Dauphin Street Historic District are its history of commerce, community planning, and development, and its distinctive architecture. The district contains a diverse collection of historic commercial buildings

with a variety of commercial uses typical of a southern townscape of the nineteenth and early twentieth century. The district contains distinctive examples of Federal, Italianate, Classical Revival, Queen Anne, late Victorian, and late nineteenth and twentieth-century Classical Revival architecture. Its period of significance is from ca. 1825 to 1950.

The setting within the Lower Dauphin Street Historic District as a historic commercial area and historic neighborhood remains intact, maintaining a high degree of integrity. Old majestic Live Oaks line most of the streets creating a dense tree canopy throughout the district. Two city blocks within the Lower Dauphin Street Historic District are public parks. Bienville Square was established early in the city's history, ca. 1849. It contains an elaborate cast iron fountain, stone monuments, and majestic Live Oaks. Cathedral Square was created in 1979 when buildings on this city block were torn down. With the exception of a few non-historic houses, apartment complexes, and commercial buildings, the district's commercial areas and neighborhoods remain intact with streets lined with two-story brick buildings serving as department stores, specialty stores, small businesses, offices, restaurants, and entertainment venues, along with a mixture of one and two-story residential dwellings.

The Lower Dauphin Street Historic District represents the most intact early commercial avenue for the city of Mobile. The mixture of historic commercial buildings with smaller numbers of civic, religious, and residential buildings reflects the multi-faceted quality of the Lower Dauphin Street Historic District. The Lower Dauphin Street Historic District retains the aspects of integrity it originally possessed: location, design, setting, materials, workmanship, feeling, and association.

The viewshed surrounding the Lower Dauphin Street Historic District to the north and west is a mixture of historic and non-historic residential and commercial buildings, to the east is Mobile Convention Center and Alabama State Docks on the Mobile River, and to the south lies the Church Street Historic District.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the NRHP listed Lower Dauphin Street Historic District.

Visual Effects: Infill buildings and structures are located within the viewshed of the Lower Dauphin Street Historic District. These include tall downtown buildings, the Convention Center, IMAX Theater, the Maritime Museum, cruise terminal and parking garages. Looking toward the bridge locations from the corner of the district on Water Street, the view beyond the district includes the ASPA cranes, Mobile Convention Center, elevated walkway over Water Street, Maritime Museum, cruise terminal and parking garage, ramp to I-10, IMAX Theater, and city parking garage. Street lighting and trees are also visible along Water Street (**Photos 20 and 21**). Looking toward the bridge locations from the edge of the district on Royal Street, the view beyond the district includes the Riverview Plaza Hotel, IMAX Theater, Old Southern Market and Old City Hall, a new hotel, street lighting, and trees along Royal Street. This infill has not affected the setting or the architectural or commerce significance of the Lower Dauphin Street Historic District or contributing resources within the district. Adding the proposed bridge does not change the character or diminish the integrity of the setting of the district. The viewshed, beyond the district to the east and southeast, lacks historic integrity and does not contribute to the significance of the district. Even though the proposed project alternatives will be visible from the district, none will have an adverse effect on the Lower Dauphin Street Historic District. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

Conclusion: There are potential visual effects on the Lower Dauphin Street Historic District, associated with the four Build Alternatives (**Photos 22-25**). These potential effects do not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. There will be no physical effect to the Lower Dauphin Street Historic District. Visual effects will not create a change in the character of the Lower Dauphin Street Historic District's use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not diminish the Lower Dauphin Street Historic District's location, design, setting, materials,

workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. SHPO expressed concern about potential visual impacts at the intersection of St. Emanuel & S. Conti in correspondence dated June 30, 2014.

Photo Number 20 –
Edge of Lower Dauphin Street Historic District looking southeast at Mobile Convention Center, elevated walkway, Maritime Museum, and cruise terminal.

Photo Number 21 –
Edge of Lower Dauphin Street Historic District looking south at Mobile Convention Center, elevated walkway, Maritime Museum, cruise terminal, and

Photo Number 22 –
Lower Dauphin Street Historic District looking south toward Alternative A rendering.

Photo Number 23 –
Lower Dauphin Street Historic District looking south toward Alternative B rendering.

Photo Number 24 –
Lower Dauphin Street Historic District looking south toward Alternative B' (Preferred) rendering.

Photo Number 25 –
Lower Dauphin Street Historic District looking south toward Alternative C rendering.

4.16.4.3 De Tonti Square Historic District

De Tonti Square Historic District (**Figure 12**) is on the north side of downtown Mobile, about 0.6 miles north-northwest of the nearest bridge route, Alternative A. De Tonti Square Historic District was listed on the NRHP in 1972. It covers approximately 36 acres and is roughly bounded by Adams Street on the north, N. Conception Street on the east, St. Anthony Street on the south, and N. Claiborne Street on the west.

De Tonti Square Historic District contains 66 buildings (primarily residential buildings) considered to be contributing resources. The historical significance of De Tonti Square Historic District is its architecture, with examples of Federal, Italianate, Classical Revival, and late Victorian styles. Its period of significance is from ca. 1825 to 1925. The district is primarily a residential neighborhood with one and two-story houses.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the NRHP-listed De Tonti Square Historic District.

Visual Effects: The historic district is 0.6 to 1.1 mile from the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred) and C. Looking toward the bridge

locations from the southern edge of the district, the viewshed beyond the district includes nearby trees and multistory buildings in downtown that block the view of the bridge alternatives. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

Conclusion: Alternatives A, B, and B' (Preferred) would have minimal visual effects on De Tonti Square Historic District. Alternative C would have no visual effect on De Tonti Square Historic District. There are potential visual effects on the De Tonti Square Historic District. These potential effects do not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the De Tonti Square Historic District. Visual effects will not create a change in the character of the De Tonti Square Historic District's use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not diminish the De Tonti Square Historic District's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO concurred.

4.16.4.4 Oakleigh Garden Historic District

Oakleigh Garden Historic District (**Figure 12**) is relatively distant from the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C, with the east edge 0.6 miles from the nearest bridge route, Alternative A. Oakleigh Garden Historic District was listed on the NRHP in 1972, with a boundary increase in 1991. It covers approximately 279 acres and is roughly bounded by Government Street on the north, S. Broad Street on the east, Texas Street on the south, and S. Ann Street on the west.

Oakleigh Garden Historic District contains 288 buildings (primarily residential buildings) considered to be contributing resources. The historical significance of Oakleigh Garden Historic District is its architecture, including examples of Federal, Classical Revival, late Victorian, and Craftsman styles. Its period of significance is from ca. 1825 to 1950. The district is primarily a residential neighborhood with one and two-story houses.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the NRHP listed Oakleigh Garden Historic District.

Visual Effects: The historic district is 0.6 to 0.7 mile from the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C. The majority of this large historic district is farther away, up to 1.4 miles from the proposed I-10 Mobile River Bridge. Looking toward the bridge alternatives from the eastern edge of the district, the viewshed beyond the district includes one and two-story houses, commercial buildings, and dense tree cover that block the view of the proposed bridge from the closest points of the Oakleigh Garden Historic District. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

Conclusion: Proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C would have minimal effects on the viewshed of the eastern edge of Oakleigh Garden Historic District. There would be no visual effect for the majority of Oakleigh Garden Historic District. These potential effects do not alter, directly or indirectly, any of the characteristics of the historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the Oakleigh Garden Historic District. Visual effects will not create a change in the character of the Oakleigh Garden Historic District's use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not diminish the Oakleigh Garden Historic District's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO concurred.

4.16.4.5 Old Dauphin Way Historic District

Old Dauphin Way Historic District (**Figure 12**) is relatively distant from the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C, with the east edge 0.7 mile from the nearest bridge alternative. Old Dauphin Way Historic District was listed on the NRHP in 1984. It covers approximately 657 acres and is roughly bounded by Springhill Avenue on the north, S. Broad Street on the east, Government Street on the south, and Houston Street on the west.

Old Dauphin Way Historic District contains 1,466 buildings (primarily residential buildings) considered to be contributing resources. The historical significance of Old Dauphin Way Historic District is its architecture, with examples of late Victorian and late nineteenth and twentieth-century Classical Revivals, among other styles. Its period of significance is from ca. 1825 to 1950. The district is primarily a residential neighborhood with one and two-story houses.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the NRHP listed Old Dauphin Way Historic District.

Visual Effects: The historic district is 0.8 to 1.0 mile from the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C. The majority of this large historic district is farther away, up to over 2.0 miles, from the proposed I-10 Mobile River Bridge. Looking toward the bridge alternatives from the southeast corner of the district, the viewshed beyond the district includes commercial buildings, churches, houses, and trees that block the view of the proposed bridge from the closest points of the Old Dauphin Way Historic District. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

Conclusion: Proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C would have minimal effects on the viewshed of the eastern edge of Old Dauphin Way Historic District. There would be no viewshed effect for the majority of Old Dauphin Way Historic District. These potential effects do not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the Old Dauphin Way Historic District. Visual effects will not create a change in the character of the Old Dauphin Way Historic District's use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not diminish the Old Dauphin Way Historic District's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO concurred.

4.16.4.6 The Campground Historic District

The Campground Historic District (**Figure 12**) is about 1.5 miles west-northwest and adjacent to the APE for the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C. The Campground Historic District was listed on the NRHP in 2004. It covers approximately 37 acres and is roughly bounded by Dr. Martin Luther King, Jr. Avenue on the north, N. Ann Street on the east, St. Stephens Road on the south, and Ryland Street on the west. The Campground Historic District lies within, and is part of, the much larger Martin Luther King, Jr., Heritage Neighborhood.

The Campground Historic District contains 166 buildings (primarily residential buildings), considered to be contributing resources. The historical significance of the Campground Historic District is its social history as an African-American neighborhood and its architecture with examples of Classical Revival and late Victorian styles, among others. Its period of significance is from ca. 1875 to 1950. The district is primarily a residential neighborhood with one and two-story houses.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the NRHP listed the Campground Historic District.

Visual Effects: The historic district is 1.5 to 1.7 miles from the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C. Multi-story non-historic buildings in downtown Mobile would provide blockage of the proposed I-10 Mobile River Bridge from much of the Campground Historic District. Looking toward the bridge alternatives from the eastern edge of the district, the viewshed beyond the district includes nearby one and two-story houses, trees, and multi-story buildings in downtown Mobile that block the view of the proposed bridge from the closest points of the Camp Ground Historic District. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

Conclusion: There would be no viewshed effects for the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred) , and C for the Campground Historic District. The project will not alter, directly or indirectly, any of the characteristics of a historic

property that qualify the property for inclusion in the National Register. There will be no physical effects to the Campground Historic District. The project will not create a change in the character of the Campground Historic District's use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not affect the Campground Historic District's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO concurred.

4.16.4.7 Martin Luther King, Jr., Heritage Neighborhood

The Martin Luther King, Jr., Heritage Neighborhood (**Figure 12**) is located on the northwest boundary of the APE for the proposed I-10 Mobile River Bridge. This large, historically African-American community (which includes the Campground Historic District) was designated a heritage neighborhood by the Mobile City Council in 2002. Martin Luther King, Jr., Heritage Neighborhood covers approximately 715 acres.

Martin Luther King, Jr., Heritage Neighborhood contains hundreds of buildings, mostly residential with some commercial, educational, and religious buildings. The historical significance of Martin Luther King, Jr., Heritage Neighborhood is its social history as an African-American community. Its period of significance is from ca. 1875 to 1950. The neighborhood consists of primarily one-story houses.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the Martin Luther King, Jr., Heritage Neighborhood.

Visual Effects: The neighborhood is 0.7 to 1.1 miles from the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C. Looking toward the bridge alternatives from the southeast edge of the district, the viewshed beyond the district includes one and two-story houses, trees, commercial buildings, and multi-story buildings in downtown Mobile that block the view of the proposed bridge from the closest points of the Martin Luther King, Jr., Heritage Neighborhood. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

Conclusion: Alternatives A, B, and B' (Preferred) would have minimal effects on the viewshed of Martin Luther King, Jr., Heritage Neighborhood. Alternatives A, B, and B' (Preferred) would be visible from the Martin Luther King, Jr., Heritage Neighborhood. Alternative C would have no viewshed effect on the Martin Luther King, Jr., Heritage Neighborhood. These potential effects do not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the Martin Luther King, Jr., Heritage Neighborhood. Visual effects will not create a change in the character of the Martin Luther King, Jr., Heritage Neighborhood's use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not diminish the Martin Luther King, Jr., Heritage Neighborhood's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO concurred.

4.16.4.8 Oakdale Historic District

Oakdale Historic District (**Figure 12**) is south-southwest of downtown Mobile adjacent to the western terminus of the proposed I-10 Mobile River Bridge Alternative C and the proposed realignment of the Virginia Street interchange with I-10. It covers approximately 511 acres and is bounded by Virginia Street on the north, I-10 on the east, Preston Street on the south, and S. Ann Street on the west.

The proposed Oakdale Historic District contains 881 buildings (primarily residential, with a few commercial buildings) considered as potential contributing resources. The historical significance of the proposed Oakdale Historic District is its social history as a working class neighborhood and its architecture, including late Victorian, twentieth-century Classical Revival, Craftsman, and Mission styles. Its period of significance is from ca. 1900 to 1950. The district is primarily a residential neighborhood with one and two-story houses.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the NRHP eligible Oakdale Historic District.

Visual Effects: Oakdale Historic District is 0.5 to 0.7 miles from the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C. Looking toward the bridge alternatives from the northeast corner of the district, the viewshed beyond the district includes commercial buildings, one and two-story houses, trees, I-10 Virginia Street overpass and elevated approaches, APM Terminals, overhead signage, and street lighting that provide blockage of the proposed bridge from the closest points of the Oakdale Historic District. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

Noise Effects: A detailed noise analysis was conducted for the entire study area using FHWA's Traffic Noise Model, Version 2.5 (TNM 2.5) (**Appendix H**). Noise effects were identified in the Oakdale Historic District. This historic district is located in a highly developed environment and is in close proximity to the existing transportation network. The properties were reviewed, and the increase in the projected noise levels for the Build Alternatives over the No-Build Alternative is 2 dBA or less, which is imperceptible by most people.

Construction activities would temporarily increase noise levels in the immediate vicinity of the construction site. Construction-related noise will be addressed in accordance with ALDOT specifications for construction activities and equipment.

Conclusion: There would be no visual effect of the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C for the Oakdale Historic District. Potential traffic noise effects will not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the Oakdale Historic District. Traffic noise effects will not create a change in the character of the Oakdale Historic District's use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not diminish the Oakdale Historic District's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO concurred.

4.16.4.9 Maysville Historic District

The Maysville Historic District (**Figure 12**) is southwest of downtown Mobile approximately 1.5 miles west of the western terminus of the proposed I-10 Mobile River Bridge. It covers approximately 447 acres and is bounded by Virginia Street on the north, S. Ann Street on the east, Duval Street on the south, and Houston Street on the west.

The Maysville Historic District contains 1,100 buildings (primarily residential, with some commercial, religious, and educational buildings). Not all of these buildings are contributing resources. The historical significance of the Maysville Historic District is its social history as an African-American neighborhood and its architecture, including late Victorian, twentieth-century Classical Revival, Craftsman, and Mission styles. Its period of significance is from ca. 1900 to 1950. The district is primarily a residential neighborhood with one and two-story houses.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the Maysville Historic District which was listed on the NRHP on December 25, 2013.

Visual Effects: Maysville Historic District is 1.5 to 1.6 miles for the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C. Looking toward the bridge alternatives from the northeast corner of the district, the viewshed beyond the district includes Magnolia Cemetery and trees that provide blockage of the proposed bridge from the closest point of the Maysville Historic District. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

Conclusion: There would be no visual effect of the proposed I-10 Mobile River Bridge Alternatives A, B, B' (Preferred), and C for the Maysville Historic District. The project will not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the Maysville Historic District. The project will not create a change in the character of the Maysville Historic District's use or setting or introduce incompatible

visual, atmospheric, or audible elements. The project will not effect the Maysville Historic District's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO concurred.

4.16.4.10 BAE Maritime Historic District

BAE Systems Southeast Shipyards (BAE) (**Figure 12**) includes about 100 acres of Pinto Island on the east side of the Mobile River and across from downtown Mobile. BAE is south of the proposed Mobile River I-10 Bridge Alternatives A, B and B' (Preferred). Alternative C crosses BAE. BAE consists of a number of buildings dating back to the early 1940s World War II Alabama Dry Dock and Shipbuilding Company (ADDSCO) shipyard (formerly Atlantic Marine, Inc. shipyard, now BAE Systems Southeast Shipyards). Vacant and operating ship repair buildings cover the shipyard along with related machinery and equipment. Buildings range in size from very small pump houses, compressor houses, and generator buildings, to medium and large work and repair shops, to very large warehouses and machine shops. Also present is a World War II floating dry dock, one of a few remaining in the United States. BAE is considered NRHP eligible under Criterion A, as a property associated with a specific event in American prehistory or history, or pattern of events that make a significant contribution to the development of a community, a state, or the nation. The shipyard complex is also considered NRHP eligible under Criterion C, as a property significant for its physical design or construction, including distinctive architectural characteristics of type, period, or method of construction. Specifically the BAE is considered NRHP eligible for its early association with Mobile's shipbuilding industry and the architectural styles present in the district. Thirteen buildings were identified that are greater than 50 years old. All thirteen buildings are considered contributing resources to the historic district. In general, the shipyard remains intact with streets, office buildings, piers, cranes, dry-docks, repair shops, and fabrication facilities representing a collection of resources associated with Mobile's shipbuilding industry.

The setting within BAE remains intact with many of its original buildings in place. The BAE facilities are actively being used to work on vessels and exhibit a collection of ships in various states of repair. Frequently, the ships being repaired are massive cargo, cruise, and drilling ships that are raised out of the water on drydocks and reach vertical elevations well above the landside repair facilities. BAE retains the aspects of integrity it originally possessed: location, design, setting, materials, workmanship, feeling and association.

The viewshed surrounding BAE to the north contains grain silos, multistory buildings in downtown Mobile, the I-10 Water Street interchange and a partial view of the Austal shipbuilding facility; to the west is the Mobile River, Signal shipyard; to the south is the Mobile River, Choctaw Point Container Terminal, coal and steel loading facilities, and a number of piers and tall cranes; and to the east are wetland areas and Mobile Bay.

Direct Effects: Alternatives A, B, and B' (Preferred) do not require the acquisition of property from BAE. Alternative C requires the acquisition of property from BAE. Alternative C does not require the demolition of any of the thirteen contributing resources.

Visual Effects: Infill buildings and structures are located within the viewshed of the BAE Maritime Historic District. These include tall downtown buildings, interstate ramps, silos, and ship building facilities. Looking toward the bridge locations from BAE, the viewshed beyond the district includes the Signal Shipyard, I-10 Water Street interchange, multistory buildings in downtown Mobile, grain silos, and a partial view of the Austal facility. This infill has not affected the setting or the architectural or historical significance of BAE or the contributing resources within the district. Adding the proposed bridge does not change the character or diminish the integrity of the setting of the district. The viewshed, beyond the district to the northwest, lacks historic integrity and does not contribute to the significance of the resource. Even though the proposed project alternatives will be visible from the district, none will have an adverse effect on the BAE Maritime Historic District. A more extensive discussion of viewshed impacts throughout the district is presented in **Appendix J**.

Conclusion: There are potential visual effects on the BAE Maritime Historic District, associated with the four Build Alternatives. These potential visual effects do not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the BAE Maritime Historic District with Alternatives A, B and B' (Preferred). Visual effects will not create a change in the character of the BAE Maritime Historic District's use or setting or introduce incompatible visual, atmospheric, or audible elements. Alternatives A, B, and B' (Preferred) will not diminish the BAE Maritime Historic District's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made for Alternatives A, B, and B' (Preferred). Alternative C would require land from the BAE Maritime Historic District constituting an adverse effect on the property. SHPO concurred in their correspondence dated June 30, 2014.

4.16.4.11 Signal Marine

Signal Marine (formerly Bender Shipbuilding & Repair Company) (**Figure 12**) consists of 14 buildings. Ten buildings were determined to be over 50 years of age. Four buildings are not over 50 years of age. The Signal complex is a large tract of land south of Eslava Street on the west side of the Mobile River. South Water Street runs north-south through the various city blocks owned by Signal. Signal is south of downtown Mobile in a commercial and industrial area with a few scattered occupied residences and vacant buildings, both residential and commercial. It covers approximately 80 acres. Most of the property is a relatively open area, covered with asphalt and gravel drives and parking areas. Shipyard related machinery and equipment also occupy the area.

Due to a lack of integrity, continuity, and historical significance, it was determined that Signal Marine was not considered eligible for the NRHP. Therefore, a viewshed assessment was not done for this property. SHPO concurred in their correspondence dated July 12, 2007 (**Appendix A**).

4.16.5 National Historic Landmarks

Four properties that were found listed as NHL with the National Park Service are in the APE of the proposed I-10 Mobile River Bridge project study area, and are included in the study for the project. These include Old Southern Market and Old City Hall, *USS Alabama* Battleship and *USS Drum* Submarine (both located at Battleship *USS Alabama* Memorial Park), and Government Street Presbyterian Church.

Direct Effects: Alternatives A, B, B' (Preferred), and C do not require the acquisition of property from the NHL listed Old Southern Market and Old City Hall, *USS Alabama* Battleship, *USS Drum* Submarine, or Government Street Presbyterian Church.

4.16.5.1 Old Southern Market and Old City Hall

Old Southern Market and Old City Hall (now Museum of Mobile) is located at 111 S. Royal Street in downtown Mobile, north of the proposed Mobile River Bridge Alternatives A, B, B' (Preferred) and C. The new north facing Gulf Coast Exploreum and IMAX Theater covers the north half of the same city-block on S. Royal Street. The historic property is a Greek Revival style "L" shaped collection of three main buildings connected by overhead walls affording entry into a courtyard. The building was completed in 1857 and served as a market, armory, and municipal complex. Although altered from time to time over the 20th Century, in 1969 the Old Southern Market and Old City Hall was nominated to the NRHP under Criterion A and Criterion C with architecture and commerce as areas of significance. It was declared a NHL in 1973.

Through alterations, an addition, renovations, and restoration the present setting of Old Southern Market and Old City Hall (now Museum of Mobile) still retains a high degree of historical integrity.

The viewshed surrounding the Old Southern Market and City Hall (now Museum of Mobile) to the north consists of historic storefronts and the multi-story Hampton Inn and Riverview Plaza Hotel. To the east is five-lane Water Street with the Arthur R. Outlaw Mobile Convention Center and Cooper Riverfront Park on the Mobile River. To the south are parking lots, I-10 ramps, and Fort Condé Visitor Center, and to the west is a vacant

city lot with grass, where the Mobile County Probate Courthouse once stood, with a view of Christ Episcopal Church.

Visual Effects: Infill buildings and structures are located within the viewshed of the Old Southern Market and City Hall (now Museum of Mobile). From the Old Southern Market and Old City Hall (now Museum of Mobile), the viewshed beyond the resource includes the Mobile Convention Center, Cooper Riverside Park, the Maritime Museum, cruise terminal and parking garage, ramp to I-10, an air conditioning unit, overhead directional signage for I-10, and street lighting (**Photos 1-5**). This infill has not affected the setting or architectural significance of the Old Southern Market and City Hall (now Museum of Mobile). Adding the proposed bridge does not change the character or diminish the integrity of the setting of the Old Southern Market and Old City Hall (now Museum of Mobile). The viewshed, beyond the property to the south, lacks historic integrity and does not contribute to the significance of the historic property. Even though the proposed project alternatives will be visible from the property, none will have an adverse effect on the setting or the architectural significance of the Old Southern Market and City Hall (now Museum of Mobile). A more extensive discussion of viewshed impacts on the Old Southern Market and City Hall (now Museum of Mobile) is presented in **Appendix J**.

Conclusion: There are potential visual effects on the Old Southern Market and Old City Hall (now Museum of Mobile), associated with the four Build Alternatives (**Photos 26-28**). These potential effects do not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the Old Southern Market and Old City Hall (now Museum of Mobile). Visual effects will not create a change in the character of the Old Southern Market and City Hall (now Museum of Mobile)'s use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not diminish the Old Southern Market and City Hall (now Museum of Mobile)'s location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014.

In correspondence dated June 30, 2014, SHPO expressed concern about potential visual impacts.

Photo Number 26 –
Old Southern Market and Old City Hall (now Museum of Mobile) looking southeast toward Alternative A rendering.

Photo Number 27 –
Old Southern Market and Old City Hall (now Museum of Mobile) looking southeast toward Alternative B rendering.

Photo Number 28 –
Old Southern Market and Old City Hall (now Museum of Mobile) looking southeast toward Alternative B' (Preferred) rendering.

4.16.5.2 Battleship USS Alabama Memorial Park

Battleship *USS Alabama* Memorial Park is located on the Causeway. Battleship *USS Alabama* Memorial Park was opened in 1963 shortly after the arrival of the NHL *USS Alabama*. The park is owned by the State of Alabama and administered by a Board of Commissioners appointed by the Governor. The highlight of the park is the NHL *USS Alabama*. Commissioned in August 1942, the 35,000-ton *USS Alabama* is one of only two surviving SOUTH DAKOTA class battleships built as part of America's preparations for World War II (WWII). The ship spent 40 months in active service in the Pacific during WWII. She participated in 26 engagements and earned nine battle stars on her Asiatic-Pacific Theater Campaign ribbon. *USS Alabama* was designated a NHL in 1986. The NHL *USS Drum* submarine is also a major attraction within the Battleship *USS Alabama* Memorial Park. The *USS Drum* was built for WWII service at Portsmouth Naval Shipyard, and it is the oldest submarine of its kind still in existence.

The setting within the park contains a brick building with a gift store, snack bar, ticket office, and the entranceway to *USS Alabama*. The park also includes a large metal

Aircraft Pavilion, a metal maintenance building, the NHL *USS Drum*, and Korean and Vietnam War Memorials. A parking lot covers the southeast quarter of the park and the remainder is grass, landscaping and wetlands.

The viewshed surrounding the park consists of Mobile Bay to the north, east, and south and the City of Mobile to the west. The existing I-10 elevated twin bridges across Mobile Bay and the existing Causeway are both visible from much of the park. In the west viewshed toward the proposed bridge locations is moderate tree canopy, and taller downtown buildings such as RSA-Bank Trust Building and RSA Tower. Also visible in the viewshed are buildings at BAE Shipyard, a maintenance warehouse, a dredge material disposal area, the top of Austal's buildings, a motel, and a restaurant.

Visual Effects: Infill buildings and structures are located within the viewshed of Battleship *USS Alabama* Memorial Park. The viewshed beyond the park includes the RSA-Bank Trust Building and RSA Tower, structures at BAE Shipyard, a maintenance warehouse, a dredge material disposal area, the top of Austal's buildings, a motel, and a restaurant. This infill has not affected the setting or historical significance of Battleship *USS Alabama* Memorial Park. Adding the proposed bridge does not change the character or diminish the integrity of the setting of the park. The viewshed, beyond the property to the west, lacks historic integrity and does not contribute to the significance of the resource. Even though the proposed project alternatives will be visible from the park, none will have an adverse effect on the setting or the historical significance of Battleship *USS Alabama* Memorial Park. A more extensive discussion of viewshed impacts on Battleship *USS Alabama* Memorial Park is presented in **Appendix J**.

Photo Number 29–
Battleship Park Alternative A rendering.

Photo Number 30–
Battleship Park Alternative B rendering.

Photo Number 31–
Battleship Park Alternative B' rendering.

Photo Number 32–
Battleship Park Alternative C rendering.

Conclusion: There are potential visual effects on Battleship *USS Alabama* Memorial Park, associated with the four Build Alternatives (**Photos 29-32**). These potential effects do not alter, directly or indirectly, any of the characteristics of the historic property that qualify the property for inclusion in the National Register. There will be no physical effects to Battleship *USS Alabama* Memorial Park. Visual effects will not create a change in the character of Battleship *USS Alabama* Memorial Park's use or setting or introduce incompatible visual, atmospheric, or audible elements. It is our determination that the project will not diminish the Battleship *USS Alabama* Memorial Park's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO concurred.

SHPO recommends a study to determine the best routes from all transportation facilities to Battleship *USS Alabama* Memorial Park and to address signage to direct visitors to the park. Access to the Battleship *USS Alabama* Memorial Park will not be impacted by the proposed project. ALDOT will coordinate with SHPO, *USS Alabama* Commission, and the consulting parties to develop signage to direct visitors to the park.

4.16.5.3 Government Street Presbyterian Church

Government Street Presbyterian Church is located at 300 Government Street in the Church Street East Historic District in downtown Mobile. Construction of Government Street Presbyterian Church began in 1834 and was completed in 1836. Shortly after, this church was illustrated on the 1838 city map of Mobile drawn by John LaTourette, showing its original large central steeple. The church faces south toward the proposed I-10 Mobile River Bridge. Based on Criterion A and Criterion B, its history and architectural style, Government Street Presbyterian Church was also listed on the NRHP in 1971 as a contributing resource in the Church Street East Historic District. It was designated a NHL by the U.S. Department of the Interior on October 5, 1992.

Still in its original setting, the building retains most of its classical Greek architectural details (minus the steeple) and original features. It is in excellent condition.

The current viewshed consists of moderate to dense tree canopy, mostly Live Oaks lining Government and Claiborne Streets, with a mixture of historic (Admiral Semmes Hotel and the former Mobile Press-Register building) and non-historic commercial buildings (Mobile County parking garage and Lafayette Plaza Hotel) on Government Street. A large paved parking lot covers nearly the entire city block east of the church.

Visual Effects: From the top of the front stairs of Government Street Presbyterian Church, Alternatives A, B, B' (Preferred), and C would be largely blocked by tall historic and non-historic buildings, including the four-story parking garage, Admiral Semmes Hotel and Government Plaza (both 12 stories high), and seventeen-story Lafayette Plaza Hotel. The Alternative A bridge deck would be partially visible between the parking garage and Lafayette Plaza Hotel, resulting in minimal viewshed effects. From this same location, the bridge decks of Alternatives B and B' (Preferred) would be partially visible, resulting in minimal viewshed effects. Due to distance (0.7 mile) and blockage by structures, the bridge deck of Alternative C would be partially visible, resulting in minimal viewshed effects.

Conclusion: Alternatives A, B, B' (Preferred), and C would have minimal effects on the viewshed of the Government Street Presbyterian Church. These potential effects do not alter, directly or indirectly, any of the characteristics of the historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the Government Street Presbyterian Church. Visual effects will not create a change in the character of the Government Street Presbyterian Church's use or setting or introduce incompatible visual, atmospheric, or audible elements. The project will not diminish Government Street Presbyterian Church's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made and submitted to SHPO in a letter dated May 28, 2014. In correspondence dated June 30, 2014, SHPO concurred.

4.16.6 Historic Structure (Union Hall)

The Union Hall, located outside of the previously defined historic districts, is considered eligible for the NRHP under Criterion A: the property is associated with a specific event

or patterns of events in American History that make a significant contribution to the development of a community, a state or nation. Specifically, the significance of Shipbuilders Local 18 Union Hall lies in its role in World War II, use as the IUMSWA meeting hall, and its association with the development of Mobile's shipyard industry. Union Hall was used for about 45 years by Local 18 of the Industrial Union of Marine and Shipbuilding Workers of America (IUMSWA), representing shipyard workers at the Alabama Dry Dock & Shipbuilding Company (ADDSCO). The Union Hall remains in proximity to the shipbuilding industry.

Although the building retains integrity of location, it lacks the integrity of setting it possessed during its period of significance. Still sitting at a main north-south commercial thoroughfare through downtown Mobile, it lies amiss in an abandoned section of Madison Street with an abandoned gravel parking lot accessed by paved driveways; sharing a city lot with three other vacant buildings. None of the three were found eligible for the NRHP.

The view of the proposed bridge will not diminish the historical significance of the Union Hall.

The viewshed surrounding the Union Hall to the north consists of I-10 interchange ramps, multi-story downtown buildings, trees, and street lights; looking east are a parking garage, shipbuilding facilities, and utility poles; looking south are shipbuilding facilities, warehouses, and bail bond businesses; and looking west are I-10 ramps, Mobile Civic Center, and parking lots.

Direct Effects: Alternative A would be located about 0.1 miles north of the Union Hall. Alternative B would cross the Union Hall, and Alternative B' (Preferred) would cross 17 feet south of the Union Hall. Alternative C would be located approximately 0.28 mile south of the Union Hall. Alternatives A, B' (Preferred), and C do not require the acquisition of property from the Union Hall. Alternative B would require acquisition of the Union Hall and the Union Hall would be demolished.

Visual Effects: Infill buildings and structures are located within the viewshed of the Union Hall. Looking north toward Alternative A, the view beyond the property includes tall downtown buildings, I-10 interchange ramps, streetlights, a parking garage, and the Mobile Civic Center. Looking south toward Alternatives B' (Preferred) and C, the view beyond the property includes shipbuilding facilities, warehouses, and bail bond businesses. This infill has affected the setting but not the historical significance of the Union Hall. Adding the proposed bridge does not change the character or diminish the already compromised integrity of the setting of the property. The view beyond the property to the north and south lacks historic integrity and does not contribute to the significance of the property. Even though the proposed project alternatives will be visible from the property, none will have an adverse effect on the historical significance of the Union Hall. A more extensive discussion of viewshed impacts on the Union Hall is presented in **Appendix J**.

Conclusion: There are potential visual effects on the Union Hall, for Alternatives A, B' (Preferred), and C (**Photos 33-36**). These potential visual effects do not alter, directly or indirectly, any of the characteristics of the historic property that qualify the property for inclusion in the National Register. There will be no physical effects to the Union Hall with Alternatives A, B' (Preferred), and C. Visual effects will not create a change in the character of the Union Hall's use or setting or introduce incompatible visual, atmospheric, or audible elements. Alternatives A, B' (Preferred), and C will not diminish the Union Hall's location, design, setting, materials, workmanship, feeling, or association. Based on this information, a finding of no adverse effect was made for Alternatives A, B' (Preferred), and C. Direct use of the Union Hall would occur with Alternative B, constituting an adverse effect on the property. In correspondence dated June 30, 2014, SHPO concurred.

Photo Number 33 –
Union Hall looking north toward Alternative A rendering.

Photo Number 34 –
Union Hall looking south toward Alternative B rendering.

Photo Number 35 –
Union Hall looking north toward Alternative B’ (Preferred) rendering.

Photo Number 36 –
Union Hall looking south toward Alternative C rendering.

4.16.7 Summary of Viewshed Impacts

A Viewshed Impact Assessment was completed to identify and describe potential visual effects resulting from the proposed project (**Appendix J**). **Table 23** provides an assessment of NRHP eligibility, adverse effects, and direct uses of historic properties. SHPO correspondence dated November 15, 2012 and June 30, 2014, is provided in **Appendix A**. The historic properties of concern for potential indirect visual effects are the Church Street East Historic District, Lower Dauphin Street Historic District, Old Southern Market/Old City Hall, and Union Hall.

Table 23: Section 106 Potential Effects

Historic Resource	NRHP Eligible	Adverse Visual Effect	Direct Use of Historic Property
Church Street East Historic District	Yes [1]	No	No
Lower Dauphin Street Historic District	Yes [1]	No	No
De Toni Square Historic District	Yes [1]	No	No
Oakleigh Garden Historic District	Yes [1]	No	No
Old Dauphin Way Historic District	Yes [1]	No	No
Campground Historic District and Martin Luther King Heritage Neighborhood	Yes [1]	No	No
Maysville Historic District	Yes [1]	No	No
Oakdale Historic District	Yes	No	No
Union Hall	Yes	No	Alternative B
Old Southern Market	Yes [2]	No	No
USS Alabama	Yes [2]	No	No
Government Presbyterian Church	Yes [2]	No	No
BAE Maritime Historic District	Yes	No	Alternative C

[1] NRHP Listed
[2] NHL

4.16.8 Archaeological Sites

Based on a review of the Alabama State Site File (ASSF), numerous archaeological investigations have occurred in and around downtown Mobile, north of the proposed I-10 Mobile River Bridge project study area. Most of these downtown investigations occurred over the last several decades and were associated with building and highway construction.

A Phase I archaeological survey was conducted in compliance with Secretary of the Interior and Alabama Historical Commission (AHC) guidelines for archaeological survey and testing. The Phase I archaeological survey involved pedestrian survey (i.e., the visual inspection of exposed ground surface) and the excavation of shovel tests in the I-10 Mobile River Bridge project study area. Pedestrian surveys and shovel testing were not performed along the Bayway because the area consists primarily of open water with constructed fill areas associated with the existing Bayway and Causeway.

Five archaeological sites (1MB410, 1MB411, 1MB412, 1MB498, and 1MB499) considered eligible for listing on the NRHP based on Criterion D were identified during archaeological surveys conducted on land. Under Criterion D, a property has yielded, or has the potential to yield, information important to prehistory or history. There is a probability of intact historic-period features, such as structure foundations, refuse pits, and privies, associated with the late nineteenth and early twentieth-century occupations at each of the sites. Earlier archaeological surveys were conducted for Alternative A under the previous EA in 2003. Alternative A has no archaeological impacts. Alternatives B and B' (Preferred) impact site 1MB412. Alternative C impacts sites 1MB410, 1MB411, 1MB498, and 1MB499.

Much of the study area is covered with existing structures or is being used for industrial storage and is not accessible for archaeological testing. In addition, four city blocks along Alternatives B and B' (Preferred) and four city blocks along Alternative C were not tested because landowners would not grant permission to access the city blocks. These city blocks will be surveyed as part of the investigation of the Preferred Alternative in the

FEIS. Areas that are not physically accessible will be surveyed after ROW is acquired for the project.

SHPO concurred in their correspondence dated November 15, 2012 and June 30, 2014, that sites 1MB410, 1MB411, 1MB412, 1MB498, and 1MB499 are considered eligible for listing on the NRHP. Phase II archaeological testing will be coordinated with the SHPO and performed as part of the investigation of the Preferred Alternative in the FEIS.

As part of the EA previously prepared for the proposed project, underwater surveys were conducted in the Mobile River in the area that could be affected by the proposed bridge pier associated with Alternative A. No anomalies were detected that would indicate a potential resource. These earlier surveys did not include Polecat Bay and Pinto Pass because impacts to Polecat Bay were expected to occur in disturbed areas and Pinto Pass was avoided. These areas were later surveyed as additional alternatives were developed.

In order to determine the potential impacts of the proposed project on submerged archaeological sites for Alternatives B, B' (Preferred), and C, an additional underwater survey was conducted along the proposed crossings of the Mobile River, Polecat Bay, and Pinto Pass. The survey identified 31 magnetic or acoustic anomalies. Fourteen anomalies were located in the Mobile River section of the survey, and 17 were identified in Polecat Bay. Extensive modern debris within the Pinto Pass study area prevented reliable detection of significant sites at that location. Data analysis confirmed that all of the Mobile River and Polecat Bay anomalies contained characteristics consistent with modern rod, wire, rope, traps, boat anchors, or other similar debris. The water areas between the eastbound and westbound Bayway lanes were not investigated because the entire area was dredged in the 1970s to provide a construction channel for the Bayway. Any historic properties in this area would have been removed or destroyed.

SHPO stated that widening the Bayway would have no adverse effect on archaeological sites in their correspondence dated May 21, 2006, and it is included in **Appendix A**. SHPO concurred that there are no significant submerged historic properties along

Alternatives A, B, B' (Preferred), and C in their correspondence dated May 22, 2002, and August 9, 2006, included in **Appendix A**.

4.17 Construction Impacts

Impacts related to construction are expected with the proposed project. BMPs would be implemented to reduce impacts to water quality. Measures will also be taken to minimize impacts related to Bayway construction, air quality, noise, and vibrations.

4.17.1 Sediment and Runoff

BMPs will be utilized to control sedimentation and stormwater runoff during construction. The BMPs will be developed in accordance with *Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas,* as amended, Alabama Soil and Water Conservation Committee.

4.17.2 Bayway Construction

A construction methodology similar to that utilized for the original construction of the Bayway could be used to widen the Bayway to the inside. The original construction methodology involved the development of a dredged construction channel of approximately nine feet deep by 125 feet wide that could be accessed by construction barges. However, an evaluation of the previously used construction channel disclosed that shoaling over the past 30 years has filled in approximately 1.6 miles of the seven-mile-long channel to a depth of three feet or less. Another 1.1 miles of the channel are between three and five feet deep. The areas exhibiting the effects of shoaling are predominantly adjacent to the Tensaw, Apalachee, and Blakeley Rivers. Flooding through the years has been a source of sediment, which has accumulated in the construction channel. Additional shoaling and filling in the channel has occurred over the past years.

A number of the shallow areas now support SAV and provide habitat for aquatic organisms and waterfowl (Volkert, 2001). The shallow areas serve as valuable biological resources and contribute to the overall ecology of the Mobile Bay Estuary, including the provisions of EFH. Redevelopment of a construction channel would impact EFH and

other resources, such as terrestrial habitat and species, by dredging and dredge material disposal.

In consultation with resource and regulatory agencies, an alternate construction methodology was developed to avoid the impacts associated with dredging and to minimize the impacts on biological resources. The construction of the I-10 Bayway widening would be performed utilizing segmented barges traversing the area between the existing Bayway lanes. The original construction channel would be utilized without modification. The segmented barges can float, if sufficient water depth exists, or rest on the bottom of shallow areas. The barge segments would be linked together to serve as a construction platform and would be disassembled and "leapfrogged" ahead using construction cranes as construction progresses. Duration of barge segments in a particular location should not exceed 30 days. The same construction methodology would be used to construct the outside additions to the Bayway in the 2,000-foot eastbound transition section for the I-10/US 98 exit ramp. Concrete materials removed from the existing inside bridge rail would not be allowed to fall into the water; they would be collected for transport to a suitable disposal site.

4.17.3 Air Quality Impacts during Construction

Carbon monoxide and particulate emissions will temporarily increase during construction from the operation of diesel powered heavy machinery. Temporary increases during construction are not expected to exceed the NAAQS. Article 107.22 of the State of Alabama Highway Department Standard Specifications requires the contractor to comply with all state, Federal, and local laws and regulations controlling pollution of the environment, including air pollution.

4.17.4 Noise Impacts during Construction

Construction will generate temporary increases in noise levels on adjacent properties. Noise will be emitted by a range of construction equipment at varying levels of intensity. Construction noise is unavoidable. However, these effects will be temporary and confined to the construction periods at the locations closest to the construction activities.

Article 107.22 of the State of Alabama Highway Department Standard Specifications requires the contractor to comply with all state, Federal, and local laws and regulations controlling pollution of the environment, including noise pollution. The City of Mobile Municipal Code Sec.39-96.1 specifies that noise or sound created in the performance of public service by governmental agencies or their contractors shall not be subject to the provisions of the Code and further specifies that the Code shall not apply to any construction activity or equipment operated between the hours of 6:00 a.m. to 9:00 p.m. The City of Daphne Ordinance No. 2003-32 exempts construction activities between the hours of 6:00 a.m. to 9:00 p.m.

Additional measures that could be implemented include the following:

1) Ensure that all diesel-powered equipment is properly muffled. (Faulty or ineffective mufflers are major sources of construction noise).
2) Erect temporary noise barriers between sensitive receivers and noisy construction activities such as pile driving and the temporary operation of machinery.

4.17.5 Vibration Impacts during Construction

The potential impact to existing buildings and infrastructure from vibrations associated with construction activities will require monitoring. The public has raised vibration impacts on the structural integrity of historic and non-historic buildings as a concern. In response to that concern, ALDOT will utilize construction techniques that avoid vibration impacts. An ongoing ALDOT research project will monitor the vibrations created by several different pile sizes in a location adjacent to the project (**Appendix K**). This will provide information for design engineers to determine the best construction techniques to be used to avoid vibration impacts.

4.17.6 Construction Staging Areas

Any staging areas along the Causeway will be subject to the special protection and monitoring requirements by the USFWS in the Incidental Take Permit (**Appendix A**). Coordination with the USFWS will continue to occur throughout the development of the project, prior to and during construction, to make sure commitments included in the Incidental Take Permit are met.

4.17.7 Beneficial Use

Under Public Law 109-59, Section 1805, "Use of Debris from Demolished Bridges and Overpasses," States have a responsibility to make debris from demolition of structures available for beneficial use by a Federal, state, or local government, unless such use obstructs navigation. Construction debris from the widening of the Bayway could be made available for beneficial use for the purposes of shore erosion control or stabilization, ecosystem restoration, or marine habitat creation (FHWA, 2006).

4.18 Build Alternatives Comparison

Table 24 shows a comparison of selected attributes and associated categories of the impacts to provide differentiating factors for the four Build Alternatives. Attributes that do not differentiate between the four Build Alternatives are not shown. Attributes not included in the matrix include Socio-Economic Environment; Infrastructure; Geology and Hydrology; Disruption of Neighborhoods/Communities; Floodplain Impacts; Farmland Impacts; Water Quality and Biological Resources, Coastal Zone; Biological/Ecological Resources; Threatened, Endangered, and Other Listed Species; Air Quality; Historic Resources; and Construction Impacts.

TABLE 24: Alternatives Comparison Matrix

Description	Alternative A	Alternative B	Alternative B' (Preferred)	Alternative C
Total Cost ($M)	$782.6	$771.2	$773.1	$791.0
Roadway Widening Length (miles)	1.1	0.9	0.8	1.2
Bridge Length (miles)	2.5	2.7	2.8	2.9
Bayway Widening Length (miles)	6.6	6.5	6.4	6.3
Total Length (miles)	10.2	10.1	10.0	10.4
Economic Loss[1] ($M)	$5.6	$6.1	$6.1	$200
Economic Benefits[1] ($M)	$537-1,054	$549-1,066	$549-1,066	$560-1,077
Residential Relocations (each)	0	0	0	4
Business Relocations (each)	0	13	12	13
Wetlands (acres)	2.2	1.7	1.7	6.6
Essential Fish Habitat (acres)	76.25	67.15	67.15	65.35
Traffic Noise Impacts (each)	275	274	275	392
Hazardous Materials Sites (each)	3	8	7	9
Archaeological Sites (each)	0	1	1	4
Section 4(f) Properties (each)	0	1	0	1

[1] See **Table 9** for explanation of attributes that define economic loss and economic benefits.

4.19 Indirect and Cumulative Effects

The NEPA process is designed to address the impacts of a proposed action prior to a decision by a Federal agency to take an action that could affect the quality of the environment. The CEQ *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR §1500-1508) require that not only direct impacts, but indirect and cumulative impacts also be evaluated for the No Build and Build Alternatives.

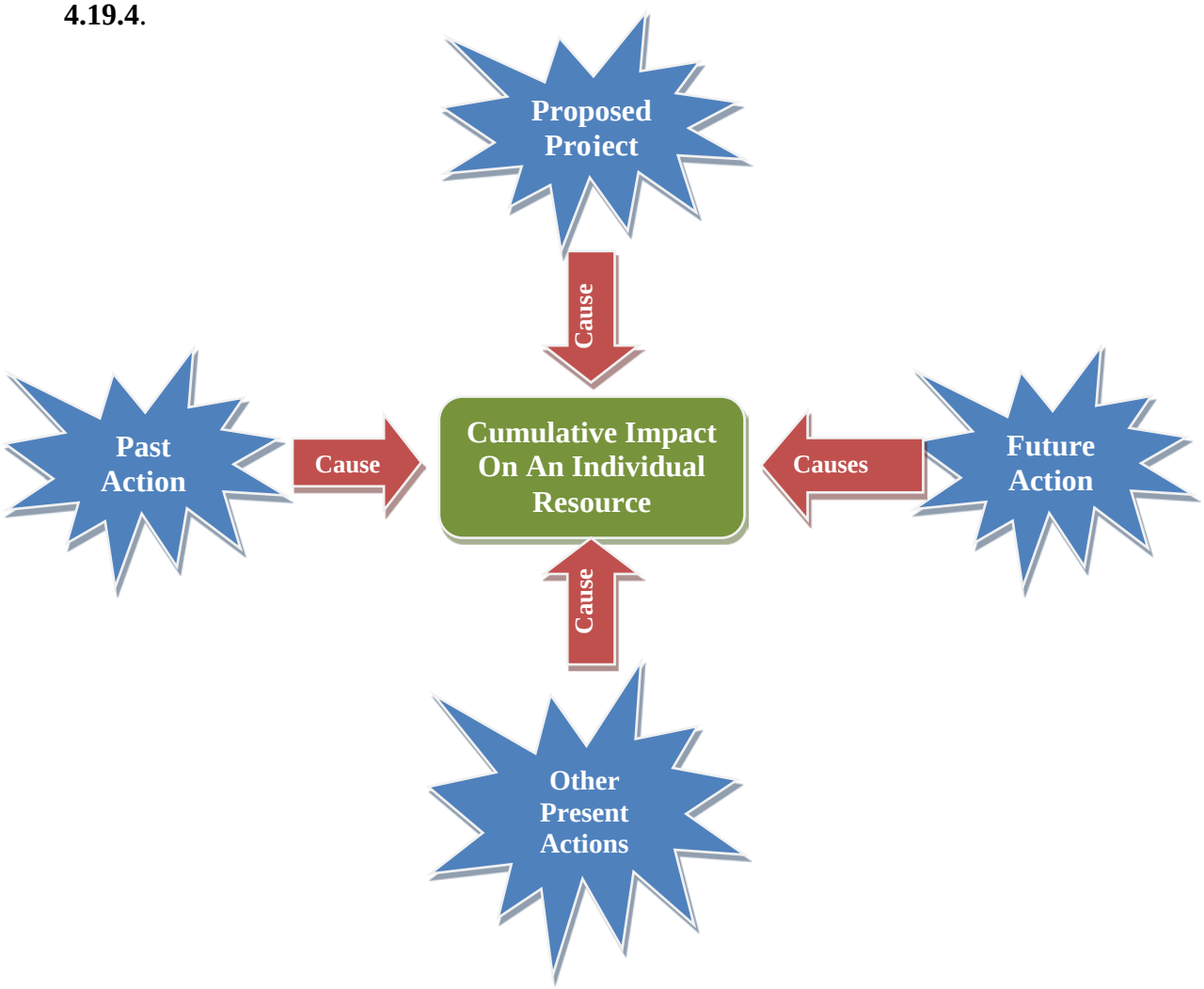
4.19.1 NEPA/CEQ Policy and Guidance

The CEQ's regulations for implementing the procedural provisions of NEPA define indirect and cumulative effects as follows:

Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. The diagram below illustrates the relationship of actions and indirect effects on a resource. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Indirect impacts for highway projects are expressed as impact causing activities, such as induced land development. The effects are reasonably foreseeable if there is evidence they may occur. A proposed action results in direct impacts, whereas a related action, such as induced development, results in indirect impacts. Indirect impacts for highway projects result from impact-causing activities that would not occur except for the proposed project. Indirect impacts related to the project are discussed in **Section 4.19.3**.

Indirect Effects Diagram

<u>Cumulative Effects</u> are the impact on the environment, which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. The action is the construction of the I-10 Mobile River Bridge and Bayway Widening project. The diagram below illustrates the relationship of actions and their cumulative effects on a resource. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. These compounded impacts affect a specific resource or human community. The analysis of cumulative impacts looks at other actions that affect a resource and adds additional effects of the highway project. Direct and indirect impacts are a subset of cumulative impacts. Cumulative impacts related to the project are discussed in **Section 4.19.4**.



Cumulative Effects Diagram

While NEPA does not explicitly mention indirect and cumulative impacts, NEPA makes it the responsibility of the federal government to "include in every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on the environmental impact of the proposed action (and) adverse environmental effects which cannot be avoided should the proposed project be implemented" [42 U.S.C 4332(C)].

In addition to NEPA, other statutes require federal agencies to consider indirect and cumulative effects of transportation improvement projects, including the CWA Section 404 (b)(1) guidelines, the regulations implementing the conformity provisions of the CAA, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA), and the regulations implementing Section 7 of the ESA, among others.

Other definitions noteworthy of identification in this section are:

Induced Growth: changes in the intensity of land use that are caused by an action or project. For transportation projects, induced development can be at least partially attributable to the project. While highway interchanges may contribute to induced growth, they are not the sole cause of the growth effects.

Reasonably Foreseeable: according to the CEQ, reasonably foreseeable events, although uncertain, must also be probable rather than merely possible.

4.19.2. Resources and Planning Documents Used to Identify Reasonably Foreseeable Development

Direct impacts to resources have been discussed in this DEIS. The potential for indirect and cumulative effects were evaluated for notable ecosystem and socio-economic features.

Available data from a variety of references was compiled for the indirect and cumulative effects analyses. Planning documents, including "A New Plan for Mobile" (New Plan), the "City of Spanish Fort Comprehensive Plan 2010-2025" (SFCP), the "Preparing

Daphne for the Future Comprehensive Plan 2000-2020" (DFCP), and the Eastern Shore Chamber of Commerce's "Public Transportation Plan," provided useful information regarding the existing and future needs of population, economic development, housing, community facilities and services, land use, and transportation. Information including map data regarding existing zoning and future land use along the corridor was also derived from the SARPC, the MACC, the newly formed Eastern Shore MPO, Mobile County, Baldwin County, and other state and federal organizations. Community resource information was also derived from various local public officials, from the public during the public meetings, and during stakeholder meetings held for the project.

4.19.3. Indirect Effects Analysis

This section describes the indirect effects that could result from development and operation of the I-10 Mobile River Bridge and Bayway Widening project. Unlike direct impacts, indirect impacts may occur in the future and typically relate to growth in population, communities, businesses, and industries because of the increased access provided by the proposed project.

Although forecast for the future, indirect impacts must be "reasonably foreseeable," not what is merely possible. Information derived from local planning documents, including the New Plan, the SFCP, and DFCP, was useful in developing and understanding what is reasonably foreseeable. Socio-economic data and baseline growth data was obtained from these documents and the US Census Bureau.

Transportation projects can influence where development occurs, as these improvements may make land more attractive for development. Without proper controls, induced growth and changes in land use can have adverse effects on natural and human resources. For the I-10 Mobile River Bridge and Bayway Widening project, indirect impacts are expected to occur as a result of decreased congestion along the interstate between the City of Mobile and the cities of Spanish Fort and Daphne. Socio-economic and development trends from the past to the present indicate a significant number of people commute between Mobile and the cities of Spanish Fort and Daphne. Planning documents estimate this trend to continue into the foreseeable future.

The new bridge and the addition of lanes along I-10 will reduce congestion between the cities, which will likely accelerate predicted residential, commercial, and industrial land development. The reduced congestion will also result in time-savings for commuters as compared to the No Build Alternative. The acceleration of development spurred by the project will add to the local tax bases and will provide economic opportunities. Natural resources will be impacted as a consequence of the acceleration of land development.

Using the National Cooperative Highway Research Program's (NCHRP) *Report 466: Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects* as a guide, the following eight-step process was used to assess the potential for indirect effects for the proposed project (**Table 25**).

Table 25: Eight–Step Indirect Effects Analysis Process

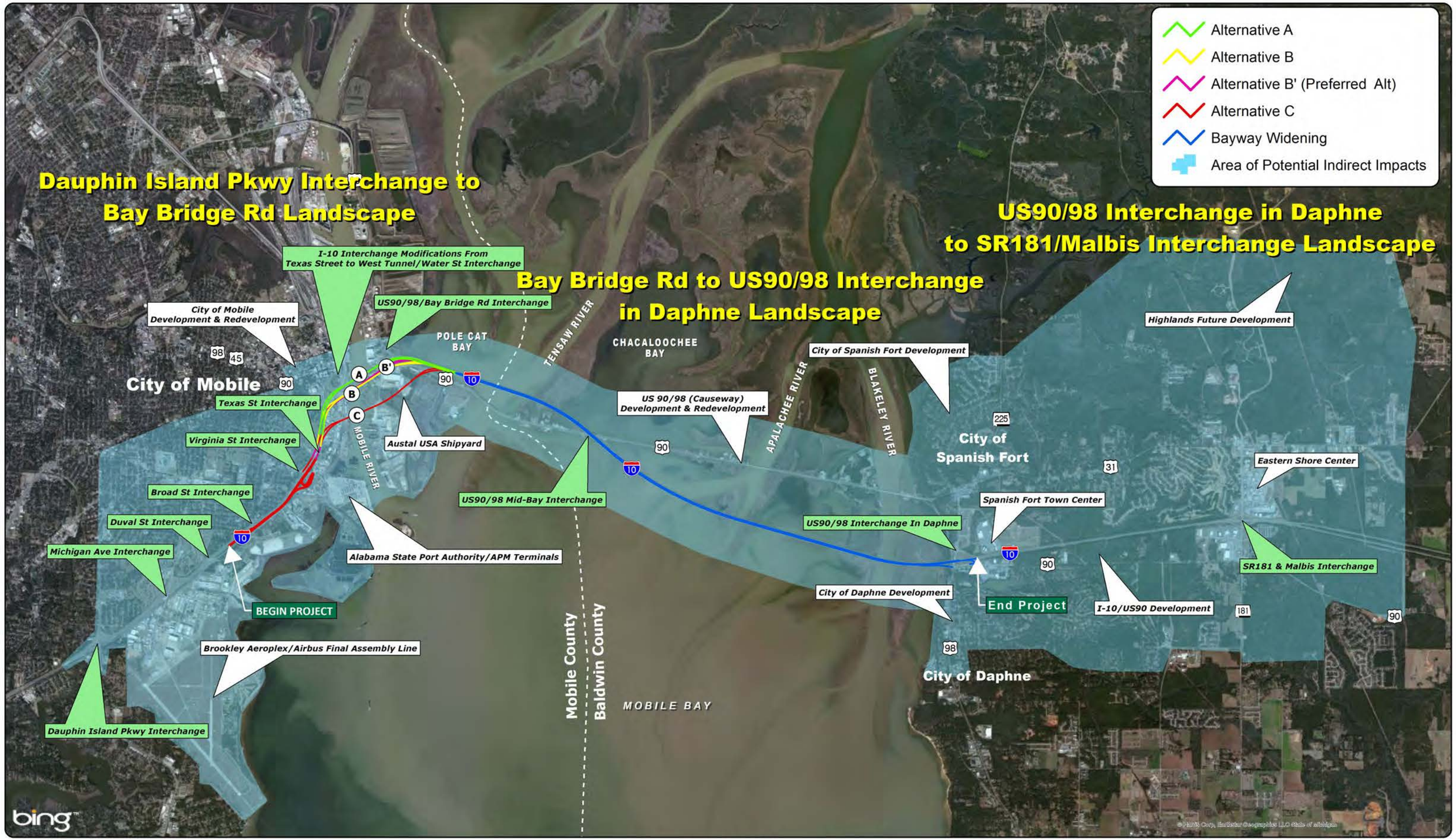
Step		Objective
1	Identify Study Area (Scoping)	Set appropriate study area boundaries for the analysis of indirect effects as well as the time frame for the analysis.
2	Identify Study Area Directions, Goals, and Trends	Gather information on community trends and goals in the study area, focusing on socio-economic and land use issues.
3	Inventory Study Area Notable Features	Identify specific valued, vulnerable or unique elements of the natural environment that will be analyzed in the assessment of indirect effects.
4	Identify Impact-Causing Activities	Identify the cause and effect relationships between the transportation project and potential impacts that may come into conflict with the goals identified in Step 2 or the notable features identified in Step 3.
5	Identify Potential Indirect Effects	Compare the impact-causing activities developed in Step 4 with the inventory of goals, trends, and notable features that make up the baseline conditions identified in Steps 2 and 3.
6	Analyze Indirect Effects	Determine the magnitude and location of the potential impacts identified in Step 5.
7	Evaluate Analysis Results	Evaluate the uncertainties in the methodology used to evaluate impacts, in order to better understand the analysis results.
8	Assess Consequences and Develop Mitigation	Assess the consequences of the impacts and develop strategies to address unacceptable impacts, which occur when an impact identified in Step 6 conflicts with a goal identified in Step 2 or with a notable feature identified in Step 3.

Step 1: Identify Study Area (Scoping)

Step 1 provides a description of the project and defines the boundaries and time frame for the analysis.

The I-10 Mobile River Bridge and Bayway Widening project is approximately 10 miles long and is located along I-10 between Mobile and Baldwin Counties. **Figure 13** illustrates the project limits along I-10 and the potential for influence study boundaries. Four Build Alternatives are being evaluated for the project. The Build Alternatives are discussed in **Section 3.0** of this DEIS. Interchange access points for the Build Alternatives are the same; therefore, the indirect effects analysis was not subdivided by alternatives.

Indirect impacts are assessed within geographic boundaries where the project may influence development. Along I-10, the study boundary for indirect effects began at the Dauphin Island Parkway interchange in Mobile County and ended approximately one mile east of the SR 181/Malbis interchange in Baldwin County. To the north and south of I-10, the geographic study area is urban in Mobile, semi-rural in Baldwin County, and is connected by a landscape that is primarily Mobile Bay with very little developable land. The areas of potential influence included in the indirect effects analysis are illustrated on **Figure 13.**



0 1.1 2.2 Miles

1 inch = 1.1 miles

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

Figure 13
I - 10 Mobile River Bridge and BayWay Widening
Areas of Potential Indirect Impacts
Project DPI - 0030(005)

Department Of Transportation

Document Path: \\12-envir-serv\envir\PROJECTS\900\911602 Mobile River I-10 Bridge EIS\GIS\Map_Documents\Figures\EIS\Figure 13 - Areas of Potential Indirect Impacts.mxd

The proposed project includes improvements to a limited access highway along which several existing grade-separated interchanges occur. The interchanges are listed below as they occur from west to east along I-10 within the geographic study area. No new interchanges will be added as a result of the project. The Texas Street interchange will be removed. Any changes brought on by the proposed project will occur in proximity to the existing interchanges. The availability of developable land in proximity to the interchanges was evaluated in the indirect effects analysis. The locations of the interchanges are illustrated on **Figure 13.**

- Dauphin Island Parkway interchange
- Michigan Avenue interchange
- Duval Street interchange
- Broad Street interchange
- Virginia Street interchange
- Texas Street interchange (to be removed)
- Water Street interchange
- US 90/98/Baybridge Road interchange
- US 90/98 Mid-Bay interchange
- US 90/98 interchange in Daphne
- SR 181/Malbis interchange

The time frame for the future analysis was set as 2030 because the local communities' future plans are forecast 20 years into the future. The ability to predict reasonably foreseeable development beyond 20 years is not reliable.

The study corridor was divided into three distinguishable geographic landscapes for the indirect effects analysis; the Dauphin Island Parkway interchange to Baybridge Road landscape, the Baybridge Road to US 90/98 interchange in Daphne landscape, and the US 90/98 interchange in Daphne to the SR-181/Malbis interchange landscape. The three landscapes were chosen because of their unique land uses and the potential for development being accelerated within each landscape. The landscapes can be changed or influenced by human intervention including land use, planning, and zoning.

The characteristics of these geographic landscapes are described in the following paragraphs. **Figure 13** shows the general locations of these landscapes.

Dauphin Island Parkway Interchange to Baybridge Road Geographic Landscape

In the City of Mobile, the landscape is highly developed and urban. The indirect effects study area is small through this portion of the corridor because development has already occurred and it is unlikely that the project will substantially influence or accelerate development trends in the city.

Baybridge Road to US 90/98 Interchange in Daphne Geographic Landscape

From Baybridge Road across the Bayway to the US 90/98 interchange in Daphne, the landscape consists primarily of the Mobile Bay. The indirect effects study area is small because very little developable land exists along this portion of the corridor. The only developable land is located along the Causeway. The lack of developable land and the exposure risk to storms limits the amount of future development that will occur along the Causeway.

US 90/98 Interchange in Daphne to the SR-181/Malbis Interchange Geographic Landscape

Near the cities of Spanish Fort and Daphne, the landscape consists of semi-rural and sporadic development. Development is generally commercial at the interchanges with large planned residential communities beyond the commercial frontage. Large tracts of undeveloped wood lots are also located near I-10 in the cities of Spanish Fort and Daphne. The study area is large through this portion of the corridor because the potential for development being influenced and accelerated by the project is greater and several tracts of developable wood lots are located close to the interchanges.

Step 2: Identify Study Area Directions, Goals, and Trends

Step 2 involves understanding the general directions, goals, and trends of social, economic, ecological, and/or growth-related issues within the geographic landscape study areas. The trends and goals are considered independent of the proposed project since major land use changes occur in the presence of other factors. Other factors include

supportive land use policies, local development incentives, availability of developable land, and a favorable investment climate.

Available data from a variety of references including the New Plan, the SFCP, and the DFCP was reviewed to develop an understanding of the directions, goals, and trends in the landscape areas. Information was also derived from various local public officials, from the public during the public meetings, and during stakeholder meetings held for the project.

The communities within the landscape study areas in both Mobile and Baldwin Counties have experienced growth over the past 30 years. However, Baldwin County's growth rate has been much greater. The New Plan also states that the City of Mobile "must begin instituting strategies to provide reasonable opportunities for people who work in Mobile County and the city, but live in Baldwin County." In Spanish Fort and according to the SFCP, the city has grown quickly from its incorporation in 1993 to today. With several recent annexations, the City of Spanish Fort anticipates the current growth trend to continue into the foreseeable future. Much like Spanish Fort, the City of Daphne also expects the current trend in growth to continue beyond 2020. The directions, goals, and trends of the communities within the landscape areas are discussed in the following paragraphs.

Dauphin Island Parkway Interchange to Baybridge Road Directions, Goals, and Trends

The New Plan identified several community priorities, goals, and initiatives for future development in downtown Mobile, including areas in the vicinity of I-10. Since the corridor from the Dauphin Island Parkway interchange to Baybridge Road is highly developed, the primary direction or emphasis of the New Plan is for revitalization and redevelopment.

Regarding development goals, initiatives outlined in the New Plan that could affect future land use included enhancing linkages with emphasis on greenway trails, bikeway routes, and greater access to the Mobile riverfront, and the redevelopment of key sites.

Initiatives also included the introduction of more housing options with parks, planning for flood surge impacts to residential areas, and the restoration and enhancement of key neighborhood linkages. Transportation initiatives also mentioned in the New Plan that could potentially affect future development include improvements to the transit system through downtown and improvements to the West Tunnel interchange. Areas where future industrial redevelopment or expansion of existing development is anticipated include the areas surrounding the Brookley Aeroplex/Airbus facilities, the ASPA's container terminal facilities, and the Austal USA shipyard. The locations of these industrial sites are illustrated on **Figure 13.**

Baybridge Road to US 90/98 Interchange in Daphne Directions, Goals, and Trends

The City of Spanish Fort projects future land use along the Causeway to be much like the existing land use (i.e. marshland, state land, and parks or recreation with some areas having professional or local business usage). Very little developable land exists within this geographic landscape study area.

US 90/98 Interchange in Daphne to the SR-181/Malbis Interchange Directions, Goals, and Trends

From the US 90/98 interchange east beyond the SR 181/Malbis interchange, the planned land use north of and immediately adjacent to the I-10 corridor will include professional businesses. Residential land use is planned beyond the projected professional or business development. Specific future planned developments or anticipated expansions of existing developments within the study boundary include the regional master planned Highlands of Spanish Fort community northeast of the city and continued development at the Spanish Fort Town Center at the US 90/98 interchange and at the Eastern Shore Center at the SR 181 Malbis interchange. According to the SFCP, the Highlands of Spanish Fort has an estimated build-out potential of 78,000 residents or 29,964 dwelling units in 2050. The SFCP anticipates some of this development will be complete by the proposed project's design year. At the Spanish Fort Town Center at interchange of US 90/98, large tracts of land have been converted to a mixed-use development. The center is a planned development with existing "big-box" retail stores, an existing hotel, and an existing apartment complex. Several acres of land have also been cleared and graded, and

infrastructure, including utilities and roads, have been constructed to the lots. The Eastern Shore Center at the SR 181/Malbis interchange is a large planned development with over 90 existing retail stores and restaurants. Complementary development including other retail centers, restaurants, hotels, home improvement stores, and car dealerships are also located at the interchange. Several acres of land at this interchange have also been cleared and graded, and infrastructure including utilities and roads, have been constructed to the lots. The city anticipates development to continue in the foreseeable future at the Spanish Fort Town Center and the Eastern Shore Center. The locations of the Highlands of Spanish Fort development, the Spanish Fort Town Center, and the Eastern Shore Center are illustrated on **Figure 13.**

The City of Daphne plans for future development along the south side of I-10 include commercial development immediately adjacent to the highway with residential development planned farther south. Commercial development is also planned for land adjacent to US 98 south of the I-10 corridor. Beyond the commercial parcels, the planned land use is residential. Future planned developments or anticipated expansions of existing developments within the landscape study area include the creation of an industrial area to the east of Daphne and south of I-10 west of the SR 181/Malbis interchange. Potential transportation projects discussed in the DFCP that could affect land use in the area include the widening of US 98 from I-10 south to CR 11, extending CR 13 north to a new I-10 interchange, widening SR 181 south from CR 64 to US 98, and extending SR 181 north to I-65.

Step 3: Inventory the Study Area's Notable Features

To inventory each landscape study area's notable features, information from multiple sources was reviewed. The analysis included a review of existing and future planning maps of the area, review of available aerial photography, zoning maps, GIS data, and planning documents, as well as on-site reconnaissance. Information and planning documents from the City of Mobile, the City of Spanish Fort, and the City of Daphne, as well as other sources, were utilized to identify the existing and anticipated future development trends within the landscape study areas. The existing land use features were verified by conducting field reviews of the study boundary, review of the current zoning

maps, and discussions with the planning agencies. Notable ecosystem and socio-economic features within each landscape are identified in **Table 26.**

Table 26: Notable Features and Location Occurrence

Notable Feature	Landscape Occurrence		
	Dauphin Island Parkway Interchange to Baybridge Road	**Baybridge Road to US 90/98 Interchange in Daphne**	**US 90/98 Interchange in Daphne to the SR-181/Malbis Interchange**
Wetlands	√	√	√
Submerged Aquatic Vegetation		√	
Essential Fish Habitat		√	
Water Quality	√	√	√
Protected Species	√	√	√
Floodplains	√	√	√
Terrestrial Habitat	√	√	√
Scenic and Natural Areas		√	
Residential Land Development	√		√
Commercial Land Development	√	√	√
Industrial / Port Land Development	√		
Historic Structures and Places	√	√	
Interstate Access	√	√	√

Step 4: Identify Impact-Causing Activities of Proposed Action and Alternatives

This step identifies the impact-causing activities within the I-10 Mobile River Bridge and Bayway Widening project landscape study areas. Within the I-10 Mobile River Bridge and Bayway Widening project landscape study areas, impact-causing activities include reasonably foreseeable future development. **Table 27** describes planned or reasonably foreseeable residential, commercial, and industrial developments that could be influenced by the I-10 Mobile River Bridge and Bayway Widening project. By reducing congestion, the proposed project could accelerate development of these activities.

Table 27: **Study Area Planned or Reasonably Foreseeable Development**

Description	**Landscape and General Location Description**	**Status**
Residential		
Highlands of Spanish Fort (HSF). The HSF has an estimated build-out potential of 78,000 residents or 29,964 dwelling units in 2050.	US 90/98 interchange in Daphne to the SR-181/Malbis interchange - In Spanish Fort and approximately 2 miles north of I-10.	Proposed / Planning Stages.
Commercial		
Spanish Fort Town Center (SFTC). The SFTC is a mixed-use development with retain shopping, apartments, and hotels.	US 90/98 interchange in Daphne to the SR-181/Malbis interchange - In Spanish Fort at the northeast corner of the I-10 and US 90/98 interchange.	Partially built-out and occupied by tenants. Several parcels have been graded but not developed.
Eastern Shore Center. A large planned development with over 90 existing retail stores and restaurants. Multiple retail centers also located close to center.	US 90/98 interchange in Daphne to the SR-181/Malbis interchange - In Spanish Fort at the northeast corner of the SR-181 / Malbis interchange.	Main mall is built-out but several undeveloped parcels surround the development.
Industrial		
Daphne Industrial Park.	US 90/98 interchange in Daphne to the SR-181/Malbis interchange - In Daphne south of I-10 and west of the SR 181 / Malbis interchange.	Proposed by the City of Daphne.

Step 5: Identify Potential Indirect Effects

This step identifies the potential impacts that might require further analysis. **Table 28** summarizes the potential indirect impacts to the notable ecosystem and socioeconomic features that could be influenced by the proposed project.

Table 28: **Notable Features and Potential Impact-Causing Actions**

		Potential Project-Induced Changes		
		Rate of Development in the Dauphin Island Parkway Interchange to Baybridge Road Landscape	**Rate of Development in the Baybridge Road to US 90/98 Interchange in Daphne Landscape**	**Rate of Development in the US 90/98 Interchange in Daphne to the SR-181/Malbis Interchange Landscape**
Ecosystem Features	Wetlands	-	-	√
	Submerged Aquatic Vegetation	-	-	-
	Essential Fish Habitat	-	-	-
	Water Quality	-	-	√
	Protected Species	-	-	√
	Floodplains	-	-	√
	Terrestrial Habitat	-	-	√
Socioeconomic Features	Scenic and Natural Areas	-	-	-
	Residential Land Development	-	-	√
	Commercial Land Development	-	-	√
	Industrial / Port Land Development	-	-	-
	Historic Structures and Places	-	-	-
	Interstate Access	-	-	√

<u>Step 6: Analyze Indirect Effects</u>

Step 6 presents an analysis of the potential indirect effects identified in the previous section. The analyses are divided by the landscape study areas and the potentially affected features. For each landscape study area, a discussion is included regarding whether or not development in the area will be influenced by the project.

Dauphin Island Parkway Interchange to Baybridge Road Indirect Effects Analysis

Development is anticipated to occur in this landscape study area. Since the corridor is urban and highly developed, land use changes will involve redevelopment. Redevelopment in this landscape has been anticipated and has been planned for by the City of Mobile. Zoning designations have been established within the landscape study area to guide future development. The City of Mobile has projected future growth, which is not dependent upon the construction of the proposed project.

The potential for indirect impacts caused by the proposed project have been analyzed within the Dauphin Island Parkway interchange to Baybridge Road landscape study area. The analysis concluded that this project does not appear to drive accelerated redevelopment within this area. Because redevelopment is not expected to be influenced by this project, the indirect impacts influenced by the proposed project in this landscape study area are expected to be negligible.

Baybridge Road to US-90/98 Interchange in Daphne Indirect Effects Analysis

Development is anticipated to occur at some locations within this landscape study area. However, development is limited to locations where developable land exists. These areas include parcels of land immediately adjacent to the Causeway. Changes in land use along the Causeway have been anticipated and zoning designations have been established by the Cities of Mobile and Spanish Fort to guide future development. The cities have projected future growth, which is not dependent upon the construction of the proposed project. It should be noted that the entire landscape study area is low and is susceptible to storm surges from the bay. In the past, commercial and residential development has occurred at developable land only to be destroyed by tropical storms. As a result, any new development will likely occur at sites previously occupied by development destroyed by storms. Although land use changes will involve redevelopment, natural resources will be impacted as a consequence of land development.

The potential for indirect impacts caused by the proposed project have been analyzed within the Baybridge Road to US-90/98 Interchange landscape study area. The analysis concluded that this project does not appear to drive accelerated redevelopment within this area. Because redevelopment is not expected to be influenced by this project, the indirect impacts influenced by the proposed project in this landscape study area are expected to be negligible.

US-90/98 Interchange in Daphne to the SR-181/Malbis Interchange Indirect Effects Analysis

Development is anticipated to occur on the available parcels of developable land located within the landscape study area. Changes in land use have been anticipated and have been planned for by the Cities of Spanish Fort and Daphne. Zoning designations have been established within the landscape study area to guide future development. Both cities have projected future growth, which is not dependent upon the construction of the proposed project. The proposed project would reduce congestion along I-10 within the landscape study area, which could accelerate future development.

The potential for indirect impacts caused by the proposed project have been analyzed and are presented below for each ecological and socio-economic resource. The analysis concluded that impacts would occur whether the proposed project is built or not. Development may accelerate, and impacts may occur earlier in time due to reduced congestion if the proposed project is constructed. Because the development is expected to occur with or without the project, the indirect impacts caused by the proposed project in this landscape study area are expected to be negligible.

Wetlands

Wetlands are located primarily along streams in this landscape study area. Residential, commercial, and industrial development is expected to occur in the area and wetlands will likely be impacted by the development.

Water Quality

The landscape study area is semi-rural with sporadic residential and commercial development. Residential, commercial, and industrial development is expected to occur in the area and new development will add impervious surfaces to the study area, which could affect the recharge of local aquifers or contribute to pollutants from runoff.

Protected Species

Habitat for protected species is located within the US 90/98 interchange in Daphne to the SR-181/Malbis interchange landscape study area. The Alabama red-bellied turtle, Gulf sturgeon, Alabama sturgeon, Bald eagle, and Florida manatee may occur within this portion of the landscape study area. Protected species are discussed in **Section 4.12.6.** The protected species habitat is predominantly aquatic and development is expected to occur in the vicinity of the aquatic habitat. Development at these locations could contribute pollutants from runoff to nearby bodies of water, which could potentially affect protected species habitat.

Floodplains

Floodplains are located within this landscape study area. Residential, commercial, and industrial development is expected to occur in the area and could add fill within floodplains or add impervious surface area, which could affect flood levels.

Terrestrial Habitat

Terrestrial habitat is located within this landscape study area. Terrestrial habitat will be affected by the development that is expected to occur.

Residential Land Development

Residential land development is expected to grow in this landscape study area. Since tracks of developable land are located in the area, residential growth is projected to primarily involve new construction in areas zoned for residential development.

Commercial Land Development

Commercial land development is expected to grow in this landscape study area. Commercial growth is projected to primarily involve the development along the I-10

corridor. However, future commercial development will also occur if a proposed Daphne Industrial Park is constructed between the US 90/98 interchange in Daphne and the SR-181/Malbis interchange south of I-10.

Interstate Access

The proposed project is anticipated to reduce congestion along I-10 thereby improving access to the existing interchanges. The improved access could influence the rate at which development occurs in proximity to the interchanges in the future.

Step 7: Evaluate Analysis Results

Step 7 evaluates the assumptions made in the previous sections and considers uncertainty and how uncertainty could influence indirect effects.

Transportation projects are only one of numerous factors that influence development patterns. Other factors include land availability and prices, economic conditions, political and regulatory conditions, and the quality of public services. With all three municipalities within the landscape study areas projecting future growth, changes in development are anticipated and have been planned for by the communities adjacent to the I-10 corridor. Zoning designations have been established within the land use study boundary to guide future development. The communities have projected future growth regardless of whether or not the proposed project is constructed. Assumptions made as part of the indirect effects analysis were derived from local planning documents. However, local planning documents do not eliminate uncertainty regarding how the study area will develop. There are no other sources available that relieve uncertainty regarding development patterns in the study area.

Step 8: Assess Consequences and Develop Mitigation

Step 8 considers potential appropriate avoidance and minimization strategies based on the consequences of the indirect effects analysis.

The potential for indirect effects caused by the proposed action were analyzed in Step 6 above. The analysis concluded that projected growth and development would cause impacts to the identified ecological and socio-economic resources whether or not the

proposed project is constructed. A reduction in congestion may accelerate the development, causing impacts to resources to occur sooner than they would under the No Build Alternative. However, since continued growth and development is anticipated by all the planning agencies within the study boundary and each community has land use plans which will guide future development, it is anticipated that the Build Alternatives will have minimal indirect effects on ecosystems or socio-economic resources. Based on the assessment, mitigation is not anticipated for indirect impacts. Measures to address potential development induced impacts are discussed in the following paragraph.

The indirect effects landscape study areas are within the incorporated limits of the City of Mobile, the City of Spanish Fort, and the City of Daphne. These communities have planning departments and published planning documents that establish directions, goals, and trends for their areas (Step 2 above). The planning departments are responsible for developing and administering land use and zoning activities in the incorporated areas. The zoning ordinances specify existing permissible land uses, and any future deviance from the planned use must be approved by the planning departments of these communities. Proposed changes to zoning would also have to be advertised for public comment. This process provides for citizen input regarding future growth and its consequences. Based upon citizen input and other relevant information, the communities will decide whether to alter their approved zoning or land use plan.

Local, state, and federal agencies also have jurisdiction over natural resources in the area. Any development would have to conform to all applicable storm water management regulations. Impacts to jurisdictional waters of the US would also require a permit from the USACE under Section 404 of the CWA of 1977. As part of the Section 404 permitting process, measures to avoid or minimize impacts to resources must be evaluated. The Section 404 process also involves other federal laws including Section 106 of the NHPA and Section 7 of the ESA. If impacts are unavoidable, mitigation will be required and must be implemented prior to the action taking place. Federal polices for resource protection include no net loss of wetlands, promotion of environmental protection, and improved conservation measures.

4.19.4 Cumulative Impacts Summary

Cumulative impacts are defined as those caused by the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (CEQ, 1997; AASHTO, 2012; 40 CFR 1508.8). The discussion of cumulative impacts addresses those issues based on the project impacts as related to agency and stakeholder concerns expressed during the development of this project. Scoping, agency coordination, and public input conducted as part of the NEPA process highlighted issues that could have long-term implications. The areas of concern for cumulative impacts resulting from the implementation of this project are related to three categories: water quality and aquatic resources, historic resources, and the economy.

The potential cumulative impacts, beneficial and detrimental, address the incremental impact of the proposed project when added to other past, present and reasonably foreseeable future actions that impact the respective resource categories. Several on-going and reasonably foreseeable industrial development activities were identified and considered in the cumulative impacts analysis (**Table 29**).

Table 29: Industrial Area Development

Description	Location	Status
Industrial		
Brookley Aeroplex/Airbus Final Assembly Line (FAL).	In Mobile south of I-10 between the Dauphin Island Parkway interchange and Duval Street Interchange.	Brookley Aeroplex is operational. The Airbus FAL and other facilities are under construction or are in the planning stages of development.
Alabama State Port Authority (ASPA)/APM Terminals). The ASPA is one of the nation's largest Ports, totaling in excess of 4,000 acres. The ASPA/APM Terminals moved more than 196,000 twenty-foot equivalents (TEUs) containers in FY 2012.	In Mobile and approximately 1 mile south of I-10 between the Virginia Street interchange and the Texas Street interchange.	ASPA/APM Terminals are operational. Additional components are under construction or in the planning stage. ASPA has three large infrastructure projects in planning and/or construction stages: the Garrows Bend Intermodal Container Transfer Facility (ICTF), an access bridge connecting Garrows Bend to the APM Terminals, and value added facilities (assembly and distribution centers) on land in proximity to the ICTF. The access bridge is expected to be finished in the second half of 2014 and the Garrows Bend ICTF is expected to be complete in 2015. Value added facilities are currently being developed and will primarily be developed after the ICTF and access bridge is completed.
Austal USA shipyard. The Austal USA shipyard was established on the east bank of the Mobile River in late 1999 and is now one of the largest private employers in the Mobile area (approximately 3,400 employees). The company designs, constructs, and maintains the Littoral Combat Ship and Joint High Speed Vessel for the U.S. Navy.	In Mobile on both sides of I-10 along the eastern side of the Mobile River.	Operational but it is likely the shipyard will expand. In December 2010, the company secured a 10-ship, $3.8 billion contract with the U.S. Navy. To date, three of the 10 ships have been launched. It is expected that the company's total employment will exceed 4,000 by the end of 2013.

Transportation planning projects that are defined in the SARPC LRTP were also considered for this cumulative impacts analysis. At this time, there are no other transportation projects that are dependent on the construction of the I-10 Mobile River Bridge and Bayway Widening project. Widening of I-10 has recently been completed in west Mobile County from Tillman's Corner (SR 16) to the I-65 interchange. From I-65 to the beginning of this project, existing I-10 has sufficient capacity. Widening of I-10 in Baldwin County is proposed east of I-10/US 90/98 interchange to SR 181 (**Section 3.5**). Additional planned transportation projects were considered in this cumulative impacts analysis. These projects include reconfiguration of the I-10 at the Canal/Water Street interchange, widening US 98 from I-10 south to CR 11, extending CR 13 north to a new I-10 interchange, widening SR 181 south from CR 64 to US 98, and extending SR 181 north to I-65.

4.19.4.1 Water Quality and Aquatic Resources (Water Bodies, Water Quality, Wetlands, SAV and Protected Species)

Resource Limits and Description

For water quality and aquatic resources, Upper Mobile Bay was selected as the geographic area for the cumulative impacts assessment (**Figures 1 and 3**). Upper Mobile Bay is the area north of a line between the Brookley AeroPlex and Daphne. Mobile Bay is an estuary, a transition zone where the freshwater from the rivers mixes with the tidally influenced saltwater of the Gulf of Mexico. Upper Mobile Bay is where the distributary river system flows into the open bay. This geographic area was selected because it encompasses the area where major impacts to water bodies, water quality, wetlands, SAV, and protected species have historically occurred. The time frame for water quality and aquatic resources covers a period from 1711, when Mobile moved to its current location, to 2030. Water quality and aquatic resources in Upper Mobile Bay were in their natural state at the time Mobile was founded as a port city in 1711. Potential impacts to water quality and aquatic resources are those that would accrue to water bodies, water quality, wetlands, SAV, and protected species in Upper Mobile Bay. Protected aquatic species of concern in Upper Mobile Bay are the Gulf sturgeon, Florida manatee, and the Alabama red-bellied turtle.

While water quality, wetlands, SAV, and aquatic based protected species are listed as distinct natural resources, they are closely related and incur similar effects. For example, water quality, especially turbidity and nutrient levels, affect wetlands, SAV, and protected species. Wetlands and SAV affect water quality by reducing turbidity and nutrients. Therefore, consideration of the cumulative impacts to water quality and aquatic resources are addressed as a comprehensive or inclusive resource.

Historic

Historic filling of wetlands and water bodies for municipal, residential, commercial, transportation, and maritime development has adversely affected these resources. The historic filling, along with adverse effects created by stormwater run-off and sedimentation, has been detrimental to water quality, wetlands, SAV, and protected species. The most severe resource degradation occurred prior to 1970.

Historically, major impacts to the Upper Mobile Bay estuary have occurred from construction of the Causeway, dredging the federal ship channel, fill activities associated with development along both banks of the Mobile River, fill for the *USS Alabama Battleship* Memorial Park, and fill for land development north of the Causeway near Meaher State Park. Construction of the Causeway in 1926 sealed off open water areas, changing the character of the waters north of the Causeway. These areas became more freshwater dominated, which caused changes in vegetation, sedimentation, habitat, and species composition. The Mobile Ship Channel was deepened in increments from 10 feet in 1826 to 23 feet in 1888 to 40 feet in the 1950s to 45 feet up to the McDuffie Terminal in the late 1980s. The 45-foot channel now extends northward to the APM Terminal in Mobile. The deeper channel allows more saltwater intrusion in the upper bay during low river flows, which further impacts water quality and aquatic resources. Dredge and fill activities in Upper Mobile Bay began after Mobile moved to its current location in 1711 and occurred incrementally. A map dated 1815 (**Appendix J**) shows a small city with two wharves crossing wetlands to the Mobile River. Major dredge and fill activities included construction of the Alabama State Docks (now ASPA) in the 1920s, the former Alcoa Aluminum Facility and “mud lakes” in the late 1930s, Alabama Dry Dock and Ship Building and construction of Brookley Field during WW II, construction of dredged

material disposal areas at various times, and most recently, construction of ASPA's container terminal (APM Terminal Mobile).

The passage of environmental statues, including NEPA, CWA, and the ESA, in the 1970s, reduced further degradation of these resources. For example, the Federal no net loss of wetlands policy and the Section 404 CWA permitting process provides for wetland protection and appropriate compensatory mitigation for wetland losses. Compensatory mitigation for filling water bottoms and wetlands for the construction of ASPA's APM Terminal Mobile resulted in the creation of 56 acres of wetlands. On the state and local level, the creation of ADEM in 1982 and establishment of the Mobile Bay National Estuary Program (MBNEP) in 1995 have promoted protection and improvement of water quality and aquatic resources.

Current

Prior to passage of the ESA in 1973, a number of species were endangered. According to the MBNEP, endangered and threated species are rebounding; for example, the brown pelican has been de-listed in Alabama and the American alligator has been de-listed in the entire US (MBNEP, 2008). The current status of the protected aquatic species of concern is stable.

A MBNEP 2002 survey of SAV in Mobile Bay showed a dramatic decline in SAV compared to historic aerial photographs dating back 60 years (MBNEP, 2008). The current status of SAV in Upper Mobile Bay is unknown, but the 2002 SAV survey indicated a negative trend. Over 50 percent of Alabama's coastal wetlands were lost between 1780 and 1980. Approximately 54 percent of the loss in Upper Mobile Bay was due to natural processes of succession and erosion or subsidence. The remainder was caused by man due to commercial, residential, industrial, and navigation related developments.

At present, there are no major man induced water body modifications occurring in Upper Mobile Bay. The last major water body modifications in Upper Mobile Bay occurred with construction of ASPA's APM Terminal Mobile. Both banks of the Mobile River

have been developed from Cochrane Africatown Bridge south to the river mouth and along the Mobile Bay shoreline to the south end of the Brookley Aeroplex. Water quality in Upper Mobile Bay is improving, and point sources of pollution from cities and industry have been largely controlled. Water quality has further improved with the removal of major industrial effluents due to closing of two paper mills, Alcoa Aluminum, and up river chemical plants. Nonpoint source pollution from stormwater runoff is much more difficult to control, and while progress has been made, it remains a pollution source for Upper Mobile Bay. Sedimentation, turbidity, and nutrient loading attributed to stormwater runoff continue to impact water quality, wetlands, and SAV in Upper Mobile Bay. At present, wetlands in Upper Mobile Bay appear to be stable. Alabama's Forever Wild program has made a commitment to protect wetlands in the Upper Mobile Bay area with the purchase of large tracts of wetlands in the delta north of the Causeway.

The USEPA is developing TMDLs for 303(d) impaired water bodies in the area and TMDLs should be in place by 2018. Implementation of TMDLs for both point and nonpoint pollutants will promote improved water quality. The Build Alternatives, when added to other past, present, and future actions, will not have a measurable long-term cumulative effect on water quality and aquatic resources in Upper Mobile Bay.

Future

With improved traffic flow, it is anticipated that the amount of pollutants deposited on the roadway, which result from normal traffic, should be reduced due to improved engine fuel burning efficiency and a decrease in the potential for oil or other contaminants that leak from vehicles during traffic delays. There should be no measurable long-term impact to water quality from the completion of the proposed project.

Improved water quality, along with reduced erosion and sediment loading, is expected due to regulatory controls by federal, state, and local agencies. Regulatory constraints will also promote protection of other aquatic resources. In summary, aquatic resources are considered regionally to be stable, neither improving nor declining at present, and there is a degree of optimism that stricter regulatory controls, along with mitigation and

restoration measures, will lead to gradual improvement to the quantity and quality of aquatic resources.

Impacts to water quality and aquatic resources have accrued from the development and widening of the Causeway, creation of disposal areas, commercial development, and construction of the Bayway, as well as from other public and private development that changed water bodies and wetlands to uplands. The additional incremental impacts to aquatic resources will be less severe in the future and will generally affect previously altered environments. The overall water quality in the area has improved over the past 40 years with the implementation of pollution control measures for point sources. Nonpoint source pollution control measures, such as those required by NPDES stormwater permits, are improving water quality by reducing erosion and sedimentation.

Future development activities that could further impact aquatic resources would be subject to regulatory controls by the USACE and USEPA for wetlands, ADEM for coastal zone consistency and water quality certification, and USFWS and NMFS for federally-protected species. Foreseeable mitigation/restoration measures to potentially restore natural resources are being investigated. The ADCNR has initiated studies to explore potential hydrologic restoration measures along the Causeway. These measures could reverse some of the adverse impacts created by construction of the Causeway. Construction of the I-10 Bayway in the 1970s on elevated structures did not materially exacerbate the hydrologic circulation issues created by the Causeway. If the measures being evaluated by ADCNR were implemented successfully, ecologically positive changes to sediment transport, water quality, and aquatic resources would be beneficial to the overall environmental quality of the Upper Mobile Bay ecosystem.

Other measures to protect and improve water quality and aquatic resources include compensatory mitigation required by regulatory actions of USACE, USEPA, and ADEM. Water quality improvements and aquatic resources restoration measures promoted by MBNEP and other conservation interests could also provide cumulative beneficial effects.

Mitigation

It is anticipated that environmental restoration measures that will ensue from the Resource and Ecosystems Sustainability, Tourist Opportunities and Revived Economics of the Gulf Coast States Act of 2012 (RESTORE Act, pl. 112-141) will provide an impetus for overall ecosystem improvements in the Alabama coastal area. The RESTORE Act allows portions of the BP oil spill fines to be distributed to the five states adjacent to the gulf, including Alabama, to be used for purposes including ecosystem restoration and enhancement. Ecosystem restoration and enhancement projects in Upper Mobile Bay are eligible for RESTORE Act funding.

4.19.4.2 Historic Resources

Resource Limits and Description

For historic resources, the geographic area of concern covers the Area of Potential Effect (APE) depicted on **Figure 12**, which includes the NRHP listed and eligible resources in the downtown Mobile area. The time frame for historic resources covers the period from 1711 to 2030. **Appendix J** presents an overview of the historic development of downtown Mobile over the past 300 years.

Historic

Over the past 300 years, the City of Mobile has evolved from the 1711 Fort Condé (Fort) to its current setting. This evolution is described in **Appendix J**. The fort was a prominent historic feature until the early 1800s with residential and commercial development taking place to the north and south of the fort. By 1824, the fort no longer existed, and residential neighborhoods occupied the area previously occupied by the fort. The City of Mobile continued to develop and expand over the next 100+ years, and by the 1940s, the APE was essentially built-out.

By the late 1960s, three major developments had occurred in the study area. These included I-10 and associated ramps, the Mobile Civic Center, and the Texas Street Park. Construction of the Mobile Metro Jail in the 1980s also impacted historic properties. Cumulatively, these developments destroyed over 50 city blocks of primarily historic

residential areas and Galvez Park, a city park. The Mobile Civic Center and its parking lot occupy the southeast corner of the Church Street East Historic District (**Appendix J**). Designations of historic districts followed the enactment of the NHPA in 1966. The Church Street East Historic District was listed on the NRHP in 1971 and the Lower Dauphin Street Historic District was listed in 1979. Both of these districts have been expanded since their original listings. Details on these historic districts are included in **Section 4.16.4.1** and **4.16.4.2**, respectively. Historic structures within these historic districts currently listed or eligible for the NRHP date from 1825 to 1950.

Current

The current "health" of these historic districts is stable. Chapter 44, Article IV, of the Mobile City code, entitled "Historic Preservation" was enacted August 13, 2003. The purpose and intent of this ordinance is to establish a uniform procedure that provides for the protection, enhancement, perpetuation, and use of places, districts, sites, buildings, structures, objects, landscape features, and works of art having a special historical, cultural, or aesthetic interest or value. The ordinance also creates the MHDC and an Architectural Review Board (Board) to oversee historic properties within historic districts, including the Church Street East and Lower Dauphin Street Historic Districts. The Board is responsible for approving plans for exterior work in the historic districts including repairs, alterations, painting, landscaping, fencing, additions to existing buildings and properties, and proposals for new construction.

As time progresses, newer structures will reach the 50-year threshold for consideration for listing on the NRHP. By 2030, additional structures may be considered as historic such as the Mobile Civic Center constructed in 1964, the Wallace Tunnels constructed in 1973, the McDuffie Coal Terminal constructed in 1975, and numerous residential and commercial structures constructed prior to 1980.

Future

Mobile's historic preservation ordinance will provide protection for historic properties within the historic districts. The ordinance does not apply to areas or structures outside of the historic districts. It is foreseeable that additional non-historic structures would be

constructed within the viewsheds that would further degrade the quality of the viewsheds. These structures could include modern high-rise hotels and office buildings. Undeveloped land within the viewsheds of the historic districts is limited; therefore, new development would likely involve demolition of existing structures, as has been done in the past.

Under the No Build Alternative, the bridge would not be added to the viewshed. The SHPO and Section 106 Consulting Parties have identified the Church Street East Historic District and Lower Dauphin Street Historic District as areas of concern due to potential effects on their viewsheds related to the proposed bridge. Other modern structures would likely be added that would create viewshed intrusions. As described in **Appendix J**, the viewsheds of these historic districts currently contain non-historic features. The Build Alternatives would be visible, along with existing modern intrusions and other modern developments that will likely occur that are not associated with the bridge.

Mitigation

Because viewsheds are outside of the historic districts, there is no city ordinance that would control future development. A possible mitigation measure would be for the city to enact ordinances that would promote consideration of the aesthetic appearance of structures within the viewshed of historic districts. There is also a possibility that the boundaries of the existing historic districts could be expanded so the existing historic preservation ordinance could provide protection.

4.19.4.3 Economy

Resource Limits and Description

For the economy, the geographic area covers Mobile and Baldwin Counties. This geographic area was selected because the two counties are closely linked economically and function as an economic region. The existing I-10 tunnels, Bayway, and Causeway make the economic link possible. In addition, most economic data is available at the county level. The time period for the economic analysis included from 1920 to 2030. Most of the industrial and commercial development in Mobile and Baldwin Counties has occurred since 1920.

Historic

Construction of the Causeway in 1926 provided a vital transportation link between the two counties and led to them being more of an economic region. The Alabama State Docks (now ASPA) was established in 1928 and has been an important leader in promoting and developing the maritime economy. Prior to and during WW II, the economy experienced major expansion due to shipbuilding, paper, and aluminum industries as well as military activities at Brookley Field.

From a historic perspective, the Mobile and Baldwin economy suffered from the closing of Brookley Air Force Base (**Figure 1**) in the 1960s, which involved the loss of approximately 20,000 jobs, as well as from the subsequent closing of Alcoa Aluminum and two major paper mills. Other industries and businesses that have located or expanded in the Mobile area helped compensate for these losses, but the detrimental economic effects were long lasting.

Current

The overall economy is currently growing in both Mobile and Baldwin Counties. In addition, their economies are currently recovering from the 2008 nationwide recession. Employment opportunities associated with the growth of Austal and the Airbus facility along with other positive economic factors bolster a general sense of optimism for the economy.

The current Mobile and Baldwin County economy is the product of numerous factors developed over many years. Businesses and governmental entities employ over 245,000 people in the area and employment is increasing with new business developments. A number of employees commute to Mobile from Baldwin County. As businesses develop and expand, associated employment will also produce additional utilization and demands on transportation systems and other infrastructure.

Future

The overall economy of Mobile and Baldwin Counties is expected to continue to grow in the foreseeable future. Austal is expected to expand their work force. Airbus and their

suppliers are expected to have major positive impacts on the Mobile and Baldwin County economies. Maritime and other service sectors are also expected to expand.

For the proposed project, the maritime economic component has been identified as a resource of concern. The maritime industry had an estimated $2.4 billion value to the regional economy in 2011 (**Section 2.3**). The value is not available at the county level. The proposed bridge would create direct and indirect losses to this segment of the economy. The potential loss to the regional economy represents an impact ranging from $5.6 to $200 million per year to the overall regional economy, depending on the Build Alternative selected. As shown in **Table 9**, the potential gains to the regional economy range from $537 to $1,077 million, depending on the Build Alternative selected. The potential loss would be offset by the potential gains when considering the cumulative impacts to the overall economy of Mobile and Baldwin Counties.

The No Build Alternative would be detrimental to freight transportation, and increased congestion and longer and more frequent delays would be an economic deterrent for the economies of both Mobile and Baldwin Counties. From an economic perspective, the potential impacts to the important maritime industries, tourism, and employment are relevant. Improved traffic flow with the build alternatives is expected to promote beneficial economic effects when compared to the No Build scenario. The ability to improve freight transportation will be beneficial to the maritime industries as well as other sectors.

Mitigation

Potential mitigation measures include comprehensive and overarching measures to promote an improved economy. These would include improved education and work force development, along with recruitment of commercial, industrial, and service related businesses to provide additional employment and income.

4.20 The Relationship between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The four Build Alternatives have similar impacts. The proposed transportation improvements are based on local and state comprehensive planning, which considers the need for present and future traffic requirements within the context of present and future land use development. Short-term impacts resulting from the construction of the proposed project may consist of temporary minor inconveniences to residents and travelers within the project area. Temporary inconveniences to residents and travelers within the project area may include minor travel delays, temporary increases in existing noise levels resulting from construction equipment, and fugitive dust emissions resulting from construction activities. However, these temporary inconveniences will be offset by the completion of a new facility that will alleviate traffic congestion in the Wallace Tunnels and on the Bayway and will provide a safer and more efficient transportation route along the I-10 corridor in Mobile and Baldwin Counties. Increased transportation capacity across the Mobile River and Bay will reduce congestion, improve transportation of freight, facilitate hurricane evacuation, and promote the removal of trucks carrying hazardous materials from the CBD. The proposed transportation improvements would affect primarily an urban or built environment in contrast to undisturbed natural resources. Improved air quality and reduced energy consumption that result from less congestion are viewed as beneficial effects. The local short-term impacts and use of resources to construct any of the Build Alternatives is consistent with the maintenance and enhancement of long-term productivity for Mobile and Baldwin Counties. Improved traffic flow will be beneficial to industries and port activities that rely upon the highway transportation network for the movement of freight. Therefore, it is concluded that the local short-term action is consistent with the maintenance and enhancement of long-term productivity for the local area and the state.

4.21 Irreversible or Irretrievable Commitments of Resources Which Would Be Involved in the Proposed Action

Implementation of the proposed action involves a commitment of a range of natural, physical, human, and fiscal resources. A majority of the improvements will be

constructed within existing ROW and the Bayway widening will be constructed between the two existing I-10 east bound and west bounds lanes, which have already been disturbed by previous construction. Land used in the construction of the proposed facility is considered an irreversible commitment during the time period that the land is used for a highway facility. However, if a greater need arises for use of the land or if the highway facility is no longer needed, the land can be converted to another use. At present, there is no reason to believe such a conversion will ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials, such as cement, aggregate, and bituminous material, are expended. Additionally, large amounts of labor and natural resources are used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply, and their use will not have an adverse effect upon continued availability of these resources. Any construction will also require a substantial one-time expenditure of both state and Federal funds, which are not retrievable. The commitment of these resources is based on the concept that residents in the immediate area, state, and region will benefit by the improved quality of the transportation system. These benefits will consist of improved accessibility and safety, savings in time, and greater availability of quality services, which are anticipated to outweigh the commitment of these resources.

4.22 Permits

Bridge permits from the USCG will be required for the Mobile River Crossing and for the I-10 Bayway Crossings of the Tensaw, Apalachee, and Blakeley Rivers. The USCG is a Cooperating Agency on this DEIS.

The USACE is also a Cooperating Agency. Coordination will be maintained with the USACE to ascertain permit requirements under either Section 10 of the Rivers and Harbors Act of 1899 or Section 404 of the CWA. Alternatives A, B, B’ (Preferred) and C all exceed 0.5 acres of wetland impacts requiring an Individual Permit under Section 404 of the CWA. The requirement for a Section 10 permit, combined with wetland impacts, also requires that the project be processed under an Individual Permit.

Special coordination and formal consultation activities have been conducted with the USFWS related to the Endangered Species Act. An Incidental Take Permit from USFWS will be required because of the possibility of inadvertent harm to Gulf sturgeon and Red-bellied turtle as a result of construction activities related to the Bayway widening. A Biological Opinion/Incidental Take Permit was granted by the USFWS as part of the EA process for the proposed project (**Appendix A**). The Incidental Take Permit received during the EA process will be updated, if required, for the Selected Alternative, when determined.

Completion and submittal of a FAA Form 74-60-1 will be required. This form is required for structures that are more than 200 feet in height above the ground level at the site. Reporting to FAA may be required for the permanent structure and/or for cranes used during construction.

A NPDES permit will be obtained from ADEM for construction of the proposed I-10 Mobile River Bridge and Bayway Widening project. The NPDES permit requires implementation of appropriate BMPs and monitoring that will minimize impacts to water quality throughout the project. BMPs will be developed as provided in the *Alabama Handbook for Erosion Control, Sediment Control, and Storm Water Management on Construction Sites and Urban Areas.*

A Coastal Area Management Permit will also be required from ADEM. This permit addresses the proposed project's consistency with the Coastal Area Management Program rules.

4.23 Environmental Commitments

Comments have been received from the public, resource agencies, consulting parties, businesses, community groups, and other stakeholders addressing environmental and design features that should be considered as the project advances. Additional information will be available as the process goes forward. The following environmental commitments will become more specific as coordination continues and the project is refined.

Lighting: Lighting associated with the bridge approaches, ramps, and roadway widening will be designed so that light levels at the ROW boundary will be less than or equal to the existing light levels. ALDOT is committed to designing roadway and bridge lighting that provides necessary lighting to meet design criteria while minimizing light pollution to the extent that is practical for the traveling public and its safety. Measures, including shielding, to minimize light pollution on historic resources, environmental justice communities, and others will be developed with input from the SHPO and local stakeholders and incorporated into a Memorandum of Agreement (MOA) developed prior to and included in the FEIS. Strobe lights to prevent collision and nesting by migratory fowl will be addressed in the FEIS in coordination with the USFWS. During the design phase, lighting will also be coordinated with the USCG for navigational requirements and the FAA for air traffic requirements (**Section 4.15**)

Hazmat: Further investigation (subsurface soil and groundwater testing where appropriate) will be done for the preferred alignment and documented in the FEIS for hazardous materials sites deemed moderate to high risk (**Section 4.7**)

Cultural Resources (Archeology, Battleship Park, Visual Effects, and Vibration Considerations):

- Archaeology: Phase II archaeology testing will be coordinated with the SHPO and performed as part of the investigation of the Preferred Alternative in the FEIS if sites cannot be avoided. Additional coordination with the SHPO will be conducted on methods to minimize impacts to historical archeological resources as well as to define areas not previously surveyed, and, if required, a Phase I archeological investigation will be conducted in these areas. This information will also be included in the FEIS (**Section 4.16.7**).
- Historic, Battleship Park: ALDOT will coordinate with SHPO, *USS Alabama* Battleship Memorial Park Commission, and the consulting parties to determine location and type of signs for the *USS Alabama* Battleship Park. Any resulting decisions will be documented in the FEIS (**Section 4.16.4.2**).
- Historic, Visual: Visual effects of the proposed project and opportunities to incorporate context-sensitive design features have been and will continue to be

discussed with the SHPO and Section 106 Consulting Parties through the Section 106 process as the design of the project develops. Through this coordination, a reasonable planting plan will be developed in an effort to maintain the tree canopy (**Section 4.16**).

- Vibrations: ALDOT will conduct a study to evaluate potential vibration impacts for pile driving and to help identify construction methodologies that would avoid vibration impacts to historic properties in proximity to the project. A construction vibration monitoring system will be developed during the design phase and used during construction as needed so that buildings within an affected range, as determined by the ALDOT vibration research study, can be monitored and documented before, during, and after construction. ALDOT will avoid vibration impacts to cultural resources (**Section 4.17.5**)

Bridge Aesthetics: Input related to bridge aesthetics and contextual design will be sought during the coordination of the FEIS. In addition, ALDOT will coordinate during the design phase with stakeholders, SHPO, and Section 106 Consulting Parties on bridge aesthetics to design an attractive yet functional and economical bridge.

Pedestrian and Bicycle Facilities:

- Proposed Accommodations: ALDOT is committed to providing pedestrian and bicycle facilities across the Mobile River. This may be via Cochran Bridge or Bankhead Tunnel. Additional information will be presented at the DEIS Public Hearing for public input (**Section 4.4.6**).
- Crepe Myrtle Trail and Eastern Shore National Recreation Trail/I-10 Scenic Underpass Trail: Piers for the proposed bridge will be placed to avoid impacting the Crepe Myrtle Trail and the Eastern Shore National Recreation Trail/I-10 Scenic Underpass Trail. Access to the I-10 Scenic Underpass Trail will be maintained (**Section 4.4.6**).

Drainage: The project's surface runoff collection systems will be designed to minimize increased drainage that could result from the project. ALDOT will coordinate with the

City of Mobile during the design phase for the Selected Alternative to address compatibility with city drainage improvement programs.

Bayway Construction: In consultation with resource and regulatory agencies, the following commitments were made to minimize impacts to natural resources (**Section 4.17**):

- Construction will be performed utilizing segmented barges between the existing Bayway lanes. Barge segments would be linked together to serve as a construction platform and "leapfrogged" ahead using cranes as construction progresses. This same methodology will be used to construct the outside addition to the Bayway for the I-10/US98 exit ramp.
- Duration of barge segments in a particular location should not exceed 30 days.
- Concrete materials removed from the existing inside bridge rail would not be allowed to fall into the water and would be collected for transport to a suitable disposal site.

Essential Fish Habitat (EFH), SAV and Wetlands and Coastal Zone: A draft mitigation plan will be developed for wetlands, SAV, EFH, and the Coastal Zone and included in the FEIS for impacted resources, as appropriate.

- EFH: Further coordination with the National Marine Fishery Service (NMFS) on EFH will be documented in the FEIS and coordination continued during the permitting phase for any NMFS conservation recommendations. A final mitigation plan that includes in-kind mitigation for each habitat type impacted will be developed prior to construction as necessary (**Section 4.12.5.1**).
- Wetland and SAV Surveys: Wetland and SAV surveys will be conducted during the permitting phase to delineate resources that will be impacted and to provide a basis for determining appropriate mitigation measures. (**Section 4.12.3.2**) Appropriate mitigation measures will be developed in consultation with resource and regulatory agencies including US Corps of Engineer (USCOE), USFWS, NMFS, and ADEM. A final mitigation plan will be developed during the permitting phase prior to construction and will include specific mitigation measures determined to be reasonable for the project (**Section 4.12.4.6**).

- Coastal Zone: ALDOT will coordinate with ADEM to develop practical atypical construction best management practices deemed necessary during the permitting process (**Section 4.12.2.2**).

Protected Species: The USFWS issued an Incidental Take statement and prescribed reasonable and prudent measures to be taken as well as Terms and Conditions that must be met for the Incidental Take provisions to be valid. The ALDOT will meet these Terms and Conditions and coordinate with the USFWS during project development and implementation. The reasonable and prudent measures along with the Terms and Conditions (**Section 4.12.6.6**) are as follows:

- Work areas within the defined project area should be fenced to exclude Red-bellied turtles.
- All equipment staging areas located along the Causeway will be selected in cooperation with the USFWS and fenced to exclude Red-bellied turtles.
- Fencing shall be monitored and properly maintained for the duration of the project.
- Work areas within the project corridor should be cleared of Gulf sturgeon and Red-belled turtles prior to placing work barges in the enclosures.
- Work areas that are not enclosed with mesh fencing will be cleared daily of turtles or sturgeon that might have entered the area.
- Catch barges or vehicles shall be used to collect and remove debris resulting from the modification of the existing bridge structures.
- Monitoring for dead, sick, or injured turtles or sturgeon should be conducted on a daily basis.
- In those areas where barges will rest on the bay bottom, mesh fencing or floating silt curtains, with a maximum 2” by 2” mesh, will be attached to existing support columns to exclude turtles and sturgeon from the work area. This fencing will be installed prior to moving barges along the work area and removed when work in the area is completed.
- Staging areas are those areas where equipment will be stored overnight or longer periods of time. These areas will be fenced using silt fence where possible.

If fencing is impossible, the area should be surveyed and cleared before vehicles are moved and all turtles removed and released into adjacent habitats.

- Prior to placing platform work barges in place, the work area within the project area will be cleared of sturgeon and turtles by trained personnel familiar with the species and permitted to take these species. Alabama Red-bellied turtles should be sexed, aged, measured, and weighted before releasing in suitable habitat outside the project area. Gulf sturgeon should only be removed from the water long enough to photograph for identification.
- The concrete portions of the existing bridges to be removed will be placed on catch barges or vehicles and later taken to the Gulf for the creation of fish habitat structures. Determining location of these structures should be coordinated with the Alabama Department of Conservation and Natural Resources, Marine Resources Division.
- Upon locating a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the Fish and Wildlife Service Ecological Services Division at the Daphne Field Office. Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.

The project will conform to the specified incidental take provisions and ALDOT will maintain appropriate coordination with the USFWS.

5.0 DRAFT SECTION 4(F) EVALUATION

5.1 Introduction

Section 4(f) of the Department of Transportation Act (80 Stat. 931, Public Law 89-670), as amended, reads as follows: "It is hereby declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public parks and recreation lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development and Agriculture, and with the states in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of the lands traversed . . . the Secretary shall not approve any program or project, which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local importance as determined by the Federal, state, or local officials having jurisdiction thereof, or any land from a historic site of national, state, or local importance as determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife refuge and waterfowl refuge, or historic site resulting from such use."

The characteristics, potential direct use, and efforts to avoid or minimize harm to the historic sites and public parks are described in the following sections of this Draft Section 4(f) Evaluation. This Draft Section 4(f) Evaluation is based on guidance found in FHWA's Section 4(f) Policy Paper dated July 20, 2012, and Technical Advisory T. 6640-.8A dated October 30, 1987. Coordination with the SHPO and the Section 106 Consulting Parties regarding the potential impacts within the study area is included in **Appendix A**. Cultural resources reports performed for the proposed project are included in **Appendix J**.

5.2 Proposed Action

The purpose and need for the project is discussed in **Section 2.0** of this DEIS and the development of alternatives is discussed in **Section 3.0**. Four Build Alternatives and the No Build Alternative are under consideration. Alternative B' has been identified as the Preferred Alternative.

When land is permanently incorporated into a transportation facility, it is considered a "use" as defined above. Alternative B would require the land from the NRHP eligible Union Hall (**Figure 12**) to be permanently incorporated into the project. Alternative C would require land from the NRHP eligible BAE Maritime Historic District (**Figure 12**) to be permanently incorporated into the project. Alternatives A and B' (Preferred) do not require land from Section 4(f) resources. The No Build Alternative will not impact Section 4(f) resources.

5.3 Description of the Union Hall

Originally built as a residence in the early twentieth century, the building was later used as a "Union Hall" for shipyard workers. Under Criterion A, the Union Hall is associated with a specific event or patterns of events in American history that make a significant contribution to the development of a community, a state, or nation. The Union Hall is NRHP eligible.

5.3.1 Potential Use of the Union Hall

Impacts on the Union Hall for each of the Build Alternatives are described in **Section 4.16.5**. SHPO concurred in correspondence dated July 12, 2007, November 15, 2012, and June 30, 2014 that the Union Hall is NRHP eligible. Alternative B would require the acquisition and demolition of the Union Hall. Direct use of the Union Hall would occur. Alternatives A, B' (Preferred) and C do not require land from within the boundaries of the Union Hall (**Figure 12**).

5.3.2 Measures to Minimize Harm

Studies will be conducted to minimize impacts to resources and included in the FEIS if it is determined that impacts occur for the Preferred Alternative.

5.3.3 Avoidance Alternatives

Alternatives A, B' (Preferred), C, and the No Build Alternative do not require land from the NRHP eligible Union Hall.

5.4 Description of the BAE Maritime Historic District

The boundaries of the BAE Maritime historic district are shown on **Figure 12**. There are 13 structures over 50 years of age, all original to the early 1940s WWII Alabama Dry Dock and Shipbuilding Company. These structures are contributing resources to the historic district. This historic district is NRHP eligible. Contributing resources include warehouses, workshops, dry dock facilities, and offices. Also documented is a World War II floating dry dock, one of a few remaining in the United States.

The BAE Maritime Historic District represents an important part of Mobile's shipbuilding history and the success of the shipbuilding industry in the twentieth-century.

The BAE Maritime Historic District is NRHP eligible under Criterion A, as a property associated with a specific event in American prehistory or history, or pattern of events that make a significant contribution to the development of a community, a state, or the nation. The BAE Maritime Historic District is also NRHP eligible under Criterion C, as a property significant for its physical design or construction, including distinctive architectural characteristics of type, period, or method of construction.

5.4.1 Potential Use of the BAE Maritime Historic District

Impacts on the BAE Maritime Historic District for each of the Build Alternatives are described in **Section 4.16.4.10**. SHPO concurred in correspondence dated July 12, 2007, and November 15, 2012, that the BAE Maritime Historic District is NRHP eligible. The SHPO letter dated November 15, 2012, did not include a specific determination of effect on the BAE Maritime Historic District but agreed with the determination of NRHP eligibility in the cultural resources studies. Alternative C would require land from the BAE Maritime Historic District. Direct use of property within the BAE Maritime Historic District would occur. All 13 identified historic buildings are contributing resources to the historic district. Alternative C would not directly impact any of the historic buildings.

Alternatives A, B, and B' (Preferred) do not require land from the BAE Maritime Historic District (**Figure 12**).

5.4.2 Measures to Minimize Harm

Studies will be conducted to minimize impacts to resources and included in the FEIS if it is determined that impacts occur for the Preferred Alternative.

5.4.3 Avoidance Alternatives

Alternatives A, B, B' (Preferred), and the No Build Alternative do not require land from the NRHP eligible BAE Maritime Historic District.

5.5 Archaeological Sites 1MB410, 1MB411, 1MB412, 1MB498 and 1MB499

Five archaeological sites (1MB410, 1MB411, 1MB412, 1MB498, and 1MB499) are considered eligible for listing on the NRHP based on Criterion D. The sites have potential to yield information important to history. There is a probability of intact historic-period features, such as structure foundations, refuse pits, and privies, associated with the late nineteenth and early twentieth-century occupations at each of the sites.

SHPO concurred in correspondence dated November 15, 2012 and June 30, 2014, included in **Appendix A,** that sites 1MB410, 1MB411, 1MB412, 1MB498, and 1MB499 are NRHP eligible. These sites are chiefly important because of the data they contain and have minimal value for preservation in place.

5.5.1 Potential Use of Archaeological Sites 1MB410, 1MB411, 1MB412, 1MB498 and 1MB499

The No Build Alternative has no impacts to archaeological sites. Alternative A has no impacts to archaeological sites. Alternatives B and B' (Preferred) use site 1MB412. Alternative C uses sites 1MB410, 1MB411, 1MB498, and 1MB499.

These sites are likely to be important for the information that may be obtained from conducting more comprehensive archaeological studies. Phase II archaeological testing will be performed as part of the investigation of the Preferred Alternative in the FEIS. Much of the study area is covered with existing structures or is being used for industrial storage and is not accessible for archaeological testing. Four city blocks along Alternatives B and B' (Preferred) and four city blocks along Alternative C were not tested because landowners would not grant permission to access the city blocks.

These city blocks will be surveyed as part of the investigation of the Preferred Alternative in the FEIS. Areas that are not physically accessible will be surveyed when ROW is acquired for the project.

5.6 Meaher State Park

Meaher State Park is a 327-acre park with boat ramp, pier, day-use picnicking areas, camping hook-ups, and nature trails. Meaher State Park lands are located on both the south and north sides of the Causeway on the west side of the Blakeley River in Spanish Fort, Alabama (**Figure 1**). The park is owned and operated by the ADCNR.

5.6.1 Potential Use of Meaher State Park

An ADCNR on-site park official was interviewed regarding the Bayway widening as it relates to Meaher State Park. ADCNR relayed that the boundaries of Meaher State Park do not extend to the existing Bayway. By widening the Bayway to the inside, potential impacts to Meaher State Park are avoided. There will be no direct impacts to Meaher State Park.

5.7 Constructive Use

Constructive Use is an indirect use that occurs when a transportation project does not incorporate land from a Section 4(f) property, but the project's proximity or indirect impact is so severe that the protected activities, features, or attributes that qualify for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished. As outlined in 23 CFR 774.15, indirect impacts on a resource protected under Section 4(f) are considered constructive use under the following conditions:

1) Projected noise level increase attributable to the project exceeds the FHWA Noise Abatement Criteria and substantially interferes with the use and enjoyment of a noise-sensitive facility of a Section 4(f) property.

2) Proximity of proposed project substantially impairs aesthetic features or attributes of a Section 4(f) property, where such features or attributes are considered important contributing elements to the value of the property.

Substantial impairment results from the location of a proposed transportation facility in such proximity that it:

a. Obstructs or eliminates the primary views of an architecturally significant historic building, or
b. Substantially detracts from the setting of a Section 4(f) property, which derives its value in substantial part due to its setting.

3) Access is restricted to the point that it substantially diminishes the utility of a significant publicly owned park, recreation area, or historic site.

4) Vibration impacts from construction or operation of the project substantially impair the use of a Section 4(f) property, such as when vibration levels are great enough to physically damage a historic building or substantially diminish the utility of the building, unless the damage is repaired and fully restored, i.e., the integrity of the contributing features are returned to a condition which is substantially similar to that which existed prior to the project.

The proposed I-10 Mobile River Bridge and Bayway Widening Project would involve indirect impacts on historic properties listed on or eligible for the NRHP, as well as publicly owned parks and recreation areas. The SHPO has indicated that their primary concern is related to visual impacts of the proposed project. Section 106 Consulting Parties have expressed concerns about noise impacts and vibration impacts. For the purposes of this determination, constructive use is evaluated relative to noise, viewshed, and vibration impacts, as applicable, on historic resources. The proposed project would not restrict or modify access to properties eligible for protection under Section 4(f); therefore, constructive use resulting from restricted access would not occur.

5.7.1 Noise

A detailed noise analysis was conducted for the entire study area using FHWA's Traffic Noise Model, Version 2.5 (TNM 2.5) (**Appendix H**). Two Section 4(f) properties were identified as being impacted by traffic noise. These Section 4(f) properties are the NRHP eligible Oakdale Historic District and the NRHP listed Church Street East Historic

District. These Section 4(f) properties are located in a highly developed urban environment and in close proximity to the existing transportation network. These Section 4(f) properties were reviewed and none were identified as sites where a quiet setting is a generally recognized feature or attribute of the site's setting. In addition, the increase in the projected noise levels for the Build Alternatives over the No-Build Alternative is 2 dBA or less which is imperceptible by most people. Constructive use related to traffic noise was determined not to be applicable.

Construction activities would temporarily increase noise levels in the immediate vicinity of the construction site. Construction-related noise will be addressed in accordance with ALDOT specifications for construction activities and equipment.

5.7.2 Visual Effects

Two issues related to visual effects must be evaluated in order to determine potential impacts on a historic resource's viewshed. These factors include an assessment of the change in the view of the resource and an assessment of the view from the resource. A Viewshed Impact Assessment, to address the assessment of the view from the resources, was completed to identify and describe potential visual effects resulting from construction of the proposed project (**Appendix J**).

Substantial impairment under Section 4(f) occurs only when the protected activities, features, or attributes of the property are substantially impaired. "Substantially impair" is used in the following sections to describe the project's level of impairment on Section 4(f) properties. The term "substantial" is used in the following sections and in **Appendix J** to describe the assessment of the project's visibility from various resources and does not describe the project's level of impairment on Section 4(f) properties. **Section 4.16** provides a summary of National Register eligibility and visual effects on cultural resources. SHPO letters dated November 15, 2012 and June 30, 2014 are provided in **Appendix A**.

The historic properties of concern for potential visual effects are the Church Street East Historic District, Lower Dauphin Street Historic District, Old Southern Market and Old

City Hall, and the Union Hall. There are potential visual effects on these properties. These potential visual effects do not alter, directly or indirectly, any of the characteristics of the historic properties that qualify the properties for inclusion in the National Register. It is not anticipated that the project will have an adverse visual effect on historic properties and if it did, any impacts would be minimal. Based on this information, it was determined that potential visual impacts would not "substantially impair" the properties and would not constitute a constructive use.

5.7.3 Views of Resources with the Proposed Project

Another aspect of visual effects is the effect of the proposed project on the primary views of historic properties with the proposed project. Old Southern Market and City Hall (now Museum of Mobile), the Church Street East Historic District, the Lower Dauphin Street Historic District, and the Union Hall are the properties located closest to the elevated sections of the I-10 Mobile River Bridge Build Alternatives; therefore, they were evaluated to determine the potential effects of the Build Alternatives on views of these properties from ground level.

The Old Southern Market and Old City Hall, Church Street East Historic District, and Lower Dauphin Street Historic District are located in downtown Mobile and are north of the Build Alternatives. The views of these properties from ground level are already impaired by the existing I-10 elevated structures, such as interchange ramps and mechanical buildings for the I-10 Wallace Tunnels, as well as utilities, signs, and modern multi-story buildings.

The Union Hall is located south of downtown Mobile in an area that is characterized by existing I-10, shipbuilding facilities, warehouses, and residential structures that have been converted to bail bonding companies. The view from ground level of the Union Hall is already impaired by existing roads and a dilapidated warehouse directly adjacent to the Union Hall. The proposed project would not obstruct or eliminate the primary viewpoints of the Old Southern Market and Old City Hall, the Church Street East Historic District, the Lower Dauphin Street Historic District, or the Union Hall from viewers at ground level.

5.7.4 Conclusions Regarding Visual Effects

The proposed project would have indirect visual effects on historic properties. These indirect visual effects do not result in a constructive use under Section 4(f). The proposed project would not obstruct or eliminate the primary viewshed from the historic properties in downtown Mobile. Therefore, the first test for constructive use associated with visual impacts does not apply.

The existing viewsheds of the historic properties in downtown Mobile are currently surrounded by multi-lane transportation facilities, interstate ramps, railroad tracks, and tall modern buildings, such as Government Plaza, the RSA Tower, the RSA-Bank Trust Building, the Riverview Plaza Hotel, and others. Visual effects are not anticipated to be adverse, but if so, the effects would be minimal and would not constitute a Section 4(f) constructive use.

5.8 Vibration

The public has raised vibration impacts on the structural integrity of historic and non-historic buildings as a concern. In response to that concern, ALDOT will utilize construction techniques that avoid vibration impacts. An ongoing ALDOT research project will monitor the vibrations created by several different pile sizes in a location adjacent to the project. The preliminary results of this study are included in **Appendix K**. This will provide information for design engineers to determine the best construction techniques to be used to avoid vibration impacts. In accordance with 23 CFR 774.15, the avoidance of vibration impacts associated with construction of the proposed project would not constitute constructive use.

5.9 Conclusions

Alternatives B and C would require the acquisition of ROW from Section 4(f) resources. Alternative B would require the acquisition of ROW from the NRHP eligible Union Hall. Alternative C would require the acquisition of ROW from the NRHP eligible BAE Maritime Historic District. Alternatives A and B' (Preferred) do not require the direct use of property from Section 4(f) properties. Constructive use impacts are not expected to

occur along any of the Build Alternatives. The No Build Alternative will not impact Section 4(f) resources.

6.0 COMMENTS AND COORDINATION

Agency coordination and public involvement activities related to the proposed transportation improvements have been comprehensive and extensive. Input provided by agencies and the public have influenced the proposed transportation improvements and their potential impacts and construction methodology. Additional refinements are expected during final design to further address issues and concerns expressed during this phase of project development. The following summarizes the coordination and public involvement process. Additional documentation is presented in **Appendix A**.

6.1 Early Coordination

The Mobile MPO has conducted public involvement pertaining to the proposed I-10 improvements since 1997, related to the Transportation Improvement Plan (TIP) and LRTP. A listing of this public involvement is presented in a September 27, 2013, email from SARPC provided in **Appendix A**.

Early coordination for the proposed transportation improvements was initiated by ALDOT in December 1999, when the NEPA process for this project began. ALDOT submitted a letter dated December 6, 1999, describing the proposed action and seeking information and comments that would be useful in determining the feasibility of the improvements and identifying any social, economic, or environmental effects related to the proposed project. The letter was sent to a wide range of Federal, state, and local agencies and officials, as well as environmental organizations and Native American Tribes. A list of the agencies and organizations contacted during the early coordination process is included in **Appendix A**.

The following agencies/individuals provided responses to the early coordination package: FAA, ADEM, AHC, Alabama Forestry Commission, ADECA, NMFS, USFWS, and USACE.

Coordination was conducted with ADEM Coastal Programs in 2000, on the proposed project. A memo, dated December 21, 2000, documenting this coordination related to coastal issues is included in **Appendix A**.

Additional coordination was conducted in February 2001 with USFWS, ADEM Coastal Programs, USACE, and NMFS. This coordination addressed widening the Bayway to the inside and a construction methodology for the Bayway that would avoid dredging of a construction channel. A resume of workshop, dated February 7, 2001, documenting this coordination is included in **Appendix A**.

Copies of responses and other pertinent correspondence with the agencies are also included in **Appendix A**.

A coordination meeting was conducted with the MHDC, the Central Texas Street Neighborhood Association, and the Down the Bay Community Organization on July 26, 2001, to present information on the status of proposed improvements to I-10 and to obtain input. A resume of this meeting is included in **Appendix A**. Representative comments from the meeting are included in **Table 31**. On July 31, 2001, letters were sent to the Central Texas Street Neighborhood Association and the Down the Bay Community Organization providing information requested during the meeting (**Appendix A**). These organizations represent minority and low-income (Environmental Justice) citizens in proximity to I-10.

On October 9, 2001, ALDOT conducted a neighborhood workshop in the Central Texas Street Neighborhood on the Mobile River I-10 Crossing and Bayway Widening project as further outreach to the Environmental Justice community. The workshop announcement and resume of the workshop are included in **Appendix A**. Representative comments from the meeting are included in **Table 31**.

By letter dated July 8, 2002, ALDOT coordinated with the City of Mobile on the closure of the I-10/Texas Street interchange and the reconfiguration of the I-10/Virginia Street interchange. ALDOT offered assistance to the city and recommended close coordination during the design and construction phases to address the implications to local traffic conditions. This letter is included in **Appendix A**.

An agency-scoping meeting was held for the proposed project on December 8, 2003. Representatives from FHWA, National Trust for Historic Preservation (NTHP), USACE,

ALDOT, AHC, ASPA, Alabama State Representative's Office, MHDC, SARPC, the City of Mobile, City of Fairhope, Renaissance Mobile, Dauphin Island Sea Lab, and Mobile County attended the meeting. Exhibits showing the originally proposed three alternatives were available for agencies to review. Written and oral comments regarding the proposed project were solicited from meeting participants. Comments received generally focused on the locations of the alternatives and the potential environmental and social impacts.

Subsequent to FHWA elevating the proposed project from an EA to an EIS, ALDOT transmitted letters dated September 27, 2004, to the USACE, USFWS, SHPO, NMFS, *USS Alabama* Battleship Commission, USCG, ADEM, ADCNR, and USEPA to update them on the status of the proposed project and to request input on potential alternatives to be evaluated in the EIS.

6.2 Cooperating Agencies

The USACE has agreed to be a cooperating agency on the EIS. The USACE will address issues and any required permits regarding impacts to "waters of the United States." The USCG also agreed to be a cooperating agency on the EIS. The USCG will be responsible for navigational clearances and permits for the proposed bridges. Copies of correspondence with these cooperating agencies are included in **Appendix A**.

6.2.1 Coordination Meeting with U.S. Army Corps of Engineers

A coordination meeting with the USACE was held October 11, 2005, to discuss the proposed project. The USACE requested additional information on the locations of the piers and pylons that will be located in the Mobile River for each of the alternatives. Since the construction of the Bayway widening would use segmented barges rather than dredge and fill techniques, the wetlands between the two spans of the Bayway will only experience temporary impacts and will, therefore, not require a permit from the USACE. If a temporary construction access road is required through wetlands along Alternatives B, B' (Preferred), or C, a permit will likely be required from the USACE.

6.2.2 Coordination Meeting with the U.S. Coast Guard

A coordination meeting with the USCG was held on December 13, 2005. The purpose of the meeting was to update the USCG on the status of the proposed project, provide them with a map showing the three alternatives under evaluation, and to solicit comments and USCG requirements regarding the proposed bridge. Specific topics discussed included bridge clearances and potential security issues associated with building a bridge over industrial areas. Representatives of the USCG attended the agency coordination meeting on February 2, 2011, and the Consulting Parties Coordination meeting on July 26, 2012. Both of these meetings included coordination of the four Build Alternatives with an ADC of 215 feet.

6.3 Interagency Coordination

Coordination with Federal, state, and local agencies has been a continuous process throughout the development and evaluation of the proposed project. In addition to the coordination and field review meetings listed in **Table 30,** an Agency Coordination meeting was held on February 2, 2011, at the ALDOT 9th Division office in Mobile. The meeting was attended by representatives of the USCG, ASPA, ADEM, NMFS, USFWS, SARPC, AHC, the City of Daphne, and the City of Mobile. A review of the project was provided and the agencies were asked for their input. Comments were received from the USFWS noting that the protected species had not changed; confirming construction from barges was planned for widening the Bayway and noting that lighting requirements for the bridge pylons would need coordination with the FAA. The USCG reviewed the proposed pier placement and noted that each crossing of navigable water would require its own bridge permit. USACE and NMFS noted that impacts to submerged aquatic vegetation needed to be included in the EIS. The City of Daphne inquired about the requirement for a ROD and provided their support for the project along with continuing to widen I-10 east of the proposed project. **Table 30** provides an overview of interagency coordination activities.

Table 30: Interagency Coordination*

AGENCY	TOPIC	REMARKS
Alabama Department of Environmental Management (ADEM)	Water quality, wetlands, coastal zone issues, hazardous materials	Coordination with ADEM – Coastal in 2000 and 2001 on coastal issues and Bayway construction methodology. Permits and certification will be required for construction. ADEM participated in the Agency Coordination meeting on February 2, 2011.
Alabama Department of Economic and Community Affairs (ADECA)	Meaher State Park- Potential Section 6(f) impacts	Letter dated January 4, 2002, from ADECA - Widening of the Bayway to the inside avoids 6(f) impacts.
U.S. Fish and Wildlife Service (USFWS)	Threatened and Endangered Species	Coordination with USFWS and other agencies in 2001 on Bayway construction methodology. A Protected Species Habitat Assessment was coordinated with USFWS. There was a special coordination meeting on January 23, 2002, with USFWS on protected species. A Biological Opinion and Incidental Take Permit were issued. A coordination meeting to update the USFWS on the status of the project, its elevation to an EIS, and the alternatives to be studied in the EIS took place on January 18, 2006. A field review of Pinto Pass with the USFWS took place on April 5, 2006, to assess potential impacts to threatened and endangered species for Alternative C. No issues of concern were noted in the Pinto Pass area. A follow-up meeting was conducted with USFWS on January 11, 2007. USFWS participated in the Agency Coordination meeting on February 2, 2011.

AGENCY	TOPIC	REMARKS
National Marine Fisheries Service (NMFS)	Essential Fish Habitat (EFH)	A special coordination meeting with NMFS and other agencies was held on February 7, 2001, on Bayway construction methodology. An EFH Assessment was provided to NMFS for coordination. There was a special coordination meeting with NMFS on EFH on January 23, 2002. NMFS participated in the Agency Coordination meeting on February 2, 2011.
Alabama Historic Commission (AHC)	Cultural Resources and Areas of Potential Effect (APEs)	Extensive coordination on archaeological and historic resources, including field reviews, approval of cultural resources investigations scope of work and methodologies, and consultation on APEs. AHC is a Consulting Party under Section 106 of the NHPA.
Mobile Historic Development Commission (MHDC)	Historic Resources	Coordination on historic resources and bridge appearance, including field reviews. MHDC is a Consulting Party under Section 106 of the NHPA.
U.S. Army Corps of Engineers (USACE)	Wetlands, waters of the US, and permitting	A special coordination meeting with USACE and other agencies on February 7, 2001, on Bayway construction methodology. USACE is a Cooperating Agency on the EIS. USACE participated in the Agency Coordination meeting on February 2, 2011.
U.S. Coast Guard (USCG)	Bridge Clearances	Bridge permits are required. USCG is a Cooperating Agency on the EIS. USCG participated in the Agency Coordination meeting on February 2, 2011.
Federal Aviation Administration (FAA)	High elevation structures and strobe lighting, permit for elevated structure	FAA form to be submitted before construction. Coordination is underway concerning the design of strobe lights.

AGENCY	TOPIC	REMARKS
Advisory Council on Historic Preservation (ACHP)	Cultural Resources	Involved in resolution of historic issues. ACHP is a Consulting Party under Section 106 of the NHPA.
Alabama State Port Authority (ASPA)	Navigation clearance and ASPA operations and future plans	Transportation improvements conform to ASPA operations and future plans. ASPA participated in the Agency Coordination meeting on February 2, 2011. Additional coordination was conducted with ASPA Harbormaster in March 2011 regarding appropriate ADC for proposed bridge.
City of Mobile	Maritime center, location of alternatives, GIS, traffic, interchanges, aesthetics, drainage, Comprehensive Plan, zoning, historic properties, floodplains, cruise ships, Section 106 Consulting Party, and other issues	Maritime center can be developed to accommodate bridge pier. Bridge footprint minimized to reduce impacts. The proposed improvements compatible with comprehensive plan and floodplain ordinances. Representatives from FHWA, ALDOT, and Volkert met with City officials and the I-10 Bridge Task Force in June 2005 to discuss possible alternative locations of the bridge and potential impacts of the proposed project. ALDOT met with former Mayor Dow on July 22, 2005, to provide more detailed information regarding traffic studies conducted on Alternative 11 from the screening process. City of Mobile participated in coordination regarding review of Northern Alternative on March 22, 2007. City of Mobile participated in the Agency Coordination meeting on February 2, 2011. City of Mobile is a Consulting Party under Section 106 of the NHPA.

AGENCY	TOPIC	REMARKS
City of Daphne	Comprehensive Plan, zoning, traffic	The proposed improvements are compatible with Comprehensive Plan. City of Daphne participated in the Agency Coordination meeting on February 2, 2011. City of Daphne is a Consulting Party under Section 106 of the NHPA.
South Alabama Regional Planning Commission (SARPC)	Transportation Plan, Evaluation of Northern Alternatives	The proposed improvements are included in the MPO Transportation Plan. Coordination regarding review of Northern Alternatives on March 22, 2007. SARPC participated in the Agency Coordination meeting on February 2, 2011.
Mobile Bay National Estuary Program (MBNEP)	MBNEP	Coordination with MBNEP on coastal and estuarine resources.
National Trust for Historic Places (NTHP)	Cultural Resources	NTHP is a Consulting Party under Section 106 of the NHPA.
USS Alabama Battleship Commission	Effects of bridge on Battleship Park and NHLs	Coordination meeting with ALDOT and FHWA *USS Alabama* Commission is a Consulting Party under Section 106 of the NHPA.
Alabama Forestry Commission	Estuary, sedimentation, bird and water resources impacts	Issues addressed in the DEIS based on January 14, 2000, correspondence.
Mobile County Health Department	Noise, air, water quality, bicycle, pedestrian, historic, aesthetic, and tourism impacts	Issues addressed in the DEIS based on August 16, 2012, correspondence.

* Interagency coordination included meetings, telephone calls, emails, and field reviews. Dates are provided for coordination activities documented by resume of meetings included in **Appendix A**.

6.4 Other Meetings and Coordination

6.4.1 March 2006 I-10 Mobile River Bridge and Bayway Widening EIS Newsletter

A newsletter for the proposed project was transmitted to Federal, state, and local agencies, as well as other interested parties, for an update regarding the proposed project and the alternatives selected for detailed analysis in this EIS. The newsletter also provided brief descriptions of the studies to be performed on the three reasonable alternatives and a preliminary schedule for completion of the environmental studies and documentation. The newsletter is presented in **Appendix A**.

6.4.2 Maritime Economic Impact Workshop and Update Coordination

A Maritime Economic Impact Workshop was conducted on September 22, 2006. Attendees included representatives from the City of Mobile, Mobile Area Chamber of Commerce, and various maritime interests. The results of the maritime economic impact analysis conducted by Martin Associates were provided. Attendees were provided an opportunity to make comments on the study, ask questions, and provide recommendations. Subsequent to the workshop, comments received from the maritime interests and other attendees were incorporated into the maritime economic impact study report, as appropriate.

Additional coordination regarding a proposed bridge ADC of 215 feet for all four Build Alternatives was conducted in 2011 and 2012 with maritime interests, the City of Mobile, and the MACC in the preparation of the update to the "*Economic Impact of the Proposed I-10 Bridge on Mobile Shipyard Activity and Port of Mobile Cargo and Cruise Vessel Operations*" (**Appendix D**).

6.4.3 Section 106 Coordination, Tribal Consultation, and Consulting Parties

Revisions to the Section 106 regulations implemented by the ACHP state that, "certain individuals and organizations with a demonstrated interest in the undertaking may participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties" (ACHP, 2004). The ACHP, the NTHP, the AHC, and the MHDC were the original organizations granted consulting party status under the Section 106

process. As the environmental process moved forward, additional individuals and organizations were added as consulting parties. The current consulting parties are:

- National Trust for Historic Preservation
- Alabama Historic Commission*
- Mobile Historic Development Commission
- Advisory Council on Historic Preservation*
- *USS Alabama* Commission
- The Chickasaw Nation
- City of Mobile
- City of Daphne
- City of Spanish Fort
- Mobile County
- Baldwin County
- BAE Systems
- Signal Shipyard/Bender Shipbuilding & Repair Company
- Historic Mobile Preservation Society
- Friends of the Museum
- Christ Church Cathedral
- Restore Mobile, Inc.
- Downtown Mobile Alliance
- Colonial Dames and Conde-Charlotte Museum House
- Ms. Mary L. Cousar
- Mr. Douglas Burtu Kearley
- Mr. Herdon Inge
- Ms. Ann Bedsole

* These agencies are granted Section 106 Consulting Party status by regulation.

The consulting parties have been given the opportunity to comment on the identification, evaluation, impacts, and strategies for historic resources. Additional opportunities to assist in developing strategies to avoid, minimize, or mitigate impacts will be provided. Copies of correspondence with the consulting parties are included in **Appendix A**.

Section 106 coordination meetings were held on December 8, 2003, July 14, 2006, August 31, 2010, September 1, 2010, and July 26, 2012. In 2012, FHWA conducted follow-up tribal consultation to address the cultural and historic resource issues pursuant to the regulations implementing Section 106 of the NHPA. Responses were received from the Choctaw Nation of Oklahoma and the Chickasaw Nation (**Appendix A**). These coordination activities have allowed agencies to exchange views and recommendations in the identification of historic properties, assessment of potential adverse effects, resolution of potential adverse effects, and to suggest potential mitigation measures. Coordination will continue throughout the development of the proposed project, including the completion of a FEIS.

6.5 Public Involvement Meetings

Three potential alternatives were presented to the public at a public involvement meeting held on December 9, 2003, in Mobile, Alabama. The meeting was held at the Texas Street Community Center located on 540 Texas Street in the City of Mobile from 5:00 p.m. to 7:00 p.m.

The meeting was well attended, with 171 citizens and 33 representatives from ALDOT and the Consultant. The meeting was an open house format with no formal presentation. Within the meeting room, identical project exhibits were displayed at two locations. The exhibits consisted of color-coded plan-view drawings of the project showing the existing roadways and the three potential alternatives, traffic projections, and a prospective view of the proposed bridge. An informational handout was provided to meeting attendees. The handout included the following information:

- Welcome/Introduction Letter,
- Vicinity Map, and
- Comment Sheet.

ALDOT and Consultant representatives met with citizens to answer questions, solicit comments, and receive input from the public. Written responses were also submitted following the meeting.

In general, of the potential alternatives presented during the meeting, approximately half of the respondents (107 of 202) were in favor of Alternative 3. Alternative 1 received the second-most preferences (51 of 202), and Alternative 2 received the third-most preferences (21 of 202). All other alternatives received less than 10 statements of preference each.

Subsequent to the December 2003 public involvement meeting, it was determined that Alternatives 1, 2, and 3 should be studied in detail in the EIS.

Public involvement meetings were conducted in 2005 to obtain input on the Alternative Screening Evaluation presented in **Appendix B**.

Fourteen potential alternatives, developed during the alternative screening process, were presented to the public at public involvement meetings held on June 6 and June 7, 2005, in Mobile and Spanish Fort. The Mobile meeting was held at the Mobile Civic Center, West Exhibit Hall, from 5:00 p.m. to 7:00 p.m. The Spanish Fort meeting was held at the Spanish Fort Shopping Center (formerly Bill's Dollar Store) from 5:00 p.m. to 7:00 p.m.

The meetings were well attended, with 150 citizens and 20 representatives from ALDOT and the Consultant at the Mobile meeting and 86 citizens and 27 representatives from ALDOT and the Consultant at the Spanish Fort meeting. The meeting was an open house format with no formal presentation. A continuous PowerPoint presentation ran throughout the entire meeting, giving attendees an opportunity to view the presentation regardless of what time they arrived. Exhibits showing the fourteen potential alternatives evaluated during the screening process, the five alternatives recommended for further study, and a summary matrix comparing the fourteen potential alternatives were available for viewing by attendees. An informational handout was provided to meeting attendees. The handout included the following information:

- Data from the I-10 Corridor Freight Study regarding Mobile and Baldwin Counties,
- Chart showing Wallace Tunnels traffic volumes through 2005,

- Map showing the 14 potential alternatives,
- Summary matrix comparing the 14 potential alternatives,
- Explanations regarding reasonableness of alternatives, and
- Map showing the alternatives recommended for further study.

ALDOT and Consultant representatives met with citizens to answer questions, and solicit comments and input from the public. A total of 304 comment sheets were received.

In general, there was a split between the preferences for the downtown alternatives (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.

Subsequent to the June 2005 public involvement meetings, it was determined that Alternatives 3, 9, and a combination of Alternatives 1 and 2 should be studied in detail in this EIS. These alternatives were renamed Alternatives A, B, and C, respectively.

Public involvement meetings were conducted in Mobile (Texas Street Community Center) on August 31, 2010, and in Daphne (Daphne Bayfront Pavilion) on September 2, 2010. These meetings addressed the four Build Alternatives (A, B, B', and C) at an ADC of 215 feet. The following is a summary of the meeting input received from these meetings.

The public involvement meetings generated great interest. There were 220 registrants, of whom 30 were ALDOT and Consultant personnel, in the Mobile meeting, and 107 registrants, of whom 26 were ALDOT and Consultant personnel, in the Daphne meeting.

Two hundred and eight (208) comment sheets were received from the Mobile meeting, and 33 comment sheets were received from the Daphne meeting.

Table 31 contains representative comments and responses from the public involvement meetings discussed above.

TABLE 31: Representative Public Involvement Comments

Public Involvement Meeting December 9, 2003		
	Comment	**Response**
1	Project should minimize impacts to maritime businesses and not restrict future port operations.	A maritime economic study was conducted and maritime economic impacts were considered in the evaluation of alternatives. Minimizing impacts to the maritime industry is part of the purpose and need for the project as described in **Section 2** of the DEIS. The maritime economic study is included in **Appendix D**.
2	For Alternative 3: Stormwater coming from bridge will cause flooding in downtown Mobile.	The project is not expected to increase flooding in downtown Mobile. Stormwater will be detained within the limits of the project at the interchanges and lane widening. Precipitation on the bridge and Bayway will runoff the shoulders through the scuppers. Flooding will not increase due to the proposed improvement.
3	For Alternative 3: Soot, dirt, and trash falling from the bridge onto homes beneath will negatively impact health and lifestyles of those beneath the bridge.	Residences acquired beneath the proposed project will be relocated.
4	Alternative 3 will cause mold and mildew on houses beneath the bridge because of the constant shade beneath the bridge.	A shadow study has been conducted for the project and is included in **Appendix J**. The project is not expected to cause shading that would promote the growth of mold or mildew. Residences beneath the proposed project will be relocated.
5	All alternatives will cause damage to trees in the area because of the extra pollution associated with the bridge.	The proposed project will decrease vehicle congestion, which will not result in damage to trees or an increase in air pollution. Air quality studies are included in **Appendix I**.
6	Alternative 3: Downtown residents will have their viewshed impacted by the underside of the bridge.	The project will introduce new roadway and bridge elements to Mobile's skyline. Viewshed studies analyzing a number of sites in downtown Mobile were conducted and are included in **Appendix J**. Additional meetings will be held with local stakeholders and the public to coordinate aesthetic and viewshed features of the project.
7	Alternative 3: The bridge pilings will be placed in a way that will negatively impact the improvements made in downtown Mobile over the past few years.	Construction of bridge pilings will be monitored for vibration during construction to minimize impacts. Aesthetics of bridge pilings will be addressed during the EIS and design phases.

Public Involvement Meeting December 9, 2003		
	Comment	**Response**
8	Alternative 3 will cause water quality impacts from stormwater runoff and associated debris.	Prior to construction, a NPDES permit will be obtained and water quality will be monitored during construction. Stormwater runoff associated with Alternative 3 is not expected to affect water quality or contribute debris more than what would be expected under the No Build Alternative.
9	All bridge structures will become a target of terrorist attack.	The project is not expected to be any more or less vulnerable to terrorist attack than the existing I-10 Wallace Tunnels.
10	Construction of the bridge structures through drilling to place the support piers and pilings, will negatively impact the existing faults in the area. More study of those potential impacts should be performed.	Geotechnical investigations will be performed, and their results will be incorporated into the design of the project. Impacts to geologic structures are not expected.
11	Can the bridge alternatives be shown to be hurricane proof?	The project will be designed to current design criteria for roadway improvements subject to hurricane impacts.
12	All bridge alternatives could have a negative impact on ship traffic in the channel.	Bridge alternatives will introduce a vertical clearance that does not currently exist over the channel. Different types of bridges were evaluated, as described in **Section 3** of the DEIS. An Air Draft study is included in **Appendix C**. Minimizing impacts to the maritime industry is part of the purpose and need for the project, as described in **Section 2** of the DEIS. The maritime economic study is included in **Appendix D**.
13	The bridge should have an off-ramp for Battleship Park.	The proposed project will maintain existing access to Battleship Park. The proposed project will include signs directing traffic to Battleship Park. A direct off-ramp to Battleship Park is not proposed.
14	The project should maintain the integrity of the existing river and bay channels.	The integrity of the existing river and bay channels will not be affected by the proposed project. Permits from the USCG will be required for each crossing of a navigation channel.
15	Consider the restoration of previous land along the Bayway to remove the east-west channel that remains from the I-10 Bayway construction.	Construction techniques will be utilized to minimize altering the wetlands and SAVs along existing channel. Removal of the east-west channel is not proposed as part of the project. The channel continues to restore itself by natural processes.

Public Involvement Meeting December 9, 2003		
	Comment	**Response**
16	Consider an alternative that includes a by-pass and the Cochrane Bridge.	A bypass and alternatives utilizing the Cochrane Bridge were evaluated during the alternative screening process as described in **Section 3** and in **Appendix B**. These alternatives did not meet the purpose and need. These alternatives were eliminated after coordination with the City of Mobile and the Keep Mobile Moving group. Coordination with Keep Mobile Moving is included in **Appendix A**.
17	Concerned that the project will raise property taxes.	The proposed project is not expected to increase property taxes.
18	The bridge should be located as far north as possible to avoid impacts to the Port of Mobile.	A northern alignment was evaluated during the alternative screening process. A northern alignment was not carried forward. The northern alternatives did not meet the purpose and need. **Section 3** and **Appendix B** of the DEIS describe the alternatives considered. These alternatives were eliminated after coordination with the City of Mobile and the Keep Mobile Moving group. Coordination with Keep Mobile Moving is included in **Appendix A**.
19	Prefer a second tunnel option.	A second tunnel was evaluated during the alternative screening process. A second tunnel was not carried forward. **Section 3** and **Appendix B** of the DEIS describe the alternatives considered.
20	Bridge alternative should be as far south as possible.	Southern alignments were evaluated during the alternative screening process. Southern alternatives were not carried forward. **Section 3** and **Appendix B** of the DEIS describe the alternatives considered. Southern alternatives were eliminated due to cost, travel distance, and need to construct a new Bayway.
21	Alternatives should include mass transit considerations.	Mass transit considerations were evaluated in the DEIS. Mass transit alternatives were not carried forward. **Section 3** and **Appendix B** of the DEIS describe the alternatives considered.
22	Alternative 1 will destroy one of the oldest minority neighborhoods.	Impacts to minority neighborhoods were evaluated in the DEIS. The proposed project is expected to relocate zero to four residences as described in **Section 4** and **Appendix F** of the DEIS.

Public Involvement Meeting December 9, 2003		
	Comment	**Response**
23	Install emergency crossover lanes in the proposed bridge and along existing I-10.	The proposed project includes emergency crossover lanes along the Bayway.
24	Improve ITS warning system to alert drivers of traffic situations and alternative routes.	ITS warning systems were evaluated during coordination with Keep Mobile Moving, as described in **Appendix A**. ITS warning systems alone will not meet the purpose and need for the project. An ITS system exists along I-10 in Mobile and along the Bayway. ALDOT evaluates improvements to the ITS system under separate projects that will be coordinated with the Mobile River Bridge and Bayway Widening as design for the project moves forward.
25	Alternative analysis should include light rail mass transit and high-speed passenger ferryboat development.	Mass transit alternatives, including light rail and ferries, were evaluated in the alternative screening process. Mass transit alternatives were not carried forward because they did not meet the purpose and need. **Section 3** of the DEIS describes the alternatives considered.

Public Involvement Meetings June 6-7, 2005		
	Comment	**Response**
26	Include a public observation deck on the bridge structure	A public observation deck on the bridge structure is not proposed.
27	Provide security on the towers of the bridge.	The project is not expected to be any more or less vulnerable to security issues than the existing I-10 Wallace Tunnel. Opportunities for security on the towers will be considered as the design for the proposed project moves forward.
28	Increase the height of the bridge alternatives that cross the Mobile River in the vicinity of downtown or the maritime businesses.	Alternatives with a clearance of 190 and 215 feet over the Mobile River were evaluated. An Air Draft study is included in **Appendix C**. Minimizing impacts to the maritime industry is part of the purpose and need for the project as described in **Section 2** of the DEIS. The maritime economic study is included in **Appendix D**.
29	Could an off ramp for the cruise terminal be incorporated in the bridge design?	The proposed project will maintain existing access to the cruise terminal. An off-ramp for the cruise terminal is not proposed.
30	Develop a truck by-pass through I-165 and Cochrane Bridge that removes truck traffic from the Wallace tunnels.	**Section 3** and **Appendix B** of the DEIS describe the alternatives considered. A truck by-pass was eliminated after coordination with the Keep Mobile Moving group. Coordination with Keep Mobile Moving is included in **Appendix A**. The suggested alternative did not meet the purpose and need.

Public Involvement Meetings August 31 and September 2, 2010		
	Comment	**Response**
31	Should use noise walls. Bridge will cause water pollution and air pollution in the form of constant particle fall.	Noise barriers were evaluated in **Appendix H** and determined not to be reasonable noise abatement for this project. Water, air, and particulate pollution were evaluated in **Section 4** of the DEIS. Reduced congestion will improve air quality.
32	As part of this project, make stormwater repairs in the North Carolina Street area to prevent flooding.	The proposed project is not expected to affect stormwater or flooding in the vicinity of North Carolina Street. The proposed project does not include drainage improvements in the North Carolina Street area. Improvements to local drainage problems are outside the scope of this project.
33	Increase the air draft of the bridge to make it better.	Alternatives with an ADC of 190 and 215 feet over the Mobile River were evaluated. 215 feet is the proposed ADC for the project. An Air Draft study is included in **Appendix C**. Minimizing impacts to the maritime industry is part of the purpose and need for the project as described in **Section 2** of the DEIS. The maritime economic study is included in **Appendix D**.
34	Mobile Abrasives will be impacted by the proposed bridge. If this company goes out of business, the shipyards, TK and the chemical plants will have to get the product from out of state (New Orleans or Tampa).	Alternatives B and B' will impact Mobile Abrasives. It is expected that the business could remain open, but their operations would be altered. Alternatives A and C will not impact Mobile Abrasives.
35	Get rid of the elevated ramp going to the tunnel from downtown as a concession to the historic district.	Eliminating the elevated ramp going to the tunnel from downtown is being evaluated as part of a separate project (West Tunnel Interchange Project).
36	Concern that the chosen route will cause negative economic impact to small businesses beneath and adjacent to the final bridge location.	Impacts to small businesses beneath the proposed alternatives are described in **Appendix F**. Many of these business will be relocated. Property is available to relocate these businesses within the same area they currently exist.

Public Involvement Meeting August 31 and September 2, 2010		
	Comment	**Response**
37	Alternative A would take my home (and business) on Emmanuel Street. I will be jobless and homeless. My home is paid for.	Acquisitions were evaluated in the Relocation Analysis included in **Appendix F**. No residences would be acquired for Alternative A. Relocation assistance will be provided in accordance with the Uniform Relocation Assistance Act.
38	Include more bike and pedestrian pathways.	Bike and pedestrian pathways are not included as part of the proposed project. ALDOT is coordinating with bicycle interests on other opportunities to improve existing bicycle and pedestrian facilities, including opportunities to cross the Mobile River.
39	An alternate route from the location of the Homeport to Daphne with a toll charge would be a better use of funds and eliminate the shipping clearance issues.	Several alternatives were evaluated during the alternative screening described in **Appendix B** and **Section 3** of the DEIS describes the alternatives considered.

Coordination Meeting with MHDC, the Central Texas Street Neighborhood Association, and the Down the Bay Community Organization, July 26, 2001		
	Comment	**Response**
40	Concern that the Community had not been considered in the study process and was not aware of prior Public Meeting	Commitment was made to hold a Neighborhood Workshop at the Texas Street Community Center. **Section 6.1** of the DEIS describes the meetings.
41	Stormwater coming from bridge will cause flooding	The project is not expected to increase flooding in the Texas Street Neighborhood or the Down the Bay Community. Stormwater will be detained within the limits of the project at the interchanges and lane widening. Flooding will not increase due to the proposed improvement.
42	Bridge will cause noise and light pollution	Noise barriers were evaluated in **Appendix H** and determined not to be reasonable noise abatement for this project. An environmental commitment has been established so that light levels at the ROW boundary will be less than or equal to the existing light levels.

Central Texas Street Neighborhood Workshop, July 26, 2001		
	Comment	**Response**
43	Project will alter minority neighborhoods.	Impacts to minority neighborhoods were evaluated in the DEIS. The proposed project is expected to relocate zero to four residences as described in **Section 4** and **Appendix F** of the DEIS.
44	Bridge alternative should be as far south as possible and Brookley Field should be looked at.	Southern alignments were evaluated during the alternative screening process. Southern alternatives were not carried forward. **Section 3** and **Appendix B** of the DEIS describe the alternatives considered. Southern alternatives were eliminated due to cost, travel distance, and need to construct a new Bayway.
45	How will traffic on Virginia Street and at the Council School be impacted?	Access to Virginia Street at the existing Virginia Street/I-10 Interchange will remain. The project is not expected to increase traffic on Virginia Street.

Copies of the comments received at the public meetings are part of the public record and can be reviewed at the ALDOT 9th Division office. FHWA will publish a Notice of Availability (NOA) of the DEIS to notify agencies and other interested parties that the DEIS is available for review and comment. A public hearing will be held after this DEIS has been circulated for agency and public review and comment.

7.0 LIST OF PREPARERS

NAME	TITLE	QUALIFICATIONS
FEDERAL HIGHWAY ADMINISTRATION		
Lynne Urquhart, P.E.	Environmental Engineer	M.S. Engineering and Environmental Management, B.S. Civil Engineering, More than 10 years of experience in NEPA documentation. Responsible for reviewing NEPA documents for FHWA.
ALABAMA DEPARTMENT OF TRANSPORTATION		
Alfedo Acoff	Environmental Coordinator	B.S. Civil Engineering. Responsible for coordinating environmental studies, reviews, and documents for ALDOT.
Brian Ingram, P.E.	Location Engineer	B.S. Civil Engineering. Responsible for review of Engineering Alternatives.
Heather Dunn, P.E.	Assistant Environmental Coordinator	B.S. Civil Engineering. Responsible for coordinating environmental studies, reviews, and documents for ALDOT.
Pat M. Patterson	Environmental Specialist, Sr. Cultural Resources	M.S. Architectural/Planning B.A. Architectural Sciences. More than 28 years of experience.
VOLKERT, INC.		
David Webber, P.E.	Vice President, Engineering	M.S. Engineering, B.S. Civil Engineering. 22 years of engineering experience.
Buddy Covington	Vice President, Environmental	B.S. Geology, B.S. Biology. 19 years of experience in environmental and roadway projects.
N.D. “Skeeter” McClure, IV, P.E., D.WRE.	Environmental Project Manager	M.S. Engineering, B.S. Civil Engineering. 42 years of experience in environmental and NEPA projects.
Brett Gaar, R.E.P.A., C.E.A.	Biologist/Wetland Scientist	B.A. Geography (Environmental Planning Emphasis). More than 18 years of experience in environmental projects.
Paul Looney, C.E.P., P.W.S., C.S.E.	Ecologist/Wetland Scientist	M.S. Biology (Coastal Zone Studies), B.S. Biology. More than 23 years of experience in environmental projects.
Jason Goffinet, R.E.P.A	Air and Noise Analyst	B.S. Biology and B.S. Environmental Science. More than 15 years of experience in environmental projects.
Jerald Overstreet, G.I.S.P.	GIS Analyst	A.I.S. CADD. 16 years of GIS experience, including 15 years in environmental mapping and analysis.
Thomas Lee	Noise Analysis/GIS	M.S. Environmental Science, B.A. Geography. More than 7 years of experience in environmental projects and GIS.
MARTIN & ASSOCIATES		
Mark Papineau	Economics	B.S. Mathematics and Computer Science. Director of Research.

UNIVERSITY OF SOUTH ALABAMA		
Dr. Gregory Waselkov, Ph.D	Cultural Resources	Ph.D. Anthropology with specialization in Archaeology, M.A. Anthropology with specialization in Archaeology, B.A. Anthropology. Professor of Anthropology and Director of the Center for Archaeological Studies with 38 years of experience.
Bonnie Gums	Cultural Resources	B.A. Anthropology, M.A. Geography and Earth Science Laboratory Supervisor with 33 years' experience. Directs Phase I, II, and III archaeological projects. Written over 175 archaeological studies. Conducts historical research in southwestern Alabama.

8.0 REFERENCES

Advisory Council on Historic Preservation. 36 CFR Part 800. *Protection of Historic Properties*. Downloaded from website: http://www.achp.gov/regs-rec04. August 5, 2004.

Alabama Dry Dock & Shipping Company (ADDSCO). n.d. Historical Outline of the Alabama Dry Dock and Shipbuilding Company: Located at Mobile, Alabama. ADDSCO Manuscript Collection: Box 9. University of South Alabama Archives, Mobile.

Alabama Dry Dock & Shipping Company (ADDSCO). Untitled Press Release, re: I-10 Tunnel Tube Contract. ADDSCO Manuscript Collection: Box 2.5, University of South Alabama Archives, Mobile.

Alabama Department of Environmental Management. Air Quality website: www.adem.state.al.us/EnviroProtect/Air/airquali.htm.

Alabama Department of Transportation. Highway Traffic Noise Analysis and Abatement, Policy and Guidance. Revised July 2001.

Alabama Department of Transportation. Neighborhood Workshop Report. Texas Street Recreational Center. October 2001.

Alabama Department of Transportation. Statewide Transportation Improvement Program 2012. October 1, 2010 through September 30, 2015. Downloaded from website: http://cpmsweb2.dot.state.al.us/TransPlan/STIP/ViewReport.aspx?Type=Highway&Division=00&IsDraft=False&Format=PDF

Alabama Department of Transportation. Five-Year Plan for 2013. October 1, 2012 through September 30, 2017. Downloaded from website: http://cpmsweb2.dot.state.al.us/TransPlan/FiveYearPlan/FiveYearPlan.aspx

Alabama Department of Transportation. Wallace Tunnels Traffic County 2010-2012. Data provided by ALDOT.

Alabama Department of Transportation. Alabama Department of Transportation Bicycle and Pedestrian Plan. 2010. Information obtained from website: http://www.dot.state.al.us/moweb/doc/ALDOT_Bike_Ped_Executive_Summary.pdf

Alabama Department of Transportation. State of Alabama Hurricane Evacuation Guide. 2010. Downloaded from website. http://aldotapps.dot.state.al.us/Hurricane%20Call%20Center/frm/HurricaneBrochure2010.pdf

Alabama Historical Commission. 2013. Alabama Properties Listed on the National Register of Historic Places. June 7, 2012. Information obtained from website: http://preserveala.org/pdfs/AR/AL_Register_of_Landmarks_and_Heritage_List_June2013.pdf

Alabama Seaport, 2008. "Mobile's Fantasy Realized: Carnival Taps Port City as Home to New Superliner." September 2008.

Alabama State Port Authority. "The Local and Regional Economic Impacts of the Port of Mobile." October 23, 2012.

American Association of State Highway and Transportation Officials (AASHTO). 2012. Center for Environmental Excellence. Practitioner's Handbooks. Assessing Indirect Effects and Cumulative Impacts under NEPA. Website: http://environmental.transportation.org/center/products_programs/practitioners_handbook.aspx#11

Amy, Jeff. "City officials hope for bridge over Water Street." Mobile Register. October 17, 2004.

Amy, Jeff. "State hopes for Delta welcome center." Mobile Register. February 21, 2002.

Amy, Jeff. "Poll: RSA a great addition to skyline." Mobile Register. November 19, 2006.

Archeology, Inc. Curren, Caleb, Stephen Newby, and Eugene Wilson. A Phase I Cultural Resource Survey along the I-10 Mobile River Bridge Corridor, Mobile and Baldwin Counties, Alabama. 2001.

Archeology, Inc. Curren, Caleb, Stephen Newby, and Eugene Wilson. A Phase I Cultural Resource Survey along the I-10 Mobile River Corridor, Mobile and Baldwin Counties, Alabama. 2002.

Atlantic Marine, Inc. 2006a. Company Profile. Electronic document, http://www.atlanticmarine.com/?page=company. Accessed March 23, 2006.

Austal USA. Information obtained from website http://www.austal.com. August 7, 2012.

Baldwin County Commission, Baldwin County Planning and Zoning Commission. Baldwin County Subdivision Regulations. May 1997.

Baldwin County Commission. 2008-2010. Baylinc Ridership Information. Received information by email from Baldwin County Commission.

Baldwin County Commission. BRATS. Information downloaded from website: http://www.co.baldwin.al.us/Pageview.asp?edit_id=363

Bart, Louis R.1900 Map of Mobile, Alabama. Electronic document, accessed September 7, 2006. http://www.alabamamaps.ua.edu/historicalmaps/counties/mobile.html

Castner, Charles B. 2006. "A Brief History of the Louisville & Nashville Railroad." Electronic document, accessed December 8, 2006. http://www.rrhistorical-2.com/lnhs/history.html

Chang, Semoon, Ph.D, "Economic Impact of the Proposed I-10 River Bridge: A Special Report Prepared for Mayor Sam Jones." October 23, 2006.

Clinton, George L., ed. n.d (mid-1920s) Port of Mobile. Fore & Aft Special Edition: 17.

City of Daphne. Preparing Daphne for the Future: A Comprehensive Plan 2000-2020. Adopted June 26, 2003. Downloaded from City of Daphne website: www.daphneal.com/residents/community-development/documents-information

City of Daphne Planning Department Adopted by the Daphne City Council. City of Daphne Zoning Map. March 19, 2012.

City of Mobile. 1995. Comprehensive Plan. Information obtained from the City of Mobile website: http://urban.cityofmobile.org/longrange.php

City of Spanish Fort. City of Spanish Fort Comprehensive Plan 2010-2025. Downloaded from City of Spanish Fort website: http://www.cityofspanishfort.com/Portals/spanishfort/documents/Spanish%20Fort%20Comp%20Plan%20Approved%20May%209%202011.pdf

Council on Environmental Quality. Information obtained from Council on Environmental Quality website: http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm

Council on Environmental Quality. 1997. *C*onsidering Cumulative Effects under the National Environmental Policy Act. Information obtained from website: http://ceq.hss.doe.gov/publications/cumulative_effects.html

Davidson, Lee. "Downtown dilemma: Crossing Water Street." Mobile Register. November 12, 2004.

Day Wilburn Associates, Inc. Passenger Ferry Service Summary Report. July 2004.

Diaz, Ariana. "Micropolitan area ranked No. 1 in state, 30th in nation." The Southeast Sun. April 10, 2013. Article obtained from website: http://www.southeastsun.com/news/article_54f4edca-a227-11e2-86c9-0019bb30f31a.html

Downtown Mobile Alliance. Annual Report. 2007-2008. Information obtained from website: http://www.downtownmobile.org/news.html?detail=132

Drye, Kelley. Bender Shipbuilding & Repair Co., Inc. June 7, 2013. Downloaded from website: http://kelleydrye.securespsites.com/bender/default.aspx

Eastern Shore Chamber of Commerce. "Surveying Local Businesses," Chamber Connections. May 2012.

Eastern Shore Chamber of Commerce. Public Transportation Plan. Downloaded from website: http://www.co.baldwin.al.us/uploads/ES_Public_Transportation_Plan_20082.pdf

Economic Development Research Group. 2005. The Cost of Congestion to the Economy of the Portland Region.

EDSA, Inc. A New Plan for Mobile: An Urban Planning, Design and Economic Development Plan." March 2009, Adopted January 10, 2012. Information obtained from the City of Mobile's website: http://www.cityofmobile.org/announcement_files/02_new_plan_mainreport.pdf

Ewert, George. 2001. "The New South Era in Mobile, 1875-1900." In Mobile: The New History of Alabama's First City, Michael V. R. Thomason, ed., pp. 127-153. University of Alabama Press, Tuscaloosa.

Federal Highway Administration. CFR, Part 772. Procedures for Abatement of Highway Traffic Noise and Construction Noise. 1996.

Federal Highway Administration. 23 CFR 772. Highway Traffic Noise: Analysis and Abatement Guidance. 2011.

Federal Highway Administration. 2012. Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA. December 6, 2012. Website: http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/100109guidmem.cfm

Federal Highway Administration, 2003. *Federal Register*, October 20, 2003. Volume 68, Number 2002, pp. 59980-5981.

Federal Highway Administration. Public Law 109-59, Section 108. "Use of Debris from Demolished Bridges and Overpasses." March 7, 2006.

Federal Highway Administration. Memorandum. "Interim Guidance on Map-21 Section 1319 Accelerated Decision-making in Environmental Reviews." January 14, 2013. http://www.fhwa.dot.gov/map21/guidance/guideaccdecer.cfm

Federal Highway Administration. FHWA Order 6640.23A. "FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." June 14, 2012. Information provided by FHWA and downloaded from website. http://www.fhwa.dot.gov/legsregs/directives/orders/664023a.cfm

Federal Motor Carrier Safety Administration, 2000. *Federal Register*, December 4, 2000. Document Number 00-30815, pp. 75771-75816. https://www.federalregister.gov/articles/2000/12/04/00-30815/transportation-of-hazardous-materials-designated-preferred-and-restricted-routes

Finch, Bill. "$1.2 million county air quality study poised to begin." Mobile Register. December 14, 2001.

Finch, Bill. "A two-hour commute?" Mobile Register. May 28, 2006.

Finch, Bill. "The Bayway: A sitting duck for hurricanes?" Mobile Register. May 28, 2006.

Gandy, Maurice. 2001. Neighborhood once existed where Civic Center now stands. Electronic document, accessed December 2006. http://infoweb.newsbank.com/iwsearch/we/InfoWeb?p_action=doc&p_docid=0FB296A8D86F4FCA&p_docnum=1&p_queryname=3&p_product=MBRB&p_theme=aggregated4&p_nbid=F59Y50UOMTE2ODQ0NzYwOS44Nzk3ODg6MToxMzo2OS44NS4yMTcuMjQw

Gums, Bonnie L, Gregory A. Waselkov, and Sarah B. Mattics. 1999. Planning for the Past: An Archaeological Resources Management Plan for the City of Mobile, Alabama. Archaeological Monograph 5, University of South Alabama, Mobile.

Gums, Bonnie L. 2006a. Archaeological Test Excavations on Parcel D at Fort Condé Village (1MB132), Mobile, Alabama. Report submitted by the Center for Archaeological Studies, University of South Alabama, Mobile, to Posner-Volper Company, Inc., Mobile Historic Development Commission, and Alabama Historical Commission, Montgomery.

Gums, Bonnie L. 2006b. Archaeological Investigations on Site 1MB387, the Mobile County Probate Courthouse Block, Mobile, Alabama. Report submitted by the Center for Archaeological Studies, University of South Alabama, Mobile, to Holmes & Holmes Architects, Mobile.

Gums, Bonnie L., and Gregory A. Waselkov. 2010. Limited Test Excavations at Condè-Charlotte Museum House (1MB470), Mobile, Mobile, County, Alabama. Report submitted by the Center for Archaeological Studies, University of South Alabama, Mobile, to The National Society of Colonial Dames of American in the State of Alabama.

GulfQuest National Maritime Museum of the Gulf of Mexico. "Groundbreaking Ceremony held for Maritime Museum". April 9, 2009
Downloaded from GulfQuest website: www.gulfquest.org/news_detail.php

Harkins, Ned. 1990. Background. ADDSCO Manuscript Collection: Finding Aid. University of South Alabama Archives, Mobile.

Health Effect Institute. "Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects." Information obtained from website: http://pubs.healtheffects.org/view.php?id=282

Health Effect Institute. "A Special Report of the Institute's Panel on the Health Effects of Traffic-Related Air Pollution." Information obtained from website: http://pubs.healtheffects.org/view.php?id=306

Health Effect Institute. "Health Effects Institute 2012 Annual Report." Information obtained from website: http://pubs.healtheffects.org/view.php?id=395

Hinson, Billy. 2001. Mobile during the Interwar Years. In Mobile: *The New History of Alabama's First City*, Michael V.R. Thomason, ed., pp. 181-208. University of Alabama Press, Tuscaloosa.

Holan, Mark. "Waterway Projects Earn Favor in Poll." Mobile Register. December 9, 2001.

Jacobs Carter Burgess. Alabama Statewide Transportation Plan. June 2008.

MACTEC Engineering and Consulting, Inc. "City of Spanish Fort Comprehensive Plan 2010-2025." December 2010. Information obtained from the City of Spanish Fort's website: http://www.cityofspanishfort.com/Portals/spanishfort/documents/Spanish%20Fort%20Comp%20Plan%20Approved%20May%209%202011.pdf

Marshall, Mike. "Let's turn the new bridge into a dentation." Mobile Register. June 2, 2013.

Martin Associates. Economic Impact of the Proposed I-10 Bridge on Mobile Shipyard Activity and Port of Mobile Cargo and Cruise Vessel Operations. September 2012.

Mistovich, Tim S., and Vernon James Knight, Jr. 1982. Cultural Resources Survey of Mobile Harbor, Alabama. Prepared by OSM Archaeological Consultants, Inc., Moundville, Alabama. Submitted to U.S. Army Corps of Engineers, Mobile District, Mobile.

Mobile Area Chamber of Commerce. 2007. Railroad lines in Mobile. Information obtained from the Mobile Area Chamber of Commerce website: http://www.mobilebayregion.com/market_access.asp#r

Mobile Area Chamber of Commerce. An Economic Overview of the Mobile Bay Region. 2012. Document obtained from website: http://www.mobilebayregion.com/files/MACC_2012_Economic_Overview_lo.pdf

Mobile Register. "A Gothic Look for Downtown Mobile." December 18, 2001.

Mobile Area Transportation Study. "Environmental Justice Analysis." May 2001.

Mobile Urban Development Department: Long Range Planning Section. City of Mobile Comprehensive Plan. Adopted 1995.

Mooty, Will S. Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 13. U.S. Geological Survey. Water-Resources Investigations Report 88-4080. 1988.

National Cooperative Highway Research Program. 2001. Report 463: "Economic Implications of Congestion."

Omenhiser, Carly. "Area ranked as top micropolitan in state." Southeastern Sun. June 4, 2012.

Reilly, Ned M., ed. 1955. "Mr. Dunlap Named to Receive Honorary Degree at Spring Hill College Annual Commencement." Fore & Aft 26(19):1.

Sanborn Insurance Maps. Various years. Copies on file at the Center for Archaeological Studies, University of South Alabama, Mobile.

Scribner, Christopher MacGregor. 2001. "Progress versus Tradition in Mobile, 1900-1920." "In Mobile: The New History of Alabama's First City". Michael V.R. Thomason, ed., pp. 155-180. University of Alabama Press, Tuscaloosa.

Shorter, George W., Jr., and Sarah B. Mattics. 2007. Archaeological Excavations at the Mobile Public Library, Main Branch (Site 1MB376), Mobile, Alabama. Report submitted by the Center for Archaeological Studies, University of South Alabama, Mobile, to Holmes & Holmes Architects and Mobile Public Library, Mobile.

State of Alabama Soil & Water Conservation Committee. Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas. March 2009. Information obtained from website: http://swcc.alabama.gov/pages/erosion_handbook.aspx

South Alabama Regional Planning Commission. "2035 Long Range Plan". Adopted February 24, 2010, as amended October 27, 2010. Downloaded from the SARPC website: www.mobilempo.org/longrangeplan.html

South Alabama Regional Planning Commission. Mobile Area Transportation Study/Metropolitan Planning Organizations FY2012-2016 Transportation Improvement Program. Adopted August 10, 2011, as amended July 9, 2012. Downloaded from the SARPC website: http://www.mobilempo.org/PDFs/MOBILE%20TIP%20FY%202012-2016_Aug_27_12.pdf

South Alabama Regional Planning Commission. "Preparing Daphne for the Future, A Comprehensive Plan 2000-2020." Adopted June 26, 2003. Information obtained from the City of Daphne's website: http://www.daphneal.com/wp-content/uploads/2011/03/ComprehensivePlan-Daphne.pdf

South Alabama Regional Planning Commission. CommuteSmart. Information obtained from SARPC website: http://www.mobilempo.org/commutesmart.html

Talbot, George. "Airbus Mobile: It's official – big jet will be manufactured in Alabama." July 2, 2012.

Texas Transportation Institute. 2009. Urban Mobility Report.

Thompson Engineering. Environmental Assessment for the Mobile Waterfront Terminal Facility, Mobile, Alabama. June 2001.

Transportation Research Board. 2010. Highway Capacity Manual.

US Army Corps of Engineers. 2010. Transportation Analysis for Alabama Hurricane Evacuations.

US Census Bureau. 2012. Preliminary Estimate of Weighted Average Poverty Thresholds for 2012. Information obtained from website: http://www.census.gov/hhes/www/poverty/data/threshld/index.html/

US Census Bureau. Commuting/Place of Work/Travel Time. Information obtained from the US Census Bureau website: http://www.census.gov/hhes/commuting/data/commuting.html

US Census Bureau. 100 Fastest Growing Counties in the United States. 2010-2011. Downloaded from website. http://www.census.gov/popest/data/counties/totals/2011/

US Census Bureau. Population Data. Information downloaded from website. http://quickfacts.census.gov/qfd/states/01000.html

US Environmental Protection Agency. "The Green Book Nonattainment Areas for Criteria Pollutants." July 31, 2013. Information obtained from website: http://www.epa.gov/airquality/greenbook/

US Environmental Protection Agency. "Particulate Matter." Information obtained from the USEPA website: http://www.epa.gov/air/particlepollution

US Environmental Protection Agency. "Guideline for Modeling Carbon Monoxide from Roadway Intersections." November 1992.

US Environmental Protection Agency. "Integrated Risk Information Systems (IRIS)." Information obtained from USEPA website. http://www.epa.gov/iris

US Environmental Protection Agency. "Risk Assessment." Information obtained from USEPA website. http://www.epa.gov/risk/basicinformation.htm#g

US Fish and Wildlife Services/National Marine Fisheries Service. "Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Gulf sturgeon; Final Rule." 50 CFR, Parts 17 and 226. March 19, 2003.

US Department of Health and Human Services. Information obtained from HUD website: http://aspe.hhs.gov/poverty/12poverty.shtml

US Department of Labor. Bureau of Labor Statistics. *County and Employment Wages*. News Release. May 2009.

USS Alabama Battleship. 2013. Information obtained from the USS Alabama Battleship website: http://www.ussalabama.com/press.php?press=143

Volkert & Associates. Environmental Assessment I-10 Mobile River Bridge and Bayway Widening, Mobile and Baldwin Counties. June 9, 2003.

Volkert & Associates. Feasibility Study for a Mobile River I-10 Bridge. November 1997.

Volkert & Associates. Wetland Determination and Submerged Aquatic Vegetation Survey. 2001.

Volkert & Associates. "USFWS Field Review of Pinto Pass for Mobile River I-10 Bridge Alternatives." April 5, 2006.

Wilbur Smith Associates. The National I-10 Freight Corridor Study. May 2003.